

*UNOFFICIAL TRANSLATION, Sept 2001*

**The decision in principle by the Government on 21 December 2000 concerning Posiva Oy's application for the construction of a final disposal facility for spent nuclear fuel produced in Finland.**

## **Application**

In its application dated 26 May 1999, Posiva Oy asked the Government for a decision in principle, referred to in Section 11 of the Nuclear Energy Act (990/1987), that the construction of a final disposal facility for spent nuclear fuel produced in Finland at Olkiluoto in the municipality of Eurajoki is in the overall interest of society. In addition, Posiva Oy specified its application by a letter dated 23 November 2000.

Posiva Oy is a company established by Teollisuuden Voima Oy and Fortum Power and Heat Oy in 1995 and jointly owned by them. Posiva Oy's main field of operation is to be in charge of the measures for the management of spent nuclear fuel from its owners' nuclear power plants (Olkiluoto 1 & 2 and Loviisa 1 & 2) after interim storage at the power plant sites.

The planned final disposal facility will consist of an encapsulation plant, including auxiliary and service facilities, located above ground, and a repository to be excavated at a depth of about 400–700 metres in the bedrock. The spent nuclear fuel would be packed into copper canisters and disposed of in the repository.

In accordance with the original application, 100–250 tonnes of uranium would be handled annually at the encapsulation plant, and the amount of uranium contained in the spent nuclear fuel to be disposed of would total 2 600–9 000 tonnes. The application reveals that the estimated maximum of 9 000 tonnes would include the spent nuclear fuel accumulated at the four existing Finnish nuclear power plant units over an operating life of 40–60 years and, furthermore, the spent nuclear fuel accumulated over an operating life of 60 years at two potential new nuclear power plant units to be built in Finland.

In its letter that specified the application, Posiva Oy asked the Government to take a separate decision on the application insofar as it concerns the final disposal of spent nuclear fuel, an amount equivalent to some 4 000 tonnes of uranium at most, produced during operation of the existing nuclear power plants, and to postpone the application insofar as it concerns the final disposal of spent nuclear fuel, some 2 500 tonnes at most, from Teollisuuden Voima Oy's plant in accordance with the pending application for a

decision in principle regarding the construction of a new nuclear power plant so that this decision would be considered as part of Teollisuuden Voima Oy's above application for a decision in principle. In the same letter, Posiva Oy informed the Government that it defined its application for a decision in principle to only concern the final disposal of spent nuclear fuel produced during operation of the five power plants mentioned above.

According to the letter that specifies the application, Posiva Oy's application pertains to a final disposal facility at which the amount of uranium contained in the spent nuclear fuel to be disposed of will total some 6 500 tonnes at most.

The construction of the final disposal facility would begin after 2010 and the operating phase in 2020.

The Applicant Company has stated the following reasons for the construction of a final disposal facility:

- In accordance with Section 6 a of the Nuclear Energy Act, nuclear waste generated in connection with, or as a result of, the use of nuclear energy in Finland shall be handled, stored and disposed of in a way intended to be permanent in Finland.
- The producers of nuclear waste, which have a waste management obligation in accordance with the Nuclear Energy Act, are responsible for the implementation of nuclear waste management. In accordance with Section 9 of the Nuclear Energy Act, after-treatment of the spent nuclear fuel is part of the waste management obligation imposed on the licence-holder of a nuclear power plant. The Applicant Company, Posiva Oy, jointly owned by Teollisuuden Voima Oy and Fortum Power and Heat Oy, is responsible for the final disposal of the spent nuclear fuel produced by these companies, i.e., the disposal of the spent fuel in Finland's bedrock in a way intended to be permanent, including the research and development work required by the final disposal.
- The spent nuclear fuel is currently being stored in water pools at the Olkiluoto and Loviisa power plant sites. Storage in water pools cannot be considered permanent disposal in Finland's ground or bedrock as stipulated by Section 6 of the Nuclear Energy Act and Section 76 of the Nuclear Energy Decree (161/1988). Since disposal in the ground can hardly be considered safe under the Finnish conditions in the long term, the only alternative in principle, in accordance with Section 76 of the Nuclear Energy Decree, is the final disposal in bedrock.
- In its report on energy policy approved in the autumn of 1997, Parliament emphasised the importance of the arrangement of nuclear waste management and the selection of a final disposal site for spent nuclear fuel in accordance with the valid schedule. In its decision in principle taken in 1983 concerning the targets for research, investigations and planning of nuclear waste management, the Government stated that such a final disposal site should be investigated and selected by the end of 2000 where a repository could be constructed, if necessary.

