Olkiluoto 3 – Basic Facts

TVO – a world-class nuclear power company

Teollisuuden Voima Oy (TVO) is a Finnish limited liability company established in 1969. The operating idea of the Company is to produce electricity to its shareholders at cost price, and to build new power production capacity. The Olkiluoto nuclear power plant was constructed by TVO, and TVO also owns and operates the plant.

At present the production of the nuclear power plant units in Olkiluoto covers ca. one sixth of the total electricity consumption in Finland.

TVO is now building a third power plant unit, Olkiluoto 3 (OL3) in compliance with the policy decision ratified by the Finnish Government and the Finnish Parliament. OL3 with a pressurized water reactor of ca. 1,600 MW will almost double the production capacity of TVO.

High level of nuclear power expertise

TVO employs a staff of over 600. Thanks to the low staff turnover rate many of the employees have worked for TVO since the start of the production of nuclear power in Olkiluoto, and have gained extensive experience of more than 20 years of the operation and maintenance of the plant units. This expertise is utilised and developed also in the OL3 construction project.

TVO's policy from the very start has been to focus efforts on the training and development of the staff's nuclear expertise. State-of-the-art technology has been closely followed by e.g. participating in international development programmes of different reactor types. This has kept TVO on a par with the latest development solutions and also guaranteed active contacts with the top experts in the field.

The increases of capacity and the modernisation projects of OL1 and OL2 plant units as well as other extensive development and construction projects have also contributed to TVO's nuclear proficiency. The modernisation projects have increased both the safety and the capacity of the plant units and improved the total economy of production.

World-class performance

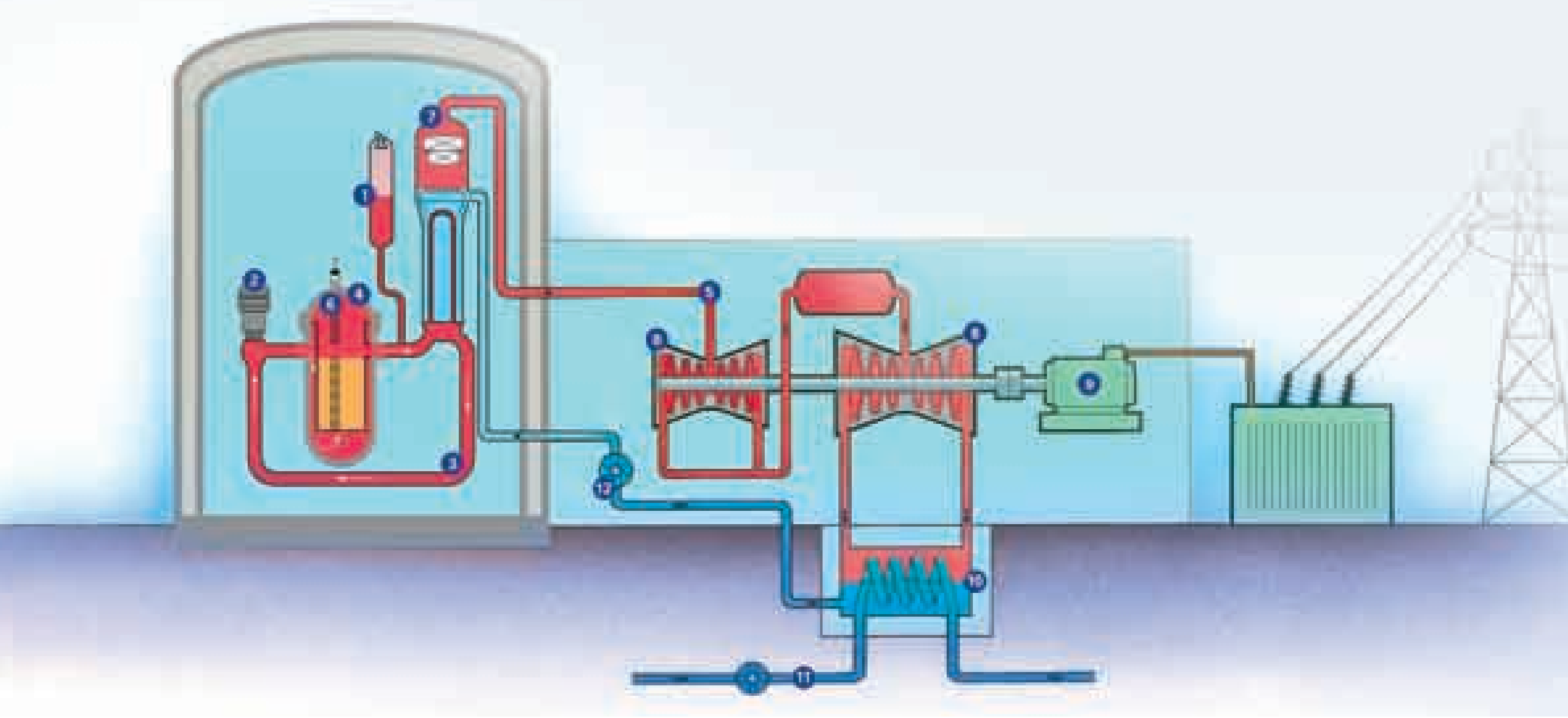
TVO's nuclear expertise is clearly indicated by the high capacity factors of the Olkiluoto plant units, which for years have ranked among the top in international comparison. The capacity factors of OL1 and OL2 have since the beginning of 1990s varied between 93% and 97%. The high capacity factors reflect the reliability of operation.

The good results have been made possible by meticulous planning of proactive annual maintenance and modification activities. The radiation exposure doses of the staff have also been low in the Olkiluoto power plant by international standards.

TVO operating philosophy

TVO as a nuclear power company is committed to a high-class safety culture. According to the principles of this culture all aspects of operation receive the attention warranted by their significance in terms of safety. The objective of the safety culture is to ensure high reliability and production availability. At TVO, safety and safety critical issues always take priority over financial factors.

