Unofficial translation of authority decision of 78-140/2016

BARANYA COUNTY
GOVERNMENT OFFICE

Ref: 78-140/2016	**Re:**	Environmental permit for MVM Paks II. Atomerőmű Fejlesztő Zrt. for the new nuclear power plant units planned at the sites identified by lot numbers 8803/16 and 8803/17 at the premises of the Paks Nuclear Power Plant, Paks
Desk officer: Tibor Emesz dr. Ferenc Jeges-Varga		
Phone: 72-567-146	**Annexes:**	Te, L, R

DECISION

I hereby issue to **MVM Paks II. Atomerőmű Fejlesztő Zrt.** (head office: 7030 Paks, Gagarin u. 1. 3. emelet 302/B.: hereinafter referred to as Developer) an

environmental license

to construct and operate two new nuclear power plant units at the site identified by lot numbers 8803/16 and 8803/17 at 7031 Paks on the basis of an environmental impact assessment study prepared by MVM ERBE Zrt. (1117 Budapest, Budafoki út 95., hereinafter: Author) and submitted by Developer under the title "MVM Paks II. Zrt Implementation of New Nuclear Power Plant Units at the Paks Site" (hereinafter referred to as Environmental Impact Assessment Study, EIAS) and on the basis of additional documents filed during the environmental impact analysis, and instruct the Developer to comply with the procedures laid down in Chapter II.

I.
Parameters of the planned use of the environment, characteristic data of the facility and the operation

1. Data of the Developer

1.1. Name:	MVM Paks II. Atomerőmű Fejlesztő Zrt.
1.2. Head Office:	7030 Paks, 1 Gagarin Street, 3. floor 302/B.
1.3. Statistical code:	24086954-4222-114-17
1.4. Environmental Client Code:	103 073 275

2. Data of the facility

2.1. Description:	Generation 3+ nuclear power plant
2.2. Location:	Lots 8803/16 and 8803/17 at Paks

2.3. EOV (uniform projection of the country) coordinates (barycentric):

X: 136 400 Y: 634 950

2.4. Environmental Area Code: 102 386 232

3. Purpose of the Activity

3.1. Developer constructs two generation 3+ nuclear power plant units of 1200 MW_e nominal electric and 3200 MW_{th} thermal capacity each, rated also to supply heat at 300 MW_{th} nominal capacity for district heating, in order to produce electricity for commercial use.

3.2. 400 kV transmission lines will be constructed along separate sets of poles for each unit to deliver the electricity produced at the two new nuclear power plant units to Paks I and Paks II substations. Also, to supply backup electricity to the two new units separate 132 kV transmission lines will be constructed for each unit branching off from substations Paks I and Paks II.

(Additional data relating to the activity are set out in ***Annex Te***.)

II.
Requirements relating to the Activity

1. Environmental and Nature Protection Requirements

1.1. Requirements relating to establishment

Clean Air Protection Requirements

1.1.1. Diffuse dust emissions from demolishing, grading, foundation and construction (hereinafter referred to as establishment) jobs associated with the 400 kV unit lines and the 132 kV transmission lines and the new nuclear power plant units shall be minimised through technical measures. Air pollution in excess of the air quality limit values specified in Annex 1 of Ministerial Decree 4/2011 (I. 14.) VM on Air Pollution Thresholds and Emissions Ceilings for Located Air Pollutant Point Sources (hereinafter: VMH Decree) shall not be generated during the establishment.

1.1.2. During construction, transported materials with the propensity to scatter or emit dust must be covered in order to prevent dust pollution.

1.1.3. In order to control non-radioactive air pollution from construction during establishment, an accredited measurement organisation must be contracted to take air quality measurements at the following measurement points:

- at a single point near the residential properties along Highway No. 6 in the settlement of Paks-Csámpa
- at a single point on the left bank of the Danube
- at a single point in the vicinity of Kölesdi Street in the town of Paks

Components to be measured and measurement frequencies:

- Continuous monitoring of the concentration of nitrogen dioxide ($N0_2$), nitrogen

oxides (NO_x), carbon monoxide (CO) integrated for an average period of one hour during the measurement periods.

Duration of measurements at each measurement point: 14 days, twice in each season, a total of 8 occasions per year (8 x 14 days)

- Measuring the fraction of particulate matter below 10 μm (PM_{10}), total suspended particulate matter (TSPM), applying 24-hour exposure time and periodical active measurement technique.

Duration of measurements at each measurement point: 14 days, twice in each season, a total of 8 occasions per year (8 x 14 days)

- Continuous monitoring of ozone (O_3) concentration integrated for an average period of one hour with analyser installed in mobile measurement station.

Duration of measurements at each measurement point: 14 days, twice in each season, a total of 8 occasions per year (8 x 14 days)

- Measurement of settling dust (SD) with passive measurement techniques.

Duration of measurements at each measurement point: 30 days, once in each season, a total of 4 occasions per year (4 x 30 days)

Parallel with air pollution measurements, weather parameters (including temperature, humidity, wind velocity and direction) shall be measured and recorded hourly.

1.1.4. Occurrence of extraordinary air pollution must be prevented by adherence to technological requirements, averting and avoiding abnormal operating conditions.

1.1.5. In case extraordinary pollution occurs, all necessary measures shall be taken without delay to stop pollution and the Baranya County Government Office (hereinafter: Government Office) shall be notified.

1.1.6. The licence application for installation of the point sources of pollution listed in ***Annex L*** related the planned 16 diesel generators ***shall be submitted*** to the Government Office ***90 days prior to the installation of point sources***. The installation of diesel generators may not be started before receiving the final and effective air pollution installation license.

Noise protection requirements

1.1.7. Measures need to be taken during demolition prior to construction, construction at the premises of the plant and the construction of power lines to ensure on a continuous basis that the noise exposure limits set in a separate regulation for noise generated by construction activities lasting more than a year are met.

1.1.8. The envisaged facilities of the nuclear power plant shall be implemented in a manner to ensure that exposure to noise and vibration in protected areas, buildings and premises complies with the relevant noise and vibration requirements, and, if it is necessary for the purpose of meeting the limit values, the noise protection measures recommended in the EIAS need to be put in place before the units are commissioned.

1.1.9. In case compliance with the requirements imposed by legal regulations is not possible otherwise, public road transports related to the construction works need to be performed exclusively during daytime (between 6 a.m. and 10 p.m.).

1.1.10. The transport routes relating to the activity need to be selected in a manner to minimise their impact zone by avoiding, if possible, populated areas in the region.

1.1.11. A noise protection plan needs to be prepared to addressing noise pollution caused by transportation relating to the establishment activities (covering the critical points among material extraction sites and the construction site) and construction work, and the plan shall be submitted at the Government Office. The noise protection plan must cover the technical and work organisation measures needed to comply with permitted noise pollution limit values in protected buildings, areas and premises. The level of noise pollution caused by overnight transport shall also be presented.

Deadline: Simultaneously with the submission of the construction licence application of the units to the Hungarian Atomic Energy Authority or the related application to the Government Office for issuing a preliminary position statement in its capacity of special authority.

Requirements relating to protection against heat pollution:

1.1.12. In order to control and track compliance with the 30°C temperature limit value in the section of the Danube located 500 metres downstream from the point where warmed cooling water is discharged (hereinafter: Reference Section), a procedure for providing regular measurement opportunities and a system of monitoring water temperature with measured values accessible for the Government Office (hereinafter collectively: Temperature Limit Monitoring System) need to be elaborated and the related documentation shall be submitted to the Government Office for its approval. The documentation shall contain the detailed process of taking and documenting additional extraordinary series of measurements performed in the Reference Section during periods when the background water temperature of the Danube surpasses 25°C.

Deadline: Simultaneously with the submission of the construction licence application of the new units to the Hungarian Atomic Energy Authority for or the related application to the Government Office for issuing a preliminary position statement in its capacity of special authority.

1.1.13. In order to protect the Danube from heat pollution, a conceptual plan (hereinafter referred to as Conceptual Plan) of limitations necessary to prevent limit value excesses during the operation of the new nuclear power plant *[including the load reduction (decreasing the electric capacity of the units), shutting down units, scheduled maintenance of units and additional secondary cooling]* needs to be developed and submitted to the Government Office for its approval.

Deadline: Simultaneously with the submission of the construction licence

application of the new units to the Hungarian Atomic Energy Authority for or the related application to the Government Office for issuing a preliminary position statement in its capacity of special authority.

Requirements regarding environmental radiation protection

1.1.14. The establishment of the new nuclear power plant units may not influence adversely the radioactive emissions of the currently operational Paks Nuclear Power Plant operated by MVM Paksi Atomerőmű Zrt. (hereinafter: MVM PA Zrt.) and the Interim Spent Fuel Storage Facility (hereinafter: ISFS) operated by Radioaktív Hulladékokat Kezelő Közhasznú Nonprofit Kft. (hereinafter: RHK Kft.) and the ability to comply with the limit values applicable to such emissions and the supervision of the emissions from and the environment of existing plant facilities as permitted.

1.1.15. Documentation presenting the design requirements relating to radioactive isotopes and radioactive substances discharged and environmental monitoring during normal operations shall be elaborated in accordance with Section 5(1) of Ministerial Decree 15/2001 (VI.6.) KöM by the Minister for Environment on radioactive discharges to the atmosphere and into waters during the use of atomic energy and on monitoring of the discharge (hereinafter referred to as KöMr.) and shall be submitted to the Government Office. .

Deadline: Simultaneously with the submission of the construction licence application of the units to the Hungarian Atomic Energy Authority for or the related application to the Government Office for issuing a preliminary position statement in its capacity of special authority

1.1.16. Revision and update of the design requirements applicable to radioactive isotopes and radioactive substances discharged during normal operations shall be performed and the related documentation shall be submitted to the Government Office.

Deadline: Simultaneously with the submission of the commission licence application of the new units to the Hungarian Atomic Energy Authority or the related application to the Government Office for issuing a preliminary position statement in its capacity of special authority.

1.1.17. A monitoring system suitable for identifying the radioactive discharges from the new nuclear power plant units and for controlling the environmental consequences of such discharges, developed on the basis of Annexes 4 and 5 of the KöMr. shall be put in place and the Discharge and Environmental Monitoring Regulations presenting the above shall be submitted to the Government Office for its approval.

Deadline: Simultaneously with submitting an application to the Hungarian Atomic Energy Authority for construction licenses of the units or the related application to the Government Office for issuing a preliminary position statement in its capacity of special authority.

Landscape and Nature Protection Requirements

1.1.18. In order to protect the values of nature and to save protected species of flora and fauna as well as the Natura 2000 network (indicative habitats and species), a detailed schedule of planned works must be prepared. This plan must cover in particular but not limited to an accurate and detailed schedule of the establishment works, the accurate location of material extraction sites, material handling, planned spoil areas and an accurate site plan of interventions affecting Natura 2000 site. The vegetation cycle of the flora and fauna shall be taken into account along with temporal and spatial limitations (vegetation time, mating, nesting and nurturing the young, fish during winter dormancy, bats mating, etc.)

Deadline: At the latest 90 days before any establishment work carried out affecting the actual work site.

1.1.19. ***Establishment work*** in Natura 2000 territory ***shall only be performed outside the vegetation period from 1 October to 1 March.*** Before starting tree-felling, a joint survey must be conducted with the Directorate of the Danube-Drava National Park (hereinafter: DDDNP) to detect in the area any protected animal species with living habits (dwelling places, habitats, places of feeding, nesting, resting or hiding) associated with trees concerned. In case the presence of protected species (such as bats) can be verified, tree-felling shall only be commenced after protection is ensured for these animals (e.g. after the mating season of bats, at the end of autumn).

1.1.20. Continuous consultation shall be carried out with the DDDNP in its nature protection manager capacity during the full period of works affecting the Natura 2000 site. Before starting establishment work along the affected section of (in the bank region of) the Danube riverside, bottom-dwelling, macroscopic invertebrate aquatic creatures shall be surveyed. Based on these surveys – in coordination with the DDDNP –, recommendations shall to be developed for their protection. After consultations, the minutes thereof shall be sent to the Government Office.

1.1.21. Saving protected animal and plant species shall be a priority during the establishment works. In case it becomes necessary to relocate protected animal or plant species, a permit shall be obtained from the Government Office. Saving nature protected bats present in the area shall be a top priority during the works.

1.1.22. Obliteration of the flora shall be limited to the bare minimum necessary during the works and the use of riverside land along the Danube, which is part of the Natura 2000 network shall be minimised to the possible extent. Obliteration of woody plants outside the area of the Natura 2000 network shall be performed outside the vegetation period, if possible. Before establishment works, measures shall be taken to accord protection to protected animal and plant species.

1.1.23. During establishment work, the use of materials, which are alien to the nature or the landscape concerned (paving the river bed, stabilising the banks), shall be minimised

to the possible extent.

1.1.24. During establishment work, the site shall be maintained continuously in order to avoid the formation of stagnant waters for longer periods, because these attract amphibians and function as ecological traps.

1.1.25. In order to reduce light pollution, due attention shall be accorded to the orientation of light sources at night, so that they face the interior of the work area if possible.

1.1.26. Establishment work must be performed in a manner that disturbs the flora and fauna to the least possible extent and any damage (treading, pollution, etc.) to the living environment shall be minimised. During tree-felling and establishment works, the movement of machinery and the supply of materials shall be restricted to the area affected by land use. During land use and grading, all efforts shall be made to save as much green area as possible and to form a mosaic of close to natural patches that offer nourishment or hiding places to several species even during the establishment phase.

1.1.27. Pollution shall be avoided and the area concerned shall be saved and safeguarded by keeping the machinery operated at the construction site in good technical condition. Major maintenance or repair work shall not be performed in Natura 2000 site.

1.1.28. In case protected animal species are harmed or become threatened during establishment, DDDNP in its nature protection manager capacity and the Government Office shall be notified immediately. Steps must be taken to safeguard, save and provide care to the animal(s) until the competent person arrives.

1.1.29. The selection of material extraction points shall be coordinated with the directorate of the competent national park, such points shall not affect the sites belong to the Natura 2000 network and the habitats of protected species.

1.1.30. Envisaged overhead electric transmission lines must be of bird-friendly design.

1.1.31. Individuals of the protected *Corispermum canescens*, *Corispermum nitidum* and *Dianthus serotinus* shall be saved at their original location along the route of overhead electric transmission lines, these areas shall be marked and cordoned off during the construction period. Seeds from *Stipa* species with feathered needles shall be collected and documented ***in the year before the overhead power lines are constructed*** (at least 10% of the seed stock shall be collected), and the seeds shall be dispersed without feathered needles along the route of the overhead transmission lines in a band not affected by the activity to ensure a richer store of propagules for resettlement. A nature conservation permit shall be obtained from the Government Office for the collection of protected plants and their seeds.

1.1.32. The methods and technologies of preventing invasive plant species from spreading shall be developed during the preparation of the schedule of the establishment. All efforts shall be made to remove invasive species from the design area even during

the constructions.

1.1.33. If protected or highly protected animals (such as the European bee-eater) appear on the surface of the earth heaped up in the construction and erection area, in riverbank walls and explicitly use those locations for brooding (they dig holes for brooding), the Government Office and the DDDNP shall be notified immediately and the protected animals shall be saved (such as by cordoning off, eliminating disturbance, etc.)

1.1.34. Logging the white willow and poplar park forest in the area called "Sziget" (island) between the two channels ***may be performed outside the vegetation and nesting period between 1 October and 1 March***. Before work starts, measures shall be taken to save protected animal species (such as bats, mammals, birds, reptiles, etc.) by relocation if necessary.

1.2. Requirements relating to operation

Noise protection requirements

1.2.1. While the units are operational standard measurements shall be performed to verify compliance with the limit values set forth in a separate legal regulation on noise pollution from plant and machinery and the impact area of noise protection of the facility shall be presented based on the results of these measurements. The noise survey documentation shall be sent to the Government Office.

Deadline: Simultaneously with the submission of the operation licence application of the new units to the Hungarian Atomic Energy Authority or the related application to the Government Office for issuing a preliminary position statement in its capacity of special authority.

1.2.2. In case measurement results verify that the impact area covers properties that are to be protected from noise pollution, an application in accordance with separate legal resolution shall be submitted to the Government Office in order to determine the noise emission limit values.

1.2.3. Uninterrupted compliance shall be ensured with the limit values set forth in a separate legal regulation on noise pollution from plant and machinery and with the limit values determined in a decision if based on the results of the measurements mentioned above noise pollution limit values shall to be determined.

Requirements relating to protection against heat pollution:

In order to protect the Danube from heat pollution:

1.2.4. The temperature difference between discharged and recipient water may not surpass 11°C or 14°C in case the temperature of the recipient is below +4°C.

1.2.5. The temperature of the recipient water shall not surpass 30°C in any segment of the reference section.

1.2.6. To control and monitor compliance with the temperature limit of 30°C in the reference section a Temperature Limit Monitoring System approved by the Government Office shall be operated. The Government Office shall be provided access to the measurement results.

1.2.7. The temperature of cooling water taken from the Danube and the discharged warmed-up cooling water (at the point of discharge) shall be regularly measured. Access shall be provided to the Government Office to daily temperature measurements.

1.2.8. The maximum permitted temperature of the warmed cooling water discharged into the Danube shall not exceed 33°C at the point of discharge.

1.2.9. In case the temperature of the water in the Danube is at or above 25°C at the Paks measurement station according to a daily report issued by the Hungarian Hydrological Forecasting Service, during this period additional measurements shall to be taken in the reference section in order to monitor the compliance with the 30°C temperature limit value. The Government Office shall be allowed to participate in the performance of additional measurements.

1.2.10. In order to protect the Danube from heat pollution and to prevent the excess of temperature limit values, a detailed plan of applying limitation measures (hereinafter: Limitation Plan) shall be developed with reference to the Conceptual Plan approved by the Government Office and shall be submitted to the Government Office for its approval.

Deadline: Simultaneously with the submission of the commission licence application of the new units to the Hungarian Atomic Energy Authority or the related application to the Government Office for issuing a preliminary position statement in its capacity of special authority.

1.2.11. In order to protect the Danube from heat pollution and to prevent the excess of temperature limit values, limitation measures shall be applied during the operation of the nuclear power plant units in line with the Limitation Plan approved by the Government Office.

Requirements regarding environmental radiation protection

1.2.12. The new nuclear power plant units shall be operated in a manner to sustain compliance with the limit values regarding radioactive substances discharged into the air and water set in ***Annex R*** and to meet the criteria of discharge limit values. Discharge limit value criteria shall be calculated as provided in Section 3 of Annex 1 of the KöMr.

1.2.13. Radioactive discharges from the new nuclear power plant units shall be kept as low as reasonable achievable below the permitted limits. Measures shall be taken to

avoid any surges of radioactive discharges.

1.2.14. During operation shall be discharges that surpass planned discharge levels for longer periods shall be avoided.

1.2.15. The background (reference) level of radiation of sub-surface waters below the premises shall be assessed. A report of the assessment shall be submitted to the Government Office.

Deadline: Simultaneously with the submission of the commission licence application of the new units to the Hungarian Atomic Energy Authority or the related application to the Government Office for issuing a preliminary position statement in is capacity of special authority.

1.2.16. In order to monitor the exposure of the flora and fauna to radiation and the accumulation of radioactive isotopes discharged by the new nuclear power plant units in environmental media, a program of sampling and measurements (hereinafter: Measurement Program) shall be developed and submitted to the Government Office for its approval.

Deadline: 3 months before starting the monitoring program.

1.2.17. The approved Measurement Program must be performed every ***5 years***. In order to monitor the exposure of the flora and fauna to radiation, samples shall be collected twice (in spring and autumn) in each measurement year from the sampling sites defined in the Measurement Program and shall be used to perform tritium measurement and gamma spectrometry by taking into account the indicative levels laid down in section 1.5 of Annex 4 and section 4 of Annex 5 of the Decree by the Minister for Environment. A report about the measured results and the related analysis shall be drafted and sent to the Government Office ***by 31 March of the year following the year to date***. The results of gamma spectrometry shall be indicated for each isotope discharged regularly from the new nuclear power plant units.

Deadline: Measurements shall start in the fifth year after the Hungarian Atomic Energy Authority issues the operating licence.

1.2.18. In order to monitor the accumulation in environmental media of radioactive isotopes discharged by the new nuclear power plant units gamma spectrometry of samples collected from the soil and the sediment of the Danube shall be performed at the same points and at identical frequency that are specified in the Measurement Program for monitoring the exposure of the flora and fauna to radiation. A report about measured results and the related analysis shall be drafted and sent to the Government Office ***by 31 March of the year following the year to date***. The results of gamma spectrometry shall be indicated for each isotope regularly discharged from the new nuclear power plant units.

Deadline: Measurements shall start in the fifth year after the Hungarian Atomic Energy Authority issues the operating licence.

1.2.19. Airborne radioactive emissions from the new nuclear power plant units may be discharged exclusively via ventilation stacks and the discharge point of the turbine building into the atmosphere as environmental recipient, whilst the Danube features as a recipient of radioactive fluids discharged exclusively via the warm water channel.

1.2.20. Any pollution of radioactive substances in the sub-surface waters or geological media is forbidden by law therefore, no discharges into such media are allowed to occur.

1.2.21. All appropriate technical and organisational measures shall be taken to prevent discharging radioactive substances through unauthorised routes.

1.2.22. There shall not be other radioactive discharges from the facility than through controlled routes at approved control points, and alternative points or discharge routes are not permitted.

1.2.23. Discharged radioactive substances shall be collected separately from inactive substances in a controllable manner, including additional separation during the collection of process and municipal waters.

1.2.24. Measures shall be taken to ensure that the treatment, collection, storage and final disposal of low, medium and high level radioactive waste generated during the operations are performed safely to prevent contaminating the environment.

1.2.25. Measures shall be taken to ensure that the treatment, storage (for decay, interim storage in pools) and final disposal of spent fuel resulting from the operations are performed safely to prevent contaminating the environment.

1.2.26. A conceptual plan describing the subsequent life and treatment of high level radioactive waste and spent fuel resulting from the operations must be submitted to the Government Office.

Deadline: ***Simultaneously with the submission of the commission licence application of the new units to the Hungarian Atomic Energy Authority or the related application to the Government Office for issuing a preliminary position statement in its capacity of special authority.***

1.2.27. In case spent fuel will be subject to to additional treatment (such as reprocessing), measures shall be taken to ensure that the storage and final disposal of radioactive waste resulted are performed safely to prevent the contamination of the environment.

1.2.28. Radioactive discharges shall be determined and the environmental impacts thereof shall be monitored in compliance with the provisions of the Discharge and Environmental Monitoring Policies approved by the Government Office. The laboratory performing the measurements shall be accredited for running such tests.

1.2.29. Opportunities for regulatory inspection and for the authority to take parallel samples shall be provided during the monitoring of discharges and the environment as provided in KöMr. for Environment and Discharge Monitoring Regulations. The efficient functioning of measurement and sampling systems shall be maintained without interruption during the operation and decommissioning of the new nuclear power plant units.

1.2.30. If, during the monitoring of discharges, nuclide-specific measurements identify the presence of radionuclides originating from the operation of the new nuclear power plant units at a level above detection limit that are not anticipated by the plans (projected discharge levels) of the new nuclear power plant units, such nuclides shall be taken into account during determination of the discharges and shall also be covered by the reports.

1.2.31. Appropriate technical and organisational measures shall be taken to prevent unjustified, unexpected or uncontrolled discharges.

Landscape and Nature Protection Requirements

1.2.32. After erection, the area of site preparation and other areas affected by the erection shall be restored, and proper landscaping of green surfaces and planting of the site shall be ensured.

1.2.33. Once groundwork is completed, due care should be exercised to prevent potentially invasive species to get settled during the intervention into the development of the vegetation. Forward to the above, intervention areas shall be populated with woody plants (tree and/or shrub species) selected from native species that match the landscape and regional characteristics in a manner to prevent vegetation from threatening the technical safety of the facility. During operations, steps must be taken to ensure proper care for planted vegetation and to remove invasive plant species. Planting vegetation in the area of the Natura 2000 network shall be negotiated with the DDDNP.

1.2.34. Saving the Natura 2000 network shall be given high priority during the operation of the units, therefore any additional interventions and measures that may be required need to be negotiated with the entity responsible for management of the nature protection of the area.

1.2.35. The full flora and fauna along a 2 km section downstream from the warm water outlet point on both banks of the Danube covering the area of Natura 2000 designated habitat types ***shall be assessed once every 3 years***. Biological monitoring shall be performed in the manner, at the points of time and at the locations described in the Chapter on "Wildlife and Ecosystems" in the EIAS according to the relevant protocols of the National Monitoring System of Biodiversity (with particular regard to Natura 2000 designated species and habitats). The monitoring report shall be sent to the Government Office and to the Fejér County Government Office along with the

assessment results after completing the analysis.

1.2.36. In case the heat load of the Danube surpasses the limit value, it shall be reduced by applying appropriate nature protection measures in order to protect the flora and fauna of the Danube.

1.2.37. A nature protection action plan shall be developed and sent to the Government Office with view to a drastic change in the flora and fauna at the direct impact area as a consequence of the operations (such as fish mortality in the Danube). Whenever this kind of changes occurs, the Government Office and the competent directorates of national parks shall be notified immediately.
Deadline: Not later than 90 days preceding the start of the operation of the nuclear power plant unit implemented first.

1.2.38. Developer shall develop and submit a plan to the Government Office for the long term management of the environmental impacts affecting the flora and fauna in the habitat of the former white willow and poplar park forest, which had been cleared, in the area called "Sziget" between the two channels. The plan shall cover the actions and recommendations of the Developer to replace the cleared habitat and shall include a list of habitat types and species.
Deadline: Not later than 90 days before the clearing starts.

1.2.39. A recultivation and development program (compensatory measures) shall be performed which is proportionate to and repairs the adverse effects of the loss of habitats in the Natura 2000 area. As part of the compensatory measures, an area of 0.8 hectares that is suitable to restore or create the habitat type (white willow and poplar floodplain forest) of priority community importance marked 91E0 in Section 9 of Annex 4 B) of Government Decree 275/2004 (X. 8.) on nature protection sites of Community importance (hereinafter: Conservation Decree) shall be designated.. The Government Office shall be informed in writing about the designation of the area and the completed form (presented in Annex 8 of the Conservation Decree) showing the specific countervailing measures shall be sent to the Government Office.
Deadline: In 6 months after the effective date of this Licence.

1.3. Common requirements regarding establishment and operation

Requirements concerning the generation and treatment of waste

1.3.1. In line with the effective legal provisions as amended from time to time, collection sites at workplaces and across the plant shall be established and operated for the waste generated during the establishment and the operation of the units.

1.3.2. Measures shall be taken to ensure that waste generated during the establishment and the operation of the units (including any excavated earth, provided it is not used for landscaping purposes at the project site) gets recycled or properly disposed. In case of hand-over, it shall be verified that the entity managing wastes holds a waste

management permit.

Vibration protection requirements

1.3.3. As regards the people in buildings to be protected from environmental vibration in the vicinity of the facility, compliance with the legally prescribed limit values of exposure to vibration shall be ensured during both establishment and operation.

Landscape and Nature Protection Requirements

1.3.4. In order to protect the flora and fauna of the Danube, pollution of the Danube shall be avoided during construction and operation. To save the flora and fauna, measures shall be taken to prevent discharging oil, lubricants and fuels on or into the ground or into surface or ground waters.

1.3.5. In case of an incidents affecting either dry land areas or the Danube, the Government Office and the entity responsible for nature protection in the area [DDDNP in Tolna County and the Directorate of Kiskunság National Park (hereinafter referred to as DKNP) in Bács-Kiskun County] must be notified forthwith and environmental remediation shall be started without delay. If pollution affects the Danube, both DDDNP and DKNP shall be notified.

1.3.6. To prevent and halt the proliferation of invasive species, it is necessary to mow the grassy embankments regularly even during lengthy establishment and in the operation phase. To achieve that, mowing shall be performed at least twice a year (in early June and in August in line with the cropping period of specific species) until stable turf stocks develop to prevent potential specimens of certain invasive plants from bearing crop and proliferating.

1.3.7. The use of pesticides shall be avoided so as to promote the resettlement of as many invertebrate species as possible after the end of the establishment.

1.3.8. Birds species need to be monitored annually in the vicinity of areas affected by logging, and, if necessary, nest boxes (of a type matching the species) shall be placed primarily in the uninterrupted woodland standing on the protected side to promote the resettlement of birds.

1.4. Requirements concerning discontinuance

An independent environmental impact study assessing the environmental consequences of discontinuing the activity and decommissioning shall be prepared and enclosed with the application submitted to the Government Office for the environment protection licence concerning discontinuance and decommissioning to support the shutdown of the units.

1.5 Supplying data, notification and reporting

Requirements concerning the generation and treatment of waste

1.5.1. Records shall be kept of wastes generated during the establishment and operation as required by effective legal regulations, as amended from time to time, and data shall be reported to the Government Office at the frequency specified in a separate legal regulation.

Clean air protection requirements

1.5.2. The results of air quality measurements taken during construction to monitor non-radioactive air pollution shall be sent along with related analysis to the Government Office ***by 28 February of the year following the measurement date***.

Noise and vibration protection requirements

1.5.3. Any changes in the area of the source and impact area of noise that influences the degree and the attainment of limit values shall be reported to the Government Office on a submission form in line with the procedure laid down in a separate legal regulation with***in a period of 30 days after the change occurs***.

Requirements relating to protection against heat pollution

1.5.4. If the temperature of the water in the Danube is at or above 25°C at the Paks measurement station, the Government Office shall be notified in writing within ***4 hours of the detection***.

1.5.5. In case limitation measures are taken to protect the Danube from heat pollution, the Government Office shall be notified in writing ***immediately after the limitation measures are introduced***. An extraordinary report covering the content specified in the Limitation Plan shall be prepared to present the implementation and effectiveness of the limitations and it shall be sent to the Government Office with***in a period of 8 days after the limitation measures are introduced.***

1.5 6. The collected water temperature measurement data in connection with the protection against heat pollution shall be sent to the Government Office in ***a period of 15 days after the quarter to which they refer***.

1.5.7. If the temperature of the water in the Danube is at 25°C at the Paks measurement station, additional temperature measurement series shall be performed in the reference section and the results shall be sent to the Government Office ***immediately after the measurements are completed***.

Requirements regarding environmental radiation protection

1.5.8. The annual schedule of operations shall be reported to the Government Office in writing in advance ***by 15 December of the preceding year*** along with discharges, the monitoring thereof and any planned events and measures influencing the environmental control.

1.5.9. An annual report shall be prepared and sent to the Government Office by ***31 March***

of the following year about the details of radiological monitoring of discharges and the environment (including monitoring procedures, sampling, methods of measurement, evaluation of measured results, improvement measures, etc.), in compliance with discharge limit values and the fulfilment of discharge limit value criteria.

1.5.10. A quarterly report shall be prepared and sent to the Government Office within ***45 days after the actual quarter*** about the results of radiological monitoring of discharges and the environment (including monitoring procedures, sampling, methods of measurement techniques, evaluation of the measured results, improvement measures, etc.).

1.5.11. Any deviation from normal operations, particularly deviation that lead to discharges surpass or are expected to exceed three tenth of the discharge limit value or the discharge investigation criterion shall be reported immediately in writing to the Government Office.

1.5.12. All events that trigger or are expected to trigger unreasonable, unexpected or uncontrolled radioactive discharges, environmental pollution or cause or are expected to cause discharge and environmental control systems to fail or render or are expected to render them unusable shall be reported.

2. Forest protection requirements:

2.1. As the planned site of the new Paks II substation, including planned trail of unit lines and reserve supply lines, affects woodland, work shall only be started in possession of ***a valid permit to use woodland***, as specified in Sections 77-84 of Act XXXVII of 2009 on Forests, Forest Protection and Forest Management (hereinafter referred to as Forest Act). In the absence of a permit, such activities qualify as ***unlicensed land use***. Applicants submitting applications for a permit to use woodland to the Forest Authority should take into account the requirements laid down in Sections 54-58 of Decree 153/2009 (XI.13.) FVM on implementing the Forest Act (hereinafter referred to as Implementing Decree).

2.2. Section 41(1) of the Forest Act provides that any ***logging*** that is necessary in connection with land use in woodlands subject to a forest schedule requires preliminary notification of the Forest Authority following the modification of the forest plan.

2.3. No surrounding forest areas are allowed to be used during establishment (for site preparation, storage, transportation, etc.). No construction materials, pollutants or spoil areas are allowed to be located in a forest. Any movement or material handling in or transportation across forests shall be done on existing exploration routes and with the permission of the forest manager.

3. Decisions issued by special authorities:

3.1. The ***Chief State Architect of the Office of Architecture and Heritage Protection at the Baranya County Government Office*** granted the following consent in its position statement BAD/15/73-2/2015 as regards compliance with land use plans:
"As the new nuclear power plant units discussed in the documentation are in accordance with the applicable land use plans, thus ***there is no reason for preclusion that may arise concerning the administrative area covered by point 12 of Annex 5 of Government Decree 481/2013 (XII. 17.).****"*

3.2. The **Pécs Mining Authority** granted its consent unconditionally in its position statement PBK/512-2/2015 concerning mine administration.

3.3. The **Forestry Directorate of the Bács-Kiskun County Government Office** granted its consent unconditionally to issuing an environmental license in its position statement BKG/001/3505-3/2015 concerning forest protection.

3.4. The **Hungarian Atomic Energy Authority** granted its consent unconditionally in its position statement OAH-2015-00509-0044/2016 concerning the administrative questions relating to the safe use of atomic energy and the prevention of nuclear accidents.

3.5. The **Body responsible for Public Health Administration at the Tolna County Government Office** granted its consent unconditionally to issuing an environmental licence in its decision of TOR/084/00440-2/2015 regarding public health.

3.6. The **Directorate of Plant Protection and Soil Conservation at the Tolna County Government Office** granted the following consent in its decsiion of TOF/53/91-2/2015 from the perspective of soil protection:
"The submitted documentation is appropriate from the perspective of soil conservation, the environmental licence may be issued."

3.7. The **Body responsible for Public Health Administration at the Bács-Kiskun County Government Office** set the following conditions for granting its consent to issuing an environmental licence in its decision BKR/001/00771-2/2015 regarding public health:

3.7.1. "Activities involving hazardous substances and mixtures shall be performed in a manner that prevents health, safety and physical integrity threats as well as polluting or harming the environment."

3.7.2. "The collection of hazardous wastes generated by the operation shall be performed in a manner to preclude public health risks and environmental pollution."

3.8. The **District Office of Architecture and Heritage Protection of the Szekszárd District Office of the Tolna County Government Office** granted its consent unconditionally in its decision of TO-04D/40/453-2/2015 from the perspective of heritage protection.

3.9. The **Land Registry of the Paks District Office of the Tolna County Government**

Office terminated the special administrative proceedings by decision of 10.129/2015.

3.10. The **Fejér County Directorate of Disaster Management** granted its consent by decision of. No. 35700/9422-5/2016. regarding water management and water protection with the following requirements:

"

3.10.1. The envisaged water related facilities shall only be implemented in possession of valid water establishment license.

3.10.2. Determining discharge limit values:

3.10.2.1. The pollutant concentration of municipal waste waters discharged into the sewer and waste water treatment system of MVM Paksi Atomerőmű Zrt. shall not surpass the following thresholds:

Number	***Description***	***Threshold***
1.	*pH*	*6.5-10*
	Pollutants	*Limit value [mg/l]*
Number	***Description***	***Threshold***
2.	*Oxygen demand using dichromate (COD_{cr})*	*1000*
3.	*Biochemical oxygen demand (BOD_5)*	*500*
4.	*Total nitrogen*	*150*
5.	*Ammoniac-ammonium-nitrogen*	*100*
6.	*10' settling solids*	*150*
7.	*Total phosphorous*	*20*
8.	*Organic solvent extract*	*50*

Pollutants in the waste waters discharged into the sewer system other than the typical components of the discharges mentioned above are subject to the thresholds prescribed as discharge limit values for public sewers in the effective water protection regulations.

3.10.2.2. The quality of used and waste waters discharged into the Danube through the warm water channel shall at all times comply with the following limit values:

Number	***Description***	***Discharge limit value (Recipients of general protection category)***
1.	*pH*	*6-9.5*
	Pollutants	*Limit value [mg/l]*
2.	*Oxygen demand using dichromate (COD_{cr})*	*150*
3.	*Biochemical oxygen demand (BOD_5)*	*50*
4.	*Total nitrogen*	*55*
5.	*Ammoniac-ammonium-nitrogen*	*20*

6.	*Total suspended matter*	*200*
7.	*Total phosphorous*	*10*
8.	*Organic solvent extract (oils, greases)*	*10*
9.	*Total iron*	*20*
10.	*Total manganese*	*5*
11.	*Fluorides*	*20*
	Hazardous and toxic substances	*Limit value [mg/l]*
12.	*Total copper*	*2*
13.	*Total silver*	*0.1*
14.	*Total mercury*	*0.01*
15.	*Total zinc*	*5*
16.	*Total cadmium*	*0.05*
17.	*Total cobalt*	*1*
18.	*Total nickel*	*1*
19.	*Total arsenic*	*0.5*
20.	*Molybdenum*	*0.3*
21.	*Total barium*	*0.5*
22.	*Total chromium*	*1*
23.	*Total lead*	*0.2*
24.	*Total tin*	*0.5*

3.10.2.3. I hereby establish the following discharge limit values for purified rainwater taken off from oil trapping engineering structures and ground waters pumped and drained off during construction:

Number	***Description***	***Discharge limit value (Recipients of general protection category)***
1.	*pH*	*6-9.5*
	Pollutants	*Limit value [mg/l]*
2.	*Oxygen demand using dichromate (COD_{cr})*	*150*
3.	*Total suspended matter*	*200*
4.	*Organic solvent extract*	*10*

3.10.3. Waters containing pollutants at levels above the discharge limit values laid down in section 1.2. of my position statement (Permit II/3.10.2.) shall not be discharged into the Danube even in case of emergency.

3.10.4. The emergency basins at the station for unloading and storing chemicals and around transformers shall be constructed with such capacity that the full volume of substances to be stored can be filled in. Emergency basins shall be watertight and oilproof.

3.10.5. A monitoring/control system and sampling locations shall be constructed and operated to track the impact of the activity on surface and sub-surface waters.

3.10.6. The construction and operation of the new power plant units and the related facilities shall not affect the travel of flood waves. The activity may be pursued in compliance with the high-water river basin management plan.

3.10.7. The activity shall not affect water transport adversely.

3.10.8. The planning documentation for the water rights establishment license must cover a detailed analysis of navigation conditions and any planned interventions developed in an awareness of such conditions.

3.10.9. In order to control and to be able to manage the consequences of discharges, a monitoring system performing continuous measurements at reference points shall be implemented. Access to the results obtained from operating the monitoring system about the impact on water quality and the ecological status of the Danube shall be provided for the asset manager of the Danube River."

3.11. The **Bács-Kiskun County Disaster Management Directorate** issued its consent by its decision of No. 35300/3261-4/2016. rectified by decision of No. 35300/3261-6/2016. on water management and water protection with the following terms and conditions:

"

3.11.1. Pumping water from and discharging used and waste waters into the Danube River shall only be started in possession of a valid water establishment license.

3.11.2. Water establishment license application shall include the followings:

3.11.2.1 the mandatory content required by Ministerial Decree 18/1996 (VI. 13.) KHVM on the application and annexes to be submitted for water rights consent procedures, taking into account Annex 3 of Government Decree 220/2004 (VII.21.) on the protection of surface waters (Surface Waters Decree), the environmental goals set in the watershed management plan of Hungary and promulgated once again in Government Decision 1155/2016 (III.31.) and to environmental and water quality limit values determined in Ministerial Decree 10/2010 (VIII.18.) VM on the pollution limit values of surface waters and the related rules of application.

3.11.2.2 the approval of the body responsible for the water management of the Danube River (Lower Danube Valley Water Management Directorate of Baja).

3.11.2.3. the designs of sampling locations at the outlet of the new warm water channel planned to be established.

3.11.2.4 the analysis of the opportunity to establish a buffer reservoir at the sewage treatment plant in preparation for potential emergencies.

3.11.2.5. the requirements provided in the statements made during domestic legal assistance by the Lower Danube Valley Water Management

Directorate in its capacity as the water manager of the Danube River:

3.11.2.5.1. In order to control and to be able to manage the consequences of the releases, a monitoring system performing continuous measurements at reference points shall be implemented. Access to the results obtained from operating the monitoring system about the impact on water quality and the ecological status of the Danube shall be provided for the asset manager of the Danube River. Section 1 of the documentation clarifying the facts does not address the type of the envisaged monitoring system, i.e. it fails to assert whether or not it will perform continuous measurements.

