

The logo for Teollisuuden Voima Oyj (TVO) is displayed in white, bold, sans-serif capital letters within a dark blue circular shape in the top-left corner of the slide.

TVO

WELLBEING WITH NUCLEAR ELECTRICITY

Swiss Journalists
15th August 2014



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Head of Communications,
Corporate Relations

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FINLAND NEEDS NEW CO₂ FREE ELECTRICITY PRODUCTION

Climate change

- reduction of greenhouse gas emissions

Cost of energy

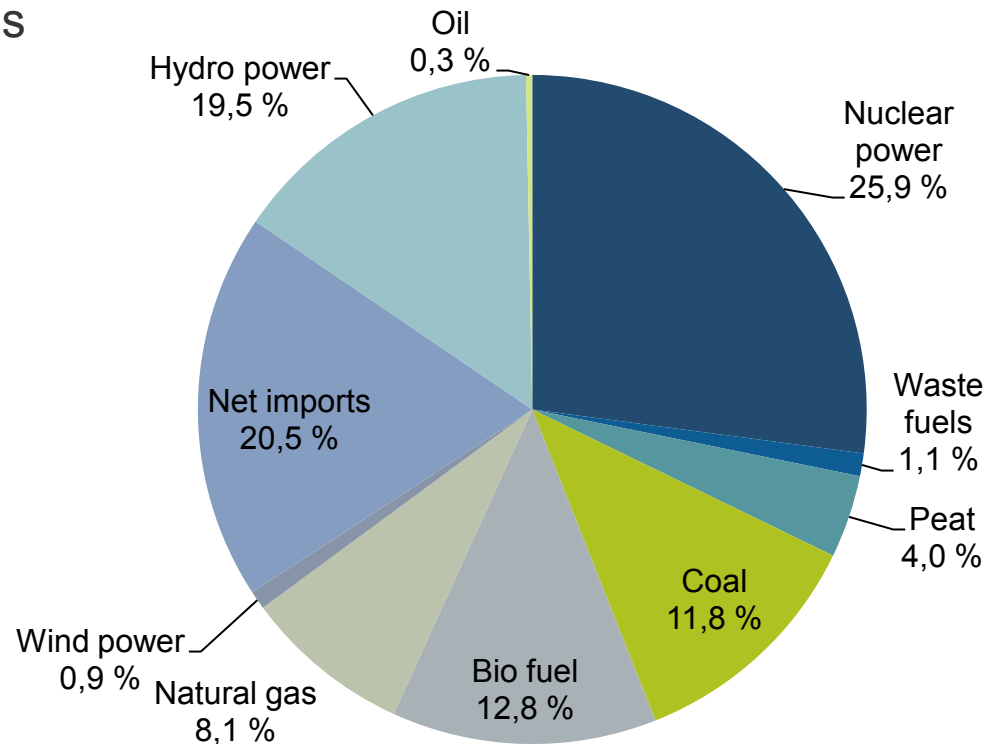
- for industries, services and households