- In principle, spent nuclear fuel could also be reprocessed. In that case, the final disposal obligation would concern the nuclear waste generated during the reprocessing, some of which is high-level waste and comparable to spent nuclear fuel.
- Studies are being conducted into methods whose purpose is to render nuclear waste less hazardous. Assessments show, however, that within the next few decades these studies will not result in technologies that would help get rid of all nuclear waste and eliminate the need for final disposal.
- The radioactive waste generated as a result of the production of nuclear energy shall be managed in such a manner that it will not expose humans or the biosphere to danger, that it will not impose unreasonable burdens on future generations and that the predicted effects on the health of future generations will not be greater than the effects currently considered acceptable.

In its application, the Applicant Company also states the following:

- The planned final disposal concept fulfils the safety requirements that have been set and will help avoid imposing burdens on future generations. The safety of the concept has been assessed in comprehensive studies both in Finland and abroad since the 1980s. The final disposal concept also releases future generations from the management obligation. Upon termination of the final disposal phase of spent nuclear fuel, the repository can be permanently sealed in such a manner that the nuclear fuel will not pose a threat to humans or nature. On the other hand, it will also be possible to retrieve the spent fuel from the repository to the surface.
- Even the most pessimistic assessments show that the health and environmental effects of the facility will be infinitesimal.
- The operation of the facility and the related transport can be arranged in such a manner that the environmental effects produced and the safety risks posed will be infinitesimal.
- Technical systems suitable for the bedrock conditions in Finland have been developed.
- The results of detailed site characterisations show that the bedrock at Olkiluoto in Eurajoki is suitable for final disposal.
- The bulk of the spent nuclear fuel that currently exists is being stored at Olkiluoto in Eurajoki, and under the present operating conditions of the nuclear power plants the amount of accumulating spent fuel to be disposed of will be higher at Olkiluoto than at Loviisa in the future as well. Locating the final disposal facility at Olkiluoto will help minimise the transport of nuclear fuel.

- The climate of attitudes prevailing in the municipality of Eurajoki creates favourable opportunities for preparation of the project.
- In any case, the final disposal concept still leaves, in practice, many decades for further development of the final disposal method and for potential consideration as regards alteration of the plans.
- Posiva Oy's shareholding companies, being licence-holders with a waste management obligation, save funds for the future costs of nuclear waste management in the State Nuclear Waste Management Fund in accordance with the principles defined in the Nuclear Energy Act.

The reports referred to in Section 24 of the Nuclear Energy Decree have been attached to the application.

## Consideration of the application and the measures preceding the decision-making

### Hearing

#### *General hearing in accordance with Section 13 of the Nuclear Energy Act*

The Applicant has drawn up an overall report on the final disposal project, including a description of the facility in accordance with the original application. The Ministry of Trade and Industry has checked the report and the Applicant has then distributed it to every household in the municipality of Eurajoki and its neighbouring municipalities. The overall report has been generally available to the public in places referred to in the public announcements of the Ministry of Trade and Industry.

Notice has been given of the pending project on notice boards of the municipalities of Eurajoki, Eura, Kiukainen, Lappi, Luvia and Nakkila and the town of Rauma. The project has also been announced in the following newspapers: Helsingin Sanomat, Hufvudstadsbladet, Länsi-Suomi, Satakunnan Kansa and Uusi-Rauma.

A public hearing required by the Nuclear Energy Act was organised in Eurajoki on 9 November 1999. A written summary of the opinions expressed at the hearing is included in the Appendix to this decision.