3.11.2.5.2. Hungary's Watershed Management Plan harmonises with the EU Water Framework Directive in that it set out to improve and maintain the status of waters, and these objectives shall be considered and respected also during this procedure.

3.11.2.5.3 A detailed analysis of navigation conditions and the elaboration of interventions planned in the light of such conditions.

3.11.3. Users of water (including discharging entities) shall contribute to achieving and maintaining the good status of the surface water body (Danube River) and to reach good ecological potential of heavily modified water bodies by complying with the relevant requirements of Government Decree 220/2004 (VII.21.) on protecting surface waters and Act LIII of 1995 on the General Rules of Protecting the Environment (hereinafter referred to as EP Act).

3.11.4. In order to achieve and maintain the good status of the surface water body (Danube River), the environmental objectives specified in respect of water pollutants in Hungary's Watershed Management Plan, promulgated by Government Decision 1155/2016 (III.31.), as well as the environmental and water quality limit values laid down in Ministerial Decree 10/2010 (VIII.18.) VM on the pollution limit values of surface waters and the related rules of application shall be taken into account during the design process of the activity and shall be respected by the Developer during the implementation and operation phases..

Column I in Annex 2 of Ministerial Decree 10/2010 (VIII.18.) VM, which applies to the Danube, lays down the following water quality limit values for the Hungarian section of the Danube River.

pH	*6.5-8.5*
Conductivity	*700 S/cm*
Chloride	*40 mg/l*

Oxygen saturation	*70-120 %*
Dissolved oxygen	*7 mg/l*
BOD_5	*3 mg/l*
COD_{cr}	*15 mg/l*
NH_4-N	*0.2 mg/l*
NO_2-N	*0.03 mg/l*
NO_3-N	*2 mg/l*
Total N	*3 mg/l*
PO_4-P	*80 mg/m^3*
Total P	*150/m^3*

3.11.5 The level of pollution of the surface water (Danube river) used as the recipient of used and waste waters shall be monitored upstream and downstream (i.e. after mixing) from the inlet points of purified waste water during trial operation and the subsequent operation as determined in the operation licence but at least twice a year.

3.11.6. The quality of used and purified waste water released into the surface water (Danube River) shall comply at all times at the current sampling point marked as V4 and at the sampling point(s) to be installed at the new warm water channel with the limit values specified in Annex 2 of Ministerial Decree 28/2004 (XII.25) KvVM on the limit values applicable to discharges of water pollutants and certain rules of application in respect of recipients categorized as generally protected.

Pollutants	***Discharge Limit Value***
pH	*6-9.5*
Oxygen demand using dichromate	*150 mg/l*
Biochemical oxygen demand	*50 mg/l*
Total nitrogen	*55 mg/l*
Ammoniac-ammonium-nitrogen	*20 mg/l*
*Total suspended matter**	*200 mg/l*
Total phosphorous	*10 mg/l*
Organic solvent extract (oils, greases)	*10 mg/l*
Fluorides	*20 mg/l*
Total iron	*20 mg/l*
Total copper	*2 mg/l*
Total manganese	*5 mg/l*
Total silver	*0.1 mg/l*
Total mercury	*0.01 mg/l*
Total zinc	*5 mg/l*
Total cadmium	*0.05 mg/l*
Total lead	*0.2 mg/l*

3.11.7. The construction and operation of the new power plant units and the related facilities shall not affect the travel of flood waves. The activity shall be

implemented in compliance with the high-water river basin management plan.
At present, the section of the Danube to accommodate the planned facility is not subject to a high-water river basin management plan promulgated in a decree, the plans of the capital project shall apply the provisions of Government Decree 83/2014 (III.14.) on the use and the utilization of the high water river basin and the riparian zone of watercourses and the areas endangered by wetlands and underseepage, and on the rules applicable to the preparation and content of high-water river basin management plans for rivers."

3.12. The **Notary of the Joint Local Government Office of Dunaszentgyörgy** granted unconditional consent in its decision of 158-8/2015 in the capacity of special authority in respect of special local issues relating to the protection of the environment and nature.

3.13. The **Notary of the Joint Local Government Office of Géderlak** terminated the administrative procedure of special local issues relating to the protection of the environment and nature by decision No. 622-1/2015.

3.14. The **Notary of the Joint Local Government Office of Fajsz** terminated the administrative procedure of special local issues relating to the protection of the environment and nature by decision No. 510-2/2015.

3.15. The **Honorary Chief Notary of the Town of Paks** granted unconditional consent in position statement I.1669-7/2015 in the capacity of special authority in respect of special local issues relating to the protection of the environment and nature.

III.

Other provisions

1. **The environmental licence enters into force when the present licence becomes effect and remains in effect for a 60 years period from the effective date of the operation licence issued for the given unit.**

2. Notification (reporting) requirements

2.1. Developer shall notify the Government Office – by applying for a modification of the licence – within 15 days:

- any major change, actual or planned, in the circumstances underlying this licence and any changes of the ownership;
- any change of the data of the company,
- any insignificant change, actual or planned, in the circumstances underlying this licence.

2.2. Starting up the activity and the site preparation work shall be reported to the

Government Office in 15 days after work begins.

3. **The Government Office withdraws the environmental licence**, if the activity or the site preparation work do not begin within 5 years after the effective date of the decision, or in case the Developer declares its intention to forego the environmental licence, as well as in case of a material change of circumstances existing during the licensing procedure.

4. **The environmental licence does not exempt** the Developer from the obligation of obtaining the regulatory licenses required by other legal regulations.

5. **As the implementation of the new nuclear power plant units do not yet comply with the provisions of the Local Building Code and Regulation Plan of the Town of Paks, thus the conflict shall be eliminated before issuing the construction license of the new units.**

This decision may be appealed in a period of **15 days** of receipt thereof in a **submission** addressed to the National Inspectorate for Environment and Nature (of 1016 Budapest, 58/a Mészáros Street; hereinafter: NIEN) **filed in two copies at** the Government Office.

The consents and decisions of special authorities are not subject to individual legal remedy, they may be contested by seeking redress against this decision.

The service fee charged for appeal procedures is **50%** of the fee payable for administrative procedures and amounts to **HUF 1,500,000** while it amounts to **1%** of the administrative fee **or HUF 30,000 for natural persons and non-governmental organisations,** to be paid by bank transfer to fiscal allocation account No. **10024003-00335649-00000000 of the Baranya County Government Office** at the Hungarian Treasury with a reference to the file number in the message field, and the transfer order (or a certified copy thereof) shall be sent to the Government Office.
The Government Office also accepts certificates of payment electronically at its email address at **kornyezetvedelem@baranya.gov.hu**.

REASONS

1. Background:

As the four nuclear power plant units MVM PA Zrt. operates in Paks are scheduled to gradually shut down in the 2032-2037 period, Developer plans to implement 2 new nuclear power plant units as specified in section I/3 of the licence in order to maintain the existing commercial electricity generation capacity in Hungary.

The establishment of the planned new nuclear power plant units on the site of the Paks Nuclear Power Plant is an activity which is, by the force of law, subject to conducting an environmental impact assessment procedure pursuant to *Section 31 ["Nuclear power plants, nuclear reactors, extending the lifetime of nuclear power plants and nuclear reactors, and*

the discontinuance of nuclear power plants and nuclear reactors, i.e. the permanent removal of nuclear fuel and other components of nuclear facilities which are contaminated with radioactive substances"] of Annex 1 to Government Decree 314/2005 (XII.25.) on environmental impact assessment and IPPC consent procedures (hereinafter referred to as G Decree), i.e. such an activity shall only be started or pursued in possession of an environmental licence.

The Inspectorate for Environment, Nature and Water of Southern Transdanubia (hereinafter referred to as the Legal Predecessor of the Government Office) conducted preliminary consultations, as provided in Section 5/A(1) of the G Decree, in response to an application filed by Developer on 10 November 2012. In conclusion, the Legal Predecessor of the Government Office issued opinion No. 8588-32/2012 dated 21 December 2012, which expressed views about the requirements of the content of the EIAS to be submitted as an enclosure with the application for an environmental licence taking into account Annex 6 of the G Decree.

Taking into account Section 5/B(8) of the G Decree, Developer submitted an application for obtaining an environmental licence to establish and operate two new nuclear power plant units to the Legal Predecessor of the Government Office on 19 December 2014. Developer attached an EIAS prepared by the Author authorized by the Developer along with the documents "Implementation of New Nuclear Power Plant Units at the Paks Site, Environmental Impact Assessment Study, a Non-technical Summary" (hereinafter referred to as Non-technical Summary) and "Erection of New Nuclear Power Plant Units at the Paks Site, Environmental Impact Study, Chapter on Transboundary Effects" (hereinafter referred to International Chapter), in 3 hard copies and 2 copies on electronic media.

The two 400 kV output lines from the units and the two 132 kV transmission lines to supply backup electric power to the new units which are planned in connection with the establishment of the new nuclear power plant units, require a preliminary assessment according to Section 76 of Annex 3 of the G Decree *["aerial electric lines (unless covered by Annex 1) from 20 kV]*. Upon Developer's request, the Government Office examined the environmental impacts of these overhead power lines with a view to the provisions of Sections 1(5) and 10(6a) of the G Decree, as part of the relevant environmental impact assessment.

The Author certified the professional eligibility of the experts involved in the preparation of the EIAS in the case of each area of expertise covered in line with the regulation.

Developer paid HUF 3,000,000 administrative service fee as required by Section 8.2 of Chapter II of Ministerial Decree 33/2005 (XII.27.) KvVM on the service fees to be paid for administrative procedures conducted in matters relating to the environment, nature and water (hereinafter referred to as Fee Decree) upon filing its application.

The Legal Predecessor of the Government Office studied the content covered by the application and upon finding that it was incomplete it issued Order No. 755-19/2014 whereby it instructed Developer, first of all, to submit additional documents to facilitate the

identification of the impact area in line with the details discussed in the Order, and Developer complied with that instruction on 12 January 2015.

On 21 January 2015, the Legal Predecessor of the Government Office sent the application submitted in the matter under Section 8(2) of the G Decree, the EIAS and its supplement to the notary of the settlement (Paks) where the activity is planned to get established to provide stakeholders local access to the documents. It also sent its communication regarding the commencement of the procedure to the notaries of the town of Paks and the settlements on the impact area *(Dunaszentbenedek, Úszód, Foktő and Gerjen)* to be announced to the public. The notaries complied with their obligation to make the public announcement as required by the rules of the G Decree and informed the Legal Predecessor of the Government Office of having done so.

The Legal Predecessor of the Government Office published the communication about the commencement of the procedure, including documents submitted additionally pursuant to Section 8(1) of the G Decree on the website *www.ddkvf.hu* and also posted it for the public on its bulletin board at its offices at 13-15 Papnövelde Street, Pécs on 23 January 2015.

The Legal Predecessor of the Government Office issued call No. 558-16/2015 dated 26 January 2015 for additionally submitting the translation of the International Chapter and the Non-technical Summary of the documentation into the language of the parties applying to the Legal Predecessor of the Government Office for assistance or into the English language. The Developer complied with the call for additional submissions on 27 February 2015 by submitting the English and German language translations of the documentation.

Upon recognising that the communication about the commencement of the procedure failed to mention the availability of the consent documentation, the Legal Predecessor of the Government Office made the required additions. The Legal Predecessor of the Government Office posted the addition to the communication for public display at the website *www.ddkvf.hu* and on the bulletin board at its offices on 4 March 2015, and also sent it to the notaries participating in the procedure to have it publicly announced. The notaries complied with their obligation to make the public announcement as required by the rules of the G Decree and informed the Legal Predecessor of the Government Office of having done so.

While the procedure was pending, Government Decree 66/2015 (III.30.) on capital city, county and district (and Budapest district) government offices took effect and pursuant to its Section 29(1) the Legal Predecessor of the Government Office was wound up by integration on 31 March 2015 and was replaced by the Government Office as legal successor. Given the legal succession, the procedure continued before the Government Office as of 1 April 2015.

After that, the Government Office decided to hold a public hearing in the Theatre of Csengey Dénes Cultural Centre at 2 Gagarin Street, Paks at 5 p.m. on 7 May 2015, and on 2 April 2015 posted the related communication for public display on its bulletin board and on its website *www.ddkvf.hu* as required by Section 9(6) of the G Decree. After the integration of government offices it also published the information relating to the public hearing on the website *www.kormanyhivatal.hu/hu/baranya* on 8 April 2015 and 24 April 2015. Also, it sent

the communication to the notaries participating in the procedure to have it announced to the public. The notaries complied with their obligation to make the public announcement as required by the rules of the G Decree and informed the Government Office of having done so.

Moreover, on 2 April 2015, the Government Office sent information about the public hearing to the participating special authorities, the Developer and the Author, the Office of the Commissioner for Fundamental Rights, the environmental organisations that joined the procedure by that date as clients, the Ministry headed by the Minister responsible for environmental protection as the body conducting the transboundary environmental impact assessment procedure and organisations involved in the framework of legal assistance.

The Government Office also announced the public hearing in two local papers in addition to those required in the G Decree. The decision to do so was motivated by the desire to give emphasis to informing local inhabitants by announcing the public hearing in the issues of Petőfi Népe and Tolnai Népújság published on 5 May 2015, a day close to the date of the public hearing.

After studying the documentation from the perspectives of ambient air protection, waste management, environmental radiology, the environmental noise- and vibration protection and the protection of the landscape and nature, the Legal Predecessor of the Government Office requested additional submissions in order No. 558-37/2015 dated 9 March 2015. Developer complied with part of the instructions of the order on 26 March 2015 and on 13 April 2015 and requested the postponement of the deadline for preparing the foreign language translations. Developer performed the instructions given by the Government Office in Order No. 558-89/2015 issued on 20 April 2015 eventually on 24 April 2015.

The Government Office posted its communication about the submission of additional documentation on its bulletin board and on its website *www.kormanyhivatal.hu/hu/baranya* on 24 April 2015 and sent it to the notaries participating in the procedure to have it announced publicly. The notaries complied with their obligation to make the public announcement as required by the rules of the G Decree and informed the Government Office of having done so.

The Government Office held a public hearing in the Theatre of Csengey Dénes Cultural Centre at 2 Gagarin Street, Paks at 5 p.m. on 7 May 2015 as required in Section 9(1) of the G Decree. The Government Office posted the minutes taken at the public hearing along with its related communication on its bulletin board and on its website at *www.kormanyhivatal.hu/hu/baranya* on 22 June 2015 taking into account Section 9(9) of the G Decree. It also forwarded the minutes and the communication for public announcement to the notaries participating in the procedure who complied with their obligation to make the public announcement as required by the rules of the G Decree and informed the Government Office of having done so.

Studying the documentation further, the Government Office found that it is incomplete with regard to the special question of heat pollution of the Danube River and as a result it issued

call No. 558-156/2015 for additional submissions on 18 May 2015. Developer complied with the instructions set in the call by 15 July 2015, a revised due date identified upon Developer's request for postponement.

The Government Office posted its communication about the submission of more additional documentation on its bulletin board and on its website *www.kormanyhivatal.hu/hu/baranya* on 23 June 2015 and sent it to the notaries participating in the procedure to have it announced publicly. The notaries complied with their obligation to make the public announcement as required by the rules of the G Decree and informed the Government Office of having done so.
Pursuant to the provisions of Sections 8(5) and (6) of the G Decree, the Government Office provided access for the public concerned to inspect the decisions of special authorities, the expert opinions it requested and also the documents submitted additionally. The Government Office made available to the public concerned environmental information generated in the case and considered to be material from the perspective of decision-making.

2. Reasons of the special authorities' decisions:

On 4 March 2015, through its Order No. 558-35/2015, the Legal Predecessor of the Government Office turned to the special authorities involved in the case to make their decision with a view to Section 33(1) and Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of the bodies attending to regulatory and administrative duties relating to the protection of the environment, nature and waters (hereinafter referred to as Government Decree) taking into account Section 44(1) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services (hereinafter referred to as Administrative Proceedings Act).

Developer paid 2 x HUF 29,700 service fee for the administrative procedure of public health authorities as provided in Section 2(1) and Section 16 of Chapter XI of Annex 1 of Ministerial Decree 1/2009 (I.30.) on certain procedures of public administration and services of administrative character of the National Public Health and Medical Officer Service, HUF 50,000 service fee for the administrative procedure of the soil conservation authority as provided in Section 12.9.5 of Annex 1 of Ministerial Decree 63/2012 (VII.2.) VM on the amount of administrative service fees payable against procedures launched before the National Food Chain Safety Office and the agricultural special authorities of county government offices and the rules governing the payment of administrative service fees (hereinafter VM Decree), 2 x HUF 7,500 service fee for the administrative procedure of the forest management authorities as provided in Section 15.7 of Annex 1 of the VM Decree and HUF 120,000 in consideration for the administrative procedure of the Land Registry Office as provided in Section 18(2) of Act CXXIX of 2007 on the Protection of Arable Land, considering that the number of land plots affected by the project is 83, upon submitting the application and in response to instructions to pay.

Moreover, Developer paid HUF 5,000 stamp duty to each of the local authorities responsible for the protection of the environment and nature and the water authorities with territorial

competence for their administrative procedure pursuant to Section 1 of Chapter XIII of Act XCIII of 1990 on Stamp Duty (hereinafter referred to as Stamp Duty Act) and HUF 3,000 stamp duty to each of the Heritage Protection Authority, the Mine Authority, the Land Use Authority and the Nuclear Safety Authority for their administrative procedure (amounting altogether to HUF 42,000) pursuant to Section 29(1) of the Stamp Duty Act in response to the related instruction to pay.

The special authorities acting in their competence issued their decision as presented in the operative part.

The **Chief State Architect of the Office of Architecture and Heritage Protection at the Baranya County Government Office** explained its decision BAD/15/73-2/2015 it issued as a special authority on 16 March 2015 concerning compliance with land use plans as follows:
"*Based on request No. 558-35/2015 received from the Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia on 6 March 2015, I have made the following findings concerning compliance with land use plans:*
The powers of the Chief State Architect cover networks of engineering infrastructure and individual structures of national or regional importance *as specified in Government Decree 218/2009 (X.6.) on the requirements of content and the detailed rules of accord between and the elaboration, coordination, adoption and promulgation of the concept and program of territorial development and the land use plan pursuant to Section 12 of Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of the bodies attending to regulatory and administrative duties relating to the protection of the environment, nature and waters.*
I have found that the nuclear power plant discussed in the application is an element of national importance according to Annex 7 of the Government Decree, and as such shall be covered ***by the National Land Use Plan.***
During the examination of the facts I found that the nuclear power plant units comply with and appear in Annexes 1/8 and 2 of Act XXVI of 2003 on the National Land Use Plan.
Based on these findings, I have made the comments presented in the operative part during the environmental impact assessment procedure in the capacity of an administrative body.
My decision was based on the provisions of

- *Act XXVI of 2003 on the National Land Use Plan,*
- *Act XXI of 1996 on Territorial Development and Land-Use Planning,*
- *Government Decree 218/2009 (X.06.) on the requirements of content and the detailed rules of accord between and the elaboration, coordination, adoption and promulgation of the concept and program of territorial development and the land use plan,*
- *Section 33(1) of Government Decree 481/2013 (XII.17.) on the designation of the bodies attending to regulatory and administrative duties relating to the protection of the environment, nature and waters and on the rules about powers and competences laid down with reference to that section in Section 12 of Annex 5 of the same decree, and*
- *Section 22, Section 33(8) and Sections 44 and 72 of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services (hereinafter: Administrative Proceedings Act).*

In addition to the legal regulations quoted above, my decision was based on the rules about powers and competences laid down in Section 116(1) of the Administrative Proceedings Act and in Section 2(1)2 and Section 1(1) of Government Decree 288/2010 (XII. 21.) on capital city and county government offices and on the provisions of Section 33(6), Sections 44-45 and Section 109(1) of the Administrative Proceedings Act."

The **Pécs Mining Authority** gave the following reasons to explain its decision PBK/512-2/2015 issued as a special authority on 16 March 2015 concerning mine administration:
"The Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia (hereinafter referred to as the Inspectorate) contacted the Mining Authority in a letter identified with file number 558-35/2015 requesting a position statement with reference to Sections 44(1)-(2) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services (hereinafter referred to as Administrative Proceedings Act) and to Section 33(1) and Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of the bodies attending to regulatory and administrative duties relating to the protection of the environment, nature and waters. The Mining Authority received the request of the Inspectorate via the official portal on 4 March 2015. The Inspectorate requested the Mining Authority to issue its position statement upon examining the following documents and related Annexes, which were made available by electronic means (http://www.ddkvf.hu/doc/paks.zip) and were prepared by MVM ERBE Zrt. (1117 Budapest, Budafoki út 95.):

- *MVM Paks II. Zrt. Implementation of New Nuclear Power Plant Units at the Paks Site, EIAS*
- *MVM Paks II. Zrt. Implementation of New Nuclear Power Plant Units at the Paks Site, EIAS, Non-technical Summary*
- *Erection of New Nuclear Power Plant Units at the Paks Site, EIAS, International Chapter*
- *Foundations for the discharge limit values of air and liquid emissions from the new units to be established at the Paks Site*
- *Preliminary archaeological documentation*

The Mining Authority found that the document "MVM Paks II. Zrt. Implementation of New Nuclear Power Plant Units at the Paks Site, EIAS" made available to it:

- *presented the seismic parameters of the area and the description of the shallow geological layers of the project site with reference to earlier studies and newly performed examinations;*
- *clarified the impact area of the establishment and the operating facility with tests and modelling performed during the preparation of the EIAS;*
- *indicated the current level of pollution of the geological medium based on the examination of drill cores, and determined the spreading parameters of pollutants that could potentially penetrate the geological medium with hydrogeological modelling;*
- *presented analyses completed about the impacts on the geological environment during establishment and the operation of the facility (digging building pits, the loading effect of the facility, the vibration effects of turbine bases (machine*

supports)) and about the changes induced in the geological medium by these impacts;

- *discussed the plans of activities to be performed in order to localise pollution arising from operating disorders and emergencies.*

Upon examining the planned activity from the perspective of questions in its competence, the Mining Authority determined on the basis of the EIAS that the geological environment will tolerate without significant damage the impacts which arise during the planned establishment and operations. In an awareness of the direct impacts on the geological environment during establishment and normal operations (provided design parameters and construction are appropriate) and the local characteristics of engineering geology, there is no overriding reason that would prevent issuing the environmental license from the perspective of protecting mineral resources and the geological medium.

The establishment and its impact area are registered as free areas in the National Register of Mineral Resources and Geothermal Energy, they do not affect any exploitable occurrence of mineral resources and there is no mining site for solid minerals in the area."

The Pécs Mining Authority has issued this position statement pursuant to Section 2(2) of Government Decree 267/2006 (XI.20.) on the competence of the Mining Authority in respect of the protection of mineral resources and the geological medium on the basis of Section 33(1) and Annex 5 of Government Decree 481/2013. (XII.17.) and Sections 44(1) and (2) of Act CXL of 2004."

The **Forestry Directorate of the Bács-Kiskun County Government Office** explained its decision BKG/001/3505-3/2015 issued as a special authority on 19 March 2015 concerning forest protection with the following reasons:

"Examining the environmental impact assessment documentation received from the Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia and the records of our Directorate, I granted my approval upon finding that the planned expansion of the Paks Nuclear Power Plant does not involve any use of forest land registered in the National Database of Forests in our area of competence, the expansion has no adverse impact on forest areas inside the impact areas with a radius of 10 and 30 km.

I have issued this consent as a special authority acting upon the powers determined in Section 12(1) of Government Decree 328/2010 (XII.27.) on the designation of the special agricultural administration bodies of capital city and county government offices and in Section 33(1) and Section 8 of Annex 5 of Government Decree 481/2013 (XII.17.) by taking into account the provisions governing competences in Section 2(3) and Annex 2 of Government Decree 328/2010 (XII.27) and with a view to Sections 44(1), (3), (6) and (9) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services."

The **Body responsible for Public Health Administration at the Tolna County Government Office** explained its decision TOR/084/00440-2/2015 issued as a special authority on 19 March 2015 concerning public health with the following reasons:

"Based on an application submitted by MVM Paks II. Atomerőmű Fejlesztő Zrt. (7030 Paks, 1 Gagarin Street. III. floor 302/B), the Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia contacted the Body responsible for Public Health

Administration at the Tolna County Government Office on 4 March 2015 requesting a position statement in the matter relating to the environmental impact assessment procedure of the new nuclear power plant units MVM Paks II. Atomerőmű Fejlesztő Zrt. plans to establish on lot No. 8803/15 of its Paks site.
The request is based on Section 33(1) and Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of bodies attending to regulatory and administrative duties associated with protecting the environment, nature and waters.
Studying the EIAS made available on the web, I found that there is no public health reason for refusing to issue the administrative consent.
The impact assessment fully considered our comments made about public health under reference number XVII-R-084/01550-2/2012 on 10 December 2012 during preliminary consultations. Based on the comments, the required part of the work on environmental health was performed during the environmental impact assessment, and it stated that there were no major public health risks to be encountered during the construction phase and normal operations. A joint evaluation of the assessment findings indicated that the presence of the power plant does not increase the risk of tumorous diseases existing in the vicinity of the power plant. The annual level of public exposure to radiation indicated by modelling remained below the dose limit (1 mSv) and the permissible dose rate (100 μSv for the Paks Nuclear Power Plant + ISFS facilities) by orders of magnitude even on the basis of assumptions of extremely low probability of occurrence in reality. The planned monitoring facilitates continuous control over the impact area and is a baseline condition for implementing the necessary preventive health protection measures.
My decision is based on the provisions of Section 33(1) and Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of bodies attending to regulatory and administrative duties associated with protecting the environment, nature and waters."
"The power and competence of my authority are set forth in Section 10(1)b) of Government Decree 323/2010 (XII.27.) and in Section 1(1) of Government Decree 288/2010 (XII.21.) on capital city and county government offices and on the provisions of Section 4(2) of Government Decree 323/2010 (XII.27.) on the National Public Health and Medical Officer Service, attending to public health administration duties and the designation of the pharmaceutical state administration body."

The **Directorate of Plant Protection and Soil Conservation at the Tolna County Government Office** explained its decision TOF/53/91-2/2015 issued as a special authority on 18 March 2015 concerning soil protection with the following reasons:
"The Inspectorate acting in its capacity as first instance environment protection authority contacted my authority with a request to issue a position statement on soil protection in a matter relating to the environmental impact assessment procedure of the new nuclear power plant units MVM Paks II. Atomerőmű Fejlesztő Zrt. plans to establish on lot No. 8803/15 of its Paks site. The Inspectorate enclosed the following documentation with its request.
– MVM Paks II. Zrt. Implementation of New Nuclear Power Plant Units at the Paks Site, EIAS, Non-technical Summary, Geological medium and sub-surface waters at and in the immediate surroundings of the premises (prepared by MVM ERBE Zrt., 1117 Budapest,

Budafoki avenue 95., drafted in: 2014, number: -)
I have found that the content covered by the documentation is sufficient for conducting a special administrative procedure concerning soil protection.
I have evaluated the documentation and established the following facts:
– Although the new nuclear power plant units will be implemented at a non-cultivated factory site, both the establishment and the operations affect directly or indirectly agricultural or farmed plots of land as laid out below:

1. *Large amounts of soil will be excavated at the location of the foundations, some of which will be backfilled on location and other parts will be transported for use in landscaping at external locations or as finishing layer in landfills.*

– *If there are plans to use soil designated for landscaping in a production area, such operations shall be subject to Section 2.4.2 of Annex 2 of Ministerial Decree 90/2008 (VII.18.) FVM (hereinafter: FVM Decree) on the detailed rules of preparing soil conservation plans.*

2. *The plans call for removing excavated soil selectively with topsoil handled separately and stored at spoil areas established at the site.*
   As the construction site had been backfilled years ago to reach the current level of construction, humus soil is expected to be extracted from lower lying layers.

– *It is advisable to examine what is considered to be humus containing soil on the basis of the provisions of Section 2.4.1 of Annex 2 of the FVM Decree, if it is intended for use on cultivated land.*

3. *There are plans to establish a new supply route, which may affect cultivated agricultural areas.*

– *As regards soil conservation, routes affecting smaller amounts of cultivated land and mostly soils of poorer quality are preferable.*

4. *The route of the transmission line to be constructed in connection with the new nuclear power plant units passes primarily across cultivated farmland.*

– *The EIAS discusses the application of soil conservation requirements that need to be considered during the construction of the transmission lines.*

5. *The plans call for a partial replacement of the soil in the project area.*
   The documentation fails to specify the original location of the soil to be transported to the site.

– *In case the source location of the soil needed for the replacement is cultivated farmland, the soil conservation authority with competence over the location must be involved.*

6. *Foundation work requires de-watering the building pits, which will influence the water regime parameters of the soil.*

– *The EIAS suggests that the maximum action radius of the depression curve that develops in the course of de-watering for 365 days is 3000 m.*

– *We recommend taking into account the following considerations during the preparation of the planning application documents:*
  ~ *studying the access to plots of farmland at lot number level <u>while laying out the new supply route</u>,*

studying the accumulations of water due to cutting natural flow conditions of the plots to prevent the formation of water coverage on the surface in areas that have so far shown favourable drainage conditions,

Draining rainwater by spreading it in the bottom of valleys or over the terrain are not acceptable solutions from the perspective of soil conservation since erosion and inland excess water may develop in surrounding farmland,

~ *the influence of reducing water levels on nearby irrigation wells must be taken into account while extracting sub-surface waters,*

~ *cuts in the soil in the source locations of soil needed for soil replacement should not give rise to erosion risk by eliminating a natural dividing range and hence allowing waters to accumulate from an even larger area resulting in increasing erosion damage.*

– *The planning application documents must contain a section on humus management to address saving, storage and usage of the topsoil.*

Pursuant to Section 50(2)b) of Act CXXIX of 2007 on Protecting Agricultural Land (hereinafter referred to as Land Act), a soil conservation plan shall be prepared for saving the humus containing topsoil when greenfield investments requiring more than 400 m^2 of territory are implemented on agricultural land.

- As the impact assessment addresses the enforcement of soil conservation requirements, the processes and areas of impact of the activity on agricultural land, an estimation and appraisal of the expected environmental impacts affecting agricultural land and the necessary soil protection measures, the environmental license for the new nuclear power plant units at Paks may be issued.

I have issued this consent by applying Sections 44, 71(1) and 72(2) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services (hereinafter referred to as Administrative Proceedings Act) under the authority granted in Section 33(1) and Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of bodies attending to regulatory and administrative duties associated with protecting the environment, nature and waters, and in Section 44 of the Administrative Proceedings Act, taking into account the provisions of Sections 43 and 44 of the Land Act.

Our competence is established in Section 2(1) of Government Decree 328/2010 (XII.27.) on the designation of the special agricultural administration bodies of capital city and county government offices, while our powers are laid down in Section 17(1) of the same Decree."

The **Body responsible for Public Health Administration at the Bács-Kiskun County Government Office** explained its decision BKR/001/00771-2/2015 issued as a special authority on 19 March 2015 concerning public health with the following reasons:

"The Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia contacted us in rogatory letter No. 558-35/2015 requesting us to issue its consent.

I concluded from the content of the documentation that granting the license will not give rise to environmental health and urban hygiene consequences that would preclude issuing the environmental license, provided the conditions set in my decision are fulfilled.

In order to reduce the risks of adverse health effects, I laid down as condition precedent to

my special authority granting its approval the duty to comply with the provisions concerning public and environmental health in Sections 20-21 of Act XXV of 2000 on "chemical safety" and in Section 5(1)-(3) of Government Decree 98/2001 (VI.15.) on the conditions of performing activities in connection with hazardous wastes."
"I have issued this consent taking into account Section 44 of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services, acting upon my powers laid down in Section 33(1) and Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of bodies attending to regulatory and administrative duties associated with protecting the environment, nature and waters and with the competence provided in Section 4(2) of Government Decree 323/2010 (XII.27.) on the National Public Health and Medical Officer Service, attending to public health administration duties and the designation of the pharmaceutical state administration body."

The **District Office of Architecture and Heritage Protection of the Szekszárd District Office of the Tolna County Government Office** explained its decision TO-04D/40/453-2/2015 issued as a special authority on 19 March 2015 concerning heritage protection with the following reasons:
"The Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia contacted the District Office of Architecture and Heritage Protection of the Szekszárd District Office of the Tolna County Government Office to communicate its consent needed for the purposes of the environmental impact assessment procedure conducted upon an application by MVM II. Paks Atomerőműfejlesztő Zrt. concerning the new nuclear power plant units to be constructed on lot No. 8803/15 of the Paks site of the Paks Nuclear Power Plant.
Section 3 of Act LXIV of 2001 on the Protection of Cultural Heritage (hereinafter referred to as Heritage Act) provides that in order to ensure protection for our cultural heritage all developments seeking to achieve public and private goals, including in particular the planning of capital expenditure projects relating to territorial and urban development, land-use planning and zoning, the protection of the environment, nature and landscape need to comply with the protection of cultural heritage.
Pursuant to Section 4(1) of the Heritage Act, cultural heritage carries the common intellectual values of the nation as a whole, which is why everybody is obliged to protect it.
Pursuant to Section 5(1) of the Heritage Act, protecting our cultural heritage is a public interest, the implementation of which creates rights and the obligation to cooperate for bodies of government and local governments, minority organisations, church entities, civil and business organisations and citizens.
The procedure conducted by my special authority scrutinised the technical questions listed in Section 64(1) of Government Decree 39/2015 (III.11.) on the rules relating to the protection of archaeological heritage and listed values (hereinafter referred to as Govt. Decree)
Studying the enclosed application I found that the area affected by the project is located on a registered archaeological site (name: Paks 101 - Nuclear Power Plant 20/VI. transformer building, ID: 23261).
Traces of a burial site associable with the Transdanubian Encrusted Pottery culture have remained at the site registered under No. 23261 as Paks 101 - Nuclear Power Plant 20/VI.

transformer building.
Studying the written documents I found that the project classifies as a major capital expenditure project under Section 7(20)a) and b) of the Heritage Act and under Section 1(2) Act VII of 2015 on capital expenditure relating to maintaining the capacity of the Paks Nuclear Power Plant and on modifying certain related acts. Section 23/C(1) of the Heritage Act requires the preparation of preliminary archaeological documentation (hereinafter: PAD) for major capital expenditure projects.
While clarifying the facts I found that MVM Paks II. Zrt. requested a preliminary administrative approval concerning the establishment of new nuclear power plant units on lot No. 8003 in Paks on 19 March 2013. My authority granted the preliminary administrative approval in decision TO-04D/40/284-2/2013 with the proviso that investor must have preliminary archaeological documentation prepared about the area as required by applicable law. MVM Paks II. Zrt. submitted to my authority on 3 February 2014 the PAD of the project "Establishment of new nuclear power plant units at the premises of Paks Nuclear Power Plant". The archaeological research work also covered the area of the property at the lot currently marked No. 8003/15. The PAD classifies the property affected by the planned capital expenditure project as an area of archaeological interest with a view to the EIAS "Establishment of new nuclear power plant units at the Paks site". An analysis of aerial photographs taken in 1953 suggests the likelihood that the area used to be occupied by the former village of Magyari. The plan of the exploration project prepared as part of the PAD states that the planned capital expenditure project affects several known archaeological sites the exact sizes of which could not be determined during the assessment, which is why the PAD provides (on page 24) that archaeological observation must be ensured in areas which are not yet explored by other means of exploration and are affected by excavation work.
As an environmental license does not authorise the holder to perform activities involving excavation work, there is no need to identify archaeological tasks as part of this procedure, and as investor had taken steps earlier to have the necessary and possible archaeological research performed in the affected area, I have made my decision as set forth in the operative part.
I found based on the data I have available that, given the content covered by the application, the envisaged capital expenditure complies with the requirements relating to the protection of cultural heritage as set forth by law with the conditions laid down in the operative part.
This consent is based on Sections 44 and 45/A of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services (hereinafter referred to as Administrative Proceedings Act), Sections 7-11 and 62-68 of the Heritage Act and Sections 63-64 of the Govt. Decree.
The power of this authority is determined by Section 33(1) and Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of bodies attending to regulatory and administrative duties associated with protecting the environment, nature and waters and Section 3a) of the Govt. Decree, while its competence is set forth in Section 3a) and Annex 1 of the Govt. Decree."

The **Land Registry of the Paks District Office of the Tolna County Government Office** explained its decision No. 10.129/2015 dated 23 March 2015 terminating the special

administrative proceedings of the Land Registry with the following reasons:
"Based on an application received from MVM Paks II. Zrt. the Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia (Pécs, 13-15 Papnövelde Street.) contacted the Paks District Land Registry Office, requesting a position statement with reference to Government Decree 314/2015 (XII.25.) on environmental impact assessment and IPPC consent procedures.
The Inspectorate identified Annex 5 of Government Decree 481/2013 (XII.17.) as legal grounds for the request sent to the special authority. Pursuant to that decree, the Land Registry Office acts as a special authority to give effect to the requirements applicable to protecting the quantity of agricultural land.
Upon examining the request I found that the construction of the new nuclear power plant units does not affect agricultural land areas, and is therefore not subject to Act CXXIX of 2007 (Land Act).
Pursuant to Section 45/A(3) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services (hereinafter: Administrative Proceedings Act) 'the special authority, if it finds that it does not have competence in the case, shall so inform the authority within eight days of the time of receipt of the request and shall terminate its proceedings'."
"My power and competence is established by Section 4(1) and by Section 17.3 of Annex 1 of Government Decree 373/2014 on the duties and areas of competence of the Institute of Land Survey and Remote Sensing and on the detailed rules of certain land registry procedures.
The order is based on Section 45/A of the Administrative Proceedings Act and the provisions of the Land Act."

Following the consultation, the **Notary of the Joint Local Government Office of Dunaszentgyörgy** explained the decision No. 158-8/2015 issued on 31 March 2015 in its capacity of special authority in respect of special local issues relating to the protection of the environment and nature with the following reasons:
"MVM Paks II. Atomerőmű Fejlesztő Zrt. submitted an application for obtaining an environmental license concerning the establishment of new nuclear power plant units at the premises of the Paks Nuclear Power Plant to the Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia on 19 December 2014.
The Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia determined with reference to Section 33(1) and Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of bodies attending to regulatory and administrative duties associated with protecting the environment, nature and waters that it is necessary to involve in the case the Notary of the Joint Local Government Office of Dunaszentgyörgy in its capacity as local authority responsible for the protection of the environment and nature.
The Inspectorate contacted the Notary of the Joint Local Government Office of Dunaszentgyörgy in its capacity as special authority in a letter rogatory on 04 March 2015.
I issued this consent with reference to Section 44(1) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services and acting upon the provisions of Government Decree 481/2013 (XII.17.) on the designation of bodies attending to regulatory and administrative duties associated with protecting the environment, nature and waters."

The **Notary of the Joint Local Government Office of Géderlak** explained its decision No. 622-1/2015 dated 23 April 2015 whereby it terminated the administrative procedure of special local issues relating to the protection of the environment and nature based on the following reasons:

"Acting upon its powers related to the protection of the environment, the Baranya County Government Office contacted the Notary of the Joint Local Government Office of Géderlak in letters rogatory filed under Nos. 558-35/2015 and 558-81/2015 relating to the environmental impact assessment procedure of the new nuclear power plant units MVM Paks II. Atomerőmű Fejlesztő Zrt. plans to establish on lot No. 8803/15 at the premises of the Paks Nuclear Power Plant with a request to issue a position statement under Section 33(1) and Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of bodies attending to regulatory and administrative duties associated with protecting the environment, nature and waters about the settlements of Úszód and Dunaszentbenedek, both of which are located in the impact area.

I have found that both the Local Government of the Village of Dunaszentbenedek and the Local Government of the Village of Úszód have failed to give effect to local decrees on protecting the environment and nature, and therefore the Notary of the Joint Local Government Office of Géderlak has no powers relating to the matter, hence the procedure was terminated due to lack of powers.

This Order is based on Section 45/A(3) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services (hereinafter: Administrative Proceedings Act)."

The **Notary of the Joint Local Government Office of Fajsz** explained its decision No. 510-2/2015 dated 5 May 2015 whereby it terminated the administrative procedure of special local issues relating to the protection of the environment and nature based on the following reasons:

"Acting upon its powers relating to the protection of the environment, the Baranya County Government Office contacted the Notary of the Joint Local Government Office of Kalocsa in a letter rogatory filed under No. 558-35/2015 relating to the environmental impact assessment procedure of the new nuclear power plant units MVM Paks II. Atomerőmű Fejlesztő Zrt. plans to establish on lot No. 8803/15 at the premises of the Paks Nuclear Power Plant with a request to issue a position statement under Section 33(1) and Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of bodies attending to regulatory and administrative duties associated with protecting the environment, nature and waters about the settlement of Foktő, which is located in the impact area.