TVO's vision is to maintain and strengthen the position of a world-class nuclear power company highly valued by the society. TVO strives at reaching this objective in a responsible and proactive manner in compliance with the principles of continuous improvement and in close cooperation with various interest groups, based on openness.



1600 MWe pressurized water reactor OL3

In November 2000 TVO filed an application to the Finnish Government for a decision in principle to construct a new nuclear power plant unit. The Government made a decision in favour of the application on January 17, 2002 and on May 24, 2002 the Finnish Parliament ratified the policy decision without changes. According to the decision in principle construction of the new nuclear power plant unit will serve the overall interests of the society.

After a bidding competition, TVO decided in December 2003 that the new plant unit constructed in Olkiluoto would be realised with a ca. 1,600 MW pressurized water reactor, or EPR (European Pressurized water Reactor). The plant unit will be built as a total delivery by a consortium formed by AREVA NP and Siemens, with AREVA NP responsible for the delivery of the reactor island and Siemens for the delivery of the turbine island.

Proven plant supplier

Both of the companies in the consortium are leading suppliers in their own field. AREVA NP has delivered a total of 100 light water reactor plant units, 94 of them of pressurized water reactor type (PWR) and six of boiling water reactor type (BWR). In France, the most recently commissioned PWR units delivered by AREVA NP are the Civaux 1 and 2 units commissioned in 1997 and 1999, respectively. Angra 2 unit in Brazil as well as Ling Ao 1 and 2 in China were commissioned in 2002.

Siemens is one the leading power plant suppliers in the world. The total installed capacity of power plants delivered by Siemens is more than 600 GW.

Sensible evolution

Olkiluoto 3 represents advanced technology in comparison with the existing plants. Efforts have been particularly focused on improving the safety of the plant. The plant type designed by AREVA NP is based on the experience gained from the pressurized water reactor plants most recently commissioned in France (N4) and Germany (Konvoi).

Germany (Konvoi)		
Neckarwestheim 2	1,269 MW	1989
Isar 2	1,400 MW	1988
Emsland	1,290 MW	1988
France (N4)		
Chooz 1	1,450 MW	1996
Chooz 2	1,450 MW	1997
Civaux 1	1,450 MW	1997
Civaux 2	1,450 MW	1998

Olkiluoto 3 is of the so-called evolutionary type. In this line of development the basic solutions are derived from technology already proven in practice. New solutions have been applied sensibly without compromising the production capacity and the reliability of the plant unit.

High efficiency

Apart from safety, special efforts in the design of OL3 have been focused on the economy of the plant. For example, the efficiency of the new unit is 37%, which is about 4 percentage units higher than the efficiency of the existing OL units. Another primary objective has been to ensure an as short construction period as possible.

The operation principle of a Pressurized Water Reactor (PWR)

A PWR plant has two circuits for heat transmission. Water is kept under high pressure by the pressurizer (1), and circulated by the main reactor coolant pumps (2) in the reactor circuit (3) and transfers the reactor heat (4) to turbines (5) in the heat exchanger. Reactor efficiency is adjusted by control rods (6). The pressure in the turbine circuit is much lower than in the reactor circuit, which makes the water boil in the heat exchanger i.e. in the steam generator (7). The steam from the steam generator makes the turbine (8) rotate. The turbine rotates the generator (9) on the same axel shaft generating electricity to the national grid. The steam from the turbine is cooled to water in the condenser (10) with seawater (11). Condensation water is fed back to the steam generator with feed water pumps (12) and the warm seawater is pumped back to the sea.

The top photo shows the reinforcement steels of the reactor building and the bottom photo the concreting of the base slab for the fuel building.

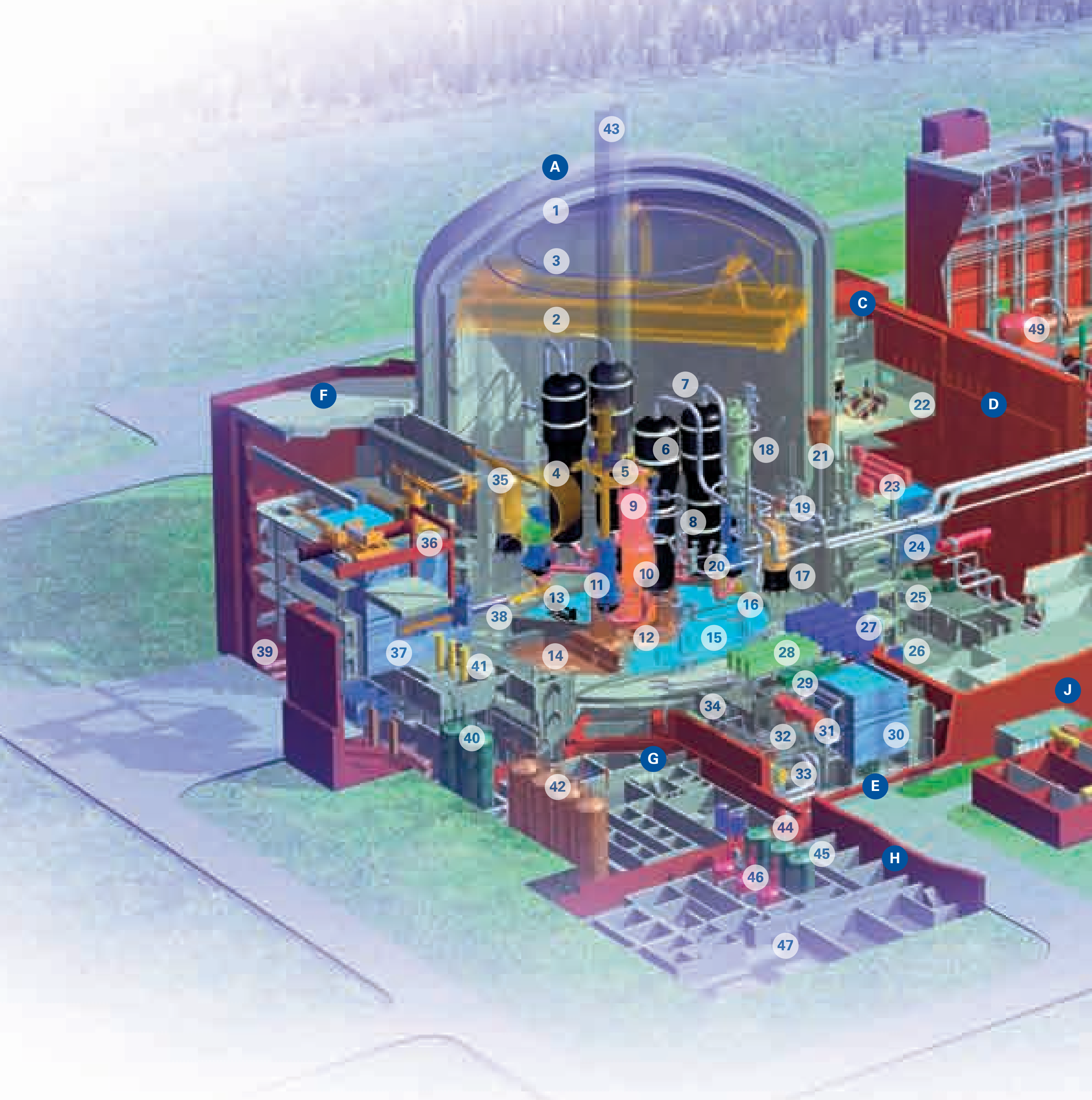
The design of the power plant unit's structures and equipment that are difficult to replace has been based on a service life of at least 60 years. For other structures and equipment, the required minimum service life is 30 years. The replacement of these structures and equipment will ensure a total operating time of 60 years for the plant unit.