Energy availability

- self-sufficiency, safety and security

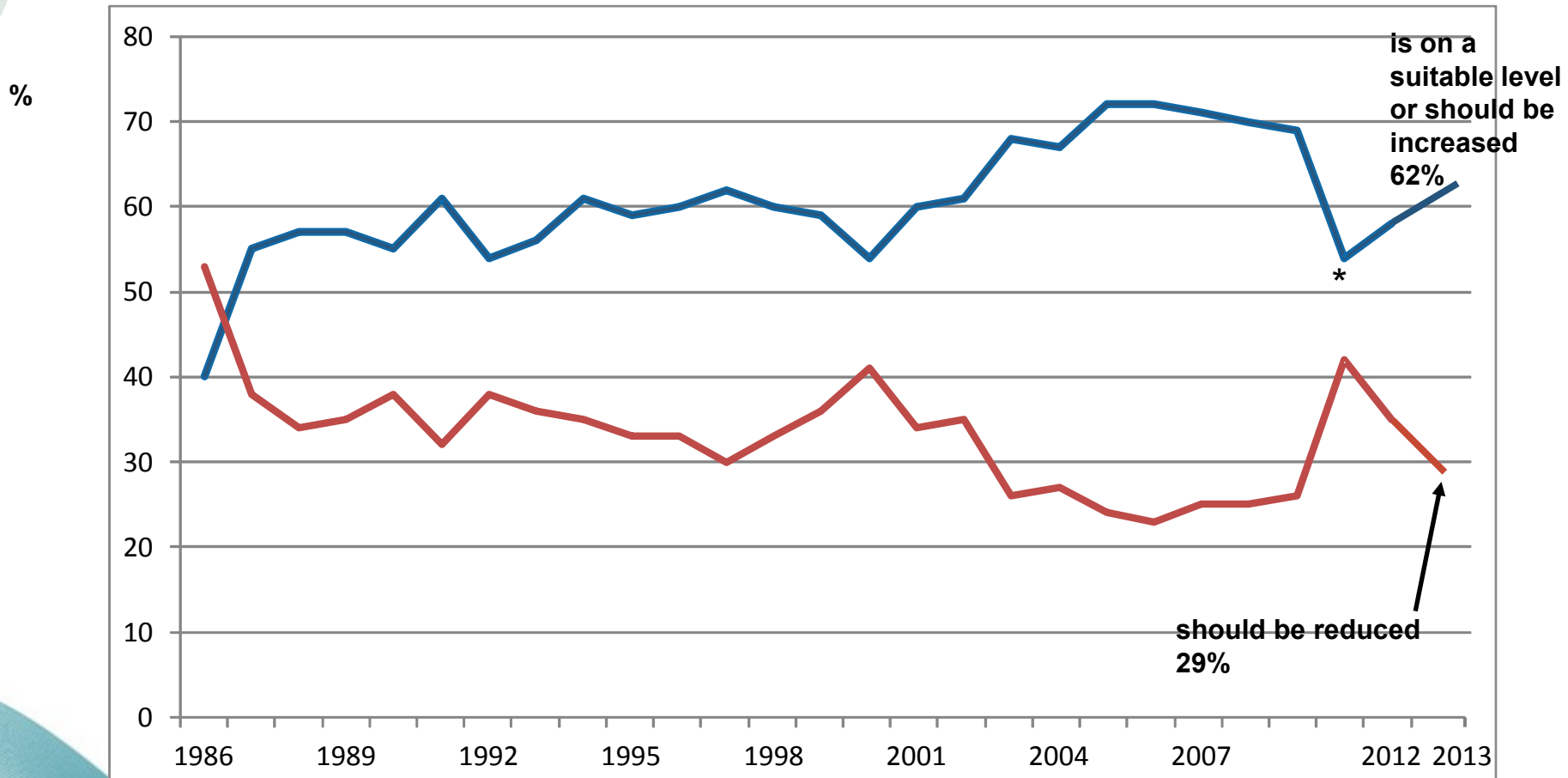
Replace fossil fuels with nuclear and renewables

Electricity Supply by Energy Sources 2013 (83,9 TWh)



Source: Finnish Energy Industries

FINNISH PEOPLE THINK THAT THE USE OF NUCLEAR POWER...