I have found that the Local Government of the Village of Foktő has failed to give effect to a local decree on protecting the environment and nature, and therefore the Notary of the Joint Local Government Office of Fajsz has no powers relating to the matter, hence the procedure was terminated due to lack of powers.

The decision is based on Section 45/A(3) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services (hereinafter referred to as Administrative Proceedings Act)."

Decision of I.1669-7/2015 issued on 14 April 2015 by the **Honorary Chief Notary of the**

Town of Paks in respect of special local issues relating to the protection of the environment and nature lays down the following reasons in addition to the provisions determined in the operative part: *"My consent does not grant exemption from the duty to obtain regulatory licenses from other authorities needed.*"
The Notary gave the following reasons on which its consent was based:
"The Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia (7602 Pécs, 13-15 Papnövelde Street) requested a decision for the environmental impact assessment procedure conducted in relation to the new nuclear power plant units MVM Paks II. Atomerőmű Fejlesztő Zrt. plans to establish on lot No. 8803/15 at the premises of the Paks Nuclear Power Plant.
Studying the complete set of documents prepared by MVM ERBE Zrt. (1117 Budapest, 95. Budafoki Street.), including "MVM Paks II. Zrt. Implementation of New Nuclear Power Plant Units at the Paks Site, EIAS" and "Implementation of New Nuclear Power Plant Units at the Paks Site, Environmental EIAS, Non-technical Summary", I have found that the statements regarding exposure to local environmental and nature protection hazards and the planned measures are appropriate, and therefore I have granted unconditional consent in my capacity as a special authority.
I have issued my decision with reference to Section 33(1) of Government Decree 481/2013 (XII.17.) on the designation of bodies attending to regulatory and administrative duties associated with protecting the environment, nature and waters and acting upon my powers laid down in Section 7 of Annex 5 of the same, taking into account Sections 44-45 of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services."

Prior to 1 April 2015, decisions regarding this procedure were issued by special authorities that may no longer act as special authorities since they were integrated into county (capital city) government offices on 1 April 2015. Therefore, the Government Office based its decision on decisions of special authorities issued before 1 April 2015 as regards the special issues defined in those decisions pursuant to the provisions of Section 24(4) of Act VIII of 2015 on the Modification of Certain Acts relating to the Restructuring of the System of Territorial Public Administration.

However, as the **Forestry Directorate of the Baranya County Government Office** failed to close its special authority procedure by 1 April 2015, the Government Office acting in its capacity as forest protection authority examined the impacts on forests as a special question pursuant to the provisions of Section 28(1) and Annex 5, Table I of Government Decree 71/2015 (III. 30.) (hereinafter referred to as D) on designating the bodies that act as environmental and nature protection authorities.
The Government Office found in respect of forest protection:

- The establishment and operation of the new nuclear power plant units do not influence the status of forests materially. However, since the planned area of some of the facilities linked to the new nuclear power plant, including the Paks II substation and the connecting power lines as well as the transmission lines supplying backup power, affect forests, section 2 of the permit issued by the Government Office says it is mandatory to conduct a procedure concerning the use of forests.

- The logging necessary during the construction of the route shall be performed in compliance with the provisions on logging in the Forest Protection Act.

Moreover, Developer submitted documentation containing clarification of certain technical solutions presented in the EIAS (hereinafter referred to as Clarification) to the Government Office in the course of this environmental impact assessment procedure on 16 June 2016.

The Government Office published an announcement of the Clarification on the bulletin board at its offices and on the website *www.kormanyhivatal.hu/hu/baranya* on 17 June 2016, and sent the Disclosure to the notaries participating in the procedure to have it announced publicly. The notaries complied with their obligation of making the public announcement as required by the rules of the G Decree and informed the Government Office of having done so.

Pursuant to Section 28(3) and Annex 5, Table II of the D, the Government Office contacted the special authorities involved in the environmental licensing procedure in connection with the evaluation of the clarification and also of the comments received from the countries participating in the international environmental impact assessment procedure, and the public thereof and also from the public of Hungary , also taking into account the positions expressed by the Developer in the document containing responses to such comments (hereinafter referred to as Statement) in accordance with Section 10(1) of the G Decree. Simultaneously, **the Government Office also held a consultative meeting with the involvement of the special authorities on 4 July 2016 to clarify any questions the special authorities raised.**

Following the consultative meeting, the Developer corrected the information provided in the Clarification, and submitted the corrected Clarification to the Government Office on 8 July 2016.
The Government Office posted its communication about the correction of the Clarification on its bulletin board at its offices and on its website *www.kormnanyhivatal.hu/hu/baranya* on 11 July 2016 and sent it to the notaries participating in the procedure to have it announced publicly. The notaries complied with their obligation to make the public announcement as required by the rules of the G Decree and informed the Government Office of having done so.

The Government Office found that the information provided in the correction of the Clarification did not affect the power of the special authorities.

Following the consultation, the information given in the Clarification and other comments received during the procedure, the special authorities made the following conclusions:

The **Fejér County Directorate of Disaster Management** issued its decision relating to the special question about water management and water protection filed under No. 35700/4299-30/2015. on 29 July 2015.
Pursuant to its evaluation of the Disclosure and the comments received during the procedure, the Fejér County Directorate of Disaster Management issued position statement No. 35700/9422-1/2016. dated 7 July 2016 to uphold its consent No. 35700/4299-30/2015.

Subsequently, it issued document No. 35700/9422-5/2016. dated 1 September 2016 to withdraw its earlier administrative consent issued under file No. 35700/4299-30/2015. and upheld in document No. 35700/9422-1/2016. Also, it issued its decision with regard to special questions relating to water management and water protection as laid out in the operative part.

The decision contained the following reasons:

"The Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia (hereinafter: Inspectorate) requested the Fejér County Directorate of Disaster Management to issue its decision as a special authority as part of the environmental impact assessment procedure pending in the matter of the new nuclear power plant units MVM Paks II. Atomerőmű Fejlesztő Zrt. plans to establish in the area of the Paks Nuclear Power Plant. My authority issued its administrative consent under file No. 35700/4299- 30/2015 with certain provisions.

The Baranya County Government Office Department of Environmental and Nature Protection acting in its capacity as legal successor of the Inspectorate contacted the Fejér County Directorate of Disaster Management in its capacity as special authority once again in an order with the file number quoted above, because MVM Paks II. Atomerőmű Fejlesztő Zrt. submitted documentation with information relating to the impact assessment procedure to the Baranya County Government Office on 16 June 2016, and because the comments received from the Hungarian and international public have been compiled along with the responses given by MVM Paks II. Atomerőmű Fejlesztő Zrt.

The Fejér County Directorate of Disaster Management found that there was no justification for modifying the requirements laid down in its consent gen. Ref. No. 35700/4299-30/2015. it issued earlier in respect of the environmental impact assessment, and therefore upheld its consent gen. Ref. No. 35700/9422-1/2016. on water management and water protection.

The Baranya County Government Office, Department of Environmental and Nature Protection made comments about the position statement of the special authority in an email dated 29 August 2016. It urged the Directorate to clarify the decision.

With a view to the new facts and data disclosed to me during the procedure in documents received from the environment protection authority and consultations with the applicant after I issued my earlier position statement, the review of my earlier decision became necessary. During my review I found that modifications were required concerning both the operative and the reasoning part, and therefore I withdrew the decision I issued earlier under file gen. Ref. No. 35700/4299-30/2015. along with the decision issued under file gen. Ref. No. 35700/9422-1/2016. to uphold that consent, and I issued a new decision, which reflects the facts and data I became familiar with during the procedure.

The following can be concluded from the available data:

MVM Paks II. Atomerőmű Fejlesztő Zrt. submitted an application to the Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia (hereinafter: the Inspectorate) on 10 November 2012 requesting preliminary consultation in relation to the new nuclear power plant units. In conclusion of the preliminary consultation, the Inspectorate issued an opinion under file number 8588-32/2012 invoking sub-section 5/B(3)a) of Government Decree 314/2005 (XII. 25.) on environmental impact assessment and IPPC consent procedures (hereinafter: G Decree), whereby it specified the required content

of the EIAS to be submitted for the purpose of obtaining an environmental license for the project in question.

The Inspectorate found that the establishment of the new units is an activity that requires the conduction of an environmental impact assessment procedure by force of law, as provided in section 31 of Annex 1 of the G Decree, and such activities may only be started and pursued in possession of an environmental license.

MVM Paks II. Atomerőmű Fejlesztő Zrt. submitted its application for an environmental license to the Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia on 19 December 2014. MVM ERBE Energetika Mérnökiroda Zrt. (1117 Budapest, 95 Budafoki Street) drafted the EIAS.

Similarly to the solution applied in the existing units, the Developer intends to pump cooling water from the Danube River for the two new units of 1200 MW rated capacity, each, planned at the premises of the Paks Nuclear Power Plant. The joint cooling water demand of the existing four and the two new units is 232.02 m^3/s, which does not reach the 50% of the lowest historical water flow (664 m^3/s) of the Danube measured at the intake section. The medium water flow of the Danube River in the section of the power plant, i.e. in the 1527 river kilometre section, is 2,300 m^3/s, whilst the related medium water level is 88.00 m above Baltic Sea level.

The first new unit and the second new unit are expected to start using water from the Danube operationally from 2025 and 2026, respectively. As time passes, each of the existing units will be gradually shut down and only the two new units will be running after 2037. The design lifetime of the new units is 60 years.

Taking into account 8,760 h/year of operating time, the cooling water demand of

- *1 x 1200 MW_e unit is 2.08 billion m^3p.a.*
- *while for 2 x 1200 MW_e units it is 4.16 billion m^3p.a.*

The maximum cooling water demand of the simultaneous operation of the two new units is 132.02 m^3/s.

In order to ensure proper supply of cooling water, a new water intake plant will be constructed on the cold water channel of the Paks Nuclear Power Plant. The exact location will be determined as soon as the construction site of the new units is designated.

The water pumped from the Danube will supply cooling water for the condenser cooling water system, the emergency cooling water system, the raw water system and the process cooling water system.

The purpose of the condenser cooling water system is to re-introduce mechanically treated raw water taken from the Danube into the Danube River across the condenser and thereby ensure that the heat is taken off in the contact condenser. Major components of the unit:

- *existing cold water channel to be expanded;*
- *water intake plants in the flood area of the cold water channel;*
- *cooling water conduits (connecting the water intake plant and the turbine condensers);*
- *turbine condenser units (in turbine engine house);*
- *covered warm water channels;*
- *displaced crossing of cold water channel;*

- *spillway;*
- *a new warm water channel with trapezoid cross section and open surface running parallel to the existing warm water channel;*
- *a new baffle to improve mixing.*

The condenser cooling water system sends the service cooling water necessary for cooling the process cooling water system to the turbine engine house, where a properly laid out booster pump forwards the water through a branch to the consumers of the process cooling water system.

The cooling water heated in the process cooling water system is sent to the warm water branch of the condenser cooling water system downstream from the condenser. The water used for cooling the process and that cooling the condenser are returned to the Danube together.

The cooling medium of the process cooling water system is water taken from the Danube, which is filtered initially in the condenser cooling water system to pass through finer mechanical filters in order to ensure the safe operation of heat exchangers. Desalinated water is circulated in the interstage cooling water system of the turbine engine house on the cold medium side of the heat exchangers used in the process cooling water system.

The configuration of the process cooling system is 2x100%, i.e. major system components are replicated with proper cross connections for full redundancy. Process cooling water demand for

- *1 x 1200 MW_e unit is 81.99 million m^3p.a.*
- *while for 2 x 1200 MW_e units it is 163.98 million m^3p.a.*

An emergency cooling water system is operated to cool the auxiliary systems of the primary circuit of the nuclear power plant. This system is independent from the condenser cooling water and the process cooling water systems on the secondary circuit.

Each of the new nuclear power plant units have their own dedicated emergency cooling water system, which use an interstage cooling loop to remove heat from connected processes. Each unit has four fully independent interstage cooling loops with completely identical functions.

Emergency cooling water demand

- *for 1x1200 MW_e unit is 59.91 million m^3p.a.*
- *while for 2x1200 MW_e units is 119.83 million m^3p.a.*

Auxiliary systems and facilities:

Desalinated water:

A new feed water treatment plant configured to cover 3x100% capacity will also be constructed for the new nuclear power plant units. Component processes of the treatment of make-up water:

- *clarification*
- *multimedia filtration*
- *desalination through membranes (ultrafiltration, desalination with reverse osmosis, salt removal by electro-deionisation)*
- *follow-up salt removal with ion exchange*

The combined annual raw water demand of the make-up water treatment plant for the two

nuclear units is not expected to surpass 640 thousand m^3.

The desalinated water demand

- *of 1x1200 MW_e unit is 0.0066 m^3/s*
- *while for 2x1200 MW_e units it is 0.013 m^3/s*

The combined annual volume of waste water generated during the treatment of make-up water for the two units is maximum 220 thousand m^3. Waste water is intermediately stored in a waste water container and is treated with chemicals for neutralisation if necessary. Waste waters are sent to the process waste water system of the power plant.

Process waste water:

The process waste water system comprises the following systems:

- *system to treat the radioactive waste water of the primary circuit*
- *waste water treatment system of the turbine engine house (closed condensate collection system, leachate collection system, industrial waste water system)*

Volume of radioactive waste water

- *for 1x1200 MW_e unit 44 thousand m^3/year*
- *for 2x1200 MW_e units 88 thousand m^3/year*

Volume of waste water from turbine house

- *for 1x1200 MW_e unit 175 thousand m^3/year*
- *for 2x1200 MW_e units 350 thousand m^3/year*

Drinking water, municipal waste water

Drinking water can be supplied to the new power plant from the waterworks at Csámpa. The disposal and treatment of municipal waste water may be solved by connecting to the existing sewage system of the Paks Nuclear Power Plant.

Rainwater:

Rainwater from the courtyards and roof surfaces of the new nuclear power plant units and unpolluted surface waters collected from other locations are sent directly to the warm water channel.

Oil traps will be installed to purify rainwater collected from parking areas. Transformer foundations will be constructed with water shafts of proper capacity to store rainwater and oil traps to manage potential leakage of oil. Rainwater collected from the vicinity of oil containers also passes across oil traps. Purified rainwater and clean rainwater are disposed of jointly.

Fire water:

A common fire water network will be established for the new units and will be fed with supplementary water from the raw water system of the units. Fire water of no more than 380 m^3/h is sent by pipeline from the raw water system to the fire water basins.

Alternatively, the fire water system may take feed water from the bank-filtered water resources of the industrial water plant of the Paks Nuclear Power Plant. After the existing units are decommissioned, the bank-filtered system of wells and direct feeds to the new nuclear power plant units will remain, if necessary, but connection points with the existing power plant will be eliminated.

Fully duplicated sets of pumps installed at the fire water pump station ensure proper pressure through the fire water network.

The effect of the additional drinking water demand of constructing the new nuclear power plant units (720 m^3/d) on sub-surface water flow has been studied across an area of 55 km^2 located to the west of the premises of the Paks Nuclear Power Plant, where the stratum water wells of the Csámpa and Paks water plants are operated to supply water to the area. Calculations suggest that the operational wells at Csámpa have the capacity to meet the increased water demand of the establishment project. The existing sewage treatment facility has sufficient capacity to treat the additional waste water.

The ground water extracted by de-watering the building pits dug during the establishment of the new power plant units will be sent to the cold water channel according to plans. Although the volume of extracted ground water is 13,000 - 18,000 m^3/day (maximum 0.2 m^3/s) will influence the level of ground water in the region, but the change will not surpass the average annual fluctuation of water level (3.12 m) measured in the monitoring wells covering the whole area; accordingly, no major impact is expected.

The discharge of waste water and cooling water from the nuclear power plant does not threaten the protective areas with an access time of 50 years of the operating and future water resources in the Danube section located downstream from the waste water inlet (Danube 1526+250 river km section) even if Danube discharge level happens to be extremely low (579 m^3/s).

The procedure of obtaining consent under the applicable water legislation to the right to use fresh water to cool the new power plant units and for water intake from the Danube was launched under file number 3019/2014/F-VH at the Fejér County Directorate of Disaster Management on 16 December 2014. The consent procedure is currently pending under file gen. Ref. No. 35700/713/2016.

The available records suggest that the area covered by the plans does not affect the protective areas around operating or future water resources.

Based on a 1:100.000 sensitivity map prepared based on Section 7(4) of Government Decree 219/2004. (VII.21.) on the protection of sub-surface waters (hereinafter: PSW Decree), the area is classified as sensitive (more specifically as category 2.c) from the perspective of sensitivity to pollution and the status of the sub-surface water.

As it was necessary to obtain technical position statements from the Lower Danube Valley Water Management Directorate and the Water Management Directorate of Central Transdanubia to be able to evaluate the matter, I contacted the Directorates in letters rogatory seeking domestic legal assistance and as both Directorates stated that the impact assessment documentation was incomplete, I instructed the client to clarify the facts.

I contacted the Directorates once again in a letter seeking domestic legal assistance and attached the additional documents received from MVM Paks II. Atomerőmű Fejlesztő Zrt.

The Lower Danube Valley Water Management Directorate made the following comments and set the following requirements in its statement under file number 0415-028/2015.

> *"As indicated in an earlier opinion, we continue to attach importance to constructing a monitoring system that takes continuous measurements at reference points in order to keep the effects of discharges under control and manageable. Access to the results obtained from operating the monitoring system about the impact on water quality and the ecological status of the Danube shall be provided for the asset manager of the Danube River.*

Section 1 of the documentation clarifying the facts does not address the type of the planned monitoring system, i.e. it fails to assert whether or not it will take continuous measurements. Consequently, we consider it necessary to impose general monitoring requirements on the applicant during the consent procedure.

We stress once again that the affected Danube section was classified moderate by the survey of ecological status taken as part of the National Watershed Management Plan (due to fish and macro-zoo classification). Hungary's Watershed Management Plan (HWMP) harmonises with the EU Water Framework Directive in that it set out to improve and maintain the status of waters, and these objectives shall be considered and respected also during this procedure. As our Directorate holds asset management powers, we are responsible for achieving the objectives of the watershed management plan. Based on the classification of the river, deterioration of river status is not allowed and the objective calls for attaining good ecological qualification.

The EIA fails to use discharge and temperature data supported by measurements taken in the warm water channel in connection with the mixing and subsequent separation of the warm water of Paks I and Paks II, despite the fact that former planning values and the data captured by monitoring since 2005 are also available for Paks I.

Please note that the EIAS does not cover the presentation of the precise location of the warm water inlet of Paks I and Paks II and the two reference sections in river kilometers, the uniform map projection coordinates, and the location of the design perpendicular in the reference section.

Our opinion is unchanged and suggests that client still fails to clarify the expected uninterrupted excess durations of temperature limit specified for the Danube and the expected intervals between times of excess. We do not regard the annual average durations presented in the documentation and used for the calculations suitable as design parameter from the perspective of the operation and operability. In connection with that, we think it is necessary to present figures and graphs of the warm water plume for instances when the water discharge of the Danube is below 1500 m^3/s, as prepared additionally in section 2 of the documentation submitted to clarify the facts.

Velocity field calculations have been prepared for extremely low water levels and the design period (2030-2032), but the model calculations on how shipping will be effected are missing. The velocity field distributions presented in the documentation suggest that direct impacts on navigation may be expected. As a result, we consider that detailed analysis of navigation conditions and elaboration of the planned interventions in view of the result of the analyses as part of the water establish license procedure is necessary."

The Middle Danube Valley Water Management Directorate made the following observations in its statement under file number Szfvár-0466-26/2015:

"As regards flood protection:

There are three figures in the documentation prepared to clarify the facts in connection with the changes of low water levels of the Danube and the deepening of the river basin. Figure 1-3 shows the effect of water being retained by the dam of Dunacsúny/Bős during low water periods recurring once every 20,000 years as characterised by various alternatives on the safety of water intake at the Paks Nuclear Power Plant (at Danube river km 1526.5), which does not fit the context. The time axis of the graph is also an

unfortunate selection since it presents an event that occurred in 1965. The reference above the figure is not appropriate. Accurately: Figure 11.7.1-15 and Figure 11.7.1-16 of the EIA (Figure 1-1 and Figure 1-2, respectively, in this documentation) show that low water periods recurring once every 20,000 years are associated with water moving along the current basin at about 83.80 m above Baltic sea level. The EIAS contains Figure 11.9.2-5 (Figure 1-3 in the present document) along with an explanation.

<u>As regards water management:</u>

The document submitted in addition to clarify the facts suggests that waste water material flows undergo substantial dilution in the warm water channel and the Danube even in low water periods (waters are discharged into the streamline of the Danube where mixing forces are the most intensive), which could not lead to measurable pollution near the right bank water resources used to supply water to the town of Szekszárd.

As the clarification of the facts, including the response given by MVM Paks II Zrt. is appropriate in terms of flood protection and water management, we recommend the acceptance of the environmental impact assessment."

In consideration of the above and the matters covered by the environmental impact assessment and the supplementary documents, I did not raise any objection to issuing the environmental license from the perspectives of water management and the protection of waters. I granted my administrative consent as special authority with the requirements laid down in the operative part in view of the following:

Section 28(1) of Act LVII of 1995 on Water Management (hereinafter: WM Act) and Section 3(1) of Government Decree 72/1996 (V.22.) on exercising the powers of the water management authority (hereinafter: Implementing Decree) provide that the establishment of a hydraulic engineering works shall only be started in possession of an establishment license issued under the applicable water legislation. The wording of the requirement laid down in section 1.1 (Section II/3.10.1 of the permit) harmonises with that provision.

In the meaning of section 26 of Annex 1 of the WM Act hydraulic engineering works are structures (water utility), engineering structures, equipment, fittings or mechanisms designated to influence the runoff and flow regimes, volume or quality or the conditions of the basin and banks and shores of waters for the purpose of preventing harm to, utilising (including by way of services delivered by water utilities), and observing the quantity and quality of waters, and to conduct mineral or geological research or to extract mineral resources.

After the completion of the project, operating license issued in compliance with the applicable water legislation needs to be obtained for hydraulic engineering works. Pursuant to Section 5(1) of the Implementing Decree the application for a license issued under applicable water legislation must be submitted by the party who will exercise and perform directly the rights and obligations associated with the operation of the hydraulic engineering works, as laid down in legislation and regulatory requirements. Applicants shall enclose with their applications the attachments specified in Ministerial Decree 18/1996 (VI.13.) KHVM on the application for a consent to establishing water rights and its enclosures.

I established discharge limit values for typical substances discharged in respect of municipal waste waters in Section 1.2.1 of my position statement (Section II/3.10.2.1 of the permit) as required under Annex 4 of Ministerial Decree 28/2004 KvVM on limit values applicable to

pollutant emissions and certain rules governing their application (hereinafter: KvVM Decree) on the basis of Sections 21 and 25 of Government Decree 220/2004 (VII.21.) on the rules of protecting the quality of surface waters (hereinafter referred to as Surface Waters Decree).

The limit values specified for the quality of waters discharged into the Danube through the warm water channel have been established taking into account the components typical of the hydraulic engineering works of the nuclear power plant on the basis of Section 18(2) of the Surface Waters Decree and Annex 2 of the KvVM Decree.

I have set discharge limit values in section 1.2.3. (section II/3.10.2.3 of the permit) for purified rainwater and ground water extracted and drained off during construction with a view to Sections 18 and 25 of the Surface Waters Decree. The limit values were imposed taking into account the territorial discharge limit values applicable to recipients in General Protection Category 4 as defined in Annex 2 of the KvVM Decree.

I have set the requirements laid down in section 1.3 (section II/3.10.3 of the permit) on the basis of Section 5(1) of the Surface Waters Decree and Sections 18(5) and 21 of Act LIII of 1995 on the General Rules of Protecting the Environment.

Pursuant to Section 6(1)b) and c) of Act LIII of 1995 on the General Rules of Protecting the Environment, using the environment shall be organised and conducted in a manner to prevent pollution and to preclude environmental harm. Requirements related to the emergency basins of transformers and storage containers etc. in section 1.4 (section II/3.10.4 of the permit) was laid down in compliance with the above mentioned provisions.

Sections 27 and 28 of the Surface Waters Decree along with Sections 7, 8 and 17 of Ministerial Decree 27/2005 (XII.6.) KvVM on the detailed rules governing the control of discharging used and waste waters and Section 8b) of the PSW Decree served as legal grounds for the requirement concerning the establishment and operation of the monitoring (control) system.

The requirements laid down in section 1.6 (section II/3.10.6 of the permit) have been set on the basis of Government Decree 83/2014 (III.14.) on the use and the utilization of the high water river basin and the riparian zone of watercourses and the areas endangered by wetlands and underseepage, and on the rules applicable to the preparation and content of high water riverbed management plans for rivers.

As a major part of the Danube River is classified as a navigation route, it is extremely important to avoid any hindrance of water transport resulting from the constructions of the new nuclear power plant units and related facilities and the subsequent operations. That is the reason behind laying down the requirement set in section 1.7 (section II/3.10.7 of the permit).

I have included the requirements set by the Lower Danube Valley Water Management Directorate in respect of the area of competence of our authority in sections 1.8-1.9 of my position statement as a special authority (sections II/3.10.8-3.10.9 of the permit). Please note:

- *Section 3(8) of the PSW Decree defines disposal as an activity targeted at depositing or storing any material on the surface or in geological media, including depositing, storing, transporting or streaming with technical protection.*
  Section 10(1)e) of the PSW Decree provides that any introduction or disposal into

sub-surface waters as part of an activity requires a license in order to secure the good quality status of sub-surface waters and to prevent or restrict the introduction of pollutants into sub-surface waters.

Section 13(1)a) of the PSW Decree provides that the disposal of pollutants is an activity that requires a license.

Section 13(2) of the PSW Decree provides that in case the activity specified in Section (1) is not subject to the competence of other authorities, the authority responsible for the protection of water shall have the power to consent to the activity.

The technical safety authority with territorial competence has the power to consent to the establishment and commissioning of containers of hazardous liquids. The authority responsible for protecting waters participates in licensing procedures in its capacity as special authority as provided in Section 6 of Annex 4 of Government Decree 321/2010 (XII.27.) on the rules governing the safety related activities of authorities responsible for technical safety and the market surveillance procedure of the Hungarian Trade Licensing Office.

In the meaning of the legislation quoted above, the Directorate of Disaster Management participates in the consent procedure conducted in relation to the hazardous liquid containers to be established in connection with the establishment of the planned new nuclear power plant units, and issues a license for the disposal of polluting substances in a position statement required for the commissioning license, provided the legal conditions are met.

- *Section 6(5) of Government Decree 90/2007 (IV. 26.) on the regime of pollution prevention and mitigation provides that plant level mitigation plans are approved by the environment protection authority with the water management authority participating as special authority, provided the plan relates to surface or sub-surface waters and geological media.*

  In the meaning of Section 29(3) and Annex 6, Table II of Government Decree 71/2015 (III. 30.) on designating the bodies that act as environmental and nature protection authorities, the Directorate of Disaster Management exercises its water protection and water management powers to participate as special authority in the licensing procedure conducted to approve of plant level pollution prevention plans in respect of the special questions relating to examining the impact of activities and facilities on the protection of surface and sub-surface waters, the status of waters, water resources, water runoff, the travel of floods and ice."

"The powers of the Fejér County Directorate of Disaster Management is specified by Section 10(1)4 of Government Decree 223/2014 (IX.4.) on designating the bodies responsible for attending to regulatory duties in water administration, water management and water protection, by Section 28(3) and Annex 5, Table II of Government Decree 71/2015 (III.30.) on designating the bodies that act as environmental and nature protection authorities, by Section 28(1) of the Act on Water Management and Section 1(1) of the Implementing Decree, while its competence is determined in Section 10(2) and Section 4 of Annex 2 of the Government Decree."

The **Bács-Kiskun County Directorate** of **Disaster Management** issued its decision as a

special authority on 29 July 2015 on the special questions of water management and water protection under file number 35300/2221-31/2015., rectified by order No. 35300/2221-32/2015. dated 19 August 2015 due to a clerical error.

Evaluating the Clarification and the comments received during the procedure, the Bács-Kiskun County Directorate of Disaster Management issued a document dated 7 July 2016 under file ge. Ref. No. 35300/3261-4/2016. to revoke the administrative consent it granted earlier under file gen. Ref. No. 35300/2221-31/2015. and rectified by order gen. Ref. No. 35300/2221-32/2015. Simultaneously, the Directorate issued its consent as laid out in the operative part, with the following reasons:

"The Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia (7621 Pécs, Papnövelde u. 13- 15.), (the legal predecessor of the Baranya County Government Office Department of Environmental and Nature Protection) requested the water authority in a letter rogatory to issue a decision as a special authority in respect of the special question identified in Section 33(1) and Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of bodies attending to regulatory and administrative duties associated with protecting the environment, nature and waters as part of the environmental impact assessment procedure of the new nuclear power plant units MVM Paks II. Atomerőmű Fejlesztő Zrt. (7030 Paks, Gagarin utca 1., III. emelet 302/B.) plans to establish on lot No. 8803/15 in Paks at the site of the Paks Nuclear Power Plant.

Pursuant to the provisions of Section 4(1) of Government Decree 314/2005 (XII.25.) on environmental impact assessment and IPPC consent procedures, the Inspectorate made available the application and its attachments by electronic means only at http://ddkvf.hu/doc/paks.zip.

Based on the memorandum taken of a coordination meeting convened by the Government Office in Pécs and held on 22 April 2015 to discuss the matter of powers and the response received from the Baranya County Government Office in connection with ***the negative conflict of powers between the water authority and the Baranya County Government Office*** *under file number BAB/5/398-2/2015 on 20 April 2015, coordination between the Parties was successful and the* ***Parties agreed*** *that*

the scope of the power and competence of the Bács-Kiskun County Directorate of Disaster Management is limited to the mean-stage river basin of the Danube, the water resources on the left bank of the Danube and on the examination of non-radioactive impacts and impacts not related to heat pollution arising from the implementation of the planned activity and capital expenditure projects implemented in the mean-stage river basin of the Danube.

The power to grant consent to the hydraulic engineering works to be established on lot No. 8803/15 in Paks lies with the Fejér County Directorate of Disaster Management.

The environment and nature protection authority has the power to judge the impact of the capital expenditure project on the flora and fauna of the Danube River and to evaluate radioactive discharges and heat pollution.

As the planned activity will be implemented on lot No. 8803/15 in Paks, the Fejér County Directorate of Disaster Management will act as the authority with competence over consent procedures relating to the establishment of preliminary water rights, water rights establishment and operating licences, while the Bács-Kiskun County Directorate of Disaster

Management cooperates in the framework of domestic legal assistance pertaining to its area of competence.

As part of this procedure of the special authority, the water management authority contacted the Lower Danube Valley Water Management Directorate in its capacity as asset manager of the Danube River and as manager of the high-stage river basin on 3 April 2015 to issue an asset manager's statement pursuant to Section 26(1)c) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services.

After postponing the deadline, the Lower Danube Valley Water Management Directorate recommended clarifying the facts in a letter with reference number 0415-008/2015 received on 22 April 2015. The following points in that letter were subject to the competence and power of the Bács-Kiskun County Directorate of Disaster Management:

- *"The EIAS fails to mention the water level, discharge and water temperature measurement devices installed in 2005 as elements of the current monitoring system along the warm water channel and also fails to offer an evaluation of the experiences gained from the data measured there in the light of parameters constructed from the perspective of the planned development.*
- *The study identifies the cooling water demand of the existing Paks I at 100 m^3/s, but we have information suggesting that the warm water channel can take off as much as 120 m^3/s of cooling water on hot summer days. That motivates our request to collect, process and present the data measured by the monitoring systems of the cold and warm water channels and to take the results into account in subsequent calculations.*
- *The hydrological basis of the LWL = 83.80 m above Baltic sea level value presented for the Paks section of the Danube for 2032 in Table 6.6.5-1 of Chapter 6.6.5.1 and the water level of 83.60 m above Baltic sea level calculated from the LWL for the inlet section of the cold water channel is doubtful, we disagree with the applied methodology and think that the calculated values should not be accepted as representative. There is no indication of expected water levels of the Danube during the planned lifetime of the cold water channel and the water levels needed to support operations and their interrelationships.*
- *The document relating to the modelling of the Danube (KHT_II.pdf) suggests that the water level of the low water calibration of the hydraulic IT model was set at DB "0". (Table 11.6.1-3 - page 35). There is no indication of the period to which the DB "0" water level refers, and this is a calculated and theoretical rather than a measured water level. We think it is necessary to present how the river basin conditions taken into account during model calculations as the basis for the DB "0" value and the river basin model shown in the EIA relate to each other. If the river basin models do not rely on an identical survey basis, the modifications of the river basin during the period between surveys may distort the value of DB "0", which will lead to errors in the low water calibration. Validation must be used to verify the accuracy of the calibrations needed during modelling. The documentation fails to provide information about verification and verification results either for high water or for low water conditions.*
- *The long term definition of river basin modifications contains low water trend data derived from both linear and logarithmic methods. Averaging these is not justifiable*

from a professional perspective, we recommend using the best method in terms of justification (Table 11.6.4- 3).

- *We recommend the application of morphodynamic modelling to study the effect of river basin modification processes on low water levels, which also lends itself to mapping river basin modification processes, along with the definition of water level changes based on an evaluation of calculated data.*
- *Legislation requires the definition of the extreme water level which recurs once every 20,000 years. We do not think the methodology applied for the purpose is sufficiently representative because available data series (about water level and discharge) are not long enough in statistical terms (the required length should be one third to a quarter of reversion time) and were shortened even further (1965-2011). This is only one third of the available water level data and roughly half (!) of discharge data at hand. The lack of homogeneity is referred to as the reason for truncating the data series. As water levels tend to decline without interruption, which is also true for the component data series, the homogeneity of component data series may be justified numerically but it may not be valid in reality. We think that the full series of data should have been homogenized for the present period, which should have been used as a basis for determining what could be treated as extreme values for design purposes by selecting the best fitting distribution function (only 3 distribution functions were examined in terms of fit with the data series). It follows from the above that we disagree with the application of calculated extreme water level values.*
- *Chapter 11.7.1.1.2. of the document on modelling presents a calculation of the water level drop between the Paks measurement station and the cold water channel. Using the average of the low water and the high water status could not be regarded as professionally sound as the water level drops associated with the two hydrological states differ substantially. It is justifiable to use transformation calculated from low water drop for studying design low water level operating conditions.*
- *We disagree with the method used in Chapter 11.7.1.3.5, because it depends on the length of the period included in the calculation and contradicts the rule that the likelihood of occurrence of an event does not depend on the number of samples taken (Figure 11.7.1-23).*
- *We disagree with the assumption that the flood level calculated to recur once every 20,000 years cannot occur as the crest level of the left bank levy is lower than that value (Chapter 11.7.1.2, page 79). Temporary flood protection structures offer effective means of fighting floods that are higher than the crest level of the levy (as demonstrated by the past two decades of the Tisza River).*
- *There are only two figures concerning the study of flow conditions in Chapter 11.8.1.2 on the Impact of establishing Paks II on the flow area and the river basin modification processes of the Danube. These contain velocity fields integrated for depth associated with 2,300 m^3/s of discharge and 100 m^3/s of water taken-off and returned into the Danube. The EIA does not include the results of test series pertaining to higher water consumption and lower water discharge of the Danube, disregarding that extremely low water levels and peaks of water consumption during operation would actually correspond to the design status for shipping.*

- *To study river basin changes the modelling used static water discharge values taking into account 5 years of operation. We disagree with this method and request the client to present a longer term model of river basin changes, one that uses the changing water discharge values of the Danube for modelling the actual flow regime.*
- *The documentation fails to indicate whether or not the heat recovery power plant which is designed to take warm water as input and has approved water rights will be constructed and two power plants will be operated at the two warm water outlet points. If power plants are built on both warm water outlets, their interaction and impact on the environment must be examined.*
- *The consequences of water intake and warm water output must be managed during the project and proper structures are needed to ensure the stability of the river basin. The necessary hydraulic engineering works must be designed soundly upon a detailed presentation of model outcomes, also including a demonstration of the extreme values of velocity distributions evolving in the environment. Our Directorate in its capacity as the asset manager of the high-water bed of the Danube, which is owned exclusively by the state, offers the designers the opportunity to consult on a continuous basis during the preparation of the plans."*

Based on the above, the water management authority invites the client to clarify the facts in its order recorded under file Ref. No. 35300/2221-15/2015.

The water management authority ascertained that the statement issued by the Lower Danube Valley Water Management Directorate in response to the letter rogatory also pertains to questions of heat pollution in the Danube River, and therefore the water management authority transferred the section of the water manager's statement concerning heat pollution to the authority where the procedure is pending.

After a postponement of the deadline upon its request, the client fulfilled the instruction to clarify the facts by submitting attachments to its letter No. K/P2/00946/2015.

As the order to clarify the facts issued by the water management authority was also motivated by the technical comments of the Lower Danube Valley Water Management Directorate, the authority contacted the Directorate once again in an order set in a letter rogatory with a copy of the clarifying documentation asking it to make a statement.

The reply by Lower Danube Valley Water Management Directorate to the letter rogatory seeking legal assistance was delivered to the water management authority under file number 0415-027/2015 on 17 July 2015, after a postponement of the deadline by the Directorate. The Directorate made the following statement:

> *"As indicated in an earlier opinion, we continue to attach importance to constructing a monitoring system that takes continuous measurements at reference points in order to keep the effects of discharges under control and manageable. Access to the results obtained from operating the monitoring system about the impact on water quality in and the ecological status of the Danube shall be provided for the asset manager of the Danube River.*
>
> *Section 1 of the documentation clarifying the facts does not address the type of the envisaged monitoring system, i.e. it fails to assert whether or not it will take continuous measurements. Consequently, we consider it necessary to impose general monitoring requirements on the applicant during the consent procedure.*

We stress once again that the affected Danube section was classified moderate by the survey of ecological status taken as part of the National Watershed Management Plan (due to fish and macro-zoo classification). Hungary's Watershed Management Plan (HWMP) harmonises with the EU Water Framework Directive in that it set out to improve and maintain the status of waters, and these objectives should be considered and respected also during this procedure.

As our Directorate holds asset management powers, we are responsible for achieving the objectives of the watershed management plan. Based on the classification of the river, no deterioration of river status is allowed and the objective calls for attaining good ecological qualification.

The EIA fails to use discharge and temperature data supported by measurements taken in the warm water channel in connection with the mixing and subsequent separation of the warm water of Paks I and Paks II, despite the fact that former planning values and the data captured by monitoring since 2005 are also available for Paks I.

Please note that the EIAS fails to identify accurately the river kilometre section of the warm water inlet from Paks I and Paks II and the two reference sections, the uniform map projection coordinates and the location of the design gauging vertical in the reference section.

Our opinion is unchanged and suggests that client still fails to clarify the expected uninterrupted duration of surpassing the required temperatures of the Danube and the expected intervals between times of excess. We do not regard the annual average of constancy, which is presented in the documentation and used for the calculations, as a guiding figure from the perspective of operating or running. In connection with that, we think it is necessary to present figures and graphs of the warm water tail for instances when the water discharge of the Danube is below 1,500 m^3/s, as prepared additionally in section 2 of the documentation submitted to clarify the facts.

Velocity field calculations have been prepared for extremely low water levels and the design period (2030-2032), but the model calculations on how navigation will be effected are missing. The velocity field distributions presented in the documentation suggest that direct impacts on navigation may be expected. As a result, we consider it justified to examine navigation conditions in detail and to elaborate the planned interventions in view of the findings as part of the consent procedure conducted to acquire the right to establish water related facilities."

As the document issued by the Lower Danube Valley Water Management Directorate did not specify exactly whether the cooling water required by the existing and future nuclear power plant units is available in the section of the Danube where water is taken off, the water management authority contacted the Lower Danube Valley Water Management Directorate to complement its legal assistance by making a water manager's statement about this specific question based on the data available to it and documents sent earlier.

The Directorate provided the following statement under file number 0415-030/2015 on 27 July 2015:

"You contacted our Directorate in an order identified by the file number referred to above seeking domestic legal assistance again as part of the environmental impact assessment of the new nuclear power plant units to be established by MVM Paks II. Atomerőmű

Fejlesztő Zrt. on lot No. 8803/15 in Paks.

Your letter rogatory asks us to provide a water manager's statement as to whether, based on data available at present, the cooling water demand of the existing and future nuclear power plant units can be covered from the section of the Danube River where water is taken off.

Our Directorate is authorised by Section 26(1)c) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services (hereinafter referred to as Administrative Proceedings Act) to provide domestic legal assistance, and therefore our organisation may be requested to disclose data or documents in the framework of domestic legal assistance for the purpose of evaluating the case. It follows from the above that our Directorate is not authorised to make a manager's statement in the framework of domestic legal assistance.