OL3 boasts a reactor capacity ca. 1% higher and an electric capacity ca. 10% higher than the plant units most recently commissioned in Europe. Another strength of OL3 is the consideration of the most serious accident, reactor core melting and a jet aircraft crashes already in design, and the securing of the digital instrumentation and control system with an analogue system have been also taken used as a design basis.

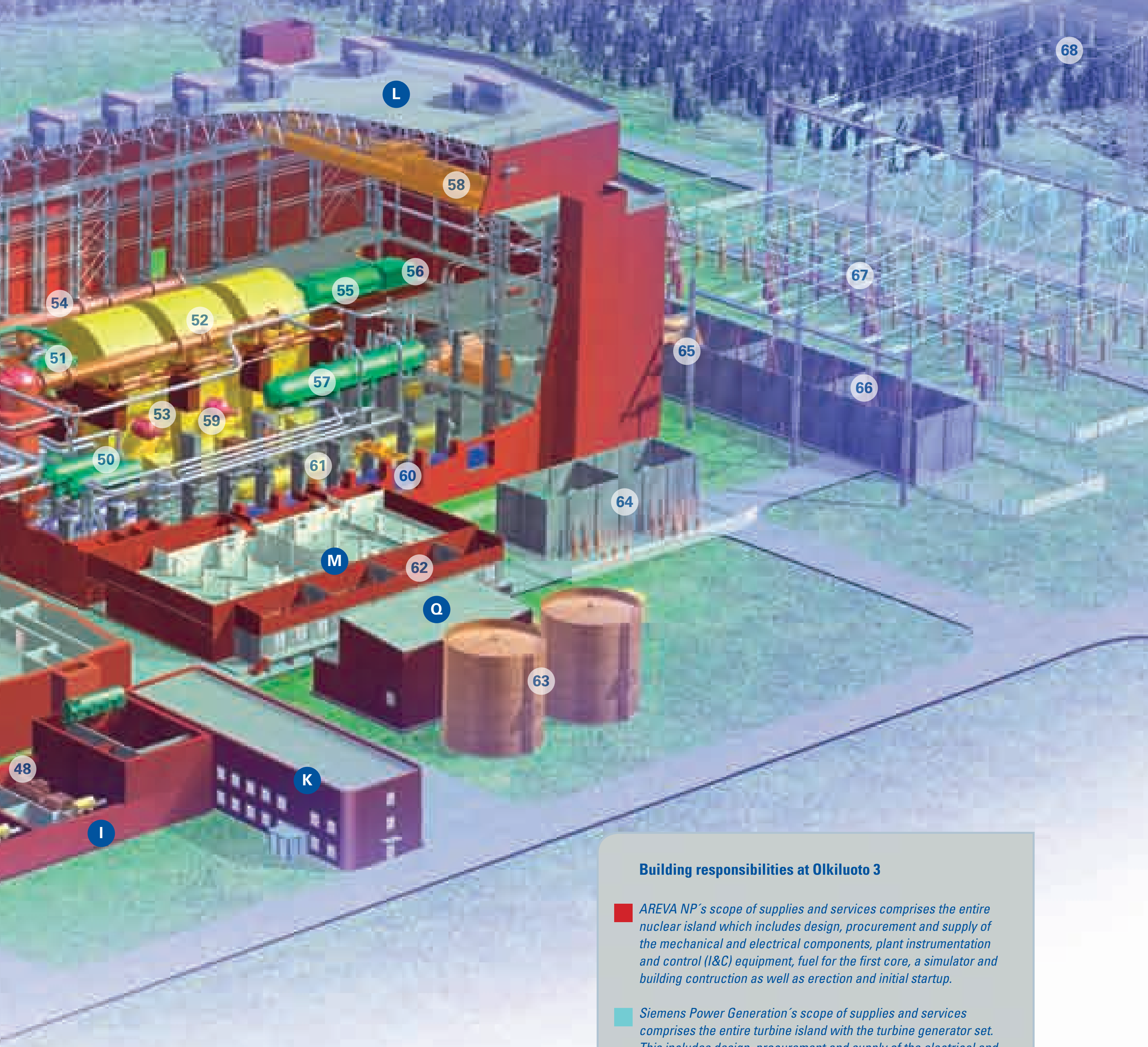
Production of first electricity in 2009

The turn-key delivery principle of the OL3 unit means that in addition to the reactor and the turbine plant the supplier consortium is also responsible for the construction work. TVO implements the area works, such as forest felling, earthmoving, excavations, road construction, site electrification and construction of the cooling water tunnel as well as the required expansion of infrastructure on the site. The actual construction project of the AREVA NP-Siemens consortium started early 2005 after the Finnish Government had granted the construction licence for the plant and TVO had completed all the area works.

