Ministry of Employment and the Economy  
P. O. Box 32  
FI-00023 GOVERNMENT, Finland  

Request for a statement TEM/1011/08.04.01/2014, 18 June 2014  

Application by Teollisuuden Voima Oyj to supplement the Government's decision-in-principle of 6 May 2010 concerning the construction of the Olkiluoto 4 nuclear power plant unit; the Radiation and Nuclear Safety Authority's preliminary safety assessment concerning the application  

On 20 May 2014, Teollisuuden Voima Oyj (TVO) submitted to the Government an application to supplement the project, whereby it requests a decision from the Government that would set a new deadline for the submission of the application for a construction licence and confirm that the project is still in line with the overall good of society after the change of deadline.  


Section 12 of the Nuclear Energy Act stipulates that it is the duty of STUK to draw up a preliminary safety assessment concerning the application for a decision-in-principle. STUK is to state therein whether any factors have arisen indicating a lack of sufficient prerequisites for constructing a nuclear facility as prescribed in Section 6 of the Nuclear Energy Act. Pursuant to this section, the use of nuclear energy must be safe and must not cause injury to people, or damage to the environment or property.  

In addition to the new plant unit, Olkiluoto 4, the application to supplement the decision-in-principle also concerns nuclear facilities related to its operations and located on the same site, required for the storage of fresh nuclear fuel, interim storage of spent nuclear fuel, and the processing, storage and disposal of low and intermediate level nuclear waste.
TVO reports that since the completion of the Olkiluoto 3 nuclear power plant unit has been delayed, the company cannot make decisions concerning the construction licence application for the Olkiluoto 4 nuclear power plant unit. In its application, TVO proposes that the period of validity of the current decision-in-principle be extended by five years, corresponding to the period of validity of the decision-in-principle made in 2010. TVO further states in its application that the content of the Olkiluoto 4 nuclear power plant unit project has not changed since the 2010 decision-in-principle.

Request for a statement

The Ministry of Employment and the Economy requested a statement from STUK (TEM/1011/08.04.01/2014, 18 June 2014) concerning whether the preliminary safety assessment compiled in 2009 still corresponds to the requirements of Section 14(1) of the Nuclear Energy Act in that no factors have arisen indicating a lack of sufficient prerequisites for constructing a nuclear facility in accordance with the provisions of Section 6 of the Nuclear Energy Act. Further, the Ministry of Employment and the Economy requested a statement from STUK concerning the setting of a new deadline for the construction licence application of the Olkiluoto 4 nuclear power plant unit in accordance with Section 18 of the Nuclear Energy Act.

The preliminary safety assessment prepared by STUK is appended to this statement. STUK appends to its safety assessment a statement from the Advisory Committee on Nuclear Safety as laid down in Section 56(2) of the Nuclear Energy Act.

Changes in safety regulations, and the preliminary safety assessment

The safety regulations that concern a new nuclear power plant unit are, in many respects, more stringent than the regulations that applied to the construction of the currently operating nuclear power plant units. As a result of advances made in science and technology, updated international standards and new operating experience, the current Finnish nuclear power plants have undergone modifications that improve safety. This principle of the further development of safety is included in the nuclear safety requirements set out in Section 7a of the Nuclear Energy Act, and it shall also apply to potential new nuclear power plant units.

Since the 2010 Government decisions-in-principle, further changes have been introduced into the nuclear safety requirements, taking the experiences from the Fukushima Nuclear Accident and other experience into consideration. In the enclosed preliminary safety assessment, STUK has considered the new Government Decree on the Safety of Nuclear Power Plants (717/2013), the Government Decree on Emergency Response Arrangements at Nuclear Power Plants (716/2013), and the Government Decree on Security in the Use of Nuclear Energy (734/2008) that was updated in May 2012. The outset for STUK’s preliminary safety assessment is
that meeting the key safety regulations laid down in the Government decrees means compliance with Section 6 of the Nuclear Energy Act. STUK also renewed its regulatory guides concerning nuclear power plants (YVL Guides) in their entirety, and essential parts of the new Guides were adopted in 2013 with regard to new nuclear power plants. The fulfilment of the requirements set in the YVL Guides shall be assessed in the construction licence phase.

The preliminary safety assessment drawn up by STUK in 2009 comprised an evaluation of the safety of the plant alternatives and the site location at Olkiluoto, and an assessment of the organizations and quality management of the licence applicant and the plant suppliers. The preliminary safety assessment also addressed security arrangements, emergency arrangements, nuclear fuel management, nuclear waste management, nuclear liability and nuclear safeguards. The enclosed preliminary safety assessment concerning the supplementary application has considered the changes that have been introduced into the safety regulations.