Given the high priority of the case, please find below our opinion about the question.

The designer is liable for ensuring that the initial data covered by the submitted documentation and the plans, test results and conclusions developed by the thoughtful application of calculation and modelling methodology are true and accurate, comply with professional principles and support the safe operation of the planned facility.

The completed documentation suggests that the maximum water demand of combined operation of the 4 existing and the 2 future units as calculated by the designers is 232.02 m^3/s. Our Directorate has no measured data concerning the lowest historical water discharge of the Danube, but calculations suggest that the value is estimated at 600 m^3/s."

In the framework of the environmental impact assessment procedure, the authority of water management and protection issued its administrative consent along with instructions in document gen. Ref. No. 35300/2221-31/2015., which it corrected in Order gen. Ref. No. 35300/2221-32/2015. because of a clerical error.

The Baranya County Government Office Department of Environmental and Nature Protection requested the water authority on 24 July 216 in letter rogatory No. 78-52/2016 to issue a decision as a special authority based the Clarification of certain technical solution submitted by the Developer in electronic form only (hereinafter: Clarification) along with the comments received from the Hungarian and international public during the procedure and a document containing Developers responses to those comments and its opinion (hereinafter referred to as "Book of Responses").

The acting authority held a consultative meeting on 4 July 2016.

Following receipt of the letter rogatory of the acting authority regarding domestic legal assistance and a manager's statement, the recipient Lower Danube Valley Water Management Directorate communicated the following in a letter under file No. 0196-011/2016:

„You requested our Directorate in an order with the reference number quoted above to provide domestic legal assistance and to make a statement as asset and high water river basin manager in five days of receipt of the order.

Our Directorate is authorised to release data or documents to help evaluate a case in the framework of domestic legal assistance pursuant to the provisions of Section 26(1)c) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services. It

follows from the above that our Directorate is not authorised to make a statement during the procedure in the framework of domestic legal assistance. In case you need any existing document or data for evaluating the case, please indicate so.
Please find below our opinion on the documents downloaded from the website identified by the authority:
Part of the property involved in the envisaged development project lies in the high-water river basin of the Danube. The border of the high-water river basin inside the plot is marked by the higher of the design flood level or the highest historical flood level pursuant to the definition of terms in Act LVII of 1995 on Water Management.
The documentation does not include a part that discusses the impact of the planned facility on the high-water river basin. Please note that the use of the high water bed of rivers is subject to Chapter 3 of Government Decree 83/2014 (III.14.) on the use and the utilization of the high water river basin and the riparian zone of watercourses and the areas endangered by wetlands and underseepage, and on the rules applicable to the preparation and content of high water river basin management plans for rivers (hereinafter: Govt. Decree). Section 1(9) of the Govt. Decree provides that the detailed rules of using and utilising the high-water river basin must be specified in a high-water river basin management plan.
As there is no high-water river basin management plan promulgated in decree pertaining to the section of the Danube affected by the planned facility, the provisions of Section 5 of the Govt. Decree apply, namely:

(4) In the event a section of a river is not subject to a high-water river basin management plan, the entity responsible for managing the river section may grant consent to establishing a structure there after performing the assessment envisaged in Section (1) if the application:

a) seeks to establish a monitoring or signalling station directly associated with the use of the river basin and maintaining the watercourse, hydraulic engineering works connected to using the high-water river basin or a structure designed to function as a port, berth, ferry crossing or water guard;

b) seeks to establish a route based structure or hydraulic engineering works for public use, and such structures or works do not influence flood travel conditions adversely; or

c) seeks to establish structures on areas inside a settlement's administrative territory situated in the high-water river basin and the local government or the Municipality of Budapest in the capital city agrees to secure flood protection for the structure to be established by constructing temporary ramparts.

The information made available to us shows that there have been major changes in the planned implementation, which Clarification describes briefly but does not put into the perspective of the whole process and also does not manage them. The questions of this nature include for instance the major prolongation of the joint operation of the current 4 and the future 2 reactors. Documents presented earlier suggested that the most unfavourable period would cover 2 years (between 2030 and 2032) and the brevity of joint operation was considered to be an advantage from the perspective of environmental impacts. The present Clarification suggests that this period is to increase from 2 years to 6

years (between 2026 and 2032), which may be significant in terms of long term impacts.

The designers consider that reducing the capacity of the nuclear power plant is an acceptable solution to be applied from the perspective of the recipient for managing the critical thermal load. Given that the period of joint operation will be longer (7 instead of 2 years), the likelihood of resorting to this solution should be larger.

Based on the above, we uphold the comments offered in our earlier decision and request that they should be taken into account and managed.

In order to follow up the impacts on surface waters, we attach high priority to establishing and operating a monitoring and information system of continuous operation, which lends itself to real time online supervision by the authority and the manager of the recipient and is suitable for controlling the impacts on the watercourse (including from our perspective primarily the thermal load and the volumes of water taken off) and for tracking any action taken. The measurement points of the monitoring system must be established at the points of reference specified by the authority."

The uploaded electronic documents, including http://ddkvf.hu/doc/paks.zip, http://oracle.barko.hu/kofo/78142016.zip, and http://oracle.barko.hu/kofo/755.zip and the documents clarifying the facts include but are not limited to the following:

MVM Paks II. Atomerőmű Fejlesztő Zrt. is planning to establish 2 new nuclear power plant units at the site of the Paks Nuclear Power Plant on lot No. 8803/15 in Paks.

The EIAS suggests that the Developer intends to replicate the solution used with the existing units by pumping water from the Danube River to cool the two new units of 1200 MW rated capacity, each, planned at the site of the Paks Nuclear Power Plant. The combined cooling water demand of the operating four and the two new units is 232.02 m^3/s, which falls short of 50% the lowest historical discharge (664 m^3/s) measured in the section of the Danube where pumping is planned according to data laid down in the documentation. The medium discharge of the Danube River in the section of the power plant, i.e. in the 1527 river kilometre section, is 2,300 m^3/s, whilst the related medium water level is 88.00 m above Baltic Sea level.

According to the documentation the first unit and the second unit are expected to start using water from the Danube operationally in 2025 and 2026, respectively. As time passes, each of the existing units will be gradually shut down and only the two new units will be up and running after the year of 2037.

Water output is expected to peak at 232 m^3/s between 2026 and 2032. The maximum cooling water demand of the simultaneous operation of the two new units only is 132.02 m^3/s.

Given the long period of operation (2090), the authors of the planning documents, acting in an awareness of their responsibility as designers specified, as a temporary solution, the reduction of the capacity of the units coupled with other technical and plant management actions should the water discharge of the Danube, which is sufficient at present to cover the cooling water demand, decrease due to changes in natural circumstances unforeseen at the date the special authority issued its decision.

In order to ensure the proper supply of cooling water, the document suggests that it is necessary to expand the current cold water channel (deepening by roughly 1.7 m and broadening the cross sections) and to construct a new water intake facility on the banks of

the cold water channel.
As the water intake facility will be established on the cold water channel, it will have no direct and also has limited indirect impact on the flow space and the river basin of the Danube, the latter due to the operation of the pumps of the water intake plant and the connecting cold water channel (dredging of deposits formed). This indirect impact is limited in territorial dimensions and is temporary similarly to the impacts arising from the operation of the existing power plant.
The water pumped from the Danube will supply cooling water to the condenser cooling water system, the emergency cooling water system, the raw water system and the process cooling water system.
A new open surface warm water channel running almost parallel to the existing warm water channel is planned as a solution for discharging the warmed cooling water of the two new units, with the Danube outlet located upstream from the current warm water channel.
The higher volume of purified municipal waste water and grey water generated during operations will be sent to the existing warm water channel.
Municipal waste waters will be purified at the currently operational sewage treatment plant rated for treating 1870 m^3/day. The current load of the plant is 300 m^3/day.
The plans forecast that the largest volume of municipal waste water will be generated at 614 m^3/day once unit 5 has started to operate and unit 6 is being constructed simultaneously.
Using a mixing model developed for low water discharge conditions, the documentation asserts that pollutant parameter values measured 10 metres downstream from the outlet point into the Danube are below the detection limit values defined in Hungarian standards for the analytical methods used to track their presence.
The documentation recommends the construction of a buffer reservoir to prevent discharging untreated waste water directly into the recipient in case of an emergency, although design calculations suggest that emergency situations involving the discharge of untreated waste water deteriorate water quality indicators in the band along the right bank of the water body only for brief periods and once the operating disorder of the treatment plant is eliminated, the adverse effect disappears.
Based on the watershed management plan of the component watershed of the Danube, the status of the total Hungarian section of the Danube is moderate. The assessments and calculations presented in the documentation suggest that the designers acted responsibly in asserting that the Paks II project will not prevent achieving good status of the water body of the Danube.
Water resources along the left bank of the Danube: Foktő-Barákai operating and Dunapataj-Ordas, Bátya-északi, Bátya-Fajsz, Fajsz-Dusnok future water resources.
Even if exposed to the impact of waste water being discharged into the Danube in periods when the water discharge of the river is extremely low or in the case of emergencies, the discharge of waste water does not threaten from the direction of the Danube water body the protective areas characterised by 50 years of access time around operating and future bank filtered vulnerable water resources in the Danube section located downstream from the waste water inlet (Danube 1526+250 river km section).

Potential increments of concentration under normal operating conditions, which are negligible, are detectable only in a band of 25 metres from the right bank of the Danube rather than across the full cross section.

Pursuant to Section 28(1) of Act LVII of 1995 on Water Management, a consent to the establishment of water rights is required for performing water related work, constructing and reconstructing hydraulic engineering works (water rights establishment license), except for activities subject to notification under law, and for commissioning and operating such works and all uses of water (operating licence).

The implementation of hydraulic engineering works shall not be started unless in possession of a water rights establishment license. The water management authority laid down two requirements in that regard in section 1 of the operative part (section II/3.11.1 of the permit).

Section 3(1) of Government Decree 72/1996 (V.22.) on exercising the powers of the water management authority provides that it is the duty of the developer, the owner or the asset manager to procure the water rights establishment license required for constructing (reconstructing) hydraulic engineering works. A set of annexes defined in a separate legal regulation, including application plans (planning documentation) and an asset manager's statement must be attached to the application. The required content of an application for a water rights construction license is set forth in Ministerial Decree 18/1996 (VI.13.) KHVM on the application for a consent to establishing water rights and its enclosures. Considering that the project/operation involves discharges into surface waters, Annex 3 of Government Decree 220/2004 (VII.21.) on the rules of protecting surface waters (hereinafter referred to as SW Decree) shall be taken into account for the purposes of compiling the documentation.

Requirement No. 2 of the water management authority (section II/3.11.2 of the permit) lists these documents.

Pursuant to Section 27(4) of Government Decree 220/2004 (VII.21.) on the rules of protecting surface waters provides that the level of water pollution in the recipient must be checked upstream and downstream (i.e. after mixing) from the inlet point of purified waste water at least twice a year (see requirement 5 in the operative part [section II/3.11.5] of the permit).

Pursuant to Section 2b) of Government Decree 220/2004 (VII.21.) on the rules of protecting surface waters, the activity is subject to the SW Decree and qualifies as an activity that requires a permit under Sections 5(2) and 25(1) of the SW Decree.

In the meaning of Section 3(21) of the SW Decree, discharging purified waste water and grey waters into the Danube River through a warm water channel is classified as "direct inlet into surface waters", since the discharged waste water is introduced into the recipient without additional purification.

Section 9(1) of the SW Decree provides that the polluter shall purify waste water in line with the discharge limit value set in the permit.

The Annex to Ministerial Decree 10/2010 (VIII.18.) VM on the pollution limit values of surface waters and the related rules of application establishes the pollution limit values required to reach and maintain good surface water status (requirements 3 and 4 in the operative part) [sections II/3.11.3 and 3.11.4 of the permit])

In the meaning of Section 4(1) of the SW Decree, water users (including polluters) shall contribute to reaching and maintaining good status of water bodies. Pursuant to Section 9(3)

of the SW Decree all plans of hydraulic engineering works shall take into account the environmental objectives established for water polluting substances as well as the limit values applicable to the quality of the environment and waters, and these shall be observed during implementation and operations.
Given its asset management powers, the Lower Danube Valley Water Management Directorate is responsible for the attainment of the objectives of the watershed management plan. Based on the classification of the river, no deterioration of its status is allowed.
The water management authority set the requirement in section 2.5 of the operative part (section II/3.11.2.5 of the permit) to employ monitoring also taking into account the statement made by the Water Management Directorate.
The authority determined discharge limit values with a view to Section 18(2) of the SW Decree on the basis of Ministerial Decree 28/2004(XII.25.) KvVM on limit values applicable to pollutant emissions and certain rules governing their application taking into account the territorial limit values (for recipients in general protection category 4) laid down in Annex 2. The related requirement is set forth in section 6 of the operative part (section II/3.11.6 of the permit).
The activity shall be performed in compliance with the high-water river basin management plan.
Based on the above, the water management authority set a requirement in section 7 of the operative part (section II/3.11.7 of the permit) on the basis of Government Decree 83/2014 (III.14.) on the use and the utilization of the high water river basin and the riparian zone of watercourses and the areas endangered by wetlands and underseepage, and on the rules applicable to the preparation and content of high water river basin management plans for rivers.
The water management authority examined its power and competence in the procedure on the basis of Section 45/A(2) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services.
The territorial water management authority determines its power pursuant to Sections 10(1)3 and 17(3) of Government Decree 223/2014 (IX.4) on designating the bodies responsible for attending to regulatory duties in water administration, water management and water protection and Section 33(1) and section 3 of Annex 5 of Government Decree 481/2013 (XII.17.) on the designation of bodies attending to regulatory and administrative duties associated with protecting the environment, nature and waters, which was in effect at the date it was contacted in its capacity as special authority. It determines its competence with reference to section 3 of Annex 2 of Government Decree 223/2014 (IX.4.).
The water management authority issued its decision as a special authority with reference to Sections 44(6) and 72(1) of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services.

After that, the **Bács-Kiskun County Directorate of Disaster Management** found a clerical error in quoting the number of the Government Decision on the publication of Hungary's revised Watershed Management Plan for 2015 in sections 2.1 and 4 of the operative part of its decision it issued as a special authority under file gen. Ref. No. 35300/3261-4/2016. Accordingly, the Directorate issued an order under file gen. Ref. No. 35300/3261- 6/2016 to

rectify the reference to the Government Decision [1155/2016. (III. 31.)]. The Government Office noted the rectification of the water management authority in sections 3.11.2.1 and 3.11.4 of the permit.

The **Hungarian Atomic Energy Authority** set its decision about the safe use of nuclear energy with regard to the special question of preventing nuclear accidents in a document dated 16 March 2015, issued under file number OAH-2015-00509-002/2015, which the Authority modified subsequently in decision No. OAH-2015-00509-003/2015 dated 2 April 2015.
The Hungarian Atomic Energy Authority issued administrative consent under file number OAH-2015- 00509-0034/2016 on 29 June 2016 in response to the stipulations in the Clarification and the evaluation of comments received from the domestic and international public up to the publication of the Clarification.
As additional comments belonging to the competence of the Hungarian Atomic Energy Authority (HAEA) were received from the public of foreign countries about the Clarification, the HAEA reviewed its earlier decisions in response to the involvement by the Government Office in an attempt to develop a uniform position on all of the information and issued a document under file number OAH-2015-00509-0044/2016 specifying the terms set forth above in the operative part, which the HAEA explained with the following reasons:
"In the framework of an environmental licensing procedure started upon Developer's application, the Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia asked in its letter of 558-35/2015 the Hungarian Atomic Energy Authority (hereinafter referred to as HAEA) to give its decision as special authority. The letter was received on 4 March 2015..
The HAEA issued its consent of OAH-2015-00509-0002/2015, which it modified in document No. OAH-2015-00509-0003/2015.
Acting as the legal successor of the Inspectorate for Environmental Protection and Nature Conservation of Southern Transdanubia, the Baranya County Government Office (hereinafter referred to as Government Office) contacted the HAEA once again in its capacity as a special authority under file number 78-51/2016 dated 17 June 2016 pursuant to Section 28(3) of Government Decree 71/2015 (III.30.) on designating the bodies that act as environmental and nature protection authorities. The HAEA issued its decision in a document under file number OAH-2015-00509-0034/2016 dated 29 June 2016.
As the affected parties made additional remarks during the international procedure and as the Government Office determined these remarks relevant to the environmental impact and belonged to the competence of the HAEA, the Government Office contacted the HAEA once again in its capacity as special authority in order No. 78-132/2016 dated 12 September 2016. In its letter, the Government Office asked the HAEA to evaluate uniformly all of the comments received from foreign and Hungarian public along the Clarification submitted on 16 June 2016 and corrected on 8 July 2016 and the coordinates of the envisaged future site.
Pursuant to section 5 of Table II in Annex 5 of Government Decree 71/2015 (III.30.), the HAEA acts as a special authority regarding questions of the safe use of nuclear energy and the prevention of nuclear accidents, provided the HAEA has the obligation and the power under law to ensure protection in case an activity could give rise to environmental threats.

Some of the comments discuss questions that also belong to the competence of the HAEA (such as the disposal of spent fuel rods, the occurrence of operating disorders and serious accidents), but the information required to adjudicate those questions is obligatory to made available by the Licensee (the Developer) to the HAEA in the framework of subsequent licensing procedures (such as those required to obtain a license for the site, construction, commissioning and operation). Accordingly, the HAEA will formulate its reasoned opinion pertaining to issues in its competence in the framework of the later procedures and will be able to examine those issues during the relevant licensing procedure.
The information presented in the corrected Clarification (such as the data concerning the coordinates of the future site) harmonise with the information submitted by the Licensee (the Developer) to the HAEA so far. Judging from the information made available to me, I believe that the problem relating to the coordinates of the future site, as indicated in my administrative consent issued in document No. OAH-2015-00509-0002/2015 and subsequently modified by document No. OAH-2015-00509-0003/2015, no longer exists.
As the HAEA examined the special question specified in Government Decree 71/2015 (III.30.) in greater detail during its procedures conducted under Act CXVI of 1996 on Nuclear Energy (hereinafter referred to as Nuclear Act) and Government Decree 118/2011 (VII.11.) than the information presented in the documentation referred to in the letter it received in its capacity as special authority, I have decided to grant my administrative consent upon a uniform evaluation of the information made available to me.
I have issued this decision pursuant to Sections 44-45/A of Act CXL of 2004 on the General Rules of Administrative Proceedings and Services (hereinafter: Administrative Proceedings Act) acting upon my powers specified in Section 28(3) and Table II in Annex 5 of Government Decree 71/2015 (III.30.) on designating the bodies that act as environmental and nature protection authorities and on my power as defined in Section 8(4)a) of the Nuclear Act."
As some of the special authorities that issued decisions covered by this Decision were integrated into county government offices on 1 April 2015, the Government Office evaluated the comments received from the countries participating in the international environmental impact assessment procedure, public concerned thereof and the public concerned in Hungary, taking also into account the Statement made by the Developer in response to these comments as well as the contents of the Clarification regarding the special issue specified in Section 28(1) and Table I of Annex 5 of the Decree in cooperation with the Tolna County and the Bács-Kiskun County government offices and made the following determinations with a view to Section 10(1) of the G Decree:

Assertions from the perspective of the Mining Authority:
The observations and opinions do not pertain to the impact of the establishment and the facility on the environment, they are about the impact of the environment on the facility (determination of the magnitude of earthquakes, ground slip, disposal of radioactive waste). These questions need to be examined in the framework of consent procedures conducted in relation to the site licensing, the construction licensing and the licensing of the disposals of the radioactive waste. No comments were received about the protection of mineral resources. The comments and opinions received from the Hungarian and international public left the

special question belonging to the power of the mining authority unaffected.

Assertions from the perspective of the relationship between land use plans:
The new nuclear power plant units envisaged at the site of the Paks Nuclear Power Plant and the transmission line component of the electricity grid appear in Annex 2 of Act XXVI of 2003 on the National Land Use Plan, as amended on several occasions, at the location and with the route shown in the documents. It is possible to issue the environmental license without specifying any requirements based on the documents received.

Assertions from the perspective of public health:
Taking into account the Statement made by Developer and based on the evaluation of the comments and the technological clarifications presented in the Clarification, there is no reason for modifying the provisions of the decision issued by the Public Health Administration of the Tolna County Government Office as a special authority under file number TOR/084/00440-2/2015 on 23 March 2015.

Assertions from the perspective of heritage protection:
The authority responsible for heritage protection made a proposal at the coordination meeting held on 4 June 2016 to clarify two segments in the EIAS concerning the protection of cultural heritage. Developer declared the intention to take into account the comment made. Otherwise, no objection can be raised from the perspective of heritage protection about the provisions of the EIAS and the Clarification based on the evaluation of Hungarian and international commentary.

Assertions from the perspective of soil conservation:
Based on the Clarification, the following clarification applies to the areas of soil conservation: *"As the location of the Paks II substation is modified, the length of the 400 kV connection line to the unit and 132 kV backup power supply line will be reduced."*
Furthermore, the comments made by the general public in and outside Hungary have been found not to affect the special area of soil conservation.
The EIAS and its complements address the enforcement of soil conservation requirements, the processes and areas of impact of the activity on agricultural land, an estimation and appraisal of the expected environmental impacts affecting agricultural land and the necessary soil protection measures. The considerations laid down in the operative part of the decision issued by the soil conservation authority under file number TOF/53/91-2/2015, as integrated into this decision, shall be taken into account.

Assertions from the perspective of forestry:
The Clarification asserts that the unit output lines and the backup electricity supply lines are planned to occupy a smaller area. The works envisaged in the modified area affect forest sub-compartments *Paks 22A and 23A and other sub-compartments marked Paks 23TI1 and TI2*.
As the project affects forests registered in the National Forest Inventory and Database (*Paks 22A, 23A, TI1 and TI2*), an initial forest use procedure must be conducted at my Authority in respect of the forests (*Paks 22A, 23A, TI1 and TI2*) under Sections 77-84 of the Forest

Protection Act.
The logging necessary during the construction of the route may be performed in compliance with the provisions of Section 41(1) of the Forest Protection Act.
To protect surrounding forest compartments, the Government Office pointed out the provisions of Sections 61-63 of the Forest Protection Act as laid out in the operative part.
Furthermore, the Government Office brings to Developer's attention that in case logging of trees planted in the real property affected by the project were to be performed, Developer shall take into account the provisions of Section 43 of the Implementing Decree of the Forest Act.

3. Organisations contacted in response to letter rogatory in the framework of domestic legal assistance

The Government Office contacted the following organisations in the framework of domestic legal assistance pursuant to Section 26(1)c) of the Administrative Proceedings Act.

- DDDNP as regards the data concerning the special question relating to nature protection (*response file numbers: 616-2/2015 and DDNP/2008-3/2016*)
- DKNP as regards the data concerning the special question relating to nature protection (*response file numbers: 1277- 2/2015 and 1801-2/2016*)
- the Central Transdanubian Directorate of Environmental and Nature Protection as regards data relating to granting the license since its area of competence was affected (legal successor: Fejér County Government Office; *response file numbers: KTF-10976/2015, 34824/2015, KTF-13460/2016 and 44202/2016*)
- the Lower Tisza Valley Directorate of Environmental and Nature Protection as regards data relating to granting the license since its area of competence was affected (legal successor: Csongrád County Government Office; *response file numbers: 104964-1-2/2015 and CSZ/01/9813-2/2016*)
- The National Public Health Centre, National Directorate of Research into Radiation Biology and Radiation Health so as to clarify radiological health issues (*response file number: 2466-2/2015*)
- The Hungarian Atomic Energy Authority as regards the requirements laid down in the Nuclear Safety Codes (hereinafter referred to as NSC) covered by the annexes to Government Decree 118/2011 (VII.11.) on severe accidents and the requirements of nuclear safety in nuclear facilities and the related regulatory actions (*response dated 14 September 2015*)
- The Government Office contacted the Honorary Chief Notary of the Town of Paks seeking domestic legal assistance after the submission of the Clarification pursuant to Section 1(6b) of the D and taking into account Section 26(1)c) of the Administrative Proceedings Act, requesting that the Notary provide the relevant data, as available, to judge whether the activity harmonises with the local municipal regulations on environmental and nature protection and with land use instruments. Pursuant to sub-

section 1(6c) of the D, the Government Office reminded the Honorary Chief Notary of the Town of Paks that the opinion of the Notary about the planned activity may be attached to the response to the legal assistance.

The **Honorary Chief Notary of the Town of Paks** made the following statement in its response to the letter rogatory under file number I.8944-2/2016 dated 24 June 2016:
"The new nuclear power plant units planned on lot No. 8803/15 at the site of the Paks Nuclear Power Plant harmonise with Municipal Decree 30/2008 (XII.17.) on local natural values, but they fail to harmonise with the requirements of the effective Local Building Code and Regulation Plan of the Town of Paks, which was approved by Municipal Decree 24/2003 (XII.31.)."
The Honorary Chief Notary went on to say that *"the currently effective Local Building Code and Regulation Plan of the Town of Paks provides that the property on lot No. 8803/15 is classified as Gip-M building zone, about which Section 28/E(2) of the decree provides that "the activities authorised in the area are limited to electricity generation as part of the licensed operation, to the storage of spent fuel assemblies of the Paks Nuclear Power Plant on a temporary basis also as part of the licensed activity, and the activities leading up to and those performed in preparation for the establishment of the new nuclear power plant units.*"

4. <u>Evaluating the EIAS from the perspective of environmental and nature protection:</u>

The Government Office evaluated the activity and its environmental impacts as follows with regard to each specialty area based on the EIAS enclosed with the application, its complements and the responses given by the above organisations to its letters rogatory:

4.1. Assertions regarding the area affected by the erection:

Decision No. 35178/2/2015/06.22 of the Land Registry Department of the Paks District Office provides that the property identified by lot No. 8803/15 inside the city limits of Paks was split into two properties identified by plot numbers Paks 8803/16 and 8803/17 upon a plot division procedure. For these reasons, the Government Office specified the location of the planned activity as set forth in the operative part.

4.2. Assertions from the perspective of waste management:

- Waste generation in connection with the establishment of the new units is expected mainly during the erection phase. Plans call for using part of the earth excavated during the construction on location for landscaping purposes. The remaining, unused part of the earth is classified as waste, though, which could be used for restoring the areas affected by excavation, landscaping, and land reconstruction of waste disposal sites and the operation of the latter.
- Taking into account the provisions of Section 4 of Act CLXXXV of 2012 on Wastes (hereinafter: Wastes Act), treating the wastes generated during erection and operation in compliance with the requirements can be ensured. The Government Office imposed the requirement to treat the wastes generated by all of the phases of the activity pursuant to

Section 30(2) of Act LIII of 1995 on the General Rules of Protecting the Environment (hereinafter EP Act) and Section 31 of the Wastes Act.

- The duties relating to keeping records and reporting were set with reference to Section 65 of the Wastes Act and Government Decree 309/2014 (XII.11.) on registration and reporting requirements relating to wastes.
- The requirement relating to the construction and operation of collection sites is based on Government Decree 246/2014 (IX.29.) on the rules of establishing and operating waste management facilities.

4.3. Assertions from the perspective of clean air protection:

- The establishment and operation of the envisaged nuclear power plant units, the 400 kV output lines from the units and the 132 kV transmission lines could not lead to air pollution in excess of air quality limit values as regards non-radioactive air emissions based on the calculations presented in the EIAS. Non-radioactive emissions other than from the trial runs of diesel generators are not expected during the operations phase when the facility is fully functional. The establishment and operation of the planned point sources of air pollution marked **P3-P18** relating to the **operating technology of emergency diesel generators** are expected to meet best available technology standards and clean air protection requirements.
- The findings of the propagation studies of air pollutants emitted during establishment, such as nitrogen oxide ($N0_2$), hydrocarbons (C_xH_y) and particulate matter below 10 μm (PM10), suggest that the impact area is a circle with a radius of 1,300 m around the centre point of emissions calculated pursuant to the criteria for identifying the boundaries of impact areas specified in Section 2(14) of Government Decree 306/2010 (XII.23.) on protecting clean air (hereinafter: PCA Decree) and taking into account the expected consolidated impact of the sources of air pollution on air quality. The boundary of the impact area of air pollutants emitted during normal operations lies in band of 400 m calculated from the plot perimeter.
- The Government Office took note of the data concerning the 16 emergency diesel generators Developer plans to be installed at the site as described in **Annex L**. However, as the installation of the diesel generators is scheduled for the final stage of erecting the new units, and as a clean air protection construction license may not be issued for a period longer than 5 years pursuant to Section 25(5) of the PCA Decree, the Government Office required pursuant to Section 22(2) of the PCA Decree that the clean air protection construction consent procedure relating to the point sources of air pollution associated with the diesel generators to be conducted during the period before installation is started.
- Acting upon the power granted to it in Section 36(1) of the PCA Decree, the Government Office identified the clean air requirements pursuant to Sections 7(1) and 22(1) and (2) of the PCA Decree, the VMH Decree and the provisions and limit values laid down in Ministerial Decree 6/2011 (I.14.) VM on the rules of examining, controlling and evaluating the level of air pollution and emissions from local sources of pollutants.

4.4. Assertions from the perspective of the abatement of environmental noise and vibration:

- The period of demolition work before construction is longer than a year. Demolition work is performed primarily during the daytime, but it may also occur at night. The calculations presented in the EIAS suggest that noise pollution is expected to stay below the limit values permitted for protected areas and protected buildings.
- Construction is planned to take 5 years. Construction work is performed primarily during the daytime, but it may also occur at night. The major sources of noise during construction include excavators and construction machinery. Based on the data presented in the Clarification, the erection of structures may lead to surpassing the limit values set for certain protected buildings during construction works at night.
- Due to the above, the Government Office obliged the Developer to verify for the purposes of the establishment consent procedure compliance with the noise pollution limit values laid down in Annex 2 of Joint Decree 27/2008 (XII.3.) by the Minister of the Environment and the Minister of Health on establishing the limit values of environmental noise and vibration for construction activities (hereinafter referred to as Joint Decree by the Minister of the Environment and the Minister of Health) taking into account Section 12 of Government Decree 284/2007 (X.29.) on certain rules governing the protection against environmental noise and vibration (hereinafter: Noise Decree) and Section 1.7 of Annex 1 Government Decree 112/2011 (VII.4.) on the scope of nuclear energy related duties of the Hungarian Atomic Energy Authority *vis a vis* the European Union and international organisations, the designation of special authorities participating in the regulatory procedures of the Hungarian Atomic Energy Authority, the amount of fines the Authority may impose, and the research council assisting the work of the Hungarian Atomic Energy Authority.
- The Government Office reminds the Developer that the contractor may apply for exemption from the noise pollution limit values laid down in Annex 2 of the Joint Decree by the Minister of the Environment and the Minister of Health for certain stages of the construction project with reference to Section 13(1) of the Noise Decree, provided that noise emissions may not be reduced to meet the limit values by technical or organisational solutions, and for construction activities leading to unforeseeable noise pollution arising in the course of construction. If protected facilities are affected by limit value violations, work shall only be started in the possession of a releasefrom the obligation to comply with limit values set in a separate decision of final force.
- Based on the provisions in the complement to the EIAS, there are no protected facilities in a zone of 100 meters from the operational areas of the plot designated for establishing the new nuclear power plant units and even the nearest protected building (Paks-Csámpa) is located over 1 km away. Moreover, the EIAS claims that the soil in the surroundings of the nuclear power plant is loess containing sediment with limited capacity to convey vibration, which is why the direct impact of noise pollution from the new nuclear power plant units on protected buildings is considered to be neutral.
- The provisions by the Government Office about compliance with the noise and vibration protection requirements during erection are based on Section 12 of the Noise Decree, Sections 3(1) and (3) and Annex 2 of the Joint Decree by the Minister of the Environment and the Minister of Health.
- The Government Office set the requirement relating to the implementation of nuclear

power plant facilities that emit noise or vibration into the environment pursuant to Section 9(1) of the Noise Decree.

- The lead time of constructing the output lines and transmission lines relating to the project is about 8-10 months but it may also extend beyond a year. The planned route of the power lines is far from populated areas. Preliminary calculations allow us to assert that the noise pollution limit values applicable to protected properties can be met during all of the stages of constructing the power lines (site preparation, earthwork, foundation work, pole erection, stringing conductors).
- The plans call for transportation and shipping jobs by public road, rail and waterways. Conducting the activity will trigger an increase of passenger vehicle traffic.
- The EIAS and its complements suggest that road traffic is expected to culminate during the site preparation phase as the plans call for shipping excavated earth off the site during site preparation and the foundation work, which lasts 2 years. The incremental hourly increase of traffic during that period is 44 vehicles in Vehicle Category I, 10 vehicles in Vehicle Category II and 16 vehicles in Vehicle Category III.
- Calculation results suggest that the noise pollution limit values applicable to properties along the M6 motorway can be met despite the heavier traffic. Calculation results concerning the properties along Primary Main Road 6 show limit value violations even at the present state of affairs. The additional traffic arising from the establishment of Paks II will add 0.8-2.1 dB to the current level of noise.
- Transportation by ships is planned for the delivery of gravel during the foundation works stage of the project, including 1 motor ship and 6 pushed barges each day.
- Rail transportation is also scheduled for the foundation works stage and involves the delivery of cement. The Developer intends to make daily shipments by rail using 1 roughly 580 m long carriage (1 locomotive and 40 freight wagons) travelling at 60 km/h. Completed calculations suggest that the limit values set for protected buildings can be met if only one freight train passes.
- As the concrete required by the foundation works will be produced at a mixing plant on site, there will be no associated transportation.
- A new ramp is envisaged to solve the transport connection between the construction site and the M6 motorway, which will not affect the residential parts of Paks as it will bypass populated areas.
- In the meaning of Section 9(7) of the Noise Decree shipping and transportation routes relating to the establishment and implementation of activities licensed subject to an environmental impact assessment need to be selected in a manner to ensure that their impact area is as small as possible. The source locations of construction material used during the project and the related transport routes were not yet known at the date the EIAS was drafted. Consequently, the Government Office required the Developer to verify compliance with the noise abatement requirements applicable to transportation up to the establishment consent procedure of the new units.
- The EIAS asserts that transportation activities will only be performed during daylight hours and will be scheduled evenly. Due to the above, it was in respect of daylight hours that the calculations performed verified compliance with noise pollution limit values and showed the indirect impact area of noise protection. Accordingly, the Government Office

specified transportation for daylight hours in the requirement set in the operative part.

- During operations, the power plant facilities of Paks II will be built on land owned by the Paks Nuclear Power Plant. The major indoor sources of noise at Paks II are located in the reactor building, the auxiliary buildings of the primary circuit, the turbine building and in the buildings around the emergency cooling towers. The diesel generators and the auxiliary boiler, which are housed in a separate building, as well as the open air transformer of the stand-by network are operated intermittently as needed.
- The findings of the EIAS suggest that the noise emitted by the new units is not expected to surpass the noise pollution limit values defined in Annex 1 of the Joint Decree by the Minister of the Environment and the Minister of Health in the areas to be protected from noise, if single phase main transformers, three-phase auxiliary transformers and the fans of emergency cooling towers are fitted with sound proofing at 15, 10 and 18 dB, respectively. Accordingly, to ensure compliance with the limit value, the Government Office laid down the implementation of sound proofing recommended by the Developer as a requirement.
- The major sources of noise among planned facilities located outdoors include the spillway, the baffle and the new baffle installed to improve mixing. The plans envisage the future location of these facilities along the Danube in the eastern section of the design area. Based on the existing calculations, properties to be protected from noise are located inside the administrative limits of the settlements of Dunaszentbenedek and Úszód, which are in the impact area of the power plant facilities. In view of the foregoing and in an awareness of current data, noise emission limit values need to be established for the internal sources of noise at the plant with reference to Section 10(1) of the Noise Decree.
- However, as the factors that influence the impact area (such as propagation conditions, zoning, property to be protected, background pollution, background noise) may change before the sources of noise are started up for operations, the Government Office considers that it is justifiable to establish noise emission limit values taking into account the demarcation of the impact area prepared on the basis of noise levels measured before operations start. That explains why the operative part lays down the obligation to perform noise measurements with reference to Section 3(3) of the Noise Decree. Annex 1 of Ministerial Decree 93/2007 (XII.18.) KvVM on the method of controlling noise and vibration emissions (hereinafter: KvVM Decree) lays down the requirements regarding the substance of applications.
- Existing calculations suggest that the noise emitted by the operation of unit output lines and transmission lines is not expected to surpass permitted limit values and there are no properties to be protected against noise inside the impact area of these lines.
- The requirements relating to ambient vibration affecting human beings have been formulated with reference to Section 7(1) and Annex 5 of the Joint Decree by the Minister of the Environment and the Minister of Health.
- The reporting requirements are based on Section 11(5) of the Noise Decree and Section 3 of the KvVM Decree.
- The Government Office examined the EIAS from the perspective of noise and vibration abatement acting upon its power laid down in Section 4(3)b) of the Noise Decree.

4.5. Assertions from the perspective of protection against heat pollution:

- The Developer intends to discharge the warmed cooling water of the new nuclear power plant units via a warm water channel and related baffle to be constructed in parallel with the existing warm water channel in the territory of the Paks Nuclear Power Plant.
- The Government Office requested the Developer to examine and submit as a supplement to its application the coincidence range of expected high temperature and low water discharge periods of the Danube. Moreover, the Government Office also requested additional information about the impact of the cooling water discharged into the Danube on water temperature during low water periods (heat tail calculations, determination of impact area). An evaluation suggests that the EIAS and its complements took into account both the consequences of extreme temperatures and extreme water discharge values in the analysis of the potential impacts of climate change.
- The effect of climate change on Danube water temperature was also assessed. Taking into account the design temporal condition, the EIAS defined the length of annual periods expressed in days characterised by excessive Danube water temperature for 2032 (when the Paks Nuclear Power Plant and Paks II operate simultaneously with a total of six units) and for 2085 (when the two units of Paks II still operate) assuming that the water discharge of the Danube moves between 800 and 3,500 m^3/s and water temperature fluctuates in the 20-30°C range. Calculations are available for the expected duration of surpassing the 30°C water temperature limit as measured in 500 m sections downstream from the inlet point and for the constancy of such surpasses as regards design temporal conditions - given the current regime of operating the Paks Nuclear Power Plant - in respect of the parallel operation of the Paks Nuclear Power Plant and Paks II and for the period when Paks II is operated independently.
- As regards the protection against heat pollution, the level of exposure of the Danube to heat will remain unchanged during establishment.
- During the period of parallel operation (of the Paks Nuclear Power Plant and Paks II), however, the length of the direct and indirect impact area of thermal load due to discharging cooling water is 11 km downstream.
- During the period while Paks II is operated independently, the length of the direct and indirect impact area of thermal load due to discharging cooling water is 1 km downstream.
- The Government Office laid down provisions concerning the difference in temperature between discharged water and the water of the recipient and regarding the temperature ceiling of the water in the reference section of the recipient pursuant to Section 10(1) of the Decree by the Minister for Environment. It specified the permissible maximum temperature of warmed cooling water to be discharged into the Danube for disposal at 33°C as measured at the inlet point, taking into account the potential to comply with the thermal ceiling of 30°C.
- Based on the statements made in the EIAS, compliance with the requirements concerning the Danube as recipient may be ensured under critical Danube discharge and temperature conditions in case the Developer restricts discharging heat into the Danube. The Developer defined in the EIAS and its complements the potential measures needed to

avoid breaking the thermal ceiling (reducing the electric capacity of the units, shutting down units, scheduled maintenance of units, additional secondary cooling), which the Government Office accepted.

- Pursuant to Section 10(2) of the Decree by the Minister for Environment, the Government Office imposes other limitations on exposing the Danube to thermal impacts as necessary to protect water quality on the basis of Section 66(1) of the EP Act during the consent procedure of environmental use. Pursuant to the provisions of Section 10(4)a) of the G Decree, the Government Office must lay down among the conditions listed in its decision on granting the environmental license the measures needed to avoid, reduce and, if possible, to terminate detrimental environmental consequences.
- In order to be able to comply continuously with the thermal ceiling of 30°C in the reference section, the Government Office required the Developer to develop, with a view to the above, a System of Monitoring Thermal Ceiling to control Danube water temperature, a Conceptual Plan concerning the application of restrictive measures as necessary to prevent potential limit value excesses and a Limitation Plan on the basis of the foregoing.
- The Conceptual Plan must cover a description of the envisaged monitoring, a technical overview of limitation options, a plan of ordering, implementing and recording limitations, a plan for making individual Clarifications to the Government Office, while the Limitation Plan must provide a description of the monitoring of heat pollution, a technical overview of limitation options, the personnel and physical conditions of ordering, implementing and recording limitations, a procedure for making individual Clarifications to the Government Office and the names of persons responsible for implementation.
- In order to leave an audit trail of developing the procedures for protecting the Danube against heat pollution, the Government Office set deadlines in a manner to ensure that the Developer submits to the authority for approval the documentation covering the System of Monitoring Thermal Ceiling and the Conceptual Plan by no later than the start date of the consent procedure for granting the construction license conducted by the Hungarian Atomic Energy Authority and the Limitation Plan by no later than the start date of the consent procedure conducted for granting the commissioning license.