According to the project schedule TVO will file the application for the operating licence of OL3 to the Finnish Government in 2007. Production of first electricity is planned to start in 2009. The total cost estimate of the project is EUR 3 billion, making it the largest single investment in the history of Finnish industry.



- **A** Reactor building
- 1 Inner and outer shell
- 2 Polar crane
- 3 Ultimate heat removal system: sprinklers
- 4 Equipment hatch (large components)
- 5 Refuelling machine
- 6 Steam generator
- 7 Main steam lines
- 8 Main feed water lines
- 9 Control rod drives
- 10 Reactor pressure vessel
- 11 Reactor coolant pump
- 12 Reactor coolant piping
- 13 Coolant volume and chemistry control heat exchangers
- 14 Corium spreading area
- 15 In-containment refuelling water storage tank
- 16 Residual heat removal system, heat exchanger
- 17 Safety injection accumulator tank
- 18 Pressurizer
- 19 Main steam valves
- 20 Feed water valves
- 21 Main steam safety and relief valve exhaust silencer
- **B** Safeguard building division 1
- **C** Safeguard building division 2
- 22 Main control room
- 23 Computer room
- 24 Emergency feed water pool
- **D** Safeguard building division 3
- 25 Emergency feed water pump
- 26 Medium head safety injection pump
- **E** Safeguard building division 4
- 27 Switch gear
- 28 Automation cabinets
- 29 Battery rooms
- 30 Emergency feed water pool
- 31 Component cooling water system heat exchanger
- 32 Low head safety injection pump
- 33 Component cooling water surge tank
- – Ultimate heat removal system pump
- 34 Ultimate heat removal system heat exchanger
- **F** Fuel building
- 35 Fuel building crane
- 36 Spent fuel pool bridge
- 37 Spent fuel pool and fuel transfer pool
- 38 Fuel transfer tube
- 39 Spent fuel pool cooler
- – Spent fuel pool cooling pump
- **G** Nuclear auxiliary building
- – Coolant volume and chemistry control pump
- 40 Boric acid tank
- 41 Delay bed
- 42 Coolant storage tank
- 43 Vent stack
- **H** Radioactive waste processing building
- 44 Waste water collecting tank
- 45 Monitoring tanks
- 46 Concentrate tanks



Building responsibilities at Olkiluoto 3

AREVA NP´s scope of supplies and services comprises the entire nuclear island which includes design, procurement and supply of the mechanical and electrical components, plant instrumentation and control (I&C) equipment, fuel for the first core, a simulator and building contruction as well as erection and initial startup.

Siemens Power Generation´s scope of supplies and services comprises the entire turbine island with the turbine generator set. This includes design, procurement and supply of the electrical and mechanical components, the turbine I&C equipment and building construction as well as erection and initial startup.

TVO as owner is responsible for the licensing process with the Radiation and Nuclear Safety Authority, Finland (STUK) and is responsible for site infrastructure and excavation, grid connection and some auxiliary buildings.

47 Drum storage area
I Emergency Diesel generator building
48 Emergency diesel generator set
J Access building
K Office building
L Turbine building
49 Moisture separator/reheater
50 High pressure feed water heater
51 High pressure turbine
52 Low pressure turbine
53 Condensers
54 Cross over lines
55 Generator
56 Exciter
57 Feed water tank
58 Turbine building main crane
59 Low pressure feed water heater
60 Feed water pumps
61 Low pressure feed water heater
M Switch gear building
62 Transformer boxes
N Circulating water structure
O Essential water pump building
P Anti-icing pump station
Q Auxiliary boiler building
63 Demineralized water storage tanks
64 Off-site transformers
65 Generator transformers
66 Auxiliary transformers
67 Switchyard
68 High voltage line

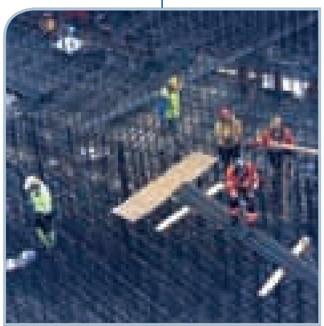
Computer graphics:
Images & Process

Reinforcement steel installed for the base slab in July 2005.

Reactor building surrounded by other buildings

The containment is surrounded by safeguard buildings and the fuel building. All safety-critical systems are four times redundant and located in divisions that are physically completely separated from each other. Each division comprises a residual heat removal system including a cooling system, a low- and medium-head safety injection systems and an emergency feedwater system. The associated electrical, instrumentation and control systems are located on upper levels within the same division. The inner containment is a pretensioned concrete cylinder with an elliptical top gable. It is built on a reinforced concrete base slab and comprises a steel liner. The outer containment is a reinforced concrete cylinder that rests of the same slab as the inner containment and provides protection against external influences.

Management of severe accidents as one of the design bases, special requirements apply to the integrity of the containment. This makes leak isolation, collection and control systems necessary. Any possible leaks in the inner containment are collected, filtered and removed from the containment through the air exhaust system in the annulus, i.e. the space between the inner and the outer containment. Leaks caused by personnel access and goods transport are prevented by means of permanently closed air locks equipped with double seals at both ends.



The reactor building, the fuel building and the safeguard buildings are protected against external influences, such as earthquakes and pressure waves caused by explosions. These buildings are all built on a common base slab.

Two safeguard buildings as well as the fuel building and the reactor building are protected against aircraft crashes. The storage pool for spent nuclear fuel is located outside the containment. As the transport tank can be loaded outside the building, the diameter of the building can be kept small. The fuel assemblies are carried in and out of the containment through an air lock.