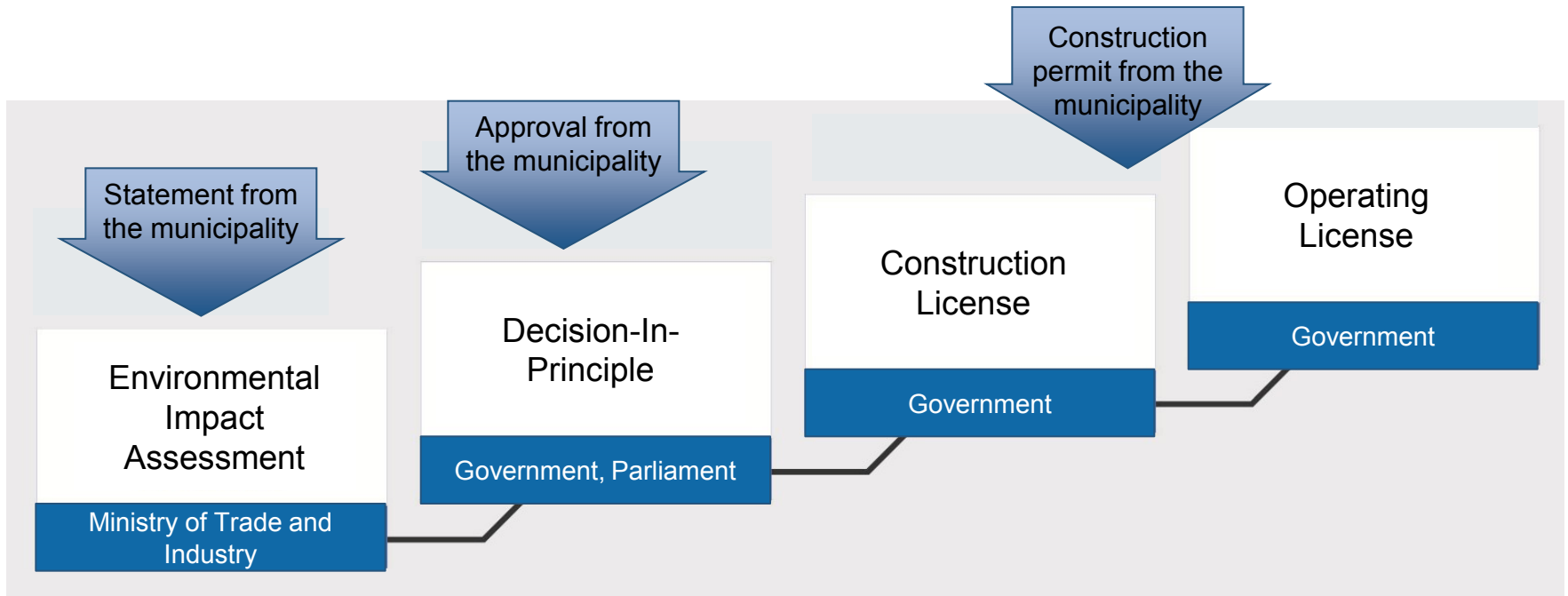


IRO Research: Finnish energy attitudes 2013, December 2013, n=1078

*The 2011 survey was conducted in the week of the Fukushima accident

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PUBLIC ACCEPTANCE THROUGH TRANSPARENCY AND LOCAL COMMUNITY INVOLVEMENT



Openness and transparency:

Stakeholder involvement and dialog, public hearings, visits to the site, online and all other communications tools and methods

INTERACTIVE COOPERATION WITH THE COMMUNITY SINCE THE START OF OPERATION

- Municipal Cooperation Committee since 1970s
- Cooperation Group of municipality of Eurajoki since 1995
- Local school cooperation and Science and technology camps for elementary school children
- Close cooperation with universities and institutes of different levels
- Annual seminars for local businesses and national experts
- Versatile means and media for fast and open communication
- Sponsoring sports, culture, science and non-profit activities



ACTIVE DIALOGUE

In our Visitor Centre and Electricity from Uranium –scientific exhibition attracts appr 20 000 visitors every year

- ~ 15 000 group members
- ~ 5 000 travellers
- ~ 3 000 international visitors

In addition, TVO is represented in different e.g.

- Trade fairs
- Exhibitions
- Seminars

TVO



INSPIRED RENEWAL



TVO – WELL-BEING WITH NUCLEAR ELECTRICITY

- Over 35 years of reliable Finnish electricity production.
- Annual production above 14 TWh.
- 17 % of electricity consumed in Finland.
- Some 1600 experts in regular employment in Olkiluoto, about 900 of which employed by TVO.
- Ranks among world's top companies in nuclear waste management.
- Subsidiary TVO Nuclear Services Oy and jointly owned company Posiva Oy.



ELECTRICITY AT COST PRICE TO FINLAND

Owners of TVO:

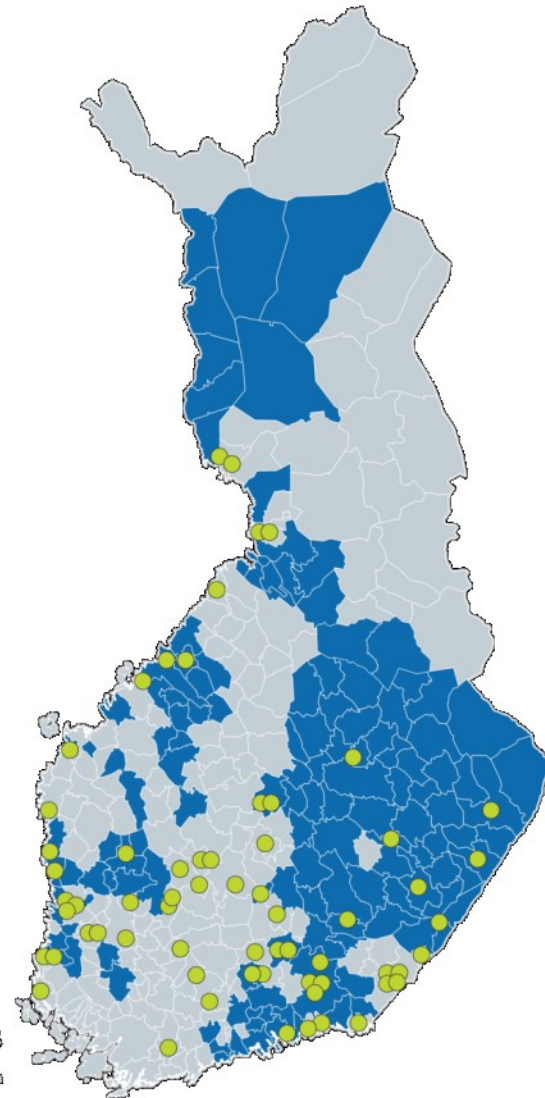
- Pohjolan Voima Oy 58.
- Fortum Power and Heat Oy 25.
- Oy Mankala Ab 8.1
- EPV Energia Oy 6.5
- Kemira Oyj 1.0
- Karhu Voima Oy 0.1