### *Statements asked for on the application for a decision in principle*

In accordance with Section 12 of the Nuclear Energy Act, the Ministry of Trade and Industry has obtained a statement from the Ministry of the Environment, the municipal council of the municipality of Eurajoki and the neighbouring municipalities of Eurajoki. In accordance with Section 25 of the Nuclear Energy Decree, the Ministry has asked for a statement on the application from the following parties: the Ministry of the Interior, the Ministry of Defence, the County Administrative Board of Western Finland, the Regional Council of Satakunta, Southwest Finland Regional Environment Centre and the Advisory Committee on Nuclear Energy.

Furthermore, the Ministry of Trade and Industry has asked for a statement from the following parties: the Ministry of Social Affairs and Health, the Ministry of Finance, the Ministry of Transport and Communications, the Finnish Environment Institute, the town of Loviisa, the Finnish Energy Industries Federation FINERGY and the Finnish Association for Nature Conservation. In addition, the Ministry has passed the application for a decision in principle to the following parties for their information for any statement: the Confederation of Finnish Industry and Employers, the Federation of Finnish Enterprises, the Central Union of Agricultural Producers and Forest Owners (MTK), the Central Organisation of Finnish Trade Unions (SAK), The Confederation of Unions for Academic Professionals in Finland (AKAVA), the Finnish Confederation of Salaried Employees STTK and The Central Union of Swedish Agricultural Producers in Finland.

The Ministry has made a summary of all the statements provided, which is included in the Appendix to this decision.

### *Notification to the Swedish authorities*

The Swedish authorities have been informed of the project in accordance with the agreement signed between Finland, Norway, Sweden and Denmark on 15 November 1976 (SopS 19/1977) concerning guidelines for communication related to the safety issues of nuclear installations to be built near the borders of these countries. The Swedish Nuclear Power Inspectorate issued a statement on behalf of the Swedish authorities; this statement has been reported in the summary of statements attached to this decision.

### **Preliminary safety assessment report**

In accordance with Section 12 of the Nuclear Energy Act, the Ministry of Trade and Industry has asked STUK Radiation and Nuclear Safety Authority for a preliminary safety assessment report on the project referred to in paragraph 2 of Section 25 of the Nuclear Energy Decree. In its safety assessment report, STUK Radiation and Nuclear Safety Authority has included the statement provided by the committee referred to in paragraph 2 of Section 56 of the Nuclear Energy Act (the Advisory Committee on

Nuclear Safety). The preliminary safety assessment report has been attached to this decision. In addition, STUK Radiation and Nuclear Safety Authority and the Advisory Committee on Nuclear Safety have issued statements on the project, both of which have been reported in the summary of statements attached to this decision.

### **Other reports**

As an appendix to the application for a decision in principle, Posiva Oy has provided the Ministry of Trade and Industry with an assessment report on the project in accordance with the Act on Environmental Impact Assessment Procedure (468/1994). In its capacity as the co-ordination authority defined in the Act, the Ministry has issued a statement on the report and on its adequacy, and included this statement in the preparatory material for a decision in principle.

In accordance with Section 15 of the Administrative Procedures Act, the Ministry of Trade and Industry has requested the Applicant Company a rejoinder on the statements provided and on the preliminary safety assessment report. The rejoinder has been reported in the summary of statements attached to this decision.

For the decision in principle, the Ministry of Trade and Industry has provided the Government with a special review concerning nuclear waste management required in paragraph 1 of Section 26 of the Nuclear Energy Decree. The review has been attached to this decision.

### **Legal provisions applied to the decision-making**

Paragraph 1 of Section 14 of the Nuclear Energy Act prescribes that before the Government takes the decision in principle referred to in Section 11 of the Act, it shall ascertain that

- in its statement referred to in Section 12 of the Act, the municipality where the nuclear facility is planned to be located is in favour of constructing the nuclear facility, and that
- no factors have arisen indicating a lack of sufficient prerequisites for constructing a nuclear facility as required in Section 6 of the Act. Section 6 in question requires that the use of nuclear energy must be safe, and that it shall not inflict injury on people or damage the environment or property.