General layout of OL3 structures and buildings

The new power plant unit is being constructed in an area of ca. 19 hectares on the west side of the existing plant units. The power plant unit comprises the reactor building and the turbine buildings, as well as a number of service and auxiliary buildings. The exact site for OL3 was chosen after careful ground investigations. The foundations of all the buildings included in the new plant unit will be built on solid Finnish bedrock.

The buildings included in OL3 can be coarsely divided into three complexes: the reactor island, the turbine island and other buildings and structures.

Most of the buildings in the reactor island as well as the seawater systems are assigned to nuclear safety classes SC2 and SC3. The risk of earthquakes as well as jet and fighter aircraft crashes have also been used as a design basis for OL3.

The outer diameter of the reactor building is ca. 57 m, net volume approximately 80,000 m^3 and total height, including the underground facilities, ca. 70 m. The exhaust flue chimney of the building rises to a height of ca. 100 m above ground.

The first sea shipment to the Olkiluoto 3 construction site arrived in mid-July 2005 with lowest part of the steel liner of the reactor containment.

Redundant systems

The safety systems of the plant unit are located in four separate safeguard buildings. Buildings 2 and 3 stand between the reactor building and the turbine building and buildings 1 and 4 on opposite sides of the reactor building. The fuel building that contains the storage pools for spent nuclear fuel is located next to the turbine building, opposite the reactor building. The nuclear auxiliary building and the waste processing building stand adjacent to the fuel building. In addition to these main buildings, there are also separate diesel generator buildings, the seawater system structures that primarily run underground and a number of smaller service buildings.

The safeguard buildings are ca. 30 m long, 20 m wide and a little under 30 m high. The length of the fuel building is ca. 50 m, width ca. 20 m and height a little over 40 m.

The turbine building, which is connected with the reactor building, is almost 100 m long, almost 60 m wide and a little over 40 m high, including the underground facilities. The volume of the turbine building is ca. 250 000 m3.

Four emergency diesel generators are provided to ensure uninterrupted operation of the safety systems during power cuts. In addition, there are two independent diesel generators for severe accident situations. The seawater pumping stations of the auxiliary systems are connected with the diesel generator and safeguard buildings as well as with the seawater filtration building via a tunnel system.

Cooling water for the condenser of the turbine is led from the same bay as to OL1 and OL2 and discharged to the same bay as from OL1 and OL2. The cooling water tunnels from the sea to the seawater filtration building and from the surge basin back to the sea are bedrock tunnels like in OL1 and OL2. In addition, separate tunnels run between the filtration building and the auxiliary water pumping stations, as well as between the auxiliary pumping stations on the north side and the diesel generator buildings on the west side. In these tunnels the seawater flows in pipes. All the other tunnels will be built of reinforced concrete. The large number of tunnels in comparison with many other plants is due to the complete separation of the four safety systems.

The total volume of the buildings is about one million cubic metres. Façade is mainly coated steel sheet.

Containment

The double containment of the OL3 unit is designed to withstand the pressure produced in an accident caused e.g. by a complete double-ended break in the reactor circuit or the steam piping. An accident will initiate automatic isolation of the containment. The containment is equipped with a leak monitoring system and any possible leaks from the inner containment into the annulus are filtered and led into the air-conditioning flue.

The air-conditioning flue is about 100 m tall, like in OL1 and OL2. The reactor building is a ca. 70 m high cylindrical building with a semispherical roof. The form of the outer external shell of the reactor building and the shape of the containment have been selected on the basis of strength analyses and also allow a tight construction schedule. The outer shell of the reactor building is built of reinforced concrete, and the inner containment is a pretensioned reinforced concrete structure dimensioned to withstand any internal stresses, such as pressure and temperature loads caused by potential pipe breaks.

Precautions cover also melting of reactor core

Design basis of the containment is a serious reactor accident. In the highly unlikely event of a severe reactor accident, all the safety systems are presumed to fail, which will result in the melting of the reactor core. The design of many of the older nuclear power plants does not include precautions against core melt, as it is considered highly improbable.

The design of the OL3 plant unit includes precautions against the core melting and bursting the bottom of the pressure vessel. The core melt will be led into a separate protected channel which will carry it to the 170 m^2 spreading area in the lower part of the reactor building. The spreading area can be cooled by water discharged passively from the emergency cooling water tank. The location of the emergency cooling water tank inside the reactor building facilitates passive activation of cooling. The water in the tank and the structures of the containment can further be cooled with a separate double cooling system.

The integrity of the containment is ensured by a steel liner installed on the inner surface of the containment. The containment is accessed through personnel air locks located at ground level or from a service platform at a height of ca. 19 metres. All the components and equipment are brought into the containment during the construction project through a large material hatch provided on the service platform. A 750-ton Polar crane above the service platform will be used to lift the reactor pressure vessel and the four steam generators in place, one by one.

Reactor building protected by fuel building and four safeguard buildings

The main control room is located in one of the safeguard buildings. An access control building next to safeguard buildings 2 and 3 contains also locker rooms and facilities for changing into protective garments. The access point into the controlled area, the so-called protective equipment entry point is also in this building. An access bridge connects the access control building with an office building that during the annual outages contains also office facilities of the controlled area.

The auxiliary system building is located adjacent to safeguard building 4 and the fuel building. The auxiliry building contains also workshop facilities, in addition to the storages of fresh and spent nuclear fuel. The workshops for repair of active components are located near the material hatch. The waste building for processing of low and intermediate level waste is next to the auxiliary building. Processed waste from all the OL units is transferred to the final repository for low and intermediate level power plant waste, which is also located in Olkiluoto.

The seawater filtration building and the switchgear building stand next to the turbine building, and the transformers are located on the north side of the turbine. The turbine consists of one high-pressure turbine and three low-pressure turbines, a generator mounted after the turbines, and an exciter. The entire turbine complex is mounted on a massive turbine table.

Safety systems

The safety system consists of four redundant trains, each capable of performing the required safeguard function on its own. The four redundant trains are located in different parts of the reactor building in independent divisions to eliminate the possibility of simultaneous failure.