Ownership structure:

- Industrial companies 44%
- Territorial energy companies 30%
- Fortum 26%

* 65 companies owned by 135 municipalities

** stock listed, partly state-owned energy company



olders' industrial localities
ipalities behind TVO

A PERIOD OF MAJOR PROJECTS IN OLKILUOTO

- OL1 and OL2 – continuous improvement through modernization projects
 - 2018 renewal of operating licence
- OL3 - a new generation EPR reactor under construction
 - towards commissioning
- OL4 – bidding and engineering phase
- All aspects of nuclear waste management on one island
 - Operating waste repository 20 years
 - Extension of interim storage for spent fuel
 - Final disposal facility for spent fuel under preparation



STEADY SUPPLY

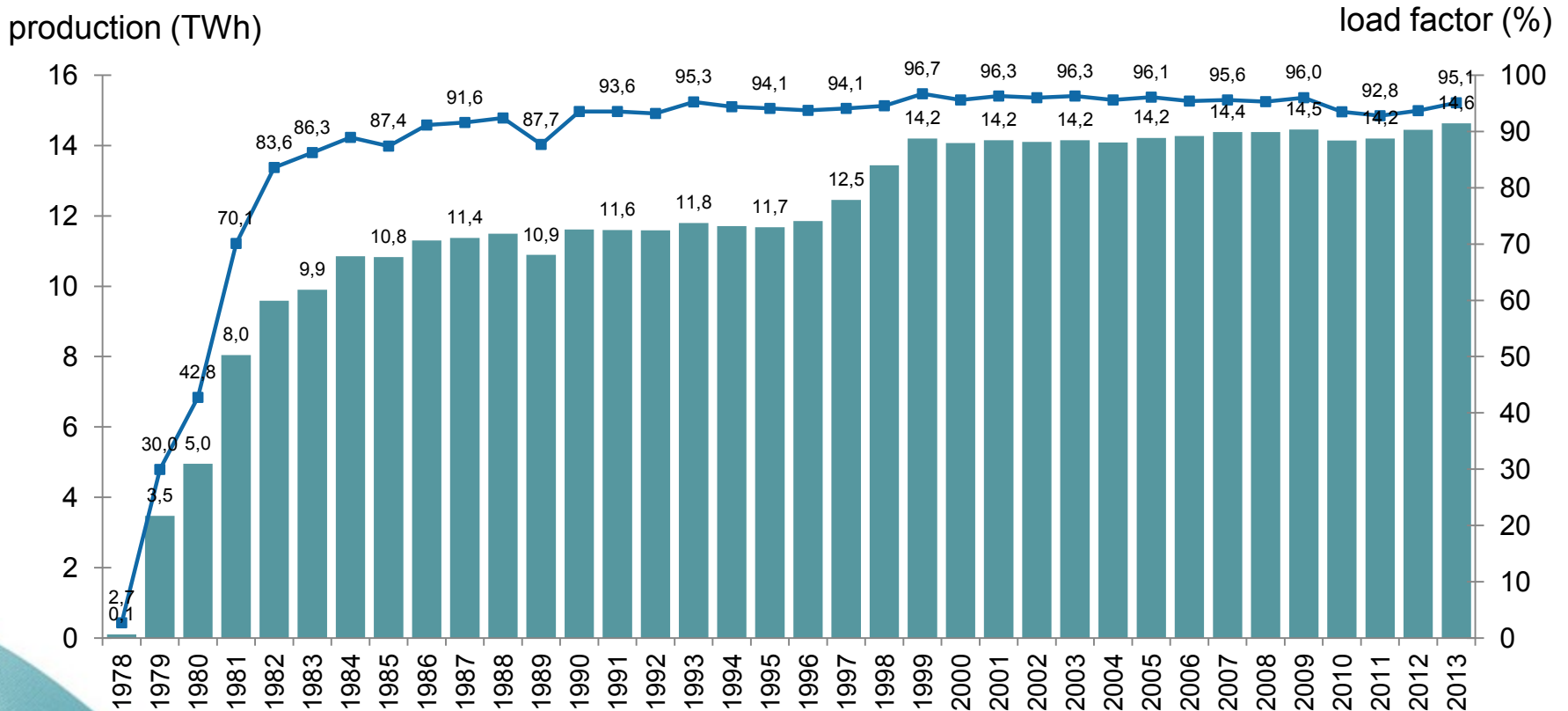


SAFETY ACCORDING TO THE PRINCIPLE OF CONTINUOUS IMPROVEMENT

- TVO's corporate culture = safety culture
- Several physically separated and diverse systems for reactor shutdown, cooling and pressure management.
- Abundant water reserves and multiple power supply backup systems.
- Nuclear safety risks have been analysed and safety features improved throughout the operation
- Stress tests: Identified strengths of Olkiluoto plant
 - Severe accident management system
 - Multiple supplies of electric power and water reserves
- To be developed further: Ability to survive situations where all power supplies are lost simultaneously for a long time