Paragraph 2 of Section 14 of the Nuclear Energy Act prescribes that, should the Government find that the prerequisites prescribed in paragraph 1 have been met, it shall, in reaching its decision in principle, consider the issue from the perspective of the overall interest of society, and shall take into account the benefits and drawbacks arising from the nuclear facility, paying particular attention to 1) the necessity for the nuclear

facility from the viewpoint of Finland's energy supply; 2) the suitability of the intended location of the nuclear facility and the environmental effects of the facility, and 3) arrangements for nuclear fuel and nuclear waste management.

## Partial postponement of the application

At the request of the Applicant Company, the Government postpones the decision on the application insofar as it concerns the final disposal of spent nuclear fuel produced during operation of a new nuclear power plant to be possibly built in Finland such that this decision would be taken as part of the consideration of Teollisuuden Voima Oy's pending application for a decision in principle relating to the construction of that new nuclear power plant.

## Fulfilment of the preconditions for the decision in principle

### **Statement of the municipality of Eurajoki**

The municipal council of Eurajoki has issued a statement on the project, which is in favour of constructing the final disposal facility referred to in the application at Olkiluoto in Eurajoki. The decision of the municipal council on a favourable statement by the municipality of Eurajoki became legally valid on 17 November 2000.

### **Opportunities to build the facility in accordance with Section 6 of the Nuclear Energy Act**

The preliminary safety assessment performed by STUK Radiation and Nuclear Safety Authority has not revealed any factors indicating there would not be sufficient potential to build the proposed final disposal facility in such a way that the facility would be safe and would not inflict injury on people or damage the environment or property. In the safety assessment report, STUK Radiation and Nuclear Safety Authority concludes that, in this phase, making a favourable decision in principle is justifiable with respect to safety.

The environmental impact assessment report shows that the environmental effects of the final disposal facility will be small and the facility would not have harmful effects on people's health. In the statement issued in its capacity as the co-ordination authority, the Ministry of Trade and Industry stated that, considering the current phase of the project, the environmental impact assessment report on the project is sufficiently extensive and detailed, and that in the Ministry's opinion the report fulfils the requirements laid down

in the Act and Decree on Environmental Impact Assessment Procedure, and meets the objectives set in the environmental impact assessment programme of the project.

The statements provided on the application have not revealed any factors indicating that the final disposal facility could not be built in such a way that it would be safe and would not inflict injury on people or damage the environment or property.

With reference to the preliminary safety assessment report submitted by STUK Radiation and Nuclear safety Authority, the statements provided, the environmental impact assessment report and the co-ordination authority's statement on it, as well as the studies conducted referred to in Section 24 of the Nuclear Energy Decree, the Government states that no factors have been revealed to indicate there would not be sufficient potential to build the proposed final disposal facility in the manner required in Section 6 of the Nuclear Energy Act.

## Consideration of the decision in principle

The Government has stated that the municipality of Eurajoki, proposed as the location of the planned nuclear facility, has favoured construction of the facility and that no factors have been revealed to indicate that the facility could not be built in the manner required in Section 6 of the Nuclear Energy Act, and considered the benefits and drawbacks of the project from the viewpoint of the overall interest of society and, on the basis of Section 11 of the Nuclear Energy Act (990/1987) enacted on 11 December 1987, taken a decision in principle on the construction of the planned nuclear facility.

## Decision in principle

Construction of the final disposal facility for spent nuclear fuel produced during operation of the existing Finnish nuclear power plants, in such a form described in the application with regard to the main operating principles of the facility and the structures aimed at ensuring its safety, at Olkiluoto in the municipality of Eurajoki, is in the overall interest of society.

On the basis of this decision in principle, final disposal facilities can be built for not more than the amount of spent nuclear fuel required by the final disposal needs assessed on the basis of the valid operating licences of the existing Finnish nuclear power plants, such that the total amount of nuclear fuel to be disposed of will be about 4 000 tonnes at most.