Nuclear safety

Three functions are a prerequisite to ensure reactor safety under any circumstances:

1. *Control of the chain reaction and of the power generated by it.*
2. *Cooling of the fuel also after the chain reaction has stopped, i.e. removal of residual heat.*
3. *Isolation of radioactive products from the environment.*

Reactor safety is based on three protective barriers against radioactive releases and on defence-in-depth principles.

Three protective barriers

The concept of three protective barriers refers to a series of strong and leak-tight physical barriers between radioactive products and the environment. The barriers prevent releases of radioactive products in all circumstances.

The first barrier: *the uranium fuel in which radioactive products are formed is enclosed in a metal fuel rod cladding.*

The second barrier: *a thick metal reactor pressure vessel in which the reactor core and the uranium fuel in its metal cladding are mounted.*

The third barrier: *the reactor coolant system is completely enclosed by the containment with massive concrete walls (the double concrete walls of the OL3 containment are built on a thick base slab and the inner containment is covered with a leak-tight metal liner).*

Each barrier alone is sufficiently strong to eliminate the risk of radioactive releases.

Safety features of OL3

OL3 represents so-called evolutionary technology developed on the basis of the most recent German Konvoi plants and French N4 plants. The operating experience from these plants has been carefully studied for the design of OL3 and no unproven solutions have been employed. In the development process, main focus has been on safety systems and prevention of severe reactor accidents, as well as on minimising the damage caused by a hypothetical accident.

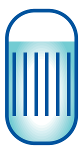
The concept of defence-in-depth has been reinforced. Improved systems have been developed for prevention of operating disturbances to further reduce the probability of a core melt accident.

The safety approach against severe accidents is based on a two fold philosophy.

1. barrier

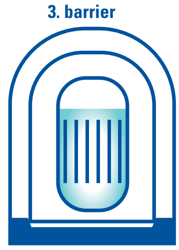
Uranium fuel enclosed in a metal fuel rod cladding