4.6. Assertions from the perspective of environmental radiology:

- Developer has surveyed the site and its environment to identify *the basic radiological level (reference level)* taking into account the 2001-2011 annual reports of the Industrial Environmental Radiation Protection Control System and the Official Environmental Radiation Protection Control System, the annual reports of MVM PA Zrt. describing radiation protection activities and the reports of special checks performed in the vicinity of MVM PA Zrt (such as the measurement of accumulations). The analyses of measured data series suggest that the expected impact on the environment of emissions from operating the new nuclear power plant units is not considerable. The results of environment gamma dose rate measurements (fall into the lower range of values measured in Hungary) also support the observation that there are no locations with

elevated values in the vicinity of the site and there are no data suggesting considerable environmental accumulations.

- The EIAS and its complements suggest that ground water conditions and tritium activity concentrations will change as a result of digging the building pit for the foundation works of constructing the new nuclear power plant units, the high volumes of earth excavated and the dewatering of the pit. Taking all of the above into consideration, it is practical to establish the ground water characteristics of the area after construction work is complete and new ground water transport routes are established. No permit may be issued for discharging radioactive liquids into subsurface water formations in the meaning of Section 9(2) of the Decree by the Minister for Environment. Accordingly, the Government Office obliged the Developer to assess the basic radiological level of subsurface waters at the site as regards the period after monitoring wells are established to monitor ground water so as to be able to judge the impact of operating the new nuclear power plant units on subsurface waters.
- Impacts of environmental radiation and public exposure to radiation during the establishment could be attributed to industrial radiography tests due to the use of high activity radiation sources.
- Sources are generally in two positions during various radiological assessments:
  - They are either being transported and being placed for the test, when the radiation sources are encased in their own shielded casing
  - or they are being assessed while the source stays in the environment without shielding.
- The Government Office defined the information the Developer is required to specify during the design stage regarding any radioactive isotopes emitted during normal operations pursuant to Section 5(1) of the Decree by the Minister for Environment.
- Radioactive emissions into ambient air during normal operations pass through the ventilation stack, but emissions may also appear at the top of the turbine building under special conditions. The following assertions can be made regarding impacts calculated taking into account all of the pathways of irradiation based on the modelling performed by the Developer:
  - As calculated effective dosage rates do not surpass 90 μSv/year at any point of the area subject to the assessment, the normal operation of the power plant does not carry hazards above the neutral level (of 90 μSv/year) in areas beyond the security zone.
  - The borderline of the security zone (at 500 m from the wall of the external process building) is regarded to coincide with the impact area of normal operations where the value of radiological impact falls short of the dose limit of 90 μSv/year.
- Radioactive liquid emissions are discharged during normal operations via the warm water channel into the Danube, as ultimate recipient, taking into account the provisions of Section 9 of the Decree by the Minister for Environment. Waters generated by the operation of the new nuclear power plant units in excess of the water balance and waste waters are collected in control tanks before being discharged. Waters are discharged after stringent chemical and radiological classification.

- While determining the impacts and impact areas of radioactive air emissions during design operating disorders and serious accidents, the Developer took into consideration (as an envelope case) design basis accident TA4 (DBC4), which represents an extremely low frequency design basis event (design basis events, design basis accidents of extremely low frequency: $10^{-4} > f > 10^{-6}$ [1/year]) based on the operating state described in Section 3.2.2.0200 of Annex 3 and Section 163 of Annex 10 of the NSC.
- Developer used the data of the case identified as DBC4 (Design Basis Category 4 Conditions) provided in the preliminary Russian data Clarification "Data for NPP environmental impact analysis (AES-2006 with VVER-1200)" for assessing design basis accidents.
- Developer based the assessment of impacts arising from emissions due to serious accidents on the assumption that the probability of such events materialising is lower than 10^{-6} 1/reactor year. These events, which are beyond the scope of the design basis and belong to the extension of the latter, are classified in the NSC as complex malfunctions (DEC1) or as serious accidents (DEC2). The supplier of the reactors made available the estimated emissions associated with each accident scenario.
- To calculate the environmental impacts and impact area of radioactive air emissions due to design basis accidents, the dosages arising due to the impact of early (first 10 days) and late (full 30 days) emissions were taken into account separately. Exposure rates were calculated in both cases separately for 1-2-year old children and adults taking into account the most conservative weather conditions.
- To calculate the impact area, approximations were used to determine the distance at which exposure rates are the largest. As calculated exposure rates remained below neutral (effective rate <90 μSv/year) impact (with the largest value of 21 μSv for the late exposure rate of small children at 400 m), it is fair to say that exposure outside the security zone will be limited to neutral impact, and radiological impact will remain below the dose limit even inside the boundaries of the security zone based on design basis accident (DBC4) calculations. The EIAS claims that the boundary of a 500 m security zone is considered to coincide with the boundary of the impact area of design basis accidents.
- Average and maximum activity concentrations expected during events beyond the design basis were determined for DEC1 and DEC2 events both as regards early and late emissions as the first step of assessing the environmental impact of radioactive air emissions arising from complex malfunctions and serious accidents. Next, inhaled and integrated effective (lifetime) exposure rates attributable to early and late emissions were determined for adults and children as regards both events. The results of exposure rate calculations performed for several settlements of the country suggest that the effective dose integrated for 50 years in Nagydorog, a settlement situated closest to the site and having the highest values according to the calculated results, is 5.37 mSv for adults and 7.47 mSv for children. A comparison of this exposure rate with the natural background (of 120-150 mSv public exposure rate, also integrated for 50 years) is classified as insignificant in terms of protection against radiation.
- The Developer took into account Section 3a.2.4.700 of the NSC and the provisions of Ministerial Decree 16/2000 (VI.8.) EüM (hereinafter: EüM Decree) on the

implementation of certain provisions of Act CXVI of 1996 on Nuclear Energy for the purposes of evaluating the effects of operating states beyond the design basis and situations involving severe accidents. Accordingly, the following must be verified concerning events that lead to DEC1 operating status and DEC2 operating status, taking into account the provisions of section 3a.2.2.7000 for the latter:

- no urgent protective measures are required beyond a distance of 800 m from the nuclear reactor
- there is no need for any kind of temporary action, i.e. the temporary evacuation of the population, beyond a distance of 3 km from the nuclear reactor;
- there is no need for any kind of subsequent potective measure, i.e. the final re-settlement of the population, beyond a distance of 800 m from the nuclear reactor;
- there is no need for any long-term restriction on food consumption.

- The Hungarian Atomic Energy Authority grants the construction license if the conditions listed above are met during the planning of the power plant.
- The requirements relating to the emission of radioactive substances were determined pursuant to Sections 4 and 9 of the Decree by the Minister for Environment and Section 10(4)a) of the G Decree, to Sections 14, 18, 22-24 and 32 of the EP Act and with a view to Sections 4(1) and (3) of Act CXVI of 1996 on Nuclear Energy (hereinafter referred to as Nuclear Act).
- The limit values laid down in Annex R to this permit and the determination of the Γ=1 security factor are based on Section 35 of the EP Act taking into account the provisions of section 3(1) and Annex 1 of the Decree by the Minister for Environment. The Government Office prescribed the duty to comply with the discharge limit value and the discharge limit value criterion forward to Section 6(1) of the Decree by the Minister for Environment.
- Developer has stated that the system of controlling emissions and the environment in the new nuclear power plant units will be developed as required in Section 6 of the Decree by the Minister for Environment and will be modelled after the systems currently in use at the Paks Nuclear Power Plant operated by MVM PA Zrt. Accordingly, the samples provided by remote measurement and sampling systems will be processed and measured in accredited emission and environmental control laboratories as part of their sampling and measurement programs taking into account Section 6(4) of the Decree by the Minister for Environment. The Government Office laid down the requirements concerning the development of the Emissions Control Policy and the Environmental Control Policy and operations in compliance with these adopted policies based on Section 6(2) and Annexes 4 and 5 of the Decree by the Minister for Environment.
- The Government Office prescribed the duty to develop a Measurement Program to track the exposure of the flora and fauna to radiation and the accumulation of the emitted radioactive isotopes from the new nuclear power plant units in environmental media in full accord with the provisions of the environmental license granted for extending the operating cycle of Units 1-4 of the MVM Paks Nuclear Power Plant and to judge joint impacts taking into account the provisions of Sections 6(2)g) and 8(4) of the Decree by the Minister for Environment. The Government Office determined its requirement

concerning gamma spectrometry measurements pursuant to section 1.5 of Annex 4 of the Decree by the Minister for Environment.

- The system controlling air emissions is responsible for monitoring and sampling radioactive air emissions discharged via stacks. Laboratory measurements provide the data needed to determine isotope selective discharges. The components of the system are as follows:
  - Air sampling and flow metering systems:
    - Isokinetic Sampling System
    - Air Velocity/Mass Flow Measurement System
  - Remote metering systems:
    - Air Emissions Control System
      - Radioactive aerosol measurement device
      - Radioactive iodine measurement device
      - Radioactive inert gas measurement device
      - Gamma dose rate metering
      - Isotope selective inert gas measurement system (continuous gamma spectrometer)
    - The isotope selective inert gas measurement system is a gamma spectrometer of continuous operation suitable for the isotope selective quantity measurement of inert gas emissions.
    - Monitored isotopes: ^{4l}Ar, ^{85}mKr, ^{87}Kr, ^{88}Kr, ^{133}Xe and ^{135}Xe
    - Liquid discharges are controlled by measuring representative and archived tank farm samples in a laboratory. Typical sampling locations of emissions:
      - Control tanks (for determining the quality and volume of discharged waters);
      - Steam generators as control tanks (checking the quality and quantity of waters discharged after the draining and chemical cleaning of steam generators when units are shut and cooled down. The main steam line and the section of the feed water line that participates in circulation are both drained via the steam generator);
      - V1 cold water channel, V2/1 and V2/2 old and new warm water channels and V3 "faeces channel" and the "faeces channel" associated with the new units.
    - Installed automatic samplers collect samples on a continuous basis.
  - Laboratory sampling units controlling stack emissions:
    - Laboratory sampling units controlling stack emissions will be duplicated in order to ensure that independent regulatory checks can be carried out taking into account the provisions of Annex 6 of the Decree by the Minister for Environment.
    - Combined sampling units (for aerosol, elemental iodine filters, organic iodine cartridge, three units of identical configuration on parallel branches)
    - The laboratory sampling system is suitable for taking continuous samples of aerosols and inert gases, radioactive iodine, tritium and radiocarbon according to various chemical forms. The laboratory sampling system supports both plant level and regulatory sampling.

- The air emissions control system includes two parallel branches of fully identical configuration (for redundancy), and both branches are fed with air samples by the isokinetic sampling system.
- The system currently operated at the site has the capability to monitor the environment for radiation relating to the new nuclear power plant units. However, the remote metering and sampling system controlling emissions and the environment will be reviewed during the establishment (taking the detailed engineering plans into account), and any necessary changes and extensions justified by the review will be implemented (as regards „A", „G" and „V" type stations and ground water monitoring wells).
- Control system components:
  - Dose rate meter probes installed across the site of the power plant,
  - A network of Type "A" and "B" remote metering and Type "G" dose rate metering stations,
  - weather measurements system.
- Type "A" and "B" metering stations perform the following remote measurements:
  - measuring the activity concentration of aerosols and elemental iodine with total beta counting [Depending on the route selection of pumped air, the elemental iodine filter and the measurement of elemental iodine may be bypassed, in which case elemental iodine is caught and measured together with organic iodine (all three filters and measurements are set to operate by default)],
  - measuring the activity concentration of the four iodine isotopes (^{131}I, ^{132}I, ^{133}I, ^{135}I) in organic (+elemental) form, by evaluating multiple channel gamma spectra captured with scintillation detectors,
  - metering the dose rate of environmental gamma radiation.
- These stations also take continuous samples of aerosols, elemental and organic iodine from a volume flow of 30-50 m^3/h to support laboratory assessments. The only difference between a Type "B" and a Type "A" station is that the former is the reference station as it is affected the least by the radioactive emissions of the power plant. The Type "G" measurement station is also fitted with a dose rate probe to record the dose rate of environmental gamma radiation.
- The remote metering system described above is only complemented by what is known as a Type "C" station, which only takes TL dose rate measurements. If necessary, these stations can be used to take fallout samples.
- The screen samples taken at the remote iodine measurement system described above and operated at the iodine remote measurement stations are suitable for laboratory based gamma spectrometry and for determining the activity concentration of the total collected aerosol and various forms of iodine isotopes.
- The plans call for assessing air HT, HTO samples, air CO_2 and CnHm samples, fall-out samples, soil samples, grass samples, dose rate metering with TLD, ground water samples, samples from other surface waters, samples of Danube silt and other silt samples as part of the sample based laboratory control measurements.

- The Government Office specified the disclosure and reporting obligations with reference to Sections 6(2)d) and e) and sections 7 and 8(1) and (4) of Annexes 4 and 5 of the Decree by the Minister for Environment.
- The Government Office laid down the requirements concerning the treatment and safe disposal of radioactive waste and spent fuel pursuant to the provisions of Sections 6 and 30 of the EP Act, the basic principles set forth in Section 4(6)-(7) and the provisions of Sections 38-40 of the Nuclear Act, also taking into account the provisions of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management created in the framework of the International Atomic Energy Agency and promulgated by Act LXXVI of 2001.
- Pursuant to the provisions in Section 1(3)a) of the G Decree, the temporary storage and final disposal of spent nuclear fuel and the temporary storage and final disposal of radioactive wastes are activities that require environmental impact assessment as set forth in sections 17 and 19, respectively, of Annex 1 of the G Decree.
- Expanding the currently operational ISFS is not a solution for the temporary storage of spent fuel generated by the new units, because the geometry of the fuel used in the new units differs substantially from that of the fuel rods stored in the ISFS currently. During the consent procedure, Developer presented two options for the temporary storage of the spent fuel of the new units.
  - spent fuel assemblies are transported to the territory of the Russian Federation for temporary storage away from the reactor or for technological storage and reprocessing, and for subsequently returning to Hungary the spent fuel assemblies or, if assemblies are reprocessed, the waste arising from reprocessing; or
  - temporary storage of spent fuel assemblies in Hungary.
- The EIAS assumes that the area to serve as the site for the transitional storage of spent assemblies will be located on the site. The basic scenario presented in the EIAS suggests that spent fuel assemblies will be disposed after temporary storage directly in Hungary in a deep geological storage facility to be developed by that time. The same storage facility will be used for the final disposal of high activity radioactive waste arising from the operation and decommissioning of the facility. The Developer has demonstrated that it will be necessary to comply with the provisions of the national program adopted by the Government in Government Decision 1459/2016 (VIII.24.) and of Parliamentary Resolution 21/2015. (V.4.) OGY on the national policy of managing spent fuel and radioactive waste in order to be able to implement the foregoing. The plans call for the disposal of low and medium activity radioactive wastes in the National Radioactive Waste Repository (NRWR) operated at a site at Mórágyi Völgy 4 in Bátaapáti.
- Taking into account the two options presented about the interim storage of spent fuel, the Government Office determined its requirements with a view to the selected options up to the start date of the consent procedure for commissioning the new units.
- Section 40 of the Nuclear Act and Government Decree 215/2013 (VI.21.) on designating the body responsible for certain tasks relating to radioactive wastes and spent fuel, its activities and sources of funds provide at the same time that the responsibility for the final disposal of radioactive wastes, the interim storage of spent fuel, closing the nuclear fuel

cycle and for performing the jobs relating to dismantling nuclear facilities currently rests with RHK Kft.

- The shutdown of the new nuclear power plant units is an activity that requires an independent environmental impact assessment procedure to be carried out by the power of law as provided in section 31 of Annex 1 of the G Decree, i.e. such activities may only be started and pursued in possession of an environmental license. The Government Office laid down its general requirements concerning the abandonment of the activity licensed by this license taking that aspect into account.

4.7. Assertions from the perspective of landscape and nature protection:

4.7.1. Regarding Non-Natura 2000 areas affected by the planned activity

- The area where the new units are planned to be constructed does not directly affect protected natural areas of national importance or Natura 2000 areas designated under the Conservation Decree.

- Most of the area used for constructing the envisaged units is of inferior importance from the perspective of nature protection (such as degraded grassland), is marked as a non-cultivated factory site and is also currently owned by MVM PA Zrt. However, the projected work is of a magnitude in terms of both duration and volume that it will influence almost all of the members and species of the surrounding flora and fauna from ground animals through bats and birds to individuals of the vertebrate and invertebrate aquatic fauna. The chapter "Wildlife and Ecosystem" in the EIAS presents appropriately the status of the area from the perspective of nature protection, expected impacts and the recommendations made to reduce adverse consequences along with mitigating measures planned. The documentation discusses the survey, characterisation and evaluation of the complete flora, vegetation and fauna inside a circle of 3 km around the Paks Nuclear Power Plant. The survey and the evaluation were conducted according to the core principles and methodological solutions set forth in the National Biodiversity Monitoring System.

- Developer planned several activities designed to reduce the load the flora and fauna are exposed to (such as loss of habitat, dust and noise pollution, logging, establishment of spoil areas, etc.), to safeguard the values of nature and to save and conserve protected animal and plant species. Moreover, seeking to reduce the burdening effects, the Government Office obliged the Developer among others to prepare a detailed timetable of planned works and to coordinate with the management body responsible for nature protection in the area during the complete period of the works with reference to Sections 8(1), 17(1), 42(1) and 43(1) of Act LIII of 1996 on Nature Protection (hereinafter: Nature Protection Act).

- As the area affected by the project serves as the habitat of several protected bat species, paying utmost attention to saving these species during the works is one of the requirements imposed on the Developer. To save protected plants and animals surveyed in dry land areas, the duty to relocate such species has been prescribed, and relocation is

an activity that requires a nature protection license pursuant to Sections 42(1) and (3)a) and 43(2) a) and b) of the Nature Protection Act and to Section 2fd) and 3(1) of Government Decree 348/2006. (XII.23.) on the detailed rules governing the conservation, keeping, utilisation and presentation of protected animals.

4.7.2. Regarding Natura 2000 areas affected by the planned activity

- In its opinion (see section 6.9) issued in closing the preliminary consultation procedure initiated by the Developer on 10 November 2012, the Government Office – taking into consideration of the principle of precaution and also section 31 of Annex 1 to the G Decree, which provides that the planned activity is subject of an environmental impact assessment procedure – required the Developer to develop appropriate assessment of estimated impacts on the Natura 2000 site resulted from the planned activity. The appropriate assessment shall cover the elements defined in Annex 14 of the Conservation Decree.

- The site at which the new warm water channel is to be constructed on plot No. 0109 in Paks affects the Natura 2000 network, particularly an indicative habitat. Discharging warm water used previously for cooling via the new warm water channel will also affect and influence the Natura 2000 network.

- The affected Natura 2000 network is part of the nature conservation area marked „HUDD20023 Tolnai-Duna" (Tolna County section of the Danube), which is classified as high priority. The Developer assessed the impacts of the planned activity on the status of species and habitat types used as an indicative basis for designating Natura 2000 areas with reference to the provisions of Section 10(1) of the Conservation Decree, and submitted as part of the EIAS appropriate assessment of estimated impacts on the Natura 2000 site resulted from the planned activity, compiled according to Annex 14 of the Conservation Decree as provided in the opinion of the Legal Predecessor of the Government Office in closing the preliminary consultation procedure and with a view to Sections 10(5)b) and 10(6) of the Conservation Decree.

- Section 4(1) of the Conservation Decree provides that the objective of delineating and maintaining Natura 2000 areas is to save, conserve and restore favourable nature protection conditions for the local species and habitat types specified in Annexes 1-3 and 4, respectively of the Conservation Decree and to ensure the natural conditions that served as a basis for delineating Natura 2000 areas and the conditions for sustainable farming.

- Based on appropriate assessment of estimated impacts on the Natura 2000 site resulted from the planned activity and the aspects listed in Annex 15 of the Conservation Decree, it is possible to ascertain that the facilities to be constructed on the right bank of the Danube and the surrounding areas which are affected by the construction project include 0.8 hectares of dry land and around 200 m of Danube riverside classified as Natura 2000. The total size of the Tolnai-Duna (HUDD20023) (Tolna County section of the Danube) Natura 2000 areas is 7161.69 hectares. The size of the Natura 2000 area affected by the

envisaged fresh water cooling system is no more than 0.01% of the total area of the Tolna County section of the Danube.

- On site assessments have shown that the habitat type of Community importance affected by the planned engineering structure of the future fresh water cooling system is classified as parkland coded as 91E0* (*Alno-Padion, Ainion incanae, Salicion albae*) with *Alnus glutinosa* and *Fraxinus excelsior* species, while the directly affected section of the Danube riverside is populated by a white willow and poplar floodplain forest, identified by Natura 2000 Code 91E0 and mentioned in section 9 of Annex 4.B) of the Conservation Decree. No indicative plant species were found in the affected Natura 2000 area. There are a relatively few, roughly about 220-300 trees of varying sizes in the area.

- Several indicative animal species, thick shelled river mussels and several bat species may occur in the affected Natura 2000 area. The assessments have verified the potential occurrence of Natura 2000 indicative fish species in the area affected by the intervention.

- Upon an analysis of the appropriate assessment of the estimated impacts the Government Office ascertained that there will be a slight loss of habitat in the area of the Natura 2000 network, the degree of which is 0.01% compared to the total designated Natura 2000 area of the Tolna County section of the Danube marked HUDD20023. It also ascertained that although the loss of habitat in question can be mitigated by restoration and landscape rehabilitation works performed in the wake of the project, but there is no chance that the Natura 2000 indicative habitat will get re-established as surface conditions will be altered, **accordingly the loss of area caused by the establishment is expected to be permanent**.

- The Developer planned and presented several mitigation measures to protect and save the Natura 2000 network. To complement those measures and in order to reduce adverse effects, the Government Office required the Developer among others to prepare a detailed timetable of planned works, it set a temporal limitation on logging in and the removal of shrubs from the area of the Natura 2000 network and it identified the need to engage in consultations with the management body responsible for nature protection during the whole period of works affecting the Natura 2000 network by invoking Sections 8(1), 17(1), 42(1) and 43(1) of the Nature Protection Act. To safeguard the Natura 2000 area and the indicative species and to uphold the objectives laid down in Section 4(1) of the Conservation Decree, the Developer was required to survey and assess macroscopic bottom-dwelling invertebrate aquatic creatures in the Danube riverside region and to propose actions for their protection before construction starts.

- Taking the above into account, planting vegetation and keeping the area clear of invasive weeds are justified by aspects of both landscape protection (integration into the landscape) and nature protection. That motivated the Government Office to require the Developer with reference to Sections 9(1) and 16(3) of the Nature Protection Act to populate the Natura 2000 area affected by the interventions with native woody plants (trees and/or shrubs) typical of the landscape without endangering the engineering safety

of the facility. The Government Office laid down requirements concerning the professional care of planted vegetation and the removal of invasive plant species pursuant to Sections 7(1)-(2), 9(1) and 16(2) of the Nature Protection Act.

- Invasive plant species are already present in the area, but as major excavation works are envisaged, invasive weeds are expected to proliferate and displace native vegetation, which is a major hazard that jeopardises local vegetation and Natura 2000 habitat types. In view of the foregoing, the Government Office required the Developer to develop methods and technologies that prevent invasive plant species from spreading and to mow at least twice a year to remove existing individuals, so as to implement the objectives laid down in Section 4(1) of the Conservation Decree.

- Moreover, it can also be ascertained that the Danube River, which is part of the Natura 2000 network pursuant to the Conservation Decree and at a same time an ecological corridor, will bear most of the burden from a nature protection perspective during the operation of the facility owing to its exposure to heat pollution. It is possible to ascertain form the documentation of estimated impacts that warmed cooling water discharged by the envisaged activity is expected to have a minimum impact on aquatic flora and vegetation which is in contact with the water. Therefore, taking into account the principle of precaution, the Government Office required the Developer to assess the impact of exposure to heat on Natura 2000 indicative species, protected and other non-protected species that make up the complete flora and fauna of the Danube. As a drastic change in the populations of any of the affected species may be burdensome for the flora and fauna of the river, the Government Office required the Developer to develop and operate the f biological monitoring presented in the chapter on "Wildlife and Ecosystem" in the EIAS with reference to Section 4(1) of the Conservation Decree and Sections 9(1), 43(1), 17(1) and 17(2) of the Nature Protection Act.

- All in all, upon considering the legal assistance provided by the DDDNP and DKNP as well, the Government Office estimated the impacts of the planned activity on the basis of the EIAS and the documentation of estimated impacts and found that the planned activity is not expected to have major adverse impacts on the Natura 2000 network in question or on its coherence with the ecological network it forms with other Natura 2000 areas and is not contrary to the goals of designating the Natura 2000 network. At the same time, the Government Office established that the planned activity is expected to have a slight negative impact on the habitat type identified by the 91E0 Natura 2000 code. It can also be ascertained that the adverse impacts of the envisaged project on the indicative habitat and indicative species of the Natura 2000 network can be reduced to a bare minimum and safeguarding protected natural values can be ensured, provided the requirements laid out in the operative part are observed in full and the multiple actions Developer plans in respect of the indicative habitat and indicative species of the Natura 2000 network and protected natural values are implemented.

- Section 10(8) of the Conservation Decree provides that in case the plan or the project, as judged by estimated impacts, holds adverse consequences for the nature protection status

of the species and habitat types specified in Annexes 1-4 as the basis for the designation of the Natura 2000 area, and in the absence of alternative solutions, and the plan and the project are associated with overriding public interest as provided in Sections 10/A(2) and (3), the plan may be approved and the project may be permitted. However the project shall be implemented in a manner to ensure that its unfavourable impacts are minimised.

- Pursuant to section 5 of Annex 14 of the Conservation Decree, the appropriate assessment of the estimated impacts on the Natura 2000 site included the examination of alternative (other reasonable) project solutions, as part of which Developer studied other potential sites for constructing the warm water channel that affects the Natura 2000 network. One alternative solution involves the construction of a new warm water channel that branches off towards the south from the existing warm water channel (See section 18.7.6 in Chapter 18 of the EIAS).

- The alternative inlet point would have been constructed about 1000 m downstream from the existing warm water channel and its inlet, and accordingly the size of the affected Natura 2000 area would have been roughly 10.6 hectares, which is much larger than in case of the selected option (0.8 hectare). The analysis of laying out the alternative warm water channel also assessed the mixing and cooling parameters of the warmed cooling water discharged into the Danube River. The assessment of mixing ascertained that discharging the warmed cooling water via a side channel with its inlet at about 1000 m downstream would create more unfavourable conditions for mixing, the prime reason being that the mainstream of the Danube shifts from the right bank towards the left bank. In conclusion, the alternative solution presented above is inferior in terms of safeguarding the Natura 2000 network and minimising the degree to which it is affected compared to the envisaged option. **Therefore there is no other reasonable alternative for implementing the project.**

- Furthermore, the security of power supply is a fundamental goal, overriding interest relating to **public security** and is seen as a set of actions designed to protect fundamental values associated with the daily life of the public. Reaching and securing that objective is part of the basic policy of Hungary. The security of power supply serves to secure the predictable sustenance of core services in the life of the public, which is classified as belonging to the scope of public security.

- As stated by the EU Court of Justice in the case C-212/09, safeguarding a secure energy supply may constitute a ground of public security.

- Forecasts by MAVIR Hungarian Independent Transmission Operator Company Ltd. suggest the need to establish (among others) base load power plants of predictable management in the existing electric energy system which are capable of delivering constant capacity to the grid during the major part of each year so as to guarantee the security of power supply.

- The main goal of the environmental policy of the European Union is to protect human health. This goal is promoted by various climate policy objectives, which include as a

fundamental component, the reduction of pollutants from energy generation to a bare minimum. The envisaged activity meets these objectives as it is possible to ascertain based on the EIAS that no pollutant emissions are expected during the operating cycle of the facilities other than emissions from the test runs of diesel generators and limited emissions of radioactive substances below regulatory limit values.

- Projects affecting Natura 2000 areas may not be permitted unless the planned project has a long term connection with the overriding public interest. The planned activity also meets this requirement as the projected operating cycle of the facilities is 60 years. The planned activity is designed to serve as a basis for the security of supply in Hungary in the 21st century. Based on the above it is possible to ascertain in the meaning of Section 10(8) of the Conservation Decree that the planned activity is associated with **this overriding public interest**, taking into account Section 10/A(2) of the Conservation Decree, and it is necessary to implement the planned activity in order to satisfy that interest.

- Recognising the mitigation measures Developer has planned and presented in the EIAS, the Government Office also required Developer in the operative part of this Decision (see section II/1.2.39 of the permit) with reference to Section 10(9) of the Conservation Decree to ensure the uniformity of Natura 2000 areas and the favourable nature protection status of habitats and species by performing restoration and development actions (balancing measures) in proportion to and to counter any slight negative impact expected, of which the Government Office will notify the European Commission via the Minister responsible for nature protection in accordance with section (10).

4.8. Assertions from the perspective of land use planning instruments:

- As it is stated in the legal assistance provided by the Honorary Chief Notary of the Town of Paks under file number I.8944-2/2016 that the envisaged new nuclear power plant do not yet comply with the requirements of the effective Local Building Code and Regulation Plan of the Town of Paks, which was approved by Municipal Decree 24/2003 (XII.31.), the Government Office laid down in the operative part the obligation to eliminate the conflict with reference to Sections 5(2)c) and cb) and Section 10 (4)a) of the G Decree.

5. The participation of Client environment protection organisations in the procedure:

The following organisations established to represent environment protection interests and carrying out their activity in the planned impact area have requested registration as a client under the procedure pursuant to Section 15(5) of the Administrative Proceedings Act and Section 98(1) of the EP Act, provided that none of these organisations qualify to political party or as an advocacy body.

- **Energiaklub Szakpolitikai Intézet és Módszertani Központ Egyesület** (Energy Club Climate Policy Institute, 1056 Budapest, Szerb utca 17-19.; hereinafter: Energy Club) was recognised as a client to this procedure upon registration on 10 December 2012 during the preliminary consultation phase of this case;

- **Greenpeace Magyarország Egyesület** (Greenpeace Hungary, 1143 Budapest, Zászlós utca 54.; hereinafter: Greenpeace) registered as client on 27 October 2014 before this procedure started;
- **Levegő Munkacsoport** (Clean Air Action Group, 1085 Budapest, Üllői út 18. I/9A.; hereinafter: Clean Air Action Group) registered as client on 6 November 2014 before this procedure started;
- **REFLEX Környezetvédő Egyesület** (REFLEX Environmental Protection Association, 9023 Győr, Bartók Béla út 7.; hereinafter: REFLEX) registered on 17 February 2015 while this procedure was pending;
- **Védegylet Egyesület** (1088 Budapest, Szentkirályi utca 6., fsz. 3; hereinafter: Védegylet) registered as client on 13 April 2015 while this procedure was pending;
- **Pécsi Zöld Kör** (Pécs Green Circle, 7621 Pécs, Szent István square 17.) registered as client on 29 May 2015 while this procedure was pending;
- **Reális Zöldek Klub** (Real Green Club, 1026 Budapest, Endrődi S. 26.) registered as client on 24 November 2015 while this procedure was pending.

The Government Office recognised the client status of the organisations listed above with reference to the organisation bylaws and final court decisions on registration attached pursuant to Section 9(5) of the G Decree.

In addition to the above, Csaba Figler, acting as power of attorney for the president of **Egészséges Ivóvízért és Környezetért Egyesület** (Association for Healthy Drinking Water and the Environment, 7145 Sárpilis, Zrínyi utca 3., hereinafter: EIKE) submitted an application for recognizing the client status of EIKE on 14 May 2015.
An evaluation of the attached bylaws and the registration data confirmed that the registered activity of EIKE was targeted at protecting the right to a healthy environment as a fundamental right, and it was also confirmed that the area of operation of EIKE did not coincide with the impact area which is subject to this procedure. Therefore, as Csaba Figler failed to verify EIKE's client status under Section 15(5) of the Administrative Proceedings Act and Section 98(1) of the EP Act, the Government Office refused to recognise EIKE's client status in an order issued under file number 558-162/2015.
Csaba Figler appealed the order issued by the Government Office by the applicable deadline. NIEN conducted a second instance procedure to evaluate the appeal in substance and dismissed it as unfounded, and therefore issued an order under file number OKTF-KP/9879-3/2015 to uphold the first instance order of the Government Office.

Greenpeace and the Energy Club submitted documentation covering the evaluation of and comments to the case in question on 10 August 2015 and 27 October 2015, respectively. The Government Office evaluated the comments in the process of making this decision.

Acting as client, Greenpeace applied for suspending the procedure on 14 December 2015. Examining the conditions set forth in Section 32(3) of the Administrative Proceedings Act in effect on the date this procedure started and on the date of submission of the application for suspension, the Government Office ascertained that there was no legal regulation that foreclosed the suspension of the procedure and that Developer and Greenpeace were

adversaries in this procedure, which is why it was necessary to procure a statement from Developer to be able to adjudicate the application. Called upon by the Government Office, Developer made a statement among others to the effect that it disapproves of suspending the procedure on 30 December 2015. As the conditions laid down in Section 32(3) of the Administrative Proceedings Act, the Government Office issued order No. 78-2/2016 to dismiss the application submitted by Greenpeace to have the procedure suspended.
Greenpeace appealed the order issued by the Government Office by the applicable deadline. NIEN issued a second instance order under file number OKTF-KP/2552-5/2016 to uphold the first instance order of the Government Office requiring partial amendments to the operative part and the reasons.

6. <u>International procedure:</u>

Pursuant to Sections 12(1) and (4) and 13(1) of the G Decree and Sections 2(4) and 3(1) of Government Decree 148/1999 (X. 13.) on promulgating the Convention on Environmental Impact Assessment in a Transboundary Context signed in Espoo (Finland) on 26 February 1991 (hereinafter referred to as Espoo Convention), the Legal Predecessor of the Government Office applied to the Ministry headed by the minister responsible for environment protection (currently Ministry of Agriculture, hereinafter referred to as the Ministry) during the preliminary consultations to conduct an international environmental impact assessment procedure.

The Ministry drafted the notification required under the Espoo Convention on the basis of the communication filed by the Legal Predecessor of the Government Office pursuant to Section 13(2) of the G Decree, and sent it to all of the countries neighbouring Hungary, as a Party of Origin, as well as to all of the Member States of the European Union. Based on a request filed by Greenpeace Switzerland, Switzerland was also notified in zhis procedure. 10 countries from the group of the notified countries (Austria, the Czech Republic, Greece, Croatia, Malta, Germany, Romania, Slovakia, Slovenia and the Ukraine) indicated their intent to participate in the international environmental impact assessment procedure to be conducted as part of the environmental impact assessment procedure. Additionally, Serbia indicated her intent to participate subsequently on 27 July 2015.

Following Developer's submission of its application for an environmental license, the Legal Predecessor of the Government Office submitted to the Ministry a document issued under file number 558-34/2015 on 4 March 2015 to apply for conducting the international procedure, and enclosed with its application, pursuant to Sections 14(2)-(3) of the G Decree, the EIAS, the Non-technical Summary and the Transboundary Chapter as well as supplementary documents submitted on 12 January 2015 in response to a call set in order No. 755-19/2014, each in one hard copy and 2 CDs containing electronic versions of the same.

Pursuant to the provisions of Section 12(1) of the G Decree and to section 2 of Appendix I and Article 2 of the Espoo Convention and also with a view to the requirements laid down in Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (hereinafter referred to as EIA Directive), the Ministry launched an international

environmental impact assessment procedure to assess transboundary environmental impacts on 2 April 2015 as part of this environmental impact assessment procedure by emailing the official letters of notification to registered Affected Parties and by posting the EIAS and any additional documents available to it on the website of the Ministry (at *http://www.kormany.hu/hu/foldmuvelesugyi-miniszterium/hirek/nemzetkozi-kornyezetvedelmi-hatasvizsgalati-eljarasok*). The official letters of notification were posted on 10 April 2016.

The Government Office forwarded to the Ministry in compliance with the provisions of Section 14(3) of the G Decree the English and German language versions of the supplementary documents filed in response to Order No. 558-37/2015 on 12 May 2015 and the English and German language versions of the supplementary documents filed in response to Order No. 558-156/2015 on 20 July 2015. The Ministry published the supplementary documents on the website mentioned above.

Pursuant to Section 14(3) of the G Decree and to Articles 2(6) and 5 of the Espoo Convention, the following actions were performed in course of the international procedure between 3 September and 6 November 2015:

Republic of Croatia:	expert consultation : 3 September 2015; Budapest; Hungary public hearing: 21 September 2015 Osijek, Croatia
Republic of Austria:	public hearing: 23 September 2015; Vienna, Austria expert consultation : 24 September 2015; Vienna, Austria
Romania:	public hearing: 28 September 2015; Oradea, Romania public hearing: 29 September 2015; Timisoara, Romania public hearing: 14 October 2015; Bucharest, Romania expert consultation : 15 October 2015; Bucharest, Romania
Ukraine:	public hearing:7 October 2015; Kiev, Ukraine expert consultation : 8 October 2015, Kiev, Ukraine
Republic of Slovenia	public hearing: 12 October 2015, Ljubljana, Slovenia expert consultation : 12 October 2015, Ljubljana, Slovenia
Federal Republic of Germany	public hearing: 20-21 October 2015; Munich, Germany expert consultation : 21 October 2015; Munich, Germany
Republic of Serbia:	public hearing: 5 November 2015; Belgrade, Serbia expert consultation: 6 November 2015; Belgrade, Serbia

Moreover, both the **Slovak Republic** and the **Czech Republic** requested written consultation, but did not express the intention to hold a public hearing. The **Hellenic Republic** and the **Republic of Malta** did not request either written consultation or holding a public hearing.

Pursuant to Section 14(1) of the G Decree, Developer sent to the Government Office on 24 June 2016 the English language translation and the English, German, Slovak, Czech, Slovenian, Ukrainian, Croatian, Serbian and Romanian summary of the Clarification which had been submitted to the Government Office on 16 June 2016. To meet the obligations laid down in Section 14(3) of the G Decree and in Article 2(6) of the Espoo Convention, the Government Office forwarded these documents to the Ministry on 28 June 2016. The Government Office sent to the Ministry the English, German, Slovak, Czech, Slovenian, Ukrainian, Croatian, Serbian and Romanian language versions of the clarified Clarification on 8 July 2016.

Pursuant to Article 6(6) of the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, done at Aarhus on 25 June 1998 and promulgated by Act LXXXI of 2001 (hereinafter referred to as Aarhus Convention), the Ministry forwarded the Clarification to the countries participating in the international environmental impact assessment procedure with the invitation to return their comments, questions and observations regarding substance in 30 days by 12 August 2016. The deadline specified by the Ministry was set with reference to Section 8(3) of the G Decree and Article 2(6) of the Espoo Convention. Simultaneously, the Ministry remarked that the failure to deliver comments by the aforementioned deadline will be interpreted by the Party of Origin to mean that the Affected Party does not intend to make comments.

Responses were received before the deadline from the national contact points of the Federal Republic of Germany and the Republic of Austria.

- The Federal Republic of Germany did not file any observations as the Clarification made no assertions regarding transboundary environmental impacts.
- The Republic of Austria applied to have the deadline postponed, which the Ministry accepted and set a new deadline for 26 August 2016. Remarks were received from the Republic of Austria by deadline.

The Czech Republic notified the Ministry on 17 August 2016 that it does not intend to make comments about the substance of the Clarification. No comments were notified by any of the other Affected Parties either before or after the deadline set.

In order to take into account the provisions of Section 12(5) of the G Decree, the Ministry notified the Government Office in a document under file number KMF/82-33/2016 dated 19 September 2016 to the effect that the consultations under Article 5 of the Espoo Convention held in connection with the international environmental impact assessment procedure of the project in question were closed with all of the Affected Parties.

The detailed communication attached by the Ministry to the document asserts that Hungary, as the Party of Origin, has taken all of the procedural steps required in the procedure in question in connection with Affected Parties under Articles 3(2) and (5), 2(6) and 3(8) as well

as in Articles 4(2), 5 and 6(1) of the Espoo Convention. The international environmental impact assessment procedure conducted under Article 6 of the Espoo Convention is considered closed upon the delivery of this Decision.