This decision in principle concerning the final disposal facility means that the project can progress to the construction of underground research facilities and detailed site characterisation.



## Validity of the decision in principle

This decision in principle will expire if a licence, referred to in Section 18 of the Nuclear Energy Act, for the beginning of the construction of a final disposal facility for spent nuclear fuel at Olkiluoto has not been applied for within 15 years from the date Parliament has taken a decision that the decision in principle enters into force.

## Effects of the decision in principle

In accordance with the Nuclear Energy Act, the implementation of the project will require a construction licence granted by the Government and, subsequently, an operating licence, as part of which the project will be reconsidered from the viewpoint of the overall interest of society. The granting of these licences also requires, for instance, that the project is safe and will not inflict injury on people or damage the environment or property. This decision in principle concerning the final disposal facility does not involve a right to compensation, if a construction licence is not granted.

For the handling of a construction licence for the final disposal facility, the Applicant shall provide the authorities with, for instance, several reports verifying the safety of the facility in accordance with the Nuclear Energy Act and Decree, and up-to-date reports on the environmental impacts of the facility together with the design bases that the Applicant plans to comply with in order to avoid environmental damage and to reduce environmental burden.

In the environmental impact assessment reports on the project, the Applicant shall provide detailed studies on the safety of the alternative transport methods of nuclear fuel and their effects on the environment, and shall prove that the transport can be implemented safely and in such a manner that the requirements laid down in the Act on Transport of Dangerous Goods (719/1994), and in the regulations issued on its basis, will be fulfilled.

In its decision on the safety of the final disposal of spent nuclear fuel (478/1999), the Government has issued regulations concerning the safety requirements that shall be applied to the project and demonstration of the fulfilment of these requirements. The party responsible for the project shall provide reliable reports to prove the safety of operation of the facility in both the short and the long term. These reports include studies on the performance of engineered barriers (for instance, canisters and repository backfilling materials) under the prevailing final disposal conditions, taking account of, for example, the effects of saline water and the heat released from the nuclear fuel. In accordance with the above decision, long-term safety shall be based on redundant release barriers in such a manner that a deficiency in the performance of one release barrier or a foreseeable geological change will not jeopardise long-term safety. The Applicant shall submit a report demonstrating that no migration of radioactive substances to the environment occurs in the bedrock of the final disposal site or through it in such a manner that these substances would, in the short or the long term, inflict

injury on people or damage property or the environment, including the sea environment. The environmental impact assessments shall also take account of any effects on animal and plant species. Furthermore, the studies shall also consider all the chemical and physical processes and interactions that may be of importance to the safety of final disposal.

According to the above decision of the Government, the final disposal shall be designed in such a manner that ensuring the long-term safety will not require control of the final disposal site and that the repository can be opened, if advanced technology renders it appropriate. In accordance with the application, the final disposal has been designed in such a way that it is technically feasible to retrieve the final disposal canisters from the repository to the surface in all phases of the project. Before any construction licence is granted, the party responsible for the project shall provide specified, sufficiently detailed reports on and plans for the re-opening of the repository and factors affecting it, as well as the opening technology and the safety of opening. An up-to-date estimate of the costs of opening shall also be submitted. These plans shall also take account of the fact that the long-term safety must not be impaired as a result of the re-opening and retrievability.

This decision in principle in no way diminishes opportunities of the Ministry of Trade and Industry to take new decisions concerning the principles of nuclear waste management on the basis of Section 28 of the Nuclear Energy Act. These decisions could, for instance, require the nuclear power companies to monitor the development of spent nuclear fuel management methods differing from those proposed in the application, and to report to the Ministry on the potential effects of method development on the appropriateness of the final disposal concept developed in accordance with this decision in principle.