2. barrier



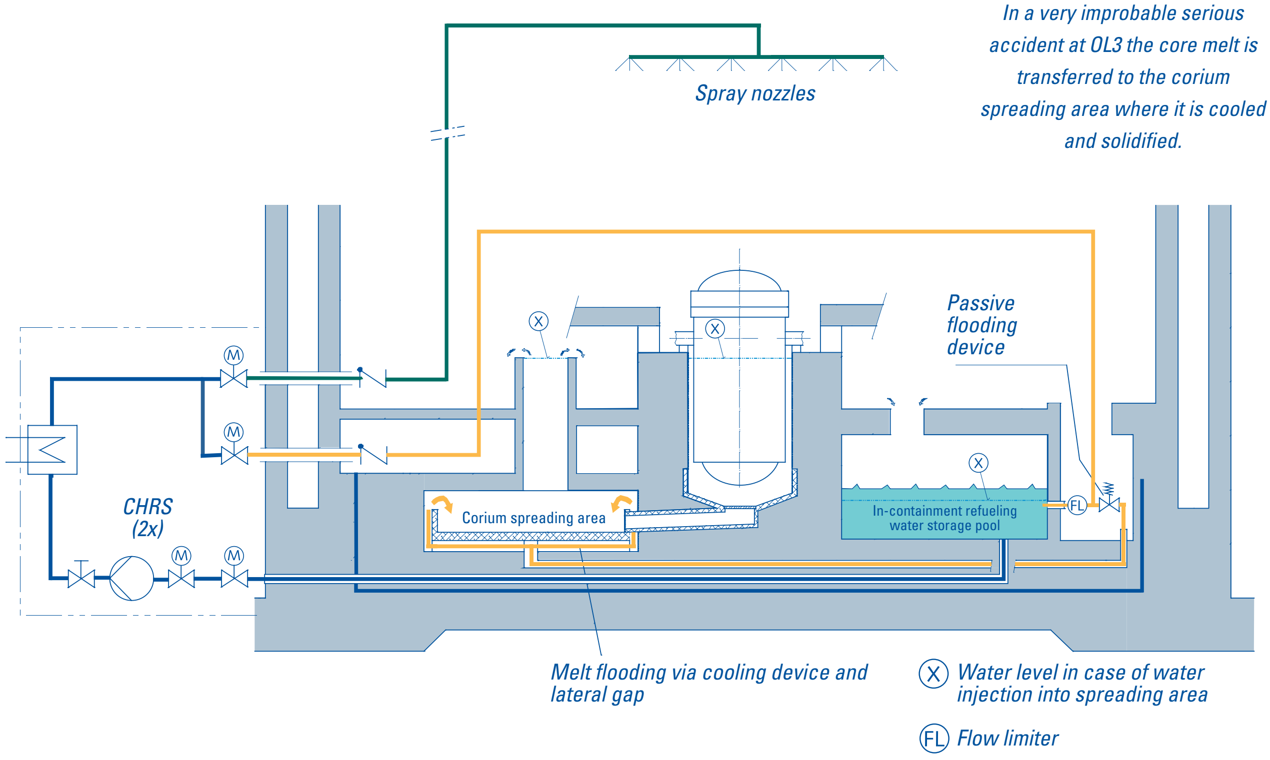
Reactor pressure vessel

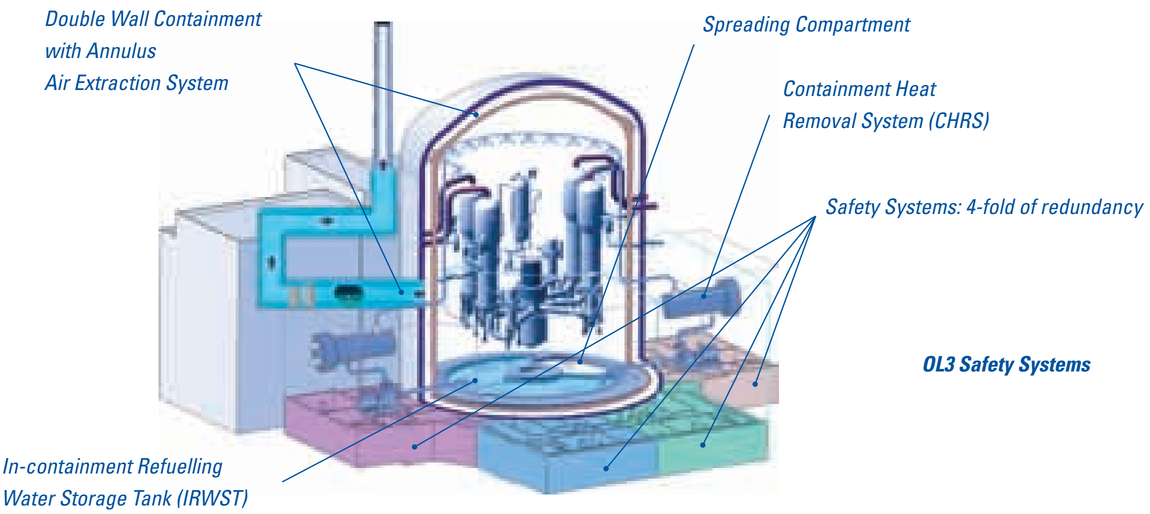
3. barrier



Double concrete walls of the OL3 gas-tight containment

In a very improbable serious accident at OL3 the core melt is transferred to the corium spreading area where it is cooled and solidified.





OL3 Safety Systems

The probability of an accident has been further reduced by reinforcing preventive systems. Further for OL3, systems have been developed that drastically limit the consequences of a severe accident.

Safety system design

The design of the safety systems is based on quadruple redundancy of machinery, equipment and electrical systems as well as I&C systems. It means that the systems consist of four redundant trains, each capable of performing the required safety task on its own. The four redundant trains are physically separated and located in different parts of the reactor building in independent divisions.

Each train comprises a borated water safety injection system into the reactor pressure vessel for use in a loss of coolant accident, low- and medium-head injection systems completed with the cooling circuit, an emergency feedwater system for the steam generator and all the required electrical equipment and I&C systems for these systems.

OL3 meets the stringent requirements of Finnish authorities

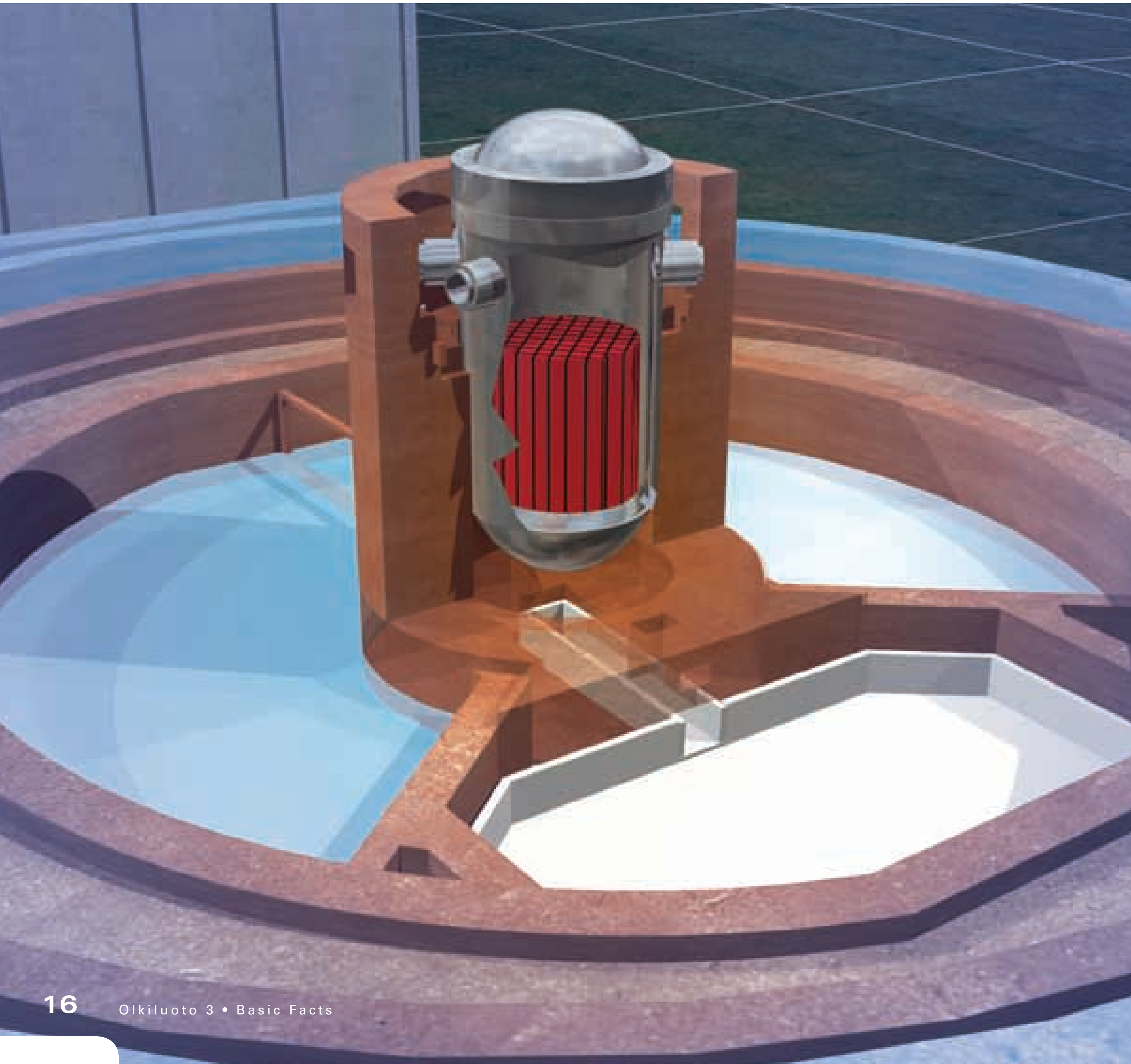
Accidents that would result in uncontrolled release of radioactive products have been virtually eliminated. Thanks to the new systems even a hypothetical core melt accident will not make evacuations necessary, with the exception of the immediate plant site. The need for protective measures is small. No long-term restrictions on the use of areas or food products are necessary.