STABLE AND RELIABLE PRODUCTION



OL3 TOWARDS COMMISSIONING

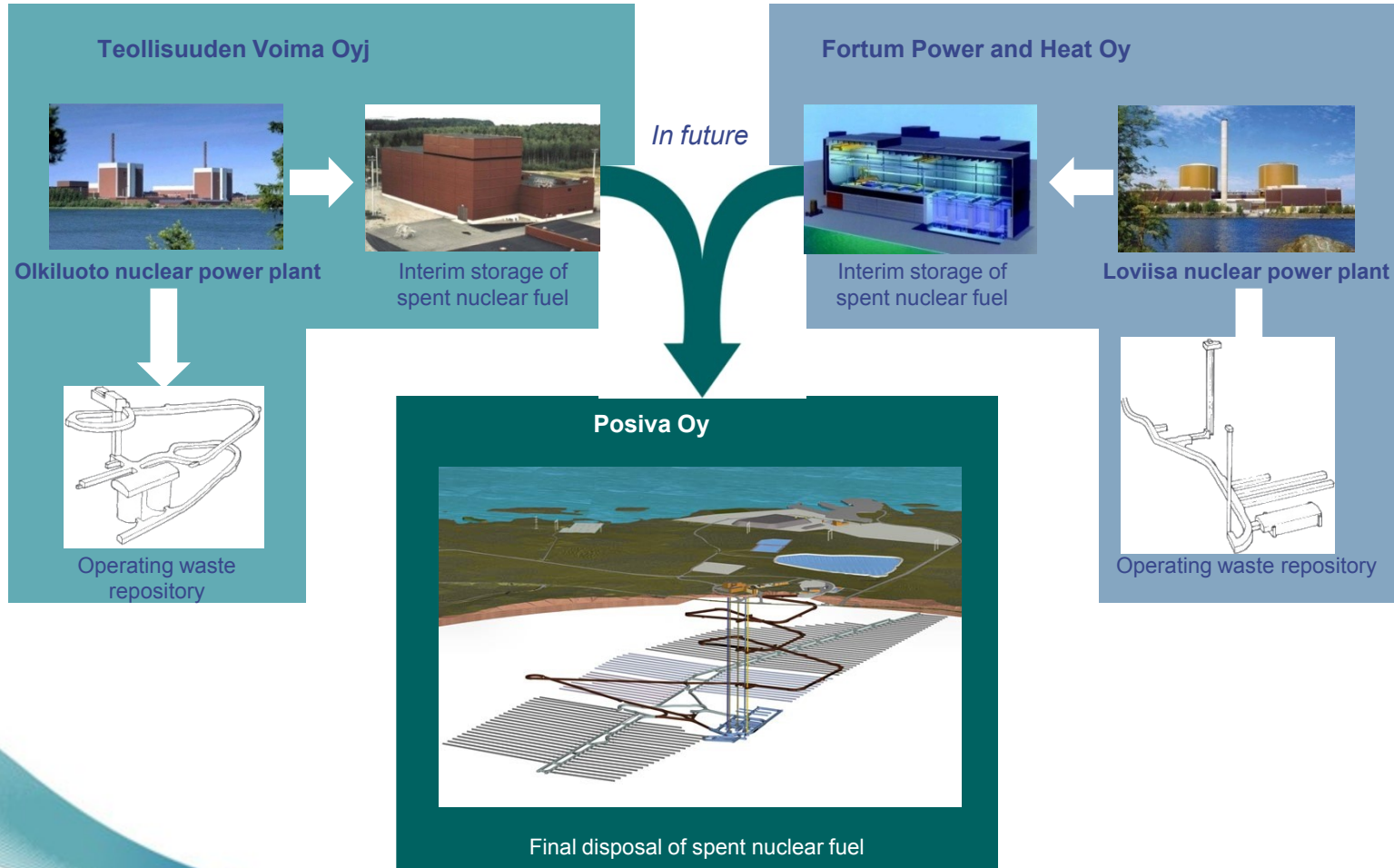


28.4.2014

ROCK
TO ROCK



NUCLEAR WASTE MANAGEMENT IN FINLAND



COMPLETE NUCLEAR WASTE MANAGEMENT IN OLKILUOTO

SPENT FUEL INTERIM STORAGE FACILITY

Cooling of fuel assemblies removed from reactor building in water pools excavated in rock