Pursuant to Section 74 of the Nuclear Energy Decree, in performing the function provided by Section 28 of the Nuclear Energy Act, the licence-holder with a waste management obligation shall annually supply the Ministry of Trade and Industry with the plans for nuclear waste management of the nuclear power companies and thus also the plans concerning the design and implementation of final disposal. Section 74 of the above Decree additionally states that a plan can also be required for submission at any other time if the Ministry considers it well-founded. In its decision of 29 June 2000 on the reports of the nuclear power companies concerning nuclear waste management, the Ministry stated that the final disposal research programme submitted by Posiva Oy on behalf of the power companies concerning the final disposal in 2001-2004 provides a sufficient basis for the subsequent research programme on condition that the Government takes a favourable decision in principle concerning the project and Parliament ratifies it. In its next decisions on the research programme, the Ministry will consider the remaining research needs, the phase of the project and the planned schedule of the final disposal project.

At the facility built on the basis of this decision in principle, it will also be possible, if considered necessary on grounds of safety aspects and with the consent of the licence-holder and the nuclear safety authority, to handle and dispose of other nuclear waste

produced at the existing Finnish nuclear power plants as a result of the use of nuclear fuel, whose environmental and other effects, considering the amount and total activity of the material concerned, are insignificant with regard to the safety of final disposal. When applying for a construction licence for the final disposal facility, the Nuclear Energy Act and Decree require that detailed technical plans, safety assessment reports and environmental impact assessment reports be submitted concerning all the waste types that are intended to be disposed of in the repository.

## Reasons for the decision in principle

The use of nuclear energy requires a licence in accordance with the Nuclear Energy Act. Pursuant to the Act, the licence-holder, whose operations generate or have generated nuclear waste, shall be responsible for all nuclear waste management measures concerning the nuclear waste generated as a result of its operations and for their appropriate preparation, and shall be responsible for their costs. This obligation also results in the nuclear energy companies' obligation to bear responsibility for the management of spent nuclear fuel from their plants. On the other hand, Section 6 a of the Nuclear Energy Act stipulates that nuclear waste generated in connection with, or as a result of, the use of nuclear energy in Finland shall be handled, stored and disposed of in a way intended to be permanent in Finland.

With a view to final disposal, long-term preparations have been underway in Finland for about twenty years now, which have been guided, for instance, by the following official decisions:

- The decision in principle taken by the Government in 1983 concerning the targets for nuclear waste management research, investigations and planning. According to this decision, provision shall be made for potential final disposal of spent fuel in Finland in such a manner that, by the end of 2000, such a final disposal site has been selected and investigated, through the intermediate targets listed in the decision, where a repository can be built, if necessary. This decision also states that the licence-holders shall be prepared to submit to the supervisory authorities the plans for the repository and a potential spent fuel encapsulation plant necessary for the granting of a construction licence by the end of 2010.
- The decisions of the Government on the granting of a licence (34/814/82) in 1983 concerning continuation of the operation of Teollisuuden Voima Oy's nuclear power plant units, which include a regulation to make provision for final disposal in Finland, which fulfils the safety and environmental protection requirements, with the design basis of being able to begin the final disposal in about 2020.
- The decisions by the Ministry of Trade and Industry in 1991 and 1995 on the basis of the Nuclear Energy Act concerning nuclear waste management, which decreed that the operating programme and schedule aimed at final disposal referred to in the above decision in principle of 1983 is binding on both

Teollisuuden Voima Oy (7/815/91) and Fortum Power and Heat Oy (11/815/95); and

- The decision of the Government (478/1999) on the safety of the final disposal of spent nuclear fuel concerning the disposal of spent nuclear fuel in the bedrock in a way intended to be permanent, and according to which the entire final disposal process shall be designed favourably with regard to safety. This means that the design shall take account of the reduction in activity of spent nuclear fuel with the aid of interim storage and the utilisation of the best available technology and scientific knowledge, but according to which the final disposal must not be unnecessarily postponed.

No such changes have taken place in the Finnish energy economy and energy policy decisions affecting the future, in our social conditions or general international development, in nuclear energy production in Finland and the amount of spent nuclear fuel accumulating in this production, economic factors or safety aspects affecting nuclear waste management and final disposal in Finland, nor have the reports and statements provided revealed any factors relating to the above on the basis of which the principles, regulations, decisions and schedules concerning the liabilities of nuclear waste management and final disposal should be altered.