Consultation procedure with participating countries and the final official position of the Affected Parties:

6.1. Federal Republic of Germany

At the expert consultation held in Munich on 21 October 2015, the Party of Origin responded to the questions and comments set in the Affected Party's preliminary statement forwarded on 28 May 2015. Next, the parties agreed in line with the standard practice of international environmental impact assessment procedures that the Affected Party will make out and send to the Party of Origin its final official position within 30 days. The Affected Party sent its final official position to the Party of Origin on 26 November 2016, which the Party of Origin accepted. The major assertions of the final official statement (based on the document received from the Bavarian Ministry of Environmental and Consumer Protection done in Munich on 26 November 2015) are as follows:

First and foremost, it declared Germany's intention not to use nuclear power in the future and the country's preference for renewable resources, which is why Germany objects fundamentally to the implementation of the new nuclear power plant units at the Paks site. Germany formulated the following expectations in case the new units were constructed:

a) given that the application of nuclear power is an extremely complex task, the activity must be subject to the most stringent security requirements and the fulfilment of those requirements must be verified during the consent procedure, Germany requests adherence to the most stringent security requirements and the most comprehensive transparency with regard to the new units constructed at the Paks site;
b) Germany considers it necessary to present transboundary pollution caused by the emission of radioactive isotopes due to event beyond the design basis of the nuclear power plant and an explanation why the largest internal exposure dose occurs in German territories lying farther north rather than in the areas close to the German border;
c) Germany considers it necessary to harmonise the classification of events belonging to the design base conditions (DBC1/DBC2) and the related probability of occurrence;
d) furthermore, Germany considers it necessary to ensure protection against the impact of large passenger aircraft (of the Airbus A380 type) crashing and other external impacts such as terrorist attacks (SEWD events) and to transfer data about such events once data are available;
e) finally, Germany requests that the plans of the project at Paks reflect the results of the reviews ordered after and the lessons learnt from the Fukushima disaster.

The Party of Origin sent its response to the questions asked in the final version of the official statement to the Affected Party on 3 March 2016 and the Affected Party put forth no

questions afterwards. It can therefore be ascertained that the consultation procedure conducted according to Article 5 of the Espoo Convention closed.

6.2. Republic of Austria

At the expert consultation held in Vienna on 24 September 2015, the Party of Origin responded to the questions and comments set in the Affected Party's preliminary statement forwarded on 3 June 2015, except for four questions. The Parties concluded that the Party of Origin would send the responses to the remaining questions of the Affected Party in writing and the Affected Party would form and notify to the Party of Origin its final official position in 30 days upon receipt of the written responses. The Party of Origin sent its responses to the remaining questions on 29 February 2016. The Affected Party notified its final official position to the Party of Origin on 30 March 2016, which the Party of Origin accepted. The main assertions of the final official statement [based on the document "Environmental impact assessment of the Paks II Nuclear Power Plant - Consultation Report" (No. REP-0571, Vienna, 2016) received from the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management prepared by ENCO)] are as follows:

a) although most of the questions raised by the Austrian party were answered at the expert consultation held in Vienna on 24 September 2015, some questions have remained open and need to be clarified and discussed later on (see the list below):
   - the Austrian party requests the Party of Origin to inform the Republic of Austria about the PSA results, CDF and LERF values, models of serious accidents and dominant chains of events as presented in the application for the construction license;
   - in connection with the above, the Austrian party requests the Party of Origin to present in the future the results of propagation analyses taking into account the source terms of serious accidents as well as a single source term and the exposures expected in Austria (analysing doses from ingestion taking into account the characteristics of the Austrian food supply chain);
   - the Austrian party requests the Party of Origin to present as part of the above the environment impacts of the most critical accident, including the scenario when an accident affects all of the units at the site;
   - furthermore, the Austrian party requests the Party of Origin to present as part of the above the total (maximum) amount of radioactive waste and spent fuel stored on site;
b) the Austrian party recommends that these discussions be conducted independently of the international environmental impact assessment procedure in the framework of regular meetings held between the Governments of Hungary and the Republic of Austria pursuant to the Treaty on Regulating Certain Issues of Mutual Interest Affecting Nuclear Facilities, signed in Vienna on 29 April 1987 and promulgated in Hungary by Ministerial Decree 70/1987 (XII. 10.) MT.
c) The Austrian party recommends discussing the following issues at those meetings in the future, once the new analytical results are available.

- individual requirements of the NSC laid down to preclude serious accidents with emissions of a magnitude that threatens Austrian territory;
- the results of seismic analyses in progress concerning the Paks site, including the results of a probabilistic seismic hazard analysis (PSHA);
- the results of the International Atomic Energy Agency Emergency Preparedness Review (EPREV);
- the velocity and mass of aircraft taken into account for analysing the consequences of a design basis plane crash event;
- the solution of the alternative ultimate heat sink selected to the Paks II nuclear power plant units;
- the radioactive propagation and dose tables shown in section 2.3.5 of the EIAS;
- the future Developer of the nuclear power plant units at Paks II, once the related decision is made;
- the types and volumes of radioactive waste and spent fuel as soon as the Preliminary Security Inspection Report is available.

The Affected Party asked no further questions. It is understood that the questions formulated by the Affected Party are subject to subsequent procedures of nuclear safety relating to the planned activity. It can therefore be ascertained that the consultation procedure conducted according to Article 5 of the Espoo Convention closed.

6.3. Slovak Republic

The Affected Party did not think it was necessary to hold a public forum and only requested written consultation. The Affected Party sent her preliminary statement on 7 July 2015 and the Party of Origin notified its official response to the Affected Party on 3 March 2016. Next, the Affected Party notified its final official statement on 4 April 2016 including the following major assertions (based on the document issued by the Ministry of Environmental Protection of the Slovak Republic done in Bratislava on 4 April 2016):

a) the Slovak authorities have coordinated the responses to the questions raised during the written consultation and agreed to the implementation of the proposed project;
b) however, they considered it necessary to present in the future the responses to questions studied during the implementation of the project (see the questions listed below):
   - it is necessary to present the impact on navigation on the Danube in the area of the inlet of the warm water channel discharging warmed cooling water;
   - they Slovak party recommends taking into account the results of stress tests performed after the Fukushima events in addition to the security recommendations of the Western European Nuclear Regulators Association (WENRA) and the International Atomic Energy Agency (IAEA);
   - the Slovak party indicated its intent to participate in the environmental impact assessment conducted under the Espoo Convention of the storage facility, if any, to be established for the interim storage of spent fuel rods;
   - the Slovak party recommends a clarification of the national program of managing spent fuel and radioactive waste;

- the Slovak party considers it necessary to present an accident scenario that studies the occurrence of an accident (disaster) affecting all of the units at the Paks site.

It can be ascertained that the Affected Party considered the data made available were sufficient in the present stage of the planned activity. Considering, however, that some information will only be available at a later stage of the consent procedure of the planned activity, the Slovak party requests information updates forward to the Treaty concluded between the Governments of the Republic of Hungary and the Czech and the Slovak Federative Republic on mutual notification and cooperation in the field of nuclear safety and radiation protection, signed in Vienna on 20 September 1990 and promulgated in Hungary by Government Decree 108/1991 (VIII.28.).

The Affected Party asked no further questions. It is understood that the questions formulated by the Affected Party are subject to subsequent procedures of nuclear safety relating to the planned activity. It can therefore be ascertained that the consultation procedure conducted according to Article 5 of the Espoo Convention closed.

6.4. Czech Republic

The Affected Party did not think it was necessary to hold a public forum and only requested written consultation. The Affected Party notified her preliminary statement on 31 August 2015, and the Party of Origin notified the Affected Party of its official responses to that statement as well as to the questions asked by CALLA Association for the Protection of the Environment on 3 March 2016. Next, the Affected Party notified its final official statement on 29 March 2016 including the following major assertion (based on the document issued by the Ministry of Environmental Protection of the Czech Republic done in Prague on 29 March 2016):

a) the Affected Party accepts the responses given by the Party of Origin to the questions notified in the preliminary statement and considers the consultation procedure conducted under the Espoo Convention closed.

The Affected Party asked no further questions. It can therefore be ascertained that the consultation procedure conducted according to Article 5 of the Espoo Convention closed.

6.5. Republic of Serbia

The Parties noted in writing at the consultation of experts held on 6 November 2015 that the Affected Party accepts the statements made by the Party of Origin in response to the questions and comments set in the official preliminary statement communicated by Affected Party on 9 October 2015. Affected Party sent her final official statement to Party of Origin on 24 June 2016 including the following major assertions (based on the document issued by the Ministry of Environmental Protection and Agriculture of the Republic of Serbia done in Belgrade on 24 June 2016):

a) the completion of the EIAS "complies with the requirements relating to environmental impact assessments and the method of preparing such documents";
b) a nuclear power plant accident involving fuel damage would not threaten the population or the environment of the Republic of Serbia;

c) the Affected Party requests continuous updates about the results of the environmental monitoring performed during the operation of the new units.

The Affected Party asked no further questions. It can therefore be ascertained that the consultation procedure conducted according to Article 5 of the Espoo Convention closed.

6.6. Republic of Croatia

The Parties noted in writing at the consultation of experts held on 3 September 2015 that the Affected Party accepts the statements made by the Party of Origin in response to the questions and comments set in the official preliminary statement communicated by Affected Party on 1 July 2015. Following a public forum held on 21 September 2015, the Parties noted in writing that the Affected Party would communicate its final official position once the Party of Origin sends the minutes taken of and the series of slides presented at the technical consultation. The Party of Origin complied with the request to send the minutes and the set of slides on 3 March 2016.

The Affected Party sent her final official statement to Party of Origin on 23 June 2016 including the following major assertions (*based on the document issued by the Ministry of Environmental and Nature Protection of the Republic of Croatia done in Zagreb on 16 June 2016*):

a) as a nuclear power plant with major electricity generation capacity of this kind located on a single site and cooled with fresh water represents a major risk for the security of supply in an electricity system of medium level of development, the system should be developed with reliance on independent facilities of lower capacity to reduce risks (risks include the outage of large capacity power plants in the system, market competitiveness is questionable, and the development runs counter to interests speaking in favour of the greater use of renewable resources);
b) the project incurs negative environmental impacts such as the heat load of the water of the Danube;
c) the Affected Party pointed out the Dravis 2 project implemented in the framework of Hungary-Croatia IPA Cross-border Co-operation Programme 2007-2013, where the participants included Osijek-Baranya County. A study on "Preparedness for Nuclear Accidents in the Territory of Osijek-Baranya County" was prepared in the framework of the project, discussing in detail the preventive and long term actions needed to protect the public and the environment. The Affected Party cannot accept the assertion made in the EIAS to the effect that the new units form a facility which is secure for human beings and the environment, because of a failure to study the worst case scenario during operations. Due to the above, the EIAS should also focus on the results of the project referred to above in order to ensure nuclear security for the population of the county and efficient and appropriately timed actions in the case of accidents.
d) the problem of the safe supply of drinking water must be solved by all means by ensuring the availability of alternative sources for the period of accidents and a

solution for protecting against polluting ground water during accidents should also be found.

The Party of Origin forwarded its responses to the comments Affected Party made in her final official statement on 10 August 2016. The Affected Party had no additional comments or questions. It can therefore be ascertained that the consultation procedure conducted according to Article 5 of the Espoo Convention closed.

6.7. Hellenic Republic

The Affected Party requested neither oral nor written consultation and did not think it was necessary to hold a public forum. The Affected Party communicated her preliminary official statement on 10 June 2015 with questions and comments to which the Party of Origin sent its response on 3 March 2016. The Affected Party sent her final official statement to Party of Origin on 14 June 2016 including the following major assertion (based on the document issued by the Ministry of Environmental Protection and Energy of the Hellenic Republic done in Athens on 13 June 2016):

a) although the estimates (of the volume of radioactive emissions) specified in the EIAS as a basis for studying radiological impacts are rather small in respect of the worst case scenario, the probable impact on the territory of Greece is not expected to be considerable even if that scenario materialises.

The Affected Party had no additional comments or questions. It can therefore be ascertained that the consultation procedure conducted according to Article 5 of the Espoo Convention closed.

6.8. Republic of Slovenia

The Parties noted in writing at the consultation of experts held on 12 October 2015 that the Affected Party accepts the statements made by the Party of Origin in response to the questions and comments set in the official preliminary statement communicated by Affected Party on 18 September 2015. As regards two additional questions raised at the expert consultation, the parties noted that the Party of Origin would send a written response. The Party of Origin did so on 3 March 2016. The Affected Party sent her final official statement to Party of Origin on 1 July 2016 including the following major assertions (based on the document issued by the Ministry of Environmental Protection and Land Use of the Republic of Slovenia done in Ljubljana on 20 June 2016), in which the Affected Party:

a) requests the Party of Origin to apply all security measures during the implementation of the planned activity so as to ensure security standards of the highest level;
b) requests furthermore to make available to all parties the results of environmental monitoring discussed in detail in the EIAS.

The Affected Party had no additional comments or questions. It can therefore be ascertained that the consultation procedure conducted according to Article 5 of the Espoo Convention closed.

6.9. Ukraine

The Affected Party notified its preliminary official statement to the Party of Origin on 8 September 2015. The parties noted in writing at the consultation of experts held on 8 October 2015 that the Affected Party accepted the statement made by the Party of Origin in response to the questions and comments raised in the preliminary official statement of the Affected Party. The parties noted furthermore that the Affected Party would not send a final official statement. Upon the request of the Affected Party, on 3 March 2016 the Party of Origin sent to the Affected Party certain parts of the series of slides presented at the consultation of experts.

The Affected Party had no additional comments or questions afterwards. The Ministry informed the Affected Party on 13 April 2016 that the Party of Origin considered the consultation conducted under Article 5 of the Espoo Convention closed with reference to the statement made by Affected Party at the consultation of experts to the effect that the document issued by the Ministry of Ecology and Natural Resources of the Ukraine in Kiev on 7 September 2015 contained the final official statemwnt of the Affected Party.

6.10. Republic of Malta

Although notified by the Party of Origin, the Affected Party failed to express either a preliminary or a final official statement, but it sent information in a letter dated 9 June 2015 of the intention not to participate in the procedure despite the information given earlier. The Ministry noted in a document addressed to the Espoo contact officer of the Affected Party, dated 14 July 2015 that it considered the consultation conducted under Article 5 of the Espoo Convention closed.

6.11. Romania

The Affected Party communicated her preliminary statement on 12 June 2015. Moreover, the Affected Party noted at the consultation of experts held on 15 October 2015 the intention to issue a final official statement once the Party of Origin has sent a detailed response in writing to the questions and comments raised by Romanian civil society organisations. Although the Party of Origin is not obliged to respond under the Espoo Convention, it forwarded its official written response to the questions and comments raised by Romanian civil society organisations to the Affected Party on 2 March 2016. Next, the Affected Party raised additional questions for clarification in a document dated 31 March 2016.
To clarify any outstanding questions, the representatives of the parties met in Bucharest on 22 July 2016 and noted in the minutes taken that the Party of Origin complied with all of its obligations laid down in the Espoo Convention and the EIA Directive *vis a vis* the Affected Party, and therefore consider the consultation procedure between the parties closed.
The Party of Origin forwarded to the Affected Party the remaining information it requested as discussed at the meeting on 22 July.

7. <u>Comments received the domestic and the international environmental impact assessment procedure:</u>

Pursuant to the provisions of Section 10(1) of the G Decree and taking into account the statements made by the Developer, the Government Office evaluated the comments received from the domestic and international public as laid out below. The evaluation covered both an appraisal of the facts and a technical (including legal) analysis of comments received from domestic and foreign organisations and individuals.

7.1. Comments concerning procedural law:

- *comments indicating the need to hold public hearings in regional centres in Hungary in addition to that held in Paks on 7 May 2015 given that the project is of national significance and affects the whole population, and it is particularly important therefore to broaden the scope of the procedure to cover the widest possible circle of the public;*
- *objections raised regarding the appropriateness of announcing the public hearing in Paks*

The Government Office came to the following conclusions upon evaluating the comments on the basis of applicable legal regulations.

- The purpose of a public hearing held as part of the procedure is to furnish the public with information about the planned activity received directly from the Developer. The public may ask the Developer questions about the planned activity and its expected environmental impacts, may ask the Government Office and the participating special authorities questions about the procedure. Pursuant to Article 6(7) of the Aarhus Convention, public hearings also serve to allow the public make comments and to channel important public remarks, analyses and opinions about the planned activity to the Government Office.
- Section 63(1)a) of the Administrative Proceedings Act provides that an authority shall hold a public hearing when it is required by law. Under that authorisation, the environmental authority holds a public hearing during environmental impact assessment procedures pursuant to Section 9(1) of the G Decree. Section 9(2) of the G Decree specifies the option to hold public hearings at several locations, if several settlements are affected or if the number of affected parties justifies doing so.
- It follows from the EIAS that the impact area of the activity in question affects the town of Paks as the location of the establishment and the settlements of Dunaszentbenedek, Uszód, Foktő and Gerjen. Taking all of the above into account, the Government Office held a public hearing in compliance with the legal requirements in the Theatre Hall of Csengey Dénes Cultural Centre in the town of Paks, the location of the establishment on 7 May 2015 so as to inform the public and to become familiar with opinions and comments.
- Acting upon Section 9(4) of the G Decree, the Government Office sent its notification dated 2 April 2015 about the venue and date of the public hearing to the participating special authorities, the Developer, the Energy Club, REFLEX, Clean Air Action Group and Greenpeace as non-governmental organisations with client status justified pursuant to Section 9(5) of the G Degree up to that stage of the procedure, the Ministry conducting the international environmental impact assessment procedure and the organisations involved in the procedure up to that stage by virtue of the provision

of domestic legal assistance and dr. Marcell Szabó, Deputy Commissioner for Future Generations, taking into account Section 21(1)c) of Act CXI of 2011 on the Commissioner of Fundamental Rights. The Government Office notified Védegylet of the venue and date of the public hearing on 22 April 2015 after the non-governmental organisation registered as client and certified client status on 13 April 2015.

- Pursuant to Sections 9(6) and (7) of the G Decree, the Government Office published its communication about the public hearing in compliance with the rules governing the communication by way of announcements on the website www.ddkvf.hu on 2 April 2015 and also on the website *www.kormanyhivatal.hu/hu/baranya* on 8 April 2015. The Government Office published its communication regarding the public hearing at the same website along with all of the communications made during the procedure on 24 April 2015. The Government Office also posted its communication about the public hearing on its bulletin board at its Pécs offices in Papnövelde utca 13-15 on 2 April 2015 and forwarded it for announcement to the notaries of municipalities participating in the procedure.
- The communication about the public hearing was posted on the bulletin board of their respective offices by the Honorary Chief Notary of the Town of Paks on 7 April 2015, by the Notary of the Joint Municipal Office of Dunaszentgyörgy in respect of Gerjen on 8 April 2015, and by the Notary of the Joint Municipal Office of Géderlak in respect of Úszód and Dunaszentbenedek on 8 April 2015. Also, the communication was also posted for public viewing on the website of the town of Paks (*www.paks.hu*). As regards Foktő, the Government Office sent the communication to the Notary of the Joint Municipal Office of Kalocsa, who forwarded it to the Notary of the Joint Municipal Office of Fajsz since the local governments of the villages of Fajsz and Foktő set up a joint municipal office as of 1 January 2015. Nevertheless, the Notary of the Joint Municipal Office of Kalocsa also posted the communication for public viewing between 9 April 2015 and 7 May 2015, and the communication was also posted publicly at the Fajsz centre of the Joint Municipal Office of Fajsz between 21 April 2015 and 7 May 2015 and at the branch office in Foktő between 3 April 2015 and 4 May 2015.
- However, publication in a local daily paper is no longer required under the G Decree since 1 January 2013, the Government Office has published the communication in two local papers. The decision to do so was motivated by the desire to give more emphasis on informing local inhabitants by announcing the public hearing in the issues of Petőfi Népe and Tolnai Népújság published on 5 May 2015, a day close to the date of the public hearing.
- Based on the above, the Government Office ascertained while evaluating the above comments received from the public from a legal perspective that the legal regulations applicable to announcing the public hearing were observed, moreover, the Government Office widened the mandatory scope of announcing the public hearing by publishing its communication in local papers so as to allow all interested parties to attend the event.
- The public hearing was organised with the affected public showing pronounced interest through high participation. The auditorium of the theatre at Csengey Dénes

Cultural Centre, which can seat 440 persons, was full. People who could not get a seat in the auditorium could follow the public hearing in a room with seats for 50 persons called Nagy Klub (Large Club), and screens were also mounted at the front gate of the building for people outside. The public hearing lasted more than 6 hours and the Government Office closed the hearing only after ascertaining upon asking the participants repeatedly that no member of the public intended to take the floor.

- Pursuant to Section 9(1) of the G Decree, the Government Office is under the obligation to hold one public hearing during the procedure in question. The expectation regarding the selection of the venue and date of a public hearing suggest that the venue and date shall be specified in a manner to ensure it does not prevent the public from participating. Public hearings must be held in a manner to facilitate participation by the members of the public, but that does not mean that public hearings shall be held at several venues. The Government Office has the discretion to decide whether or not there is a need to organise more than one public hearing at additional venues. Considering the set of settlements situated in the impact area of the planned activity, the Government Office found no justification for holding additional public hearings (at other venues) in the course of evaluating this question.
- By virtue of the relevant legal regulations, including the provisions of the Aarhus Convention, it can be ascertained that the participation of the public concerned at the public hearing was properly ensured and that the Government Office conducted the public hearing by attaining its objectives.

- *comments made about holding the public hearing in Paks (starting time, the length of Developer's presentation)*

The Government Office came to the following conclusions upon evaluating the above comment:

- The Government Office has the discretion to make a decision about specifying the time of a public hearing. When specifying a point of time for the hearing, the Government Office shall select one that does not prevent the public from participating and shall hold the hearing in a manner to facilitate the participation of the members of the public.
- As regards the selection of the point of time for the public hearing, the Government Office gave priority to ensuring that all interested persons are able to attend, including members of the public who were at work on the day selected for the public hearing. Based on that consideration, the Government Office decided to begin the public hearing after daily working hours normally end (16:30). Accordingly, the public hearing started at 17:00 hours and the time at which it ended was determined by the number of contributions and therefore the Government Office closed the hearing only after ascertaining upon asking the participants repeatedly that no member of the public in attendance intended to take the floor. According to standard practices in Hungary, it is the Developer's duty to present the activity it intends to license along with its expected environmental impacts at public hearing, taking into account the objective of the latter. The overview presented by the Developer was not

disproportionately long, it rather matched the size (over 2,200 pages) of the EIAS, which was enclosed with the application for the license. After the Developer's presentation all of the participants of the hearing had the opportunity to take the floor and the Government Office did not close the public hearing until all of the persons wishing to contribute completed the discussion of their position.

- An analysis of the comment in question leads to the conclusion, based on the relevant legal regulations, including the guidelines issued to help implement the Aarhus and Espoo Conventions, that the point of time of the public hearing was selected and the hearing was held in compliance with legal expectations as well as standard domestic and international practices.

- *comments concerning the specification of the agenda and the order of contributions*

The Government Office came to the following conclusions upon evaluating the above comment:

- The rules of conducting public hearings (hereinafter referred to as the Rules) were developed in accordance with standard domestic practice and the guidelines issued to help implement the Aarhus and Espoo Conventions, considering first of all the objective to convey to the Government Office all the questions, comments and observations raised by the public and to prevent any infringement of the right of the public to participate in decision-making.
- Accordingly, the Government Office informed the public in its communication about the public hearing pursuant to Section 9(6) of the G Decree that the public hearing will be organised with a moderator participating. Moreover, the Government Office also informed the public pursuant to Section 9(9) of the G Decree that questions, comments and opinions may be put forward in compliance with the Rules specified and announced in advance for and also presented in the communications published about the public hearing to ensure that the minutes of the hearing can be taken accurately. To inform the public, the Government Office published a sample of the question card used to enter contributions and the Rules at its website and the presiding chair provided detailed information after the public hearing opened. The moderator presented the Rules using the public address system during the hour before the public hearing started and emphasised the rules relevant to the order of contributions. The Rules were also posted on the sign board at the front gate of the building and were printed on the back of the form used for entering questions, comments and opinions. The moderator reminded the attendees of these aspects. It was also announced that the floor is open for raising questions and comments during the full duration of the public hearing and that the public hearing will not be closed as long as any of the attendees wished to make a contribution.
- As provided in the rules, contributors had 3 minutes to raise a question, make a comment or to offer opinions and also for the related responses. Setting the time limit of 3 minutes is a question of procedure and is not to be considered as disproportionate limitation. The provisions of Article 6(7) of the Aarhus Convention are fulfilled despite the time limit as neither the number of comments, questions, opinions or

positions nor the duration of the public hearing is limited. Persons could put forward any number of comments as many times as they wished and the time limit of 3 minutes was introduced to ensure all participants can take the floor to put forward a comment, question, opinion or position they considered to be relevant.

- As a result of its analysis of the comments received regarding the Rules applied during the public hearing, the Government Office concluded that the Rules were specified in conformity with Hungarian practices and the relevant international recommendations. In substance, the Rules were developed in full accord with what are known as the Maastricht Recommendations (ECE/MP.PP/2014/2/Add.2 118., particularly points f), h), i), and m) issued under the Aarhus Convention by a working group set up to specify the rules of promoting effective public participation in environmental matters. During the public hearing, the Government Office secured the right of the public to put forward comments, opinions, positions and questions in accordance with the relevant legal regulations. Applying the Rules helped to avoid the public limiting itself during the exercise of its rights, i.e. no person putting forward a comment or opinion could restrict others in their attempts to explain their positions or to ask what they considered to be important questions.

- *comments concerning the restriction by the Government Office of the topic of questions and comments raised at the public hearing to the subject matter at hand, namely issues falling in the competence of the Government Office and the special authorities, and*
- *concerning the objection that only questions could be asked at the public hearing, no opinions or comments could be put forward and it was not possible to track clearly whether or not all of the comments, questions and contributions were answered*

The Government Office came to the following conclusions upon evaluating the above comment:

- Pursuant to Section 9(9) of the G Decree the minutes taken at and published after the public hearing certifies whether or not (in compliance with Article 6(7) of the Aarhus Convention) all of the questions, comments, remarks and opinions could be put forward as they arose at the public hearing and substantiates that neither the number nor the subject matter of the contributions was limited as discussed above. Pursuant to Sections 6-16 of the G Decree, this procedure covers the assessment of the environmental impacts of the new nuclear power plant units, hence the competence of the Government Office is restricted in this procedure to the assessment of the environmental impacts of the planned activity, while in the meaning of Section 10(1) of the G Decree the duty of the Government Office is limited during the decision-making process to addressing issues of relevance concerning environmental impacts. The Government Office has no competence over and may not therefore make decisions about questions outside the scope of environmental impacts (such as the definition of the energy policy), hence such questions could not be brought under the scope of this procedure. The Rules laid down by the Government Office also point this out as a matter of fact. Yet, that did not prevent the public from putting forward what they considered relevant comments, positions, questions or opinions at the

public hearing, regardless of whether or not they were directly related to the subject matter of the procedure.

- *comments concerning the "intimidating" atmosphere of the public hearing and the neutrality of the moderator*

The Government Office came to the following conclusions upon evaluating the above comment:

- All in all, the public hearing progressed in a dignified manner without major disturbances and was not charged with intimidation. However, the presiding chair reminded the attendees to abide by the Rules on several occasions so as to maintain law and order at the public hearing. Moreover, the Government Office paid attention throughout the whole event to ensuring that all of the participants get a chance to express their views and it also facilitated the free expression of opinions even with the use of demonstrative means, but it also reminded participants that they should respect the opinions of others.
- Taking also into account the provision of Article 3(8) of the Aarhus Convention, comments, remarks, opinions and positions could be put forward in one of two alternative ways, either personally or channelled through the moderator, which provided a vehicle for hearing the contributions, opinions, questions and positions of participants who did not wish to take the floor personally.
- Based on all of the above and also forward to the provisions of Article 3(8) of the Aarhus Convention, it can be ascertained that the Government Office ensured effective participation in the public hearing for persons wishing to exercise their rights, as each participant could put forward positions and opinions and raise questions either directly or through a representative.

- *comments concerning the requirement obliging non-governmental organisations to register in advance to be able to participate in the procedure*

The Government Office came to the following conclusions upon evaluating the above comment:

- Pursuant to Section 15(5) of the Administrative Proceedings Act and Section 98(1) of the EP Act, organisations established to represent environment protection interests whose area of operations as specified in their bylaws affects any one of the settlements of Paks, Dunaszentbenedek, Uszód, Foktő or Gerjen, which are located in the planned impact area of the activity covered by this procedure (as that area is defined with a view to Section 7(3), section 3 of Annex 6 and Annex 7 of the G Decree), are recognised as clients under this state administration procedure of environment protection, provided they do not qualify as political parties or advocacy bodies.
- Pursuant to Section 9(5) of the G Decree, these organisations certify their client status by presenting their bylaws and a legally binding decision on court registration.

- Non-governmental organisations (other than the organisations specified in the Administrative Proceedings Act) can also be recognised as clients in this procedure, provided they indicate their eligibility or vested interest as described in Section 15(1) of the Administrative Proceedings act or can certify their client status by virtue of the impact area specified in Section 15(3) of the Administrative Proceedings Act.
- Section 15(5a) of the Administrative Proceedings Act confers a general right to make statements upon non-governmental organisations whose registered activities are targeted at protecting a fundamental right or enforcing a public interest, regardless of whether or not they are recognised as clients.
- The affected public as defined in Section 2(1)a) of the G Decree is a broader category than client status as it covers organisations without legal personality affected or potentially affected by or otherwise holding an interest in the decision to be made under the procedure envisaged in the G Decree, including the environment protection organisations specified in Section 98(1) of the EP Act.
- It is possible to ascertain that the Government Office applied the effective rules during the procedure appropriately and refrained from subjecting any of the entities wishing to participate in the procedure under any legal title to additional requirement, particularly to mandatory registration. However, pursuant to Section 15 of the Administrative Proceedings Act, the Government Office has the obligation to scrutinise the conditions of verifying client status, which it fulfilled.

- *comments concerning whether there was enough time allowed for studying the EIAS, taking into account the volume involved and the fact that there was no international information equivalent to that available in Hungary provided during the procedure,*
- *comments concerning whether the circle of countries involved in the procedure was appropriate*

The Government Office examined the comments concerning the appropriateness of conducting the international procedure in cooperation with the Ministry responsible for coordinating the international procedure on behalf of the Party of Origin pursuant to Section 12(4) of the G Decree and came to the following conclusions:

- The Legal Predecessor of the Government Office notified the Ministry appropriately under Section 13(2) of the G Decree during the preliminary consultation. Based on the notification, the Ministry drafted the notification required by Article 3(1) of the Espoo Convention and sent it to the national contact points of all of the neighbouring countries of Hungary as Party of Origin and each Member State of the European Union on 12 February 2013, while Switzerland was also notified forward to a request made to that effect by Greenpeace Switzerland.
- Accordingly, a total of 30 countries were notified, including ten that indicated their intent to participate in the international environmental impact assessment procedure to be conducted in the framework of the environmental impact assessment procedure.
- Ignoring the deadline set in the notification Serbia indicated her intent to participate on 27 July 2015, which the Party of Origin honoured without reservations.

- The reason for sending the notification under the Espoo Convention to such a large group of countries had nothing to do with the likelihood of ascertaining on the basis of the EIAS submitted by the Developer that the planned activity would cause major harmful transboundary impacts it was rather motivated by the public interest in nuclear projects and international practice.
- If a country that was not among those notified despite the broad sweep of notifications had wished to participate in the procedure, she should have indicated her intent to the Party of Origin as envisaged in Article 3(7) of the Espoo Convention. No indication of that nature ever occurred, though.
- Taking into account Section 29(3) of the Administrative Proceedings Act, the time at which documentation presenting the environmental impacts of a planned activity and the data pertaining to public hearings need to be published are set forth, respectively, in Sections 8(1)-(3) of the G Decree and Sections 8(1a) and 9(6)-(7) of the G Decree. Given the above, the Government Office publishes information concerning access to the application and its attachments (for electronic and personal inspection) at least 30 days before the public hearing. Otherwise, the deadline specified in the G Decree harmonises with the internationally accepted guidelines issued to aid the implementation of the Aarhus and Espoo Conventions and it also falls in line with the decisions made by Compliance Committee set up to verify the compliance of state parties to the Aarhus Convention in several instances such as ACCC/C/2009/37 (Belarus) and ACCC/C/2009/43 (Armenia), in which the Compliance Committee ascertains that setting the reasonable period for becoming familiar with the impact of a planned activity at 30 days complies with the requirements of the Convention. Please, note also that the new provision of the EIA Directive, which will enter into force on 15 May 2017 also follows this international practices by requiring a period of 30 days for public consultation.
- The Espoo Convention prescribes equivalent rights for the public, which means the accessibility of the documentation presenting the environmental impacts of the planned activity for 30 days in any of the countries participating in the international procedure may not be understood as a violation of the obligations arising under the Convention by either the Party of Origin or the Affected Parties. However, both the public in the countries of the Party of Origin and the Affected Parties actually had much more time owing to the cooperation of the Ministry.
- That is so because the evaluation conducted in cooperation with the Ministry revealed that the contested procedures by both the German and the Austrian party actually complied with the minimum requirements laid down in Hungarian regulations. Accordingly, the Ministry notified all of the Affected Parties once again about the Hungarian legal regulations applicable to public participation and Hungarian standard practice, and communicated its pronounced request to all Affected Parties to make the documents available for their own public up to the date of the public forum held in their respective countries. Responding to the request of the Ministry immediately, the Bavarian State Ministry of the Environment and Consumer Protection (StMUV), which is the authority with competence over the whole territory of Germany to act in nuclear matters pursuant to the laws in effect in Germany, extended the original

period open for comments (between 23 April 2015 and 22 May 2015) to 19 October 2015, i.e. the date of the public forum held in Munich in a communication published at its website on 26 May 2015. The Austrian party also followed suit and kept the period open for receiving comments until the public hearing held on 23 September 2015 in Vienna. Furthermore, the Ministry also requested the Affected Parties to inform their own public about the date and venue of the public forum they organised.

- Taking all of the above into consideration, it can be ascertained that the Government Office and the Ministry responsible for coordinating the international environmental impact assessment procedure acted in compliance with the relevant laws and with the standard practice applicable to the implementation of the Aarhus and Espoo Conventions. It can also be established forward to the above that the authorities of the Affected Parties also secured the rights of the public during the procedures in question.

- *comments about the planned activity being presented by Government Commissioner, Professor dr. Attila Aszódi as a representative of the government rather than by the Developer*

The Government Office came to the following conclusions upon evaluating the above comment:

- The Government Office examined the eligibility of the person acting for the client under the rules of the Administrative Proceedings Act and ascertained that Professor dr. Attila Aszódi, who acted on behalf of the Developer at the public hearing held in Paks on 7 May 2016 had the entitlement to act for the Developer at the specific procedural event to present the environmental impacts of the planned activity pursuant to Government Decision 1358/2014 (VI.30.) on the appointment and duties of the Government Commissioner responsible for maintaining the capacity of the Paks Nuclear Power Plant and to the bylaws of the Developer.
- It is important to note that the Government Office acts upon a specific authorisation (powers vested) under law and makes regulatory decisions in accordance with the rules of procedure applicable to the type of case processed and by enforcing the requirements laid down in the legal regulations governing the specific sector. That is also the case when the subject matter of the consent procedure is an activity in which the state has a stake. The Government Office conducted this procedure in compliance with the provisions of the Administrative Proceedings Act thereby giving effect to the guarantees enshrined in the principles of lawfulness, equality before law and officiality.

- *comments concerning the failure by the Party of Origin to send separate notices about the complements to the EIAS, whereby the Party of Origin violated the Espoo Convention*

The Government Office evaluated this comment in cooperation with the Ministry and ascertained the following:

- Pursuant to Section 14(3) of the G Decree and Article 3 of the Espoo Convention the Ministry officially informed all of the Affected Parties on 2 April 2015 about launching the international environmental impact assessment procedure by sending them notification letters and identifying for them the site (*http://www.kormany.hu/hu/foldmuvelesugyi-miniszterium/hirek/nemzetkozi-kornyezetvedelmi-hatasvizsgalati-eljarasok*) at which the EIAS was accessible in electronic form.
- The Ministry followed standard Hungarian practices and posted the information that arose subject to Sections 12-16 of the G Decree and the Espoo Convention after the submission of the application on the same website where it published the application and its annexes. Accordingly, the Ministry provided access to all of the supplements submitted subsequently under the procedure in question at the website communicated and notified officially to all of the Affected Parties, hence the Affected Parties and the public of their countries were in the position to familiarise themselves with the supplements, to make comments and ask questions regarding their substance.
- As a result of its evaluation of the comment in question the Ministry sent a separate notification dated 30 September 2015, discussed with and accepted by the Government Office, to the Austrian party who made the comment regarding the supplementary information published at the known website. It is possible to ascertain that a period of 30 days was kept open after the notification for making comments in respect of each Affected Party.

- *comments about not conducting the international environmental impact assessment procedure under the Espoo Convention and not involving the public at a time when all of the options are still open [since the Government had already made its decision about the technology to be used for power generation (nuclear power), the site (Paks), the type of reactor (VVER-1200) and the supplier (Russia)] and by doing so the Hungarian party has violated Article 6(4) of the Aarhus Convention, which requires the parties to provide for early public participation, when all options are open.*

The Government Office came to the following conclusions upon evaluating the above comment:

- Section 5/A(1) of the G Decree allows the Developer to start preliminary consultations with the environment protection authority. Subsection (2) provides that preliminary consultations are held so that the environment protection authority can furnish the Developer with a facilitating written opinion about the required content of the environmental EIAS and to allow the public to express an opinion about the planned activity.
- Developer applied for starting preliminary consultation pursuant to Section 5/A(1) of the G Decree on 10 November 2012. The Legal Predecessor of the Government Office acting upon the provisions of Section 13 of the G Decree sent the documents required for starting an international procedure to the Ministry and the latter notified

all of the neighbouring countries and all EU member states about launching a preliminary consultation procedure as required by the provisions of the Espoo Convention and international practice. Moreover, forward to a notice received from Greenpeace Switzerland, Switzerland was also involved. As part of the preliminary consultation procedure, a total of 30 countries received a package of documents compiled in accordance with Annex 4 of the G Decree to disseminate fundamental information about the planned activity to a broad audience.

- The authority of the notified party provided access to the documentation for the public and sent it to its authorities with the competence to examine special questions for comments. During the procedure, the Legal Predecessor of the Government Office received a large number of comments transferred by the Ministry responsible for coordinating the procedure. The Legal Predecessor of the Government Office sent the comments to the Developer pursuant to Section 5/B(6) of the G Decree taking into account the ability to keep the 45 day deadline set forth in Section 5/B(4) of the G Decree in effect at the time, and the Developer took into account those comments in preparing the EIAS.
- As a result of a legal analysis of the comment in question it can be ascertained that for a practical interpretation of the provision of Article 6(4) of the Aarhus Convention, the term "*all options are open*" is interpreted to mean on the basis of the guidelines issued by the Aarhus Compliance Committee operated under the auspices of the UN that early public participation must be ensured in the environmental impact assessment procedure, i.e. at a time in the decision-making process when the authority may take into account public comments in merit and make its decision accordingly. When all of the options are still open for the authority to make its decision.
- As legal grounds for the above, the Aarhus Compliance Committee pointed out in its decision ACC/C/2006/16 (Lithuania) that in case national law envisages public participation during the preliminary consultation (scoping), it appears to provide for early public participation as required in Article 6(4) of the Aarhus Convention.
- This interpretation is also supported by Article 6(4) of the EIA Directive, which provides as follows: *"The public concerned shall be given early and effective opportunities to participate in the environmental decision-making procedures referred to in Article 2(2) and shall, for that purpose, be entitled to express comments and opinions when all options are open to the competent authority or authorities before the decision on the request for development consent is taken.*"
- It is to be stressed, furthermore, that issuing a license as a result of the present environmental impact assessment procedure shall by all means precede the issuance by the authority responsible for nuclear security of a regulatory license to construction, commission and operation the units pursuant to Section 66(5) of the EP Act. It follows from the above that even this environmental impact assessment procedure constitutes the early part of the request procedure seeking consent for the development of the new units, hence the provisions set in Article 6(4) of the Aarhus Convention are not violated even in that respect.
- In view of the above, the Government Office ascertained as a result of evaluating the comment that it had acted in compliance with the provisions of the G Decree and the

Aarhus Convention as well as the standard international practices of giving effect to the Convention.