OPERATING WASTE REPOSITORY

Final disposal of intermediate and low level waste

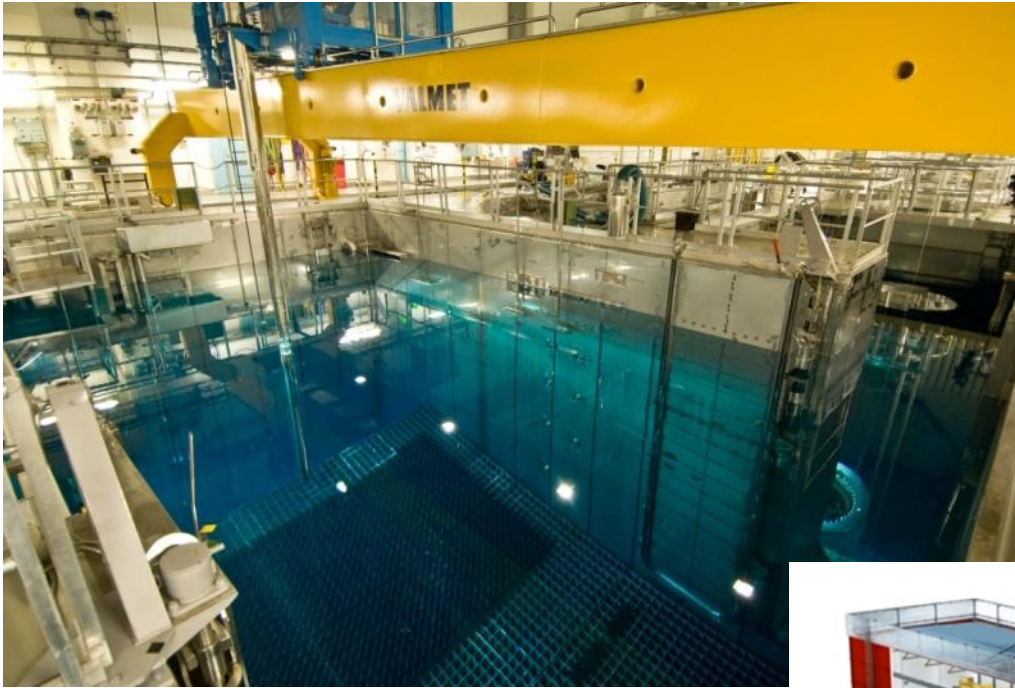
DECOMMISSIONING WASTE REPOSITORY

Space reservation for decommissioning waste

SPENT NUCLEAR FUEL REPOSITORY

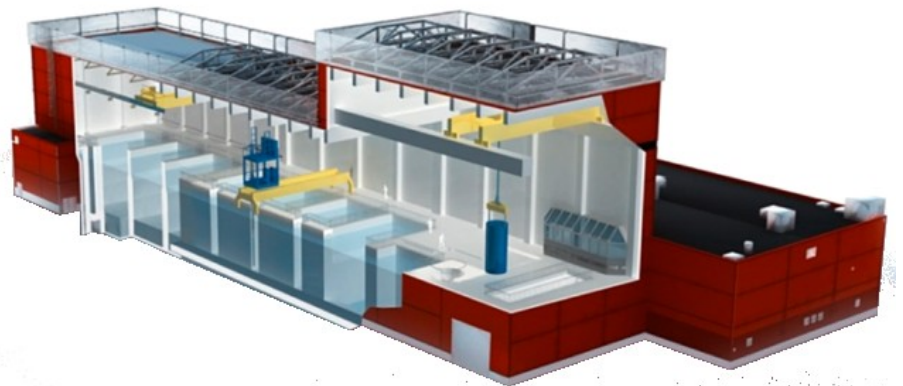
The underground research facility ONKALO