Statement by the Radiation and Nuclear Safety Authority

Concluding the preliminary safety assessment, STUK states the following:

1. The preliminary safety assessment for the Olkiluoto 4 project, drawn up by STUK in 2009, and its appendix 1, evaluate the plant alternatives ABWR, ESBWR, APR 1400, APWR, and EPR that TVO had analyzed. TVO’s supplementary application contains the same plant alternatives.

TVO has continued the development and suitability assessment of the plant types in order to ensure that the Finnish safety requirements are met. In 2013, TVO submitted to STUK for information a set of documents containing analyses of the safety solutions of the different plant alternatives, TVO’s safety assessments concerning them, and licensing plans for the plant alternatives.

In line with its preliminary safety assessment from 2009, STUK states that the plant alternatives do not, as such, meet the Finnish safety requirements yet. The new requirements in the Government Decree on the Safety of Nuclear Power Plants (717/2013) that came into force in 2013 also create potential needs for modifications. The Radiation and Nuclear Safety Authority estimates that the design of the plant alternatives can be modified to fulfil the latest nuclear safety and radiation safety requirements of the Government decrees. The nature and extent of the necessary modifications varies by plant type.

2. The preliminary safety assessment for the Olkiluoto 4 project, drawn up by STUK in 2009, and its appendix 2 evaluate in detail the planned site location of the facility. Natural phenomena (such as extreme weather conditions, seawater level variations and seismic effects) that may affect the safety of the facility have been further analysed in the Finnish Research Programme on Nuclear Power Plant Safety,
SAFIR2014, for example. No changes have occurred in the nearby industry, transport of dangerous goods or other human activities that would affect the safety of the planned facility.

In relation to the site location, no factors have arisen that would affect the conclusions presented in the Radiation and Nuclear Safety Authority's preliminary safety assessment from 2009.

3. No factors have arisen in relation to the expertise involved in the Olkiluoto 4 project or its management system employed during design, construction or operation that would affect the conclusions in the Radiation and Nuclear Safety Authority's preliminary safety assessment from 2009.

4. In relation to the implementation of security arrangements and emergency arrangements, no factors have arisen that would affect the conclusions presented in the Radiation and Nuclear Safety Authority's preliminary safety assessment from 2009. The development of the emergency arrangements shall consider the Government Decree on Emergency Arrangements at Nuclear Power Plants (716/2013) which was amended in 2013.

5. No factors have arisen in relation to nuclear fuel management, nuclear safeguards, nuclear waste management and nuclear liability that would affect the conclusions presented in the Radiation and Nuclear Safety Authority's preliminary safety assessment from 2009.

STUK concludes the following concerning TVO’s application for setting a new deadline for submitting the construction licence application of the Olkiluoto 4 nuclear power plant unit in accordance with Section 18 of the Nuclear Energy Act:

6. From the point of view of ensuring the safety of the Olkiluoto 4 project, STUK finds that no issues have arisen that would prevent the setting of a new deadline. It is the considered opinion of STUK that the additional time will be spent on creating the documentation to be submitted at the construction licence phase and ensuring its compliance by, for example, developing the safety properties of the selected plant alternative to meet the renewed Finnish requirements, on updating the site location analyses, and on developing expertise and the management system.
The Radiation and Nuclear Safety Authority states that, in the preliminary safety assessment, no factors have arisen indicating a lack of sufficient prerequisites for constructing the new nuclear power plant proposed by Teollisuuden Voima Oyj in accordance with the provisions of Section 6 of the Nuclear Energy Act.

Director General                  Petteri Tiippana
Substitute for the Director      Tapani Virolainen
Deputy Director

Appendices

Preliminary safety assessment, 15 August 2014
Statement from the Advisory Committee on Nuclear Safety, 14 August 2014

For information

The Ministry of Social Affairs and Health, Teollisuuden Voima Oyj, Municipality of Eurajoki
PT, HaK, KiA, RP, LR, TV, ToR, TS, EM, KW, SSu, OO; RO, PVa, RSr, MV, TRe; EHa, JSo, JMo, PSa, TmH, SsH; MHa, AnS, JlK, TWi, VMc, JV; KaS, MiB, PeV, LPn, JMy, AJu, JSa, KV, MaX, JN

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