Emergency cooling and residual heat removal system

The emergency cooling system consists of low- and medium-pressure emergency cooling system, accumulators and a refuelling pool inside the containment. In normal operation the system serves for residual heat removal after the plant has been shut down and the heat transfer capacity of the steam generators is no longer sufficient for cooling purposes.

The system comprises four redundant trains, each capable of independently supplying water into the reactor coolant system from the accumulators and by means of medium and low-pressure emergency cooling pumps. The trains are located in four separate safeguard buildings, and each supplies emergency cooling water to one of the four primary system loops. The system is simple and ensures sufficient cooling capacity in all coolant loss situations.

In the event of a core melt accident the core melt escaping from the reactor vessel is collected in the core catcher and passively transferred to a special spreading area in the base of the reactor building, which is equipped with a cooling system.



More automation and volumes

All the reactor protection and safety functions required to be instantly activated in an abnormal operating situation or accident are based on automatic systems. No operator interference from the control room is required until 30 minutes after the incident, and no local corrective action inside the plant until one hour after the incident.

The volumes of the largest reactor components, i.e. the pressure vessel, the steam generators and the pressurizer have been increased over the previous plant designs to slow down the reactor and to give the operators more time to initiate corrective action.

Limitation of consequences of severe reactor accidents

In the OL3 plant unit, the consequences of a core melt accident, highly improbable in itself, would be only minor outside the plant unit, in terms of both time and range.

The limiting of the consequences of severe reactor accidents has been one of the design bases in the design of OL3. Situations that would result in a release of any significant amounts of radioactive products into the environment have been virtually eliminated. These situations include core melt under high pressure, high-energy steam explosion, hydrogen detonation inside the containment and containment by-pass flow.

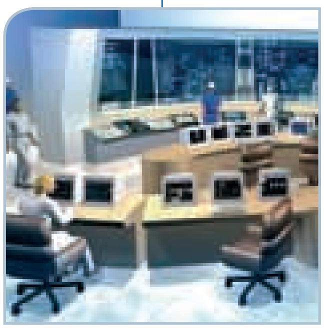
The integrity of the reactor containment is secured even if the reactor core should melt and burst the pressure vessel under a low pressure. This has been achieved by structures that retard the progression of core melt and a passive core melt cooling system that makes core melt solidify inside the containment.

The core melt collection and spreading area forms the core melt catcher, which is a fixed structure coated with sacrificial concrete. This catcher protects the base slab of the reactor building against additional damage. Water circulates in cooling channels that surround the spreading area. The large area of the core catcher (170 m^2) ensures cooling of the core melt.

The transfer of core melt from the reactor pit into the spreading area is initiated as a passive event, with the hot core melt forcing its way through the steel plug into the core catcher.

As core melt enters the spreading area it melts a plug device and this activates the cooling system above. Cooling continues as a passive process with water from a tank inside the reactor containment flowing down by gravity onto the core melt and evaporating.

The efficiency of the cooling system is sufficient to stabilise core melt within a few hours and to make it solidified within a few days.



The OL3 control room is of ergonomic design with four separate working areas for reactor and turbine operators, shift supervisor and systems and screens to show a plant overview.

OL3-Technical data

General

Reactor thermal output	4,300 MWth
Gross electric output	1,720 MW
Net electric output	1,600 MW
Efficiency	ca. 37 %
Reactor coolant flow	22,250 kg/s
Reactor pressure	15.5 MPa
Reactor temperature	312 °C
Feedwater temperature	296 °C
Annual electricity production	ca. 13 TWh
Service life	ca. 60 yrs
Building volume	950,000 m^3
Containment volume	80,000 m^3
Containment design pressure	5.3 bar

Reactor core, fuel and control rods

Number of fuel assemblies	241
Reactor core height	4.2 m
Reactor core diameter	3.77 m
Amount of uranium in the reactor	ca. 128 tU
Fuel enrichment level, initial charge	1.9 – 3.3 % U-235
Fuel enrichment level, refuelling	1.9 – 4.9 % U-235
Annual fuel consumption	ca. 32 tU
Annual fuel consumption	ca. 60 assemblies
Fuel	uranium dioxideUO_2
Assembly type	17x17 HTP
Number of fuel rods per assembly	265
Fuel assembly length	4.8 m
Fuel assembly weight	735 kg
Number of control rods	89

Reactor pressure vessel

Inner diameter	4.9 m
Inner height	12.3 m
Wall thickness	250 mm
Design pressure	154 bar
Design temperature	351 °C
Pressure vessel weight	405 t

Turbine plant

Turbine generator set	1
Nominal output	ca. 1,600 MW
Steam pressure on turbine	7.55 MPa
Steam temperature	290 °C
Steam flow	2,443 kg/s
Operating speed	1,500/min
Last blade stage	
- blade length	1,830 mm

Generator

Nominal output	1,992 MWel
Nominal voltage	27 kV + 5 %
Frequency	50 Hertz
Operating speed	1 500 rpm
Cooling, rotor/stator	water

Teollisuuden Voima Oy
FI-27160 Olkiluoto, Finland
Tel. +358 2 83 811
Fax +358 2 8381 2109
www.tvo.fi

Teollisuuden Voima Oy
Töölönkatu 4
FI-00100 Helsinki, Finland
Tel. +358 9 61 801
Fax +358 9 6180 2570

Teollisuuden Voima Oy
Scotland House
Rond-Point Schuman 6
B-1040 Brussels, Belgium
Tel. +32 2 282 8470
Fax +32 2 282 8471

Subsidiaries:
Posiva Oy
FI-27160 Olkiluoto, Finland
Tel. +358 2 837 231
Fax +358 2 8372 3709
www.posiva.fi

TVO Nuclear Services Oy
FI-27160 Olkiluoto, Finland
Tel. +358 2 83 811
Fax +358 2 8381 2809
www.tvons.fi

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