TSO ACTIVITY AND SECURITY OF SUPPLY

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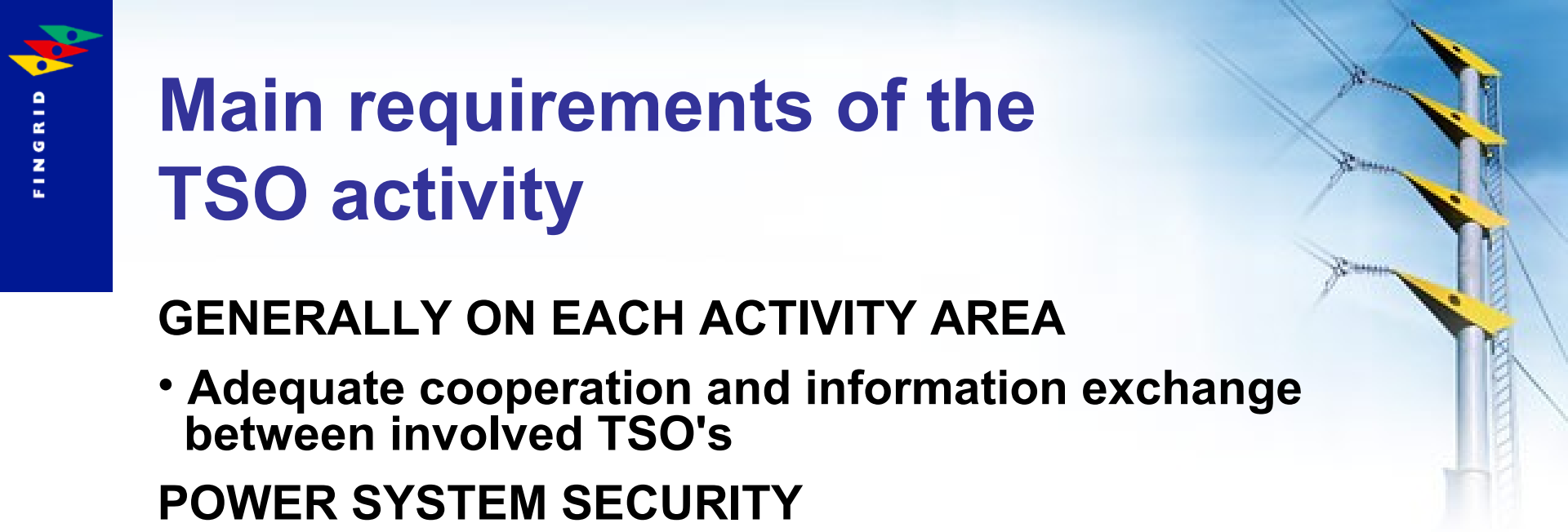
The target of TSO activity

Power system security
Power balance management
Adequacy of power transmission capacity

A SCOPE FOR ACTION AS TROUBLE-FREE AS POSSIBLE FOR THE MARKETS AND RELIABLE POWER SYSTEM FOR ACTORS AND CONSUMERS

An important step in TSO cooperation is to develop cooperation in basic sectors between NORDEL and BALTSO regions

Main requirements of the TSO activity



GENERALLY ON EACH ACTIVITY AREA

- Adequate cooperation and information exchange between involved TSO's

POWER SYSTEM SECURITY

- Well defined rules and directions for operation
- Functional measures for reserve maintenance and transmission management

POWER BALANCE MANAGEMENT

- Adequate regulation reserves/functional regulation power market and compatible rules and plans of action

ADEQUACY OF POWER TRANSMISSION CAPACITY

- Forecasts, plans and scenarios concerning power consumption, power generation and transmission

Common measures in the Nordic countries

POWER SYSTEM SECURITY

- Nordic System Agreement and Grid Code
- TSO cooperation and common information exchange system

POWER BALANCE MANAGEMENT

- Common Regulation Power Market
- Common frequency control with primary and secondary regulation
- Harmonisation of the balance management (ongoing)

ADEQUACY OF POWER TRANSMISSION CAPACITY

- Power balance forecasts for each coming winter, 3 years ahead and in addition long-term scenarios
- Common transmission network plan (2004 and 2008)

A connection of a big power generation unit to the Finnish network