With respect to the development of a reliable and safe final disposal concept and its implementation in Finland, it is favourable if the process aimed at final disposal continues without interruption, in which case it is also highly probable that Finnish technological and scientific know-how will remain at the current level in terms of both quality and quantity.

From the viewpoint of the balanced development of society in both the short and the long term, it is also necessary to see to it well in advance that the accumulation of nuclear waste, and thus also of spent nuclear fuel, generated in connection with the use of nuclear energy by the existing generation will not constitute a burden or impose a management obligation to future generations.

Should the spent nuclear fuel be reprocessed, high-level nuclear waste would be left over in any case. STUK Radiation and Nuclear Safety Authority has concluded in its statement that the systems proposed to date for the handling of nuclear waste with a view to reducing their hazardousness (reprocessing, transmutation) do not eliminate the need to finally dispose of high-level nuclear waste.

According to the statement of STUK Radiation and Nuclear Safety Authority, the option that contains fewest uncertainties with respect to safety under Finnish conditions is the final disposal of spent nuclear fuel in the bedrock. STUK Radiation and Nuclear Safety Authority also states that, with regard to the prevention of illegal use, the most reasonable method is to isolate the spent nuclear fuel by placing it deep in the bedrock in a way intended to be permanent.

The date at which Posiva Oy submitted the application for a decision in principle, and the implementation method and schedule proposed for the project in the application fulfil the requirements set for Teollisuuden Voima Oy and Fortum Power and Heat Oy and the obligations imposed on them by legislation and on its basis. Likewise, the design bases for the project fulfil the requirements set in the Government's decision (478/1999) concerning the safety of the final disposal of spent nuclear fuel, and the environmental impact assessment procedure of the project has not revealed, either, any harmful effects on the environment that would have nationwide significance.

Considering the above nuclear waste management liabilities and obligations, and the requirements set by the Nuclear Energy Act, and other regulations concerning final disposal, as well as the fact that, according to the current knowledge, the proposed final disposal concept is safe, the Government considers that it is reasonable to proceed with the preparation work aimed at final disposal in such a manner and according to such a schedule outlined in the Government's decisions. Consequently, it is justified to take the decision in principle concerning construction of the final disposal facility proposed in Posiva Oy's specified application.

In accordance with Section 6 b of the Nuclear Energy Act, nuclear waste generated in connection with, or as a result of, the use of nuclear energy elsewhere than in Finland shall not be handled, stored or disposed of in a way intended to be permanent in Finland. No decisions have been taken, either, on continuation of the operating time of the existing nuclear power plants after expiry of their operating licences; neither have any decisions in principle been taken on the construction of new nuclear power plants. For these reasons the Government considers that the construction of final disposal facilities in advance for a larger amount of spent nuclear fuel than that accumulating at the existing nuclear power plants located in Finland does not support the purpose of national legislation. Furthermore, the Government considers that it is not necessary to build in advance a larger repository than required for the spent fuel management on the basis of the valid operating licences of the plants, since even in the case where the operating time of the plants is extended, the final disposal will be preceded by a sufficiently long period of interim storage to enable extending the repository.

The Government considers that it is acceptable and technically and economically justifiable to concentrate the final disposal of spent nuclear fuel generated in Finland in one location. As STUK Radiation and Nuclear Safety Authority concluded in its statement, the transport of spent fuel can be arranged in accordance with the safety regulations.