- *comments about the failure to notify non-governmental organisations properly about the preliminary consultation*

The Government Office came to the following conclusions upon evaluating the above comment:

- Pursuant to Section 5/B(4) of the G Decree, the Legal Predecessor of the Government Office had to issue an opinion in a period of 45 days after receipt of the application for consultation. The affected public was informed about the preliminary consultation pursuant to Sections 5/A(5)-(6) of the G Decree, and a period of 21 days was left open for making comments as required under Section 5/A(5)e) of the G Decree. The Legal Predecessor of the Government Office forwarded to the Developer comments received from public administration bodies and either from the Affected Parties or from the public in Hungary before it issued its opinion with the opinion enclosed, and forwarded any comments received thereafter subsequently. The Legal Predecessor of the Government Office included information about the latter circumstance in its opinion. It follows from the above that the Legal Predecessor of the Government Office disclosed to the Developer the comments received during and after the preliminary consultation, which is why the objection is deemed to be irrelevant from the perspective of the procedure.

- *comments concerning the content covered by the EIAS and the Non-technical Summary, as some comments qualified those as incomplete (the components claimed to be missing from the submitted documentation include in particular the presentation of a long term strategy relevant to radioactive wastes and spent fuel rods and a discussion of the impacts on cultural heritage, as well as the economic and social impacts, the dismantling of the units, accidents and the consequences of incidents)*

The Government Office came to the following conclusions upon evaluating the above comment:

- The Government Office is under obligation to examine the content covered by the submitted documentation forward to the law in effect and in doing so must take into consideration the G Decree, which contains comprehensive rules about the mandatory substance of the EIAS, and in particular Annex 6 to the G Decree. On the other hand it has to take into account the provisions of sector level legal regulations relating to the environmental impact of the planned activity (including in particular the provisions on clean air, protection from noise and vibration, environmental radiology, landscape and nature protection and waste management). Furthermore, the Developer had to consider for the purposes of compiling the EIAS the opinion of the authority issued in closing the preliminary consultation along with the comments of public administration bodies participating in the preliminary consultation received from the

Government Office pursuant to Annex 12 of the G Decree and any remarks relevant to the environmental impact received from the public concerned.

- The Government Office examined the appropriateness of the substance of the documentation submitted to obtain the environmental license both in terms of volume and content. When it identified instances of incompleteness, it requested the Developer to supply additional documents or statements in order to clarify the facts. As regards the Non-technical Summary, it could be determined upon the submission of that document that it met the requirements laid down in section 8 of Annex 6 to the G Decree and that it was acceptable for the purpose of conducting a public procedure and needed no further additions. As regards the EIAS, it could be ascertained, considering also the content covered by additional submissions and clarifications requested by the Government Office, that it complied with the requirements of content and volume set out in the relevant legal regulations.
- Eventually, the Government Office made this decision in possession of the EIAS and its supplements, the decisions of special authorities, comments received from the general public in Hungary and foreign countries, the official positions of Affected Parties and all available data and information relevant to the case.

7.2. Comments about the heat pollution of the Danube:

Regarding the heat pollution of the Danube comments were received from Greenpeace, the Energy Club, Jan Haverkamp in his capacity as nuclear and energy policy advisor of Greenpeace Central and Eastern Europe, the Austrian Institute of Ecology, the Munich Institute of Environmental Protection operating as an association, Brigitte Artmann on behalf of the German association Alliance '90/The Greens, Greenpeace Energy eG Germany, the Ukrainian EPL Ekologija-Pravo-Ljudina ("Environmental Protection-Law-People") international non-profit organisation and VEGO (Pan-Ukrainian Environmental Protection Civil Association), and CALLA Association for the Protection of the Environment from the Czech Republic. Comments were also received in the form of an official position from the Republic of Croatia as well as in writing from Hungarian and foreign citizens and orally at public hearings and open fora.

- *comments relating to the heat pollution of the Danube as regards the ability to comply with and control observance of the legal and regulatory requirements applicable to warming the water of the Danube*
- *a question about how the Developer will solve taking water temperature measurements taking into account the need to respond at a realistic time so as to ensure compliance with the thermal ceiling imposed under law, and*
- *a question about how the Developer will ensure ongoing compliance with the thermal ceiling requirements of the authorities, how it will control the operation of the new units in order to prevent instances of heat load in excess of imposed limits.*

The Government Office came to the following conclusions upon evaluating the above comments from technical and legal perspectives:

- In order to be able to comply with the thermal ceiling requirement, a reference section has been marked off in relation to the point of discharge, and it is subject to a maximum water temperature limit of 30°C pursuant to Section 10(1)b) of the Decree by the Minister for Environment. Section 10(1)a) of the Decree by the Minister for Environment regulates the difference in temperature between the water discharged and that of the recipient in relation to the temperature of the water of the Danube as it arrives (sections II/1.2.4-1.2.7 of the permit).
- Taking into account the foregoing, the Government Office specified the maximum permissible temperature of warmed cooling water discharged into the Danube at 33°C (section II/1.2.8 of the permit).
- In order to ensure tracking the changes of the temperature of the water of the Danube and that of the discharged warmed cooling water, the Government Office has prescribed the duty to take temperature measurements regularly (section II/1.2.7 of the permit).
- In order to control and track compliance with the thermal ceiling of 30°C in the reference section, the Government Office also prescribed the duty to develop a System of Monitoring Thermal Ceiling (sections II/1.1.12 and 1.2.6 of the permit)
- Moreover, in preparation for instances when the temperature of the water of the Danube might be at or above 25°C at the Paks measurement station according to a daily report issued by the Hungarian Hydrological Forecasting Service, additional extraordinary measurements need to be taken in the reference section to check compliance with the 30°C thermal ceiling. The Developer shall allow the Government Office to participate in taking water temperature measurements. (section II/1.2.9 of the permit)
- In order to protect the Danube from heat pollution, the Government Office determines the necessary limitations with a view to Section 10(2) of the Decree by the Minister for Environment during the consent procedure for using the environment. In order to ensure compliance with the thermal ceiling of 30°C in the reference section, the Developer presented potential restrictive measures in the EIAS and its supplements (including the reduction of load, shutting down units, scheduled maintenance of units, additional secondary cooling), which the Government Office accepted.
- In order to allow the Government Office to track the process of developing the set of procedures applicable to employing the restrictive measures, it prescribed the duty to submit a Conceptual Plan in relation to the consent procedure for issuing the establishment license for the new units (section II/1.1.13 of the permit) and thereafter a Limitation Plan in relation to the consent procedure for commissioning (section II/1.2.10 of the permit). Eventually, the Developer will have to apply the restrictive measures laid down in the Limitation Plan as approved by the Government Office during the operation of the new units (section II/1.2.11 of the permit).
- Upon evaluating the above comments about the heat load of the Danube from technical and legal perspectives, the Government Office ascertained that the comments were essential in terms of the environmental impacts and took them into account during the formulation of the requirements imposed in the operative parts quoted.

- *comments concerning the failure to take into account the lowest waterflow values for calculating the permanent availability of cooling water in the EIAS, and*
- *comments concerning the failure to present an analysis of the co-occurrence of the lowest possible waterflow and high background temperature in the EIAS, and*
- *a question inquiring whether the Developer took into account the impacts of global warming and climate change*

Upon an evaluation of the above comments in cooperation with special authorities, the Government Office concluded:

- The Government Office also considered it important to present relevant information concerning the heat load of the Danube, and accordingly it prescribed for Developer in its order issued under file number 558-156/2015 on 18 May 2015 about the need for additional documentation the duty among others to present the impact of the discharge of cooling water on the water temperature of the Danube among conditions of low water levels and in periods when high water temperature and low waterflow co-occur. The Developer fulfilled he requirements laid down in the call for additional documentation, which the Government Office took into account in the process of making its decision.

- *remarks concerning the selection of the cooling system*

Upon an evaluation of the above comments received from the public, the Government Office concluded as follows:

- the EIAS presented an alternative cooling concept in Chapter 5 to the depth required by Annex 6 of the G Decree. The Government Office ascertained that the cooling technology selected by the Developer is satisfactory, provided that Developer complies with the requirements laid down in the operative part.

7.3. Comments relating to nature protection:

- *comments concerning nature protection in connection with adverse impacts of the project on flora and fauna and that of Natura 2000 areas as such arise from the heat pollution of the Danube and the simultaneous operation of the units*
- *the explanation of the remarks suggests that the water used for cooling and the warmed cooling water reintroduced into the river will burden the environment substantially in summer months, especially during low water periods.*

The Government Office came to the following conclusions upon evaluating the above comments:

– The Government Office considered it important to present during this procedure information relevant to the impact of the introduction of cooling water on the water temperature of the Danube both among low water conditions and in periods when high water temperature and low waterflow co-occur, and accordingly it prescribed for the Developer the duty among others to examine these aspects in its order issued under file number 558-156/2015 on 18 May 2015 about the need for additional

documentation. The Developer fulfilled the requirements laid down in the call for additional documentation and the Government Office took into account the results of the completed studies presented to it in the process of making its decision.

- In terms of nature protection, the Danube River will be the most significant affected entity because of heat load from the operation of the new units. The EIAS contains detailed analysis of the impact on the flora and fauna of introducing the warmed cooling water into the Danube. It follows from the documentation presented that the volume of warmed cooling water discharged into the Danube will increase compared to the discharge of the currently operational four units of the Paks Nuclear Power Plant, which will give rise to a moderate realignment of river basin conditions along a section of 2 km downstream from the inlet. The models presented in the EIAS support the conclusion that water temperatures requiring intervention will occur during only a couple of days annually, taking into account the daily temperature maximum and duration values as well as the following 60 year global warming tendencies.
- It is fair to conclude from the operation of the Paks Nuclear Power Plant that temperature sensitive agile aquatic creatures, particularly fish, may stay away from the medium with unfavourable living conditions during the operation of the new units. However, the survey presented in the EIAS verify that the stock of Natura 2000 fish species upstream and downstream from the warm water inlet is practically identical and the difference between the two sections is so minute that it could be the consequence of a random sampling error. It follows from all of the above that the inlet could not be deemed to constitute a disturbing factor in terms of the sustenance of fish populations. The studies identified a total of 9 Natura 2000 indicative fish species: *Aspius aspius* - asp, *Gymnocephalus baloni* - Danube ruffe, *Gymnocephalus schraetser*- schraetzer, *Pelocus cultratus* - sichel, *Romanogobio vladykovi* - white-finned gudgeon, *Rutilus pigus* - cactus roach, *Sabanejewia aurata* - Balcan spined loach, *Zingel streber*- streber, *Zingel zingel* - common zingel. All of these fish species are present in general along the Hungarian section of the Danube, but their occurrence is either relatively rare or medium except for white-finned gudgeon and asp, which are of frequent occurrence in the Natura 2000 area of the Tolna Section of the Danube (HUDD2023), and along other sections of the river in Hungary. The impact of warmed cooling water is not reckoned to be harmful for fish, it can only influence the structure of the stock of fish locally.
- Evaluating the above comments, the Government Office came to the conclusion that the impacts are fundamental in terms of the environmental impacts of the planned activity, and with a view to the technical analysis it therefore prescribed several duties for the Developer so as to protect aquatic flora and fauna in connection with the heat pollution of the Danube (sections II/1.2.35, 1.2.36 and 1.2.37 of the permit).

- *comments concerning legal protection for certain protected animals and their mating and resting places, and therefore a permit is required whenever such habitats are terminated*

The Government Office came to the following conclusions upon evaluating the above comments:

- Biological monitoring studies were conducted using the principles and methodological solutions laid down in the National Biodiversity Monitoring System in order to survey the full flora, vegetation and fauna of a circle of 3 km radius around the Paks Nuclear Power Plant in 2012 for the purposes of the environmental impact assessment needed for procuring the environmental license for the new nuclear power plant units. The main aim of the studies was to survey the current status of flora and fauna at and around the Paks site and to use the survey as a basis for characterising and evaluating the flora and fauna. Moreover, Natura 2000 areas inside a circle of 10 km radius around the power plant were also surveyed for indicative species. Chapter 18 of the EIAS is devoted in full to the wildlife and the ecosystem. 17 higher level taxonomical categories, including 67 taxa (defined to the level of 1 subclass, 6 families and 60 species) were found in the Natura 2000 area of the surveyed Tolna Section of the Danube. The surveys found several protected animal species, including two locust species, green lizard and six bat species. The bats use the site preparation area mostly as a feeding location. Also, 63 bird species were observed, including the great egret, white stork, black stork, black kite, black tern, whiskered tern and the European bee-eater.
- These detailed surveys failed to observe the vulnerable Eurasian otter (*Lutra lutra*) and Ursini's viper (*Vipera ursinii*), and three fish species (Ukrainian brook lamprey, Danube newt, spined loach) in the area covered by the project plans, each of which were inquired about in the comments. Neither the Government Office nor the DDDNP in its capacity as manager responsible for nature protection has any knowledge of the presence of these vulnerable species in the area; the habitat features of the area are not suitable for these species.
- Following a technical analysis, the Government Office prescribed a wide array of landscape and nature protection duties for the Developer (sections II/1.1.18-1.1.34 of the permit), including in particular drafting and submitting to the Government Office an accurate schedule of establishment and construction (sections II/1.1.18-1.1.19 of the permit); the need to coordinate with DDDNP as the manager responsible for nature protection in the area during the works (section II/1.1.20 of the permit); and nature protection requirements relating to the construction of aerial electric transmission lines (sections II/1.1.30-1.1.31 of the permit). It is important to note furthermore that the conservation of protected animal and plant species deserves special attention during the construction project according to the Nature Protection Act and in case protected animal species need to be relocated, the related jobs may only be performed in possession of the nature protection license (section II/1.1.21 of the permit).

- *comments concerning the failure to include information in the EIAS about the estimated environmental impacts of normal operations and accidents on internationally protected nature protection areas, animal and plant species,*

- *comments concerning the failure to present in the EIAS proposed action plans addressing such eventualities and a plan to monitor biological diversity.*

Upon an evaluation of the above comments, the Government Office concluded as follows:

- The area of the planned activity does not affect nature protection areas of national importance. The project affects a Natura 2000 area at a single location where the warmed cooling water is reintroduced into the Danube River. The EIAS claims that it is an area of 0.8 hectares along the Danube riverside, corresponding to 0.01% of the high priority nature protection area identified as "HUDD20023 Tolna County Section of the Danube". The establishment and normal operation of the new units do not affect nature protection areas.
- The Government Office ascertained furthermore that Developer studied to satisfactory depth emissions from design basis events and impacts on nature protection areas in the EIAS and in the related documents and based on those studies the impact is regarded to be neutral.
- As regards non-radiological accidents and emergencies, Chapter 18 of the EIAS presents the impacts on flora and fauna offering sufficient level of detail. The radiological calculations presented in the EIAS support the conclusion that the dose rates associated with expected design basis accidents are not of an order of magnitude to be considered either direct or indirect impacts in the vicinity of the power plant.
- Moreover, Chapter 18 of the EIAS presents a draft of the biodiversity monitoring plan the comment claims to be missing, and it is in respect of this plan that the Government Office prescribed for the Developer the duty to develop and subsequently to operate biodiversity monitoring in line with the appropriate protocols of the National Biodiversity Monitoring System (section II/1.2.35 of the permit).

- *comments concerning the failure of the EIAS to evaluate in-wash/collision losses associated with water intake, and*
- *comments concerning the failure to analyse the potential environmental losses caused by the proposed cooling water intake due to various animal species being washed in*

Upon an evaluation of the above comments, the Government Office concluded as follows:

- The velocity of water flow is so intense in both channels, particularly the warm water channel presents extreme difficulties for amphibians and reptiles and even prevents them from staying there, hence neither channel serves as habitats or as proliferation locations for these animals. The belt shaped channel around the fishing ponds serves the purpose of regulating the water level of these ponds, current velocity is really high in the small channel, which is not or is hardly suitable either for laying eggs or for staying. As regards aquatic macroscopic invertebrates, the higher volume of the water flow and altered flow conditions could affect bottom-dwelling macroscopic invertebrate aquatic creatures once conditions change after the expansion of the cold water channel.

- At the same time fish species being highly agile are threatened to a lesser degree by washing in, the velocity of the water flow in the cold water channel is not of a degree that would prevent fish from swimming out into the Danube. As regards fish, no particular environment protection actions are required during the erection of the new units as most of the fish can move away from interventions affecting the edge of the riverside, e.g. dredging.
- Evaluating the comments, the Government Office came to the conclusion that the impacts are fundamental in terms of the environmental impacts of the planned activity, and with a view to the technical analysis it therefore prescribed several duties for the Developer so as to protect aquatic flora and fauna (sections II/1.2.34, 1.2.35 and 1.2.37 of the permit).

- *comment about the Danube not classified as "fresh water", the point of which is, according to the comment, to help the Developer avoid having to comply with the limit values of 1.5-5°C temperature change per fish species.*

Evaluating the above comments, the Government Office concluded as follows:

- It is Section 10(1) of the Decree by the Minister for Environment which defines temperature limits of discharges into the Danube River as surface water by the new nuclear power plant units, which classify as high priority facilities under Section 2i) of the Decree by the Minister for Environment. Section 6.2.2.2 of the EIAS quotes the requirement set in the Decree by the Minister for Environment, and the Government Office prescribed the related duties in this permit. In contrast with the claim in the comment, the EIAS does not state that the Danube is not to be regarded as "fresh water". The only assertion the EIAS makes is that the Danube is not classified among "fish bearing waters", as legal regulations do not place the Danube in that class. The reason being that only few of the surface waters have yet been classified, see the list in Annex 7 of Ministerial Decree 6/2002 (XI.5.) KvVM. As the Danube does not feature in the list, it is not one of the fish bearing waters according to the applicable law.

7.4. Comments concerning the protection against environmental radiation

- *comments concerning the failure of the EIAS to present a comprehensive overview of the health effects of radioactive emissions, the situations arising upon and the calculations related to accidents involving serious radioactive fallout and*
- *comments concerning the failure to analyse to sufficient depth radioactive aeriform and liquid releases arising upon severe accidents, the related propagation and the environmental and radiation health effects of such incidents,*
- *comments concerning the failure to present the radiological impact on employees during normal operations and accidents,*
- *comments concerning the failure of the EIAS to present in detail the analysis of transboundary effects,*

- *comments concerning the failure of the EIAS to present to sufficient detail the security of the nuclear power plant units, the protection of the units against external impacts (load of wind, protections against aircraft crashing, earthquakes), security analyses, European stress test results and the lessons learnt from earlier accidents at nuclear power plants (Three Miles Island, Chernobyl, Fukushima) and the impacts of accidents involving containment bypass.*

The Government Office came to the following conclusions upon evaluating the above comment:

- The technological parameters of the envisaged units ensure extremely limited expected environmental impacts of the units both during normal operations and in the case of design basis events and events classified under design extension conditions.
- Polluting the Danube with radioactive substances is not expected even in the case of a serious accident as the active and passive safety solutions and design parameters of the nuclear power plant units to be constructed serve to prevent that from happening. This topic is discussed in detail in Chapter 20 and the Transboundary Chapter of the EIAS. Hungarian regulations on nuclear safety lay down the requirements governing the presentation of severe accidents and impose the duty in compliance with the recommendations of the International Atomic Energy Agency to take into account normal operating conditions as well as incidents, and accidents classified under design extension conditions in the plans of new nuclear power plant units.
- No nuclear power plant unit may be licensed from the perspective of nuclear safety unless it can be operated during normal operating conditions, incidents and accidents within the framework identified in the environmental license. The EIAS states that the safety systems use technological solutions that ensure preserving the intactness of the containment even in the case of complex accidents classified under design extension conditions and serious accidents.
- The documentation presented by the Developer suggests that the safety systems of the planned units will use technological solutions that will prevent major emissions of radioactive substances even in the case of events similar to the natural disaster that caused the Fukushima nuclear disaster.
- To study the environmental impacts, the EIAS took into account the emission data of the related envelope event in each category of operating conditions specified in the NSC.
- The emission data presented in the EIAS were captured to reflect the values expected upon an initial event with the largest radiological impact for each category. Different periods of exposure were used for DEC1 and DEC2 events since these various events are associated with different technological progressions and their progression in time also modifies the ensuing dose rates.
- Additionally, the systems of the new power plant units will have to operate in a manner to ensure the same radioactive emission limit values even if the initial events described above materialise.

- Developer performed calculations for all of the potential irradiation pathways and an analysis of the results suggests that neither the population of Hungary nor the public in foreign countries will be exposed to major radiological impacts even in case DEC1 and DEC2 events (i.e. those belonging to design extension conditions) materialise.
- During its technical analysis the Government Office found that the EIAS and the complementary information submitted present the results of calculations of the propagation of radioactive emissions (based on the Clarifications of Russian designers) for both design basis accidents and the most serious conditions arising upon accidents (DEC1-2 conditions) for both Hungarian settlements and cross-border locations.
- Consolidated transboundary radiological impacts are below the dose limit values set by the public health authority for emissions arising from events classified under design extension conditions, i.e. the impacts are regarded to be neutral. The studies presented by the Developer satisfy the requirements laid down in section 2c) of Annex 6 of the G Decree, which provides that an EIAS must present the potential of accidents and failures giving rise to potential environmental impacts and the resulting influencing factors. That is so because the events presented according to the NSC cover the operating conditions regulated under law [normal operating condition (DBC1), anticipated operational occurrences (DBC2) Design basis accidents (DBC3-4), complex accidents (DEC1) severe accidents (DEC2)].
- Moreover, it can also be ascertained that the Hungarian Atomic Energy Authority has the competence as special authority to assess the comments received in this procedure relating to the peaceful use of nuclear energy pursuant to Section 28(3) and Point 5 in Table II of Annex 5 of the D. Accordingly, the Government Office contacted the Hungarian Atomic Energy Authority with reference to Section 10(1) of the G Decree with a request to evaluate the comments, and the HAEA issued its decision with the comments taken into consideration. As recorded in the operative part of this permit, the Hungarian Atomic Energy Authority stated in the explanation attached to its decision that it will assess the questions of nuclear safety raised in the comments at a later stage of the consent procedure in the framework of the relevant licensing procedures (needed for the site, establishment, commissioning and operating).

- *comments concerning the failure of the EIAS to disclose the emergency management strategies to be applied upon accidents and severe accident conditions giving rise to major releases of radioactive substances into the environment.*

The Government Office came to the following conclusions upon evaluating the above comment:

- The Hungarian Atomic Energy Authority has the competence as special authority to assess the comments received in this procedure relating to the peaceful use of nuclear energy pursuant to Section 28(3) and Point 5 in Table II of Annex 5 of the D. Accordingly, the Government Office contacted the Hungarian Atomic Energy Authority with reference to Section 10(1) of the G Decree with a request to evaluate the comments, and the HAEA issued its decision with the comments taken into

consideration. As recorded in the operative part of this permit, the Hungarian Atomic Energy Authority stated in the explanation attached to its decision that it will assess the questions of nuclear safety raised in the comments at a later stage of the consent procedure in the framework of the relevant licensing procedures (needed for the site, construction, commissioning and operating).

- *comments concerning the internationally recognised methods and models applied for the calculation of propagation and doses, and*
- *comments concerning the parameters and baseline data used for the calculations and the component results of the latter, and*
- *comments concerning the failure to verify the reliability of the data and the uncertainty of the calculations*

Assessing the above comments, the Government Office ascertained the following on the basis of the EIAS and the submitted complementary information:

- The software used by Developer for the simulations and dose calculations presented are validated and have references in the nuclear energy sector. Chapter 20 and the Transboundary Chapter of the EIAS contain a discussion and a summary of the modelling methods, parameters and model results. The dose values presented in the documentation take into account exposure to radiation from all relevant isotope emissions.
- The sector-average Gaussian Model was used to determine the exposure of the inhabitants living in the vicinity of the site to radiation. The TREX Euler Model was used for calculations involving larger distances.
- Equations were solved using the quasi 3D Model, Euler equations and the TREX Euler Model. Simulations relied on real weather parameters.
- Real weather database:
  - Using the data series of a full year (2011), 1 hour resolution
  - Data collection using the Global Forecast System (GFS)
- The meteorological tower located on the site of the Paks Nuclear Power Plant can provide weather data for specific altitudes. The weather data needed for the calculations were taken from the measurement height nearest to the actual altitude of releases taking into account both the structural configuration of the new units and effective emission height.
- As modelling relied on real weather databases, the most pronounced radiological impact will not necessarily develop in areas along the border since the plume containing pollutant substances does not necessarily move along a straight line, it mixes both vertically and horizontally and this phenomenon is fundamentally influenced by real weather parameters. The plume moves together with the air movements shaping the weather of Europe, which may lead to different doses upon remixing. Accordingly, the calculations used the most advanced methods and modelling tools to produce a realistic forecast of the propagation of pollutants.

- As the distribution of real annual weather parameters follows the distribution resulting from prevailing wind, the calculations were set to model real conditions. Accordingly, calculations were computed for the whole year using all of the actual wind directions, but only displayed maximum values as regards the resulting doses.
- The period studied (1997-2010) was considered to be long enough for performing climate calculations, which is why earlier wind related data recorded with a different (mechanical) method were ignored for the purposes of the study.
- As regards precipitation analyses, the data collected at the following traditional precipitation metering stations located in a circle of 30 km around Paks were taken into account: Előszállás, Sáregres (Cece), Simontornya, Bikács, Paks, Gyapa, Dunapataj, Kölesd, Borjád, Tengelic, Bátya, Hajós.
- The dose values presented in the Transboundary Chapter cover the exposure to radiation arising from all of the relevant isotope emissions, including radioactive iodine and caesium isotopes.
- Calculations were performed for a standard grid covering Central Europe using real data from the database of 2011 hourly weather data taking into account the baseline boundary parameters discussed in the Transboundary Chapter.
- The Developer performed calculations for the new units using input parameters in compliance with effective regulations and validated and verified propagation computing software on the basis of data supplied by Russian providers. The results of these calculations are presented in the Transboundary Chapter. The reported data support the conclusion that transboundary radiological consequences fall short of the dose limit even with events classified as DEC2, and that does not require local actions (e.g. distribution of iodine tablets) to protect inhabitants.

- *comments concerning the method of interim storage or radioactive wastes and spent fuel assemblies and*
- *comments concerning the lack of a safe solution for the final disposal and neutralisation of spent fuel assemblies and radioactive wastes, and the categorisation of the latter is not appropriate*

Assessing the above comments, the Government Office ascertained the following on the basis of the EIAS and the submitted complementary information:

- Annex 6 of the G Decree specifies the mandatory elements of content of impact studies. The Developer used that specification to present to an appropriate level of detail the types and volumes of conventional and radioactive wastes generated in each stage of the life cycle of the activity as they form part of the environmental impacts of the planned activity under scrutiny. The Developer uses the information available to it to present its plans for managing the wastes generated.
- The equipment and procedures designed to treat the radioactive wastes are integral parts of the technological system of the nuclear power plant.
- It can be ascertained that the safe storage and proper disposal of radioactive wastes generated in the construction phase of the facility are the duties of the constructing

company rather than the Developer according to standard international practice. Storage and disposal are also activities that require a license and are subject to regulatory oversight of compliance.

- The Developer disclosed that low and medium level radioactive wastes are expected to be taken for disposal to the National Radioactive Waste Repository (NRWR) operated in Bátaapáti by RHK Kft.
- Taking also into account the comments quoted above, the Government Office prescribed duties for the Developer in respect of the collection and treatment of radioactive wastes generated during its activities (sections II/1.1.23-1.1.24 of the license).
- As regards spent fuel assemblies, it can be ascertained that the ISFS is outside the scope of this procedure, and accordingly, the Government Office refrained from evaluating the comments received about that topic for the purposes of making this decision.
- Based on the available information there are two options (transitional storage in Hungary or transportation to a foreign country) to solve the interim storage of spent fuel assemblies generated in the new units.
- Taking also into account the comments quoted above, the Government Office prescribed duties for the Developer in respect of the management of spent fuel rods generated during its activities (sections II/1.1.25 of the permit).
- However, it can also be ascertained that radioactive wastes and spent fuel assemblies may only be managed subject to the national policy defined in Parliamentary Resolution 21/2015 (V.4.) OGY and the national program adopted by Government Decision 1459/2016 (VIII.24.).
- The Nuclear Act provides furthermore that it is the competence of the body appointed by the Government to submit a proposal for the national policy and national program applicable to the management of radioactive wastes and spent fuel adding that the body appointed by the Government is also responsible for ensuring that the jobs relating to the final disposal of radioactive wastes, the interim storage of spent fuel and the dismantling of nuclear facilities are duly performed.
- It is worth mentioning, furthermore, that the facilities used for the final disposal of radioactive wastes and that designed to serve as interim storage for spent fuel are activities that require independent environmental impact assessment pursuant to sections 19 and 17 of Annex 1 of the G Decree.
- As a result of a technical analysis of the comments, the Government Office prescribed with reference to Sections 38(1) and (2) of the Nuclear Act the requirement to submit to the Government Office before the application for the operating licence a conceptual plan addressing the future role and treatment of spent fuel assemblies generated by the activity (section II/1.2.26 of the license).

- *comments claiming that the analysis presented in the EIAS about the consolidated impacts of events affecting several nuclear facilities simultaneously is not satisfactory, and*

- *about the failure to properly assess the independent and consolidated impacts regarding nuclear facilities at and around the site*

The Government Office came to the following conclusions upon evaluating the above comment:

- The planned new nuclear power plant units will be constructed independently of the existing units on a site suitable for the project, which will ensure full access to the existing units during the construction phase. During the establishment of the Paks Nuclear Power Plant, the existing cold water channel was developed in a manner to ensure it has the capacity to meet the cooling requirements of the Paks NPP and 2 additional 1000 MW units planned at the time. It will be necessary to expand the existing cold water channel and to construct a new independent warm water channel to serve the envisaged 2x1200 MW units, but scheduling these properly will eliminate any problems in supplying cooling water to the existing units.
- The Developer made statements during the procedure to the effect that it will take the impacts arising upon a failure in Paks Units 1-4 into account as external impacts during the planning of the new units.
- Moreover, it can also be ascertained that the Hungarian Atomic Energy Authority has the competence as special authority to assess the comments received in this procedure relating to the peaceful use of nuclear energy pursuant to Section 28(3) and Point 5 in Table II of Annex 5 of the D. Accordingly, the Government Office contacted the Hungarian Atomic Energy Authority with reference to Section 10(1) of the G Decree with a request to evaluate the comments, and the HAEA issued its decision with the comments taken into consideration. As recorded in the operative part of this permit, the Hungarian Atomic Energy Authority stated in the explanation attached to its decision that it will assess the questions of nuclear safety raised in the comments at a later stage of the consent procedure in the framework of the relevant licensing procedures (needed for the site, construction, commissioning and operating).

- *comments concerning the failure to present sufficient detail in the EIAS about the composition and operation of the system used in the planned units for monitoring the emissions and the environment*

The Government Office came to the following conclusions upon evaluating the above comment:

- Chapter 4.4 of the EIAS and the complementary information submitted upon the Government Office's request present the currently functional system of emissions and environmental control. This system controls aeriform and liquid emissions continuously and monitors the presence of the same in the environment (immission) thereby ensuring compliance with limit values. An annual report is drawn up to summarise information from available data. In addition to the above, the active and passive security solutions and design parameters of the new nuclear power plant units

guarantee the localisation of radioactive substances inside the containment and the minimisation of environmental releases.

- As regards the estimation of incremental exposure to doses of radiation, 500 nGy/h is a rather conservative value to reflect the intensity of natural background radiation as actual values in Hungary, particularly around the site of the power plant rarely reach 100 nGy/h and even the national maximum is below 200 nGy/h.
- The baseline level of radiation was determined with reference to several years of measured values as presented in detail in Chapter 20 of the EIAS.
- Controlling the environment of the Paks Nuclear Power Plant by measuring the radiation of various environmental samples has been in progress since 1978 and spans from the survey of the baseline (zero) level to continuous measurements during operations. Measurements were taken by the Paks Nuclear Power Plant, the authorities and several other institutions.
- The results of environmental measurements taken in a circle of 30 km radius around the nuclear power plant in the period from 2001-2011 were processed and in turn measurements were taken at 5 locations inside the same circle of 30 km radius to characterise the current status of the environment in 2012 (concentration of radioactive isotopes).
- The results showed no indication of environmental impact of emissions from the normal operation of the nuclear power plant, nor could presence of these emissions be identified in various components of the environment due to the low level of released radioactive substances. There are no locations in the environment that show an accumulation of radioactive isotopes released from the nuclear power plant. Chapters 20 and 21 of the EIAS provide detailed information about the above.
- After a potential expansion, the currently functional system of emission and environmental control can also perform the monitoring duties of the new units, but an independent study will assess the need, scope and method of this project later on. In the event it is necessary to construct a new system of environmental and emission control for the new units, it will be developed similarly to the present system in compliance with the provisions of Section 6 of the Decree by the Minister for Environment. The samples provided by the remote metering and sampling systems will be processed and measured by accredited environmental and emissions control laboratories pursuant to Section 6 of the Decree by the Minister for Environment.
- Earlier regulations set the total dose limit for the two nuclear facilities operated at the site (Paks Nuclear Power Plant and the ISFS) at 100 μSv/year, including 90 μSv/year for the Paks Nuclear Power Plant and 10 μSv/year for the ISFS under the currently effective regulation. The health authority followed suit by setting the dose limit of the new units also at 90 μSv/year.
- The analyses performed by the Developer do not consider the penetration of ground water with radioactive pollutants probable, accordingly the pollution of ground water is possible only via indirect pathways such as by atmospheric fallout or leaching on to the surface of the ground and by propagation in the unsaturated zone until reaching the saturated zone. This process will have no impact on ground water due to the high

sorption capacity of soil and the isotope specific access time, which might expand to several hundred years.

- Exposure to radiation during normal operations was estimated on the basis of release data provided by the Russian party. The annual release data provided also contain releases during maintenance, which comply with international and Hungarian requirements relating to protection from radiation expressed by dose limits and dose rates. As regards this topic, Chapters 20 and 21 of the EIAS offer a detailed description of the calculations and modelling that serve as a basis for these conclusions.

- *comments concerning the failure of the EIAS to present satisfactory analyses about the exposure of wildlife to radiation*

The Government Office came to the following conclusions upon evaluating the above comment:

- Reference levels were determined as follows: impacts causing a perceivable change in the natural structure or the typical factors (morbidity, mortality, capacity to reproduce) of the population were associated with the exposure rates in the populations of reference creatures subjected to the study based on earlier observations and measurements. Observed impacts were assigned quantifiable values to determine the activity concentration of each isotope examined in the particular medium that will lead to a 10% impact on the population studied. This was performed for all of the groups of flora and fauna to determine the sensitivity distribution of species.
- The dose rate associated with 5% of the flora and fauna (HDR5) is the dose rate value that gives rise to a 10% impact in 5% of the group of creatures studied. This dose rate was then divided by a predetermined security factor (SF) (identified with a view to the reliability of available data and experiences), which produced the reference dose rate of 10 μGy/h. That does not lead to a discernible impact in any of the creatures examined and can be considered to be sufficiently safe.
- The value presented at 0.5 μSv/h in the Non-technical Summary identifies the exposure of the flora and fauna to background radiation (of natural source existing regardless of human activities). The maximum value of 10-4μGy/h presented in the EIAS is the current incremental exposure to radiation of living creatures due to the Paks Nuclear Power Plant. A conservative estimate of the impact of the new units is 0.5 nGy/h.
- It follows from the above that the Developer has presented analyses of impact processes relating to the exposure of wildlife to radiation to the degree necessary for supporting a decision.

Evaluating the above comments about protection from radiation, the Government Office came to the overall conclusion that the impacts are fundamental in terms of the environmental impacts of the planned activity, and with a view to the technical analysis it therefore prescribed several obligations for the Developer so as to ensure protection from radiation (sections II/1.2.12 - 1.2.31 of the license).

7.5. Other comments:

- *comments concerning the statement in the EIAS that the commercial operation of the two new units is scheduled to start in 2025 and 2030, which is in contrast with Developer's statement made at the public hearing in Paks to the effect that the new units will start to operate in 2025 and 2026*

Evaluating the above comments from a technical perspective, the Government Office concluded as follows:

- During the preparation of the EIAS, the Developer took into account a former time schedule, which is no longer valid. The schedule presented at the Paks public hearing during this procedure and during the international environmental impact assessment procedure is an updated version, which assigns an earlier date to the construction and commissioning of the second new unit compared to that stated in the former timetable. Accordingly, the Government Office was notified officially about the modification of the timetable early on during the procedure.
- The current timetable communicated during the procedure was specified in the Clarification submitted on 16 June 2016 and clarified on 8 July 2016 after assessments performed by the Developer. Accordingly, the site preparation works of both units are scheduled for 2018-2019, which is followed by the construction phase of Unit 5 that will be completed upon the start-up of operations in 2025, and the same cycle for Unit 6 will be completed in 2026.
- The Government Office evaluated the combined impacts of simultaneous work on and the joint operation of the two units by technical areas based on the submitted document and concluded that the update to the timetable would not lead to broadening the scope of influencing factors and would not result in material changes from the perspective of environmental impacts compared to those presented in the EIAS. In addition to updating the timetable, the Clarification submitted by the Developer identified the combined impact area, which does not differ substantially from that identified earlier.

- *comments concerning how the EIAS addressed the assessment of reasonable alternatives, including the issue of what is known as the "zero option"*

Evaluating the above comments from technical and legal perspectives, the Government Office came to the following conclusions:

- Developer applied to the Legal Predecessor of the Government Office in its capacity as environmental protection authority for preliminary consultation in the matter subject to this procedure pursuant to Section 5/A(1) of the G Decree on 10 November 2012. Pursuant to Section 5/A(3) of the G Decree, the Developer attached to its application documentation that complied with the requirements regarding substance set forth in Annex 4 of the G Decree.
- The Developer assessed the technological alternatives of the planned activity as provided in subsection 1b) of Annex 4 of the G Decree and described them in the

submitted preliminary consultation documentation (scoping documentation). The documentation discusses five pressurized water reactor technologies which were taken into account as options when the documents were drafted. The Legal Predecessor of the Government Office examined the alternatives presented during the preliminary consultation, including the 5 assessed unit types (pressurized water, 3+ generation reactor technology) along with the related technical and security parameters and the environmental impacts of the planned activity.

- The Legal Predecessor of the Government Office ascertained in the opinion issued to close the preliminary consultation with reference to Section 5/B(3)d) of the G Decree that there was no reason identified on the basis of the information available during the preliminary consultation that would preclude issuing an environmental license. It can be concluded that the Legal Predecessor of the Government Office regarded the implementation of the variants presented in the consultation documentation feasible among proper conditions.
- The EIAS was submitted on 19 December 2014 after the effective date of Act II of 2014 on the Intergovernmental Agreement on Cooperation between the Government of Hungary and the Government of the Russian Federation in the Field of the Peaceful Use of Nuclear Energy (hereinafter: IGA). As Article 1(1) of the IGA sets forth a specification of technology, Developer only submitted an application for an environmental license in respect of that technology. Assessing the earlier technologies in the EIAS would not have been reasonable pursuant to subsection 1(b) of Annex 4 and subsection 1(c) of Annex 6 of the G Decree and subsection b) of Appendix II of the Espoo Convention.
- It is important to note for the purposes of a practical interpretation of the above comments that the European Commission pointed out in connection with petition No. 1668/2013 that the provisions of Article 5(3)d) and section 2 of Annex IV of the EIA Directive only require the developer to provide an overview of the main alternatives it assessed in connection with the particular project and to identify the main reasons motivating its choice taking into account the environmental impacts. The EIA Directive provides that developers are not obliged to perform a comprehensive assessment of all the details of the alternatives. Nor are they obliged to review alternatives beyond the level of the given site, i.e. all potential alternatives assessed at urban, regional or national level.
- It is worth noting furthermore that in the meaning of the EIA Directive the requirement is limited to communicating the fact that the alternatives have been assessed and is not meant to justify that a given solution is the best in terms of environment protection under the circumstances. It should also be pointed out that the EIA Directive does not touch upon the question whether or not the development is necessary as it is connected to another phase of the process of decision making. Accordingly, it can be ascertained that the Developer has complied with its duty to assess alternatives.
- As regards the comment objecting to the lack of alternative locations, it can be ascertained that the Developer made statements at public fora on several occasions

that it has assessed the site which is potentially suitable for implementing the project. The assessment of the suitability of the site at Paks is currently in progress. Suitability is ascertained by a procedure conducted by the Hungarian Atomic Energy Authority.