SPENT FUEL INTERIM STORAGE FACILITY

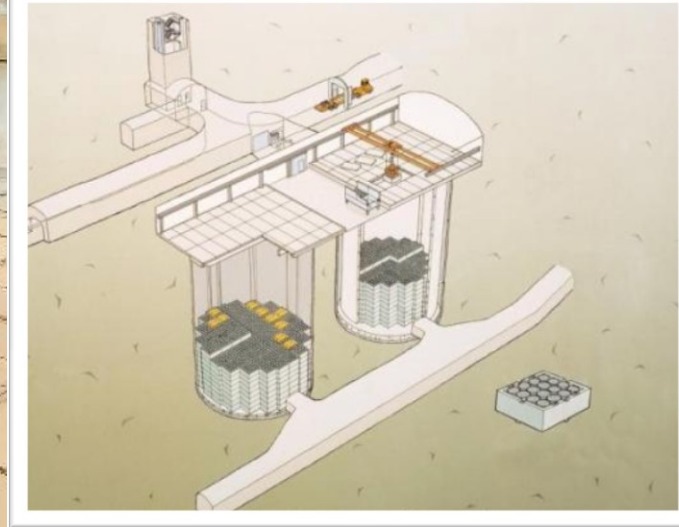
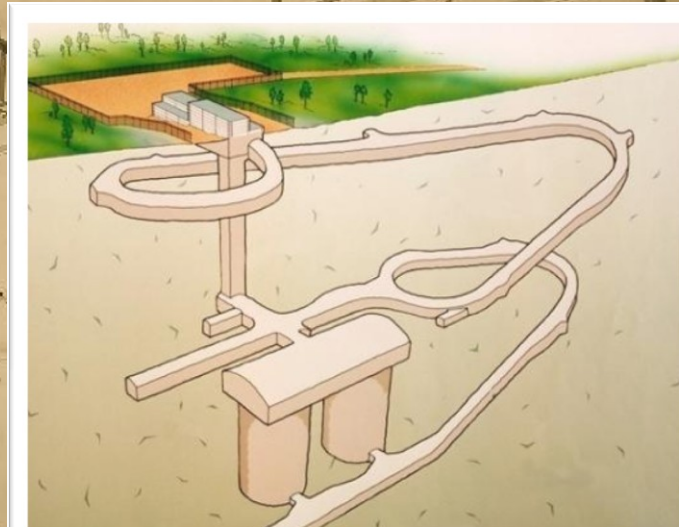


The fuel is cooled down in the cooling pools of the interim storage facility for several decades before it can be finally disposed of

The water in the pools stops the radiation emitted by the spent fuel and further cools it down

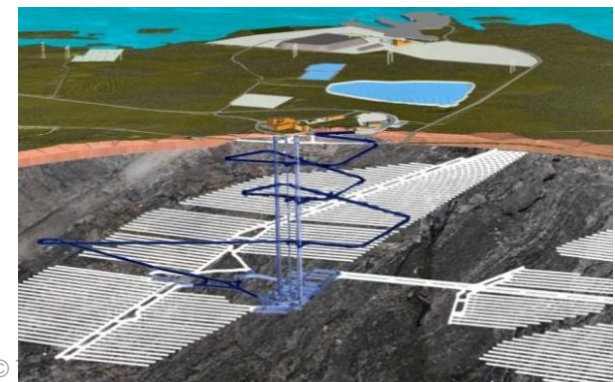
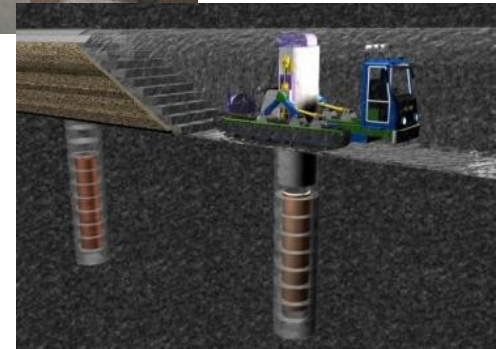


FINAL REPOSITORY FOR OPERATING WASTE



EXISTING SOLUTION FOR FINAL DISPOSAL FOR SPENT NUCLEAR FUEL

- Extensive research since 1970s
-> the method to be applied in Finland
- Final disposal in a robust and strong copper canister with a cast iron insert.
- Embedded in solid Finnish bedrock at a depth of 400-450 meters.
- All costs are borne by the producers, collected in advance in electricity price and stored into the State Nuclear Waste Management Fund
- 1995 TVO and Fortum established Posiva Oy to manage their spent fuel produced in Finland