Furthermore, the Government states that no factors have been revealed to indicate that the proposed final disposal site would be unsuitable for implementation of the project, since

- studies show that the quality of bedrock at the selected site is such that the planned final disposal facilities can be built there in such a manner that the safety requirements set for the construction and final disposal in the short and the long term will be fulfilled;

- the environmental impact assessment procedure of the project has not revealed any harmful effects on the environment that would have local significance;
- land use planning does not pose an obstacle to implementation of the project;
- in the vicinity of the final disposal site there are no known natural resources, whose commercial exploitation would be prevented by implementation of the facility;
- no such negative social or economic effects have been revealed whose significance in the municipality of Eurajoki would be greater than in the rest of the municipalities possibly considered as the location of the final disposal facility; and
- no other effects have arisen that would induce such negative images of the municipality whose resulting effects would do particular economic or social harm to Eurajoki, or whose significance in the municipality of Eurajoki would be greater than in the rest of the municipalities possibly considered as the location of the final disposal facility.

With regard to implementation of the project, the benefit provided by the planned final disposal site is, for instance, the existing infrastructure that supports construction, operation and safety arrangements of the final disposal facility, thanks to the nuclear power plant located in the area. In addition, the location of the final disposal facility in the vicinity of the nuclear power plant is favourable as regards the arrangement of transport technology matters. Furthermore, the environmental impact assessment report shows that, during construction of the facility, the disturbance caused to people is small.

The operation of the final disposal facility will not generate new radioactive substances. On the other hand, the management of nuclear waste generated during operation of the encapsulation plant and during decommissioning has been designed and can be arranged in such a manner that radiation safety will not be jeopardised in the short or the long term.

The Applicant Company, Posiva Oy, will charge its holding companies the costs incurred by the management of spent fuel from these companies' nuclear power plants after interim storage, including the costs of the design, implementation and operation of final disposal. The above holding companies with a waste management obligation annually collect funds in the State Nuclear Waste Management Fund in proportion to future costs on the basis of the principles defined in the Nuclear Energy Act.

The Applicant Company has demonstrated that it possesses the expertise required by research and design of the project and by the construction, operation and sealing of the final disposal facility and, furthermore, that the expertise existing in its shareholding companies is at its disposal. The Company also maintains relations with an expert network, which includes both Finnish and foreign research institutes, universities and consultants. In addition, the Company has signed co-operation agreements on the design

and exchange of information with the nuclear waste management organisations of several countries.

On the basis of what has been presented above, the Government considers that, taking into account

- the position of final disposal in nuclear waste management as part of the safe use of nuclear energy and, through it, as part of the energy supply;
- the social responsibility to see to the safe and comprehensive management of the nuclear fuel cycle;
- the social responsibility to make provision for the final disposal according to the schedules set in previous decisions;
- the fact that the proposed final disposal concept fulfils the requirements set for the licence-holders with a waste management obligation in legislation and on its basis;
- the fact that no such factors have been revealed to indicate that the proposed final disposal concept would be unfeasible;
- the plans drawn up with a view to ensuring safety of the final disposal concept;
- the fact that no such factors have been revealed to indicate that the proposed final disposal site would be unsuitable for implementation of the project;
- the assessed environmental effects of the proposed final disposal facility;
- other benefits of the project and any drawbacks revealed by the studies, and the quality and probability of the drawbacks;
- the fact that no other technically feasible methods for the final disposal of spent nuclear fuel or high-level nuclear waste that would comply with the Nuclear Energy Act are within view;
- the restriction imposed by the Nuclear Energy Act, according to which it is permitted to dispose in Finland in a way intended to be permanent of only nuclear waste generated in connection with, or as a result of, the use of nuclear energy in Finland; and
- the fact that no decisions in principle have been taken on the construction of potential new nuclear power plants in Finland,

the project corresponding to the specified application is in the overall interest of society in such a way that final disposal facilities are built for not more than the amount of

spent nuclear fuel required by the final disposal needs assessed on the basis of the valid operating licences of the existing nuclear power plants located in Finland.

## Charge

Posiva Oy has been charged FIM 220 000 for this decision, which has been prescribed in the Decree on charges to be collected for the control of nuclear energy (195/88).

## Parliamentary proceedings

In accordance with Section 15 of the Nuclear Energy Act, this decision will be submitted to Parliament for perusal.

On 21 December 2000

Minister of Trade and Industry

Sinikka Mönkäre

Senior inspector

Anne Väätäinen

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