- Evaluating the presentation of the zero option the Government Office came to the conclusion that the EIAS assessed two scenarios to estimate the future course of greenhouse gas emissions from electricity generation. The scenarios specified by name represent the extreme values of emission trends (minimum and maximum scenarios), i.e. the scenarios indicate theoretical alternatives of the potential to reduce emissions. The path associated with the highest level of greenhouse gas emissions does not include two of three possible alternatives of electricity generation, specifically nuclear energy and carbon capture and storage and the share of renewable energy is also substantially lower. The emissions pathway of this alternative is considered to represent the zero scenario. This structure of generation is only sufficient to keep emissions at a constant level in the long run. In contrast, the Developer discusses in the EIAS Hungary's intention to use a carbon free nuclear technology to cover a part of the supply of electric power in accordance with the National Energy Strategy that presents a newly formed energy policy. In addition, the Hungarian National Energy Strategy has also set the development of applying renewable sources of energy as a goal.
- Evaluating the shortcomings mentioned in the comment, the Government Office did not find they were properly grounded and hence refrained from instructing the Developer to submit supplementary documentation.

- *comments concerning the failure of the Developer to analyse in the EIAS the comments received from international parties during the preliminary consultation*

Upon an evaluation of the above comment, the Government Office concluded as follows:

- The Legal Predecessor of the Government Office forwarded to the Developer the comments received up to the date of the opinion issued to close the consultation procedure upon issuing its opinion and also forwarded domestic and international comments received after that date following the date of issue of the opinion so that Developer could take them into account during the preparation of the environmental EIAS.
- It can be ascertained therefore that Developer took into account all of the comments relevant to environmental impacts during the preparation of the EIAS except for comments containing questions pertaining to issues outside the scope of the environmental impact assessment procedure. The responses to some of the comments are discussed in the technical chapters of the EIAS and, besides, Section 3 of the Transboundary Chapter contains a table with a list of documents processing the comments received from various countries during the preliminary consultation.
- In can therefore be ascertained that the Developer discusses the methodology of processing comments in the Transboundary Chapter, and states that the comments addressing identical content were merged despite being received from different countries. The comments were then grouped into (a total of ten) categories by their

topic. Comments were evaluated by the topic addressed. General comments about the proposed project, the process of licensing and conducting the environmental impact assessment were also evaluated.

- *comments concerning the duty to ensure protection for and to prevent polluting subsurface waters*

Evaluating the above comments in cooperation with special authorities, the Government Office concluded as follows:

- Evaluating the impact of the activity on geological media and on subsurface waters from the perspective of non-radioactive pollutants is a technical question that belongs to the competence of disaster management directorates in their capacity as special authorities responsible for water management pursuant to Section 28(3) and section 3 of Table II in Annex 5 of the D. Pursuant to Section 10(1) of the G Decree, the Government Office contacted the water management authorities to obtain an evaluation of the comments, and the authorities issued their decisions taking the comments into account.
- It was with a view to the above comments that the Government Office prescribed the duty to establish the baseline value for the subsurface waters of the site from a radiological perspective (section II/1.2.15 of the permit) and prohibited any pollution with radioactive substances of or any radioactive discharges into subsurface waters or geological media (section II/1.2.20 of the permit).
- Taking into account the above comment and with a view to conserving the flora and fauna, the Government Office prescribed the duty to avoid polluting the Danube during construction and operations and to prevent discharging oil, lubricants and fuels on or into the ground and into surface or subsurface waters (section II/1.3.4 of the license).

- *comments concerning the failure of the EIAS to determine appropriately the impact on shipping routes*

Upon an evaluation of the above comments in cooperation with the special authority, the Government Office concluded as follows:

- Evaluating the impact of the activity on shipping routes is a technical question that belongs to the competence of disaster management directorates in their capacity as special authorities responsible for water management pursuant to Section 28(3) and section 3 of Table II in Annex 5 of the D. Pursuant to Section 10(1) of the G Decree, the Government Office contacted the water management authority to obtain an evaluation of the comments, and the authority issued its decision taking the comments into account. The Government Office included the requirements pertaining to this topic in the operative part of this Decision (sections 3.10.8 and 3.11.2.5.3 of the license).

- *comments concerning the environmental impacts of non-ionising radiation*

Evaluating the above comments, the Government Office concluded as follows:

- The Public Health Administration of the Tolna County Government Office examined the impacts of electric transmission lines on health in the decision issued under file number TOR/084/00440-2/2015 on 23 March 2015. As the authority that issued the decision in its capacity as special authority was merged into the Tolna County Government Office on 1 April 2015, the Government Office evaluated the comments concerning this topic as laid out in section 2 of the operative part in cooperation with the Tolna County Government Office pursuant to Section 28(1) and Section 2 of Table I in Annex 5 of the D.

7.6. Comments with no relevance for environmental impacts:

- *comments concerning the intergovernmental cooperation subject to the Intergovernmental Agreement between the Government of Hungary and the Government of the Russian Federation in the Field of the Peaceful Use of Nuclear Energy and the classification of related data as state secret, the energy policy and National Energy Strategy of Hungary, the failure to invite tenders in compliance with the public procurement policy of the European Union, other negotiations and procedures pending with the European Union, the supply of fuel rods, the financing of the proposed nuclear power plants, the profitability of construction and operation, the stability of the electricity grid and the security of supply of electric power, reliability of the organisation supplying the technology, its liability for nuclear damage arising from accidents beyond design basis accidents and design basis accidents, the financial and public support for nuclear energy in Hungary and abroad, statements about the Hungarian electricity system, uranium mining, the organisational structure of the future Developer and the suitability of the Central Nuclear Monetary Fund.*

Regarding the comments with no relevance for environmental impacts, the Government Office came to the following conclusions.

- Pursuant to the rules laid down in the Administrative Proceedings Act, the Government Office is bound by the application of the Developer, which means the application restricts the scope of its decision. Moreover, a fundamental rule of the Administrative Proceedings Act about the onus of proof and the duty to clarify the facts resting with the Government Office is also enforced. Accordingly, the Government Office acts *ex officio* to establish the facts, to determine the method and scope of substantiation with evidence and in doing so is not bound by the evidence submitted by clients, yet it must take into account all material circumstances regarding the case while clarifying the facts. The framework for that is determined by the legal norms regulating the powers of the Government Office and the scope of the procedure.
- Observing the international and EU norms listed above, the Government Office acts upon the authorisation granted (powers vested) by the provisions of the EP Act and the G Decree and makes its regulatory decision on the matter at hand as provided in Sections 6-16 of the G Decree and by giving effect to the requirements laid down in

sectoral legislation. Given all of the above, it can be ascertained that the Government Office may only scrutinise in this procedure the potential environmental impacts that relate to the planned activity and must make its decision on whether or not an environmental license may be issued in possession of relevant information related closely to the planned activity.

- The scope of information of relevance for this procedure are laid down in Annex 6 (General Requirements regarding the Content of Environmental Impact Studies) of the G Decree with a view to Appendix II of the Espoo Convention (Content of the environmental impact assessment documentation), Articles 6(6)a)-f) of the Aarhus Convention and Annex 4 of the EIA Directive (Information for the Environmental Impact Assessment Report).
- On these grounds it can be ascertained that the Government Office is not in the position due to lack of powers to make a decision about the questions related to the topics listed above, either because some of the issues raised may not be subject to a regulatory procedure or because the Government Office has no power in respect of the issues. Accordingly, the Government Office could not evaluate the comments received about those issues during the decision-making process pursuant to Section 10(1) of the G Decree.

All in all, the Government Office evaluated the comments received from the public in Hungary and in foreign countries and the authorities of Affected Parties in cooperation with the special authorities pursuant to Section 10(1) of the G Decree. Upon evaluating public comments received from Hungary and foreign countries, the Government Office ascertained on the basis of the EIAS, its supplements and the decisions of special authorities participating in the procedure that there is no professional or legal obstacle to issuing the environmental license, provided the decisions of the special authorities and the requirements of the Government Office laid down in the operative part are observed.

Based on the above, the Government Office made the decision set forth in the operative part acting upon its powers provided in Section 71(1)b) of the EP Act and with a view to Sections 1(3)a) and 10(4) of the G Decree.

The Government Office drafted its decision pursuant to Section 71(1) of the Administrative Proceedings Act.

The Government Office made its decision about the term of the environmental license pursuant to Sections 11(1)-(2) of the G Decree taking into account the projected duration of implementing and the planned life of the proposed units.

The Developers duty to report changes is set forth in Section 82(1) of the EP Act while Section 72 of the EP Act lays down the option to withdraw the permit.

The Government Office publishes this Decision at its offices and on its website pursuant to Section 71(3) of the EP Act.

Date of posting the Decision for public display: 29 September 2016
Date of removing the Decision from public display: 15 October 2016

Moreover, by virtue of Sections 10(3) and 5(6) of the G Decree, the Government Office **communicates this Decision to the notaries of settlements participating in the procedure who take steps to post publicly the full text of the Decision and notify the Government Office of the date and location of the posting and the method of providing access to inspect the Decision in a period of 5 days after it is posted** - taking into account the provisions in Section 80(4) and (5) of the Administrative Proceedings Act. Section 78(10) of the Administrative Proceedings Act sets the period of public posting at 15 days.

The Government Office sends this Decision to the Ministry for making it available to the Affected Parties under Section 14(4) of the G Decree and Article 6(2) of the Espoo Convention.

The Government Office acted in the case subject to this procedure in its capacity as a Hungarian authority with jurisdiction pursuant to Section 18(1) of the Administrative Proceedings Act and as an authority responsible for the protection of the environment and nature pursuant to Sections 9(2) and (3) of the D. Section 8(1), section 5 of Annex 2 and section 2.4 of Annex 3 set forth provisions about the territorial competence of the Government Office.

The option to appeal this Decision independently is provided in Sections 98(1) and 99(1) of the Administrative Proceedings Act, while the option to appeal the decisions and decisions of the special authorities individually is precluded in Section 44(9) of the same Act.

The administrative service fee payable for appeals procedures is set pursuant to Section 2(1) of the Fee Decree, section 8.2 of Chapter II of Annex 1 and Sections 2(4)-(5) and (7) of the same decree.

In the meaning of Section 78(10) of the Administrative Proceedings Act, a decision delivered by way of an announcement shall be deemed to be delivered on the 15th day after posting for public display, i.e. **on the date the decision is removed from public display.**

Pursuant to Section 80(5) of the Administrative Proceedings Act, posting on the bulletin board of the authority shall be used as a reference for calculating the deadlines relating to communication by way of announcement.

Unless appealed, this Decision enters into full force and effect on the 15th day after the removal from public display.

Pécs, 29 September 2016

Illegible signature

Dr. Zoltán Horváth
Government Commissioner

Illegible stamp

Copies to:

1 MVM Paks II. Atomerőmű Fejlesztő Zrt. „**RRR**” **+ ATTM**
7031 Paks, Pf.: 116.

2 Dunaszentgyörgyi Közös Önkormányzati Hivatal Jegyzője „ **RRR**” **+ ATTM**
(Ref. No. 158-8/2015.)
(Gerjen, as a settlement inside the impact area)
7135 Dunaszentgyörgy, Rákóczi út 90.

3 Fajszi Közös Önkormányzati Hivatal Jegyzője „ **RRR**” **+ ATTM** (Ref. No. 510-2/2015.)
(Foktő, as a settlement inside the impact area)
6352 Fájsz, Szent István utca 20.

4 Géderlak Közös Önkormányzati Hivatal Jegyzője „ **RRR**” **+ ATTM** (Ref. No. 622-1/2015.)
(Úszód and Dunaszentbenedek, as settlements inside the impact area)
6334 Géderlak, Kossuth Lajos utca 95.

5 Duna-Dráva Nemzeti Park Igazgatóság „ **RRR**” **+ ATTM** (Ref. No. DDNP/2008-3/2016.)
7625 Pécs, Tettye tér 9.

6 Kiskunsági Nemzeti Park Igazgatóság „ **RRR**” **+ ATTM** (Ref. No. 1801-2/2016.)
6000 Kecskemét, Liszt Ferenc utca 19.

7 Deputy of the Commissioner of Fundamental Rights „ **RRR**” **+ ATTM**
1387 Budapest, Pf. 40.

8 Energiaklub Szakpolitikai Intézet és Módszertani Központ Egyesület „ **RRR**” **+ ATTM**
1056 Budapest, Szerb utca 17-19.

9 Greenpeace Magyarország Egyesület „ **RRR**” **+ ATTM**
1143 Budapest, Zászlós utca 54.

10 Levegő Munkacsoport „ **RRR**” **+ ATTM**
1085 Budapest, Üllői út 18. I/9A.

11 REFLEX Környezetvédő Egyesület „ **RRR**” **+ ATTM**
9023 Győr, Bartók Béla út 7.

12 Védegylet Egyesület „ **RRR**” **+ ATTM**
1088 Budapest, Szentkirályi utca 6. fsz. 3.

13 Pécsi Zöld Kör „ **RRR**” **+ ATTM**
7621 Pécs, Szent István tér 17.

14 Reális Zöldek Klub „ **RRR**” **+ ATTM**
1026 Budapest, Endrődi S. 26.

15 Országos Közegészségügyi Központ Országos Sugárbiológiai és Sugáregészségügyi Kutató Igazgatóság „ **RRR**” **+ ATTM** (Ref. No. 2466-2/2015.)
1221 Budapest, XXII. ker. (Budafok) Anna utca 5.

16 Földművelésügyi Minisztérium Környezetmegőrzési Főosztály „ **RRR**” **+ ATTM**
1055 Budapest, Kossuth Lajos tér 11.

17 Tolna Megyei Kormányhivatal Népegészségügyi Főosztály „ **RRR**” **+ ATTM**
7100 Szekszárd, Szentgáli Gyula utca 2. (Ref. No. TO/70/00698-2/2016.)

18 Bács-Kiskun Megyei Kormányhivatal Népegészségügyi Főosztály „ **RRR**” **+ ATTM**
6001 Kecskemét Pf.: 112. (Ref. No. 78-40/2016.)

19 Tolna Megyei Kormányhivatal Élelmiszerlánc-biztonsági és Földművelésügyi Főosztály Növény- és Talajvédelmi Osztály „ **RRR + ATTM** (Ref. No. TOF/53/365-2/2016.)
7100 Szekszárd, Keselyűsi út 7.

20 Baranya Megyei Kormányhivatal Földművelésügyi és Erdőgazdálkodási Főosztály Erdészeti Osztály „**Courier + ATTM** (Ref. No. BAG/4801-3/2016.)
7633 Pécs, Lázár Vilmos utca 12.

21 Baranya Megyei Kormányhivatal Műszaki Engedélyezési és Fogyasztóvédelmi Főosztály Bányászati Osztály „**Courier + ATTM** (Ref. No. PBK/1402-2/2016.)
7623 Pécs, József Attila utca 5.

22 Országos Atomenergia Hivatal „ **RRR**” **+ ATTM** (Ref. No. OAH-2015-00509-0044/2016.)
1539 Budapest, 114. Pf. 676.

23 Fejér Megyei Kormányhivatal Környezetvédelmi és Természetvédelmi Főosztály „ **RRR**” **+ ATTM**
8000 Székesfehérvár, Hosszúsétatér 1. (Ref. No. KTF-13460/2016., 44202/2016.)

24 Csongrád Megyei Kormányhivatal Környezetvédelmi és Természetvédelmi Főosztály „ **RRR**” **+ ATTM**
6721 Szeged. Felső-Tisza part 17. (Ref. No. CSZ/01/9813-2/2016.)

25 Paks Város Címzetes Főjegyzője „ **RRR**” **+ ATTM** (Ref. No. I.8944-2/2016.)
7030 Paks, Dózsa György út 55-61.

26 Bács-Kiskun Megyei Kormányhivatal Földművelésügyi és Erdőgazdálkodási Főosztály Erdőfelügyeleti és Hatósági Osztály „ **RRR**” **+ ATTM** (Ref. No. BKG/001/7107-2/2016.)
6000 Kecskemét, József Attila utca 2.

27 Fejér Megyei Katasztrófavédelmi Igazgatóság Igazgató-helyettesi Szervezet Katasztrófavédelmi Hatósági Osztály „ **RRR**” **+ ATTM** (Ref. No. 35700/9422-5/2016. ált)
8000 Székesfehérvár, Szent Flórián krt. 2.

28 Bács-Kiskun Megyei Katasztrófavédelmi Igazgatóság Igazgató-helyettesi Szervezet Katasztrófavédelmi Hatósági Osztály „ **RRR**” **+ ATTM** (Ref. No. 35300/3261-6/2016. ált.)
6500 Baja, Bajcsy-Zsilinszky utca 10.

29 Baranya Megyei Kormányhivatal Építésügyi, Hatósági, Oktatási és Törvényességi Főosztály Építésügyi Osztálya „ **RRR**” **+ ATTM** (BAMKH ÉÖH ÁF: BAD/15/73-2/2015.)
7623 Pécs, Rákóczi u. 30. 2. emelet

30 Tolna Megyei Kormányhivatal Építésügyi, Hatósági, Oktatási és Törvényességi

Főosztály Építésügyi Osztálya „ **RRR**” **+ ATTM** (TOD/25/261-2/2016.)
7100 Szekszárd, Szent István tér 11-13.

31 Tolna Megyei Kormányhivatal Szekszárdi Járási Hivatal
Építésügyi és Örökségvédelmi Osztálya „ **RRR**” **+ ATTM** (Ref. No. TO-04D/1055-2/2016.)
7100 Szekszárd, Szent István tér 11-13.

32 Tolna Megyei Kormányhivatal Paksi Járási Hivatal Földhivatali Osztály „ **RRR**” **+ ATTM**
7030 Paks, Szentháromság tér 6. (Ref. No. 10.267/2016.)

33 MVM Paksi Atomerőmű Zrt. „ **RRR**” **+ ATTM**
7031 Paks, Pf. 71.

34 Baranya Megyei Katasztrófavédelmi Igazgatóság „**for information**’ **+ ATTM**
7602 Pécs, Pf. 326.

35 HNYR (locally) **+ ATTM**

36 Zöld Pont Iroda/WEB (locally) **+ ATTM**

37 Archives **+ ATTM**

Annex Te

BARANYA COUNTY GOVERNMENT OFFICE	**SPECIFICATION OF THE ACTIVITY AND THE TECHNOLOGY (Te)**	Number: Te. page 1/11
	Environmental license for the new nuclear power plant units MVM Paks II. Atomerőmű Fejlesztő Zrt. plans to erect on lot No. 8803/15 at the site of the Paks Nuclear Power Plant	License No: 78-140/2016 Env. Client code: 103 073 275 Env. Area code: 102 386 232

1. Summary of the Activity

1.1. Power generation at a nuclear power plant relies on a controlled and self-sustaining chain reaction based on atomic fission. The heat generated during the chain reaction is taken off with the coolant and is used for producing electricity after conversion. The proposed fuel of the new nuclear power plant units is enriched uranium dioxide, reactor campaign length is 12 months upon start-up and is expected at 18 months thereafter.

1.2. After being removed from the reactor, spent fuel assemblies are placed into a spent fuel pool for a maximum of 10 years to be transferred to a domestic temporary storage site afterwards in accordance with the reference scenario.

1.3. Based on the process of electricity generation, the new units can be divided into two major sections: the primary circuit and the secondary circuit. The primary circuit sends the heat generated in the active zone of the reactor into a steam generator. The role of the secondary circuit is to convert the thermal energy generated in the reactor into kinetic energy and in turn into electric power. Heat, which is no longer suitable for electricity generation in addition to the electric power produced is taken off using cooling systems.

1.4. The Danube River serves as the source of fresh water needed to feed the cooling systems. To supply the required amount of cooling water, it will be necessary to expand the existing cold water channel. Warmed cooling water is returned to the Danube by the force of gravity across a new warm water channel.

1.5 The design of the proposed 3+ generation pressurized water units gave high priority to preventing and mitigating the consequences of extremely low probability accidents and severe accidents. The design and technological solutions applied save the public and the environment from considerable impacts even in the case of severe accidents.

1.6. The nuclear systems of the VVER-1200 units are housed in a double-wall containment. The inner wall provides airtight sealing around the containment structure, while the outer wall protects the airtight space from external impacts (e.g. from aircraft crashing).

1.7. The typical facilities of PWR-type units include facilities in the main building and associated facilities.

1.7.1. The main sections of the new nuclear power plant units include the containment, safety system buildings, the auxiliary building, the nuclear maintenance facility, the waste management building, the fuel building, the turbine building, the water treatment plant, electric switchboard room and the transformer area.

1.7.2. Associated facilities: emergency diesel generators, healthcare facility, water intake plant, chemicals depository, storage room for industrial gases, maintenance facility, fire service facilities, unit lines and transmission lines, civil defence shelters, protected control point, environmental monitoring systems, infrastructure and physical security systems.

2. Construction, operation and abandonment characteristics

2.1. Areas affected by construction work:

The construction of the technological section of the power plant and the associated facilities required for operations will affect the following areas during the establishment of the new nuclear power plant units:

- The area used for providing services to the erection of the new nuclear power plant units: *site preparation area (construction and erection base)*. The construction and erection base provides the room required during the construction phase.
- The construction area of the new nuclear power plant units*: plant area*. The plant area accommodates the new power plant units, auxiliary equipment and systems needed to provide services and other buildings.
- Areas affected by the pathway of transmission lines.

2.2. The characteristics of the new nuclear power plant units:

2.2 1. Major technical parameters of the new units

The table below presents the major technical parameters of the new units:

Reactor thermal capacity	3,200 MWth
Nominal capacity (actual value depends on selected secondary circuit technology)	1,200 MWe
Planned operating life	60 years
Campaign length	12/18 months

2.2.2. Non-radioactive wastes generated during the operation of the new units

The estimates presented in the table were calculated with reference to the annual operating hours matching technical availability and full load for 2 x 1200 MWe units.

Description	Units of Measurement	Value
Process waste water		
Waste water from water pre-treatment plant	thousand m^3/year	~200
Above balance process waste water from primary circuit	thousand m^3/year	~90
Liquid waste water from turbine building and auxiliary facilities	thousand m^3/year	~350
Non-radioactive waste		
Non-hazardous waste	t/year	~800
Hazardous waste	t/year	~100

2.2.3. Storage and treatment of solid and liquid radioactive wastes

- Low, intermediate and high activity solid and liquid wastes are generated during normal operations from the systems deployed to clean and treat radioactive wastes in liquid and gas state during maintenance work and due to potential operational failures.
- The estimated annual amount of untreated radioactive solid waste generated by a single unit

Type of solid waste	Estimated amount of waste [m^3/year]
Low activity	70
Intermediate activity	11
High activity	0.5
Voluminous, untreatable (generated during maintenance/repair)	5

- The estimated annual volume of solidified liquid radioactive wastes (taking also into account the effect of volume reduction technologies):
  - 20 m^3 cemented evaporation residue;
  - 8 m^3 cemented used ion-exchange resin.

- The estimated annual volume of liquid radioactive wastes generated by a single unit under normal operating conditions:
  - evaporation residue: 25 m^3/year
  - ion-exchange resin: 10 m^3/year
  - sludge from siltation filter: 0.1 m^3/year
  - sludge from leachate: 0.5 m^3/year.

- The volume of solid wastes of various activity concentration levels generated during at least **60 years of operating life by 2 units**:

Type of waste	**Estimated amount of waste [m^3/60 years]**
Low activity	8,400
Intermediate activity	1,320
High activity	60
Voluminous, impossible to re-process (generated during maintenance/repair)	600
Cemented evaporation residue	3,000
Cemented ion-exchange resin	1,200
Cemented sludge	72

- Compressible waste is compacted and sent to temporary storage to be conditioned subsequently if necessary. After a brief period of temporary storage, conditioned low and intermediate activity wastes are transferred to Radioaktív Hulladékokat Kezelő Kft. (hereinafter: RHK Kft) for disposal in the National Radioactive Waste Repository (NRWR).

- Packages of high activity waste are stored transitionally in a storage facility constructed for that purpose up to the decommissioning of the units or until the repository of high activity waste is commissioned.

- The treatment and subsequent neutralization of high activity radioactive wastes must comply with the provisions of the national program adopted by the Government in Government Decision 1459/2016 (VIII.24.) pursuant to Parliamentary Resolution 21/2015 (V.4.) OGY on the national policy of managing spent fuel and radioactive waste.

- After transitional storage, high activity radioactive wastes are delivered to RHK Kft for final disposal.

- Liquid radioactive wastes are collected and processed selectively as required by waste composition and activity level. Depending on the level of activity wastes are issued from the controlled zone untreated or after cleaning.

- Radioactive leachate is conditioned (solidified) after volume reduction to form packages that meet final disposal criteria at the NRWR.

- Condensed substances produced in the course of reducing the volume of radioactive leachate are recycled into the primary circuit, provided the chemical and radiological composition is appropriate, or are discharged into the environment as extra water above balance.

- When liquid radioactive wastes are cleaned and treated, secondary radioactive wastes are generated, which are also conditioned in a manner to ensure that the end product meets the requirements of final disposal.

- Liquid radioactive waste treatment systems will be constructed for the collection, treatment, storage and conditioning of liquid wastes generated through the operation of the projected nuclear power plant units.

- Conditioned waste packages are stored transitionally and are then delivered to RHK Kft for final disposal in the NRWR.

- The management system of solid radioactive wastes is designed to treat solid radioactive wastes generated by the new nuclear power plant units during normal operations and emergency states and solidified wastes produced by the liquid waste solidification system. It is fundamentally designed to collect and grade solid wastes appropriately and to reduce them to the smallest volume in order to achieve good capacity utilisation of the storage facility. It also serves to prevent the release of solid radioactive wastes into the environment during the life and dismantling of the new nuclear power plant units to the degree required under law by treating such wastes. It prepares radioactive substances for shipment to the repository for final disposal.

2.2.4 Management and storage of spent fuel assemblies

- The estimated number of spent fuel assemblies generated by a single unit and two units over the lifetime of 60 years is 3135 and 6270, respectively.

- The fuel assemblies removed from the reactor are transferred for under water storage to a spent fuel pool located next to the reactor. The radioactivity of the spent fuel assemblies reduces substantially during the decay period spent in the pool and their remaining heat production is also suppressed.

- According to the reference scenario, any spent fuel removed from the spent fuel pool is stored transitionally before any further treatment.

- The treatment and subsequent neutralization of spent fuel assemblies must comply with the provisions of the national program adopted by the Government in Government Decision 1459/2016 (VIII.24.) pursuant to Parliamentary Resolution 21/2015 (V.4.) OGY on the national policy of managing spent fuel and radioactive waste.

2.2.5. Design solutions targeted at reducing environmental pollution and threats regarding the new Russian units

- In order to reduce the burden on the environment to a bare minimum, the systems of the new nuclear power plant units must ensure that:
  - the operating parameters of the power plant remain between limit values;
  - excesses of the limit values associated with normal operations are perceived in time and that the self-sustaining chain reaction stops automatically;
  - the application of accurate operating procedures and installed security systems ensure that the chain reaction is shut down and fuel rods are cooled properly during emergencies, if any, so as so avoid any damage to fuel rods and radioactive releases in excess of permitted levels;
  - in case the circumstances arising during a severe accident involve fuel rod damage, the appropriate operating instructions developed for managing such serious accidents ensure keeping the contamination of the environment with radiation at a bare minimum and reducing consequences, i.e. major radioactive releases;
  - if all of the above failed, the accident prevention measures of the power plant combined with national accident prevention measures ensure keeping environmental exposure at a minimum and preventing health impairments of the public.
- Four interlinked physical barriers separate nuclear fission material from the environment, including:
  - the special, high stability ceramic structure of fuel fill material;
  - the metal casing of the fuel cells;
  - the metal structure of the reactor vessel and the primary circuit;
  - the walls of the airtight containment structure.
- Apart from the systems used during normal operations, there are technological defence, safety and localisation systems that ensure the safe operation of the power plant and the prevention of environmental pollution. The operation of safety systems may be active or passive.

2.2.6. Active safety systems:

- The new units are fitted with several active systems (which require electrical energy) that manage accidents. Most of these systems have four physically separated parallel branches, one of which are sufficient for the purpose of performing the specific safety function. The most important active safety systems of the new units:
  - The high pressure emergency core cooling system feeds boric acid into the primary circuit upon emergencies involving the loss of coolant.

- The low pressure emergency core cooling system is actuated when coolant is lost due to the rupture of large diameter lines in the primary circuit.
- If flow-through occurs between the primary and the secondary circuit, the emergency boric acid feeding system injects highly acidic borated coolant into the volume control tank and into the reactor to secure subcritical status if the safety protection system failed.
- The spray (sprinkler) system injects cold water across evaporators into the air space of the containment to promote steam condensation, to cool down the air and to relieve pressure inside the containment.
- The storage system of high and low concentration borated water, which ensures the supply of boric acid in all operating states of the reactor.
- The residual heat removal system connects to the primary circuit and prevents overheating of the heat transfer agent in the primary circuit during emergency shut down operations.
- The relief system of the primary circuit releases steam from the pressurizer into the pressurized relief tank if the pressure in the primary circuit surpassed the permitted level for any reason.
- The emergency gas removal system takes off a mixture of steam and gas from the coolant in the primary circuit (from the reactor, the pressurizer and steam generation collectors). It also participates in pressure reduction across the primary circuit during design basis and design extension conditions.
- The emergency feed water system secures the supply of makeup water to steam generators during design basis operating conditions when normal and auxiliary feed water systems are not available.
- The pressure relief system on the secondary circuit serves to protect against excessive pressure elevation by releasing fresh steam from the steam line.
- The main steam line isolation system cuts off steam generators in emergency situations when steam generators need to be localised on the secondary circuit rapidly and reliably.
- In the event of emergencies, diesel generators feed active safety systems with electricity, as each unit is equipped with 8 emergency diesel generators.

2 2.7. Passive safety systems

- The active safety systems of the new units are complemented by several passive safety systems. As a shared feature, the latter do not need human intervention or

external source of energy and rely on simple physical processes to perform their functions.

- During emergency situations, the provision of long term cooling for the reactor and the primary circuit requires no Developer intervention. To secure cooling the active zone, active emergency cooling systems are complemented by four independent tanks (hydro-accumulators) storing borated water of sufficient volume and proper concentration. These hydro-accumulators serve to immerse the active zone with water during the initial stage of operating disorders involving a major loss of coolant in the primary circuit until active systems are actuated. A high-pressure blanket of nitrogen in the space above the water level propels the water from these tanks into the reactor.

- Additional passive safety systems include passive heat removal systems that serve to secure long term cooling for the primary circuit and the containment in the case of accidents.

- There are two passive systems for the removal of residual heat in the case of severe accidents. One is dedicated to removing heat from the steam generators, the other removes heat from the containment. They consist of four parallel branches where continuous flow is ensured by natural circulation. Passive cooling might be required for the steam generators when the active cooling systems are out of order. If the active spray (sprinkler) system designed to cool the air space of the containment is down, passive heat removal keeps the temperature in the containment below values that would be tantamount to threatening the integrity of the building.

- The hydrogen generated as zirconium and water vapour react upon a potential damage to the core threatens the integrity of the containment. The passive auto-catalytic hydrogen recombination systems mounted in the top section of the inner containment of the new units prevent the development of explosion hazard.

- They form what is known as a core catcher in order to mitigate the consequences of the most serious accident condition, i.e. the meltdown of the core. The core catcher is a special tank at the bottom of the reactor cavity under the reactor vessel and in the case the reactor vessel gets damaged upon core melt, the molten core is caught in this special tank.

2.2.8. Airtight containment building

- The reactor and the primary circuit of the new units are housed inside a double-walled containment building. This containment forms the fourth and final physical barrier and also contains the emergency safety systems. The outer building mantle known as secondary containment protects equipment from external hazards.

- The inner containment provides an airtight enclosure around the primary circuit, which contains radioactive substances. The doors of the containment operate as air-locks and are closed hermetically.

2.2.9. Connected facilities

- Intake of fresh water from the Danube: cold water channel, water intake site. To supply the required amount of cooling water along the cold water channel, it will be necessary to expand the existing cold water channel. The water intake structures of the new units will be located on an opean area north of the existing water intake facility.

- Draining warmed-up cooling water: area enclosed by the cold and warm water channels (“island”), and the area of the structure used to improve mixing. Warmed cooling water travels across the existing cold water channel via a properly designed crossing to reach the spillway. Warmed cooling water flows in a reinforced concrete channel expanding from the turbine building to the cold water channel and after the crossing of the cold water channel to the spillway. A dedicated warm water channel reintroduces the warmed cooling water into the Danube.

- The new baffle structure dimensioned with a view to the volume of warm water discharged by the new nuclear power plant units will be located at the end of the new warm water channel on the Danube riverside to improve mixing. It will be configured in a manner to reduce to a minimum the impact of the inlet of warm water on the Danube river basin and navigability and to ensure that the reintroduced warm water mixes as fast as possible and to prevent the development of a heat plug across the whole section of the river.

2.2.10. Unit lines and transmission lines:

- 400 kV unit lines and 132 kV transmission lines to the newly established Paks II substation and the Paks I substation:

  - The electric power generated in the two new nuclear power plant units will be transferred by 400 kV transmission lines strung on a separate series of poles from each unit to the substations. The 400 kV unit lines leave the transformer area of the power plant to the east to cross over the cold water channel and run parallel to the cold water channel on the island and then turn towards the existing units of the Paks Nuclear Power Plant. The unit lines connecting to the Paks II substation run in parallel on the site preparation area then turn west to run around the power plant site toward Paks II substation. The other unit line runs its course to the east of the Paks Nuclear Power Plant and connects to Paks I substation.

  - The role of the 132 kV transmission line is to provide backup electricity supply to the new units from Paks II substation and Paks I substation. The

starting point of the transmission line will be the newly established Paks II substation and Paks I substation and it will terminate at the cable reception portal of the 132 kV section of the station inside the operating area of the new units.

– The length of each of the two unit lines and the two transmission lines to be constructed in the direction of Paks II substation is 2.5 - 3 km.

- Major technical parameters of the unit lines:
  - Number of systems: two, parallel connections (per unit)
  - Space demand of poles: support poles: 40 m^2/pole
    straining poles: 142-229 m^2/pole (depending on function)
  - Safety zone width: 34.4 m on each side measured from the axis of the route i.e. altogether a 68.8 m wide strip of land (per unit)
- Major technical parameters of the aerial line section of the transmission line:
  - Number of systems: two
  - Space demand of poles: support poles:14 m^2/pole
    straining poles: 23 m^2/pole
  - Safety zone width: 15.6 m on each side measured from the axis of the route i.e. altogether a 31.2 m wide strip of land

2.3. Schedule of construction and operation

Activity	**Paks II**	
	Unit 5	**Unit 6**
Demolition work at the site	2018-2019	
Landscaping	2018-2020	
Establishment starts	2018	2019
Foundation work	2018-2021	2019-2021
Construction and erection	2020-2023	2020-2024
Commissioning	2020-2024	2020-2025
Trial operation starts	2024	2025
Operations start up	2025	2026

Activity	**Paks II**	
	Unit 5	**Unit 6**
Operations	2025	2026
End of 60 years' operating life	2085	2086

Operating periods of the new units (joint operation with the existing units of the Paks Nuclear Power Plant)

Activity	Interval of Time
Joint operation of Units 1-4 of the Paks NPP and Unit 5 of Paks II	2025
Joint operation of Units 1-4 of the Paks NPP and Units 5-6 of Paks II	2026-2032
Units 1-4 reaching the end of the extended lifetime of Units 1-4 of the Paks NPP	2032-2037
Independent operation of Units 5 and 6 of Paks II after Units 1-4 of the Paks NPP are decommissioned	2037-2085
End of the operating life of Unit 5 of Paks II	2085
End of the operating life of Unit 6 of Paks II	2086

2.4. Dismantling and decommissioning the new nuclear power plant units

- Dismantling strategies covered by the EIAS:
  - immediate dismantling,
  - delayed dismantling
  - mixed dismantling (immediate dismantling of the secondary circuit, delayed dismantling of the primary circuit)

- All of the three dismantling strategies involve the initial step of shutting down the unit permanently and assume that there will be a transitional period between permanent shut-down and dismantling. During the transitional period, the primary aim of dismantling activities is to cool and remove spent fuel, to remove all operating wastes and hazardous substances and to reduce the number of auxiliary systems to a level that is still sufficient to support safe dismantling work.

Annex L

BARANYA COUNTY GOVERNMENT OFFICE	**CLEAN AIR PROTECTION (l)**	Number: L. page 1/1
	Environmental license for the new nuclear power plant units MVM Paks II. Atomerőmű Fejlesztő Zrt. plans to erect on lot No. 8803/15 at the site of the Paks Nuclear Power Plant	License No: 78-140/2016 Env. Client code: 103 073 275 Env. Area code: 102 386 232

Point sources of non-radioactive air pollutants

Technology of emergency backup power supply:

Point sources associated with emergency diesel generators

Paks II point source IDs*	**Description of equipment**	**Nominal capacity [kWe]**
P3	diesel generator - EPSS	6,300
P4	diesel generator - EPSS	6,300
P5	diesel generator - EPSS	6,300
P6	diesel generator - EPSS	6,300
P7	diesel generator - NI	6,300
P8	diesel generator - NI	6,300
P9	diesel generator - TI	2,000
P10	diesel generator - EPSS	6,300
P11	diesel generator - EPSS	6,300
P12	diesel generator - EPSS	6,300
P13	diesel generator - EPSS	6,300
P14	diesel generator - NI	6,300
P15	diesel generator - NI	6,300
P16	diesel generator - TI	2,000
P17	diesel generator - DEC-2	600
P18	diesel generator - DEC-2	600

Annex R

BARANYA COUNTY GOVERNMENT OFFICE	**ENVIRONMENTAL RADIOLOGY (R)**	Number: R. page 2/1
	Environmental license for the new nuclear power plant units MVM Paks II. Atomerőmű Fejlesztő Zrt. plans to erect on lot No. 8803/15 at the site of the Paks Nuclear Power Plant	License No: 78-140/2016 Env. Client code: 103 073 275 Env. Area code: 102 386 232

Limit values of radioactive aeriform and liquid emissions using Γ=1 as safety coefficient

1. Limit values for radioactive aeriform emissions:

Radionuclide (physical-chemical form)	**Normal operations (Bq/year)**	
	exhaust stack	**turbine building**
^{3}H (HTO)	7.0E+15	1.5E+15
^{3}H (HT)	3.1E+21	6.5E+20
^{14}C (CO2)	9.8E+13	-
^{14}C (organic)	1.5E+16	-
^{51}Cr	1.5E+14	3.4E+13
^{54}Mn	7.3E+12	1.6E+12
^{60}Co	1.8E+11	4.1E+10
^{83}mKr	1.3E+21	3.1E+20
^{85}mKr	4.3E+17	9.8E+16
^{85}Kr	1.1E+19	2.4E+18
^{87}Kr	7.7E+16	2.1E+16
^{88}Kr	2.8E+16	6.4E+15
^{89}Sr	2.2E+12	5.0E+11
^{90}Sr	8.8E+10	2.0E+10
^{131}I (aerosol)	4.4E+11	9.9E+10
^{132}I (aerosol)	9.3E+15	2.3E+15
^{133}I (aerosol)	3.3E+13	7.5E+12
^{134}I (aerosol)	1.5E+16	4.3E+15
^{135}I (aerosol)	1.8E+15	4.1E+14
^{131}I (elemental)	1.5E+11	5.2E+10
^{132}I (elemental)	4.4E+15	1.5E+15
^{133}I (elemental)	1.2E+13	3.9E+12
^{134}I (elemental)	8.9E+15	3.2E+15
^{135}I (elemental)	6.7E+14	2.2E+14
^{131}I (organic)	3.9E+13	8.5E+12
^{132}I (organic)	1.4E+16	3.4E+15
^{133}I (organic)	1.1E+15	2.4E+14
^{134}I (organic)	2.1E+16	5.8E+15
^{135}I (organic)	6.3E+15	1.4E+15

^{131m}Xe	7.8E+18	1.6E+18
^{133}Xe	2.1E+18	4.4E+17
^{135}Xe	2.6E+17	5.7E+16
^{138}Xe	6.6E+16	2.1E+16
^{134}Cs	2.3E+11	5.2E+10
^{137}Cs	2.3E+11	5.2E+10

2. Limit values for radioactive liquid emissions:

Radionuclide	**Normal operations (Bq/year)**
^{3}H	1.3E+16
^{14}C	2.1E+12
^{51}Cr	8.1E+14
^{54}Mn	5.0E+13
^{58}Co	1.9E+13
^{60}Co	1.9E+12
^{89}Sr	1.6E+13
^{90}Sr	1.1E+12
^{131}I	2.6E+12
^{132}I	6.2E+14
^{133}I	3.5E+13
^{134}I	9.4E+14
^{135}I	2.1E+14
^{134}Cs	3.3E+11
^{137}Cs	4.7E+11