UNDERGROUND ROCK CHARACTERIZATION FACILITY, ONKALO

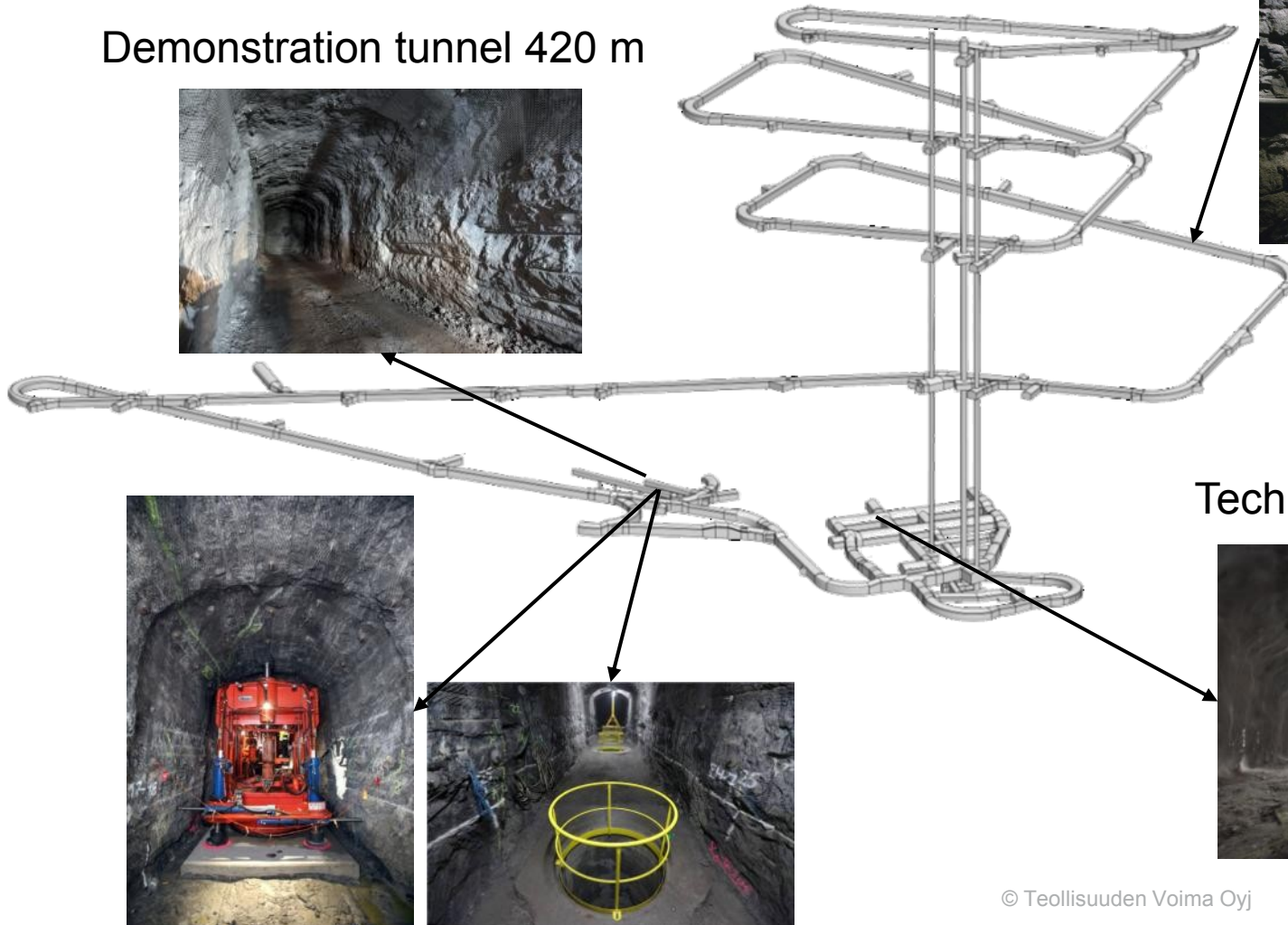
Demonstration tunnel 420 m



Access tunnel



Technical tunnels 455 m



The logo consists of the letters 'TVO' in a white, bold, sans-serif font, positioned inside a dark blue circular shape. This circle is part of a larger graphic design on the left side of the slide, which includes overlapping circles in shades of blue and teal, and a series of thin, curved lines that create a sense of motion or a funnel shape extending towards the center.

TVO

THANK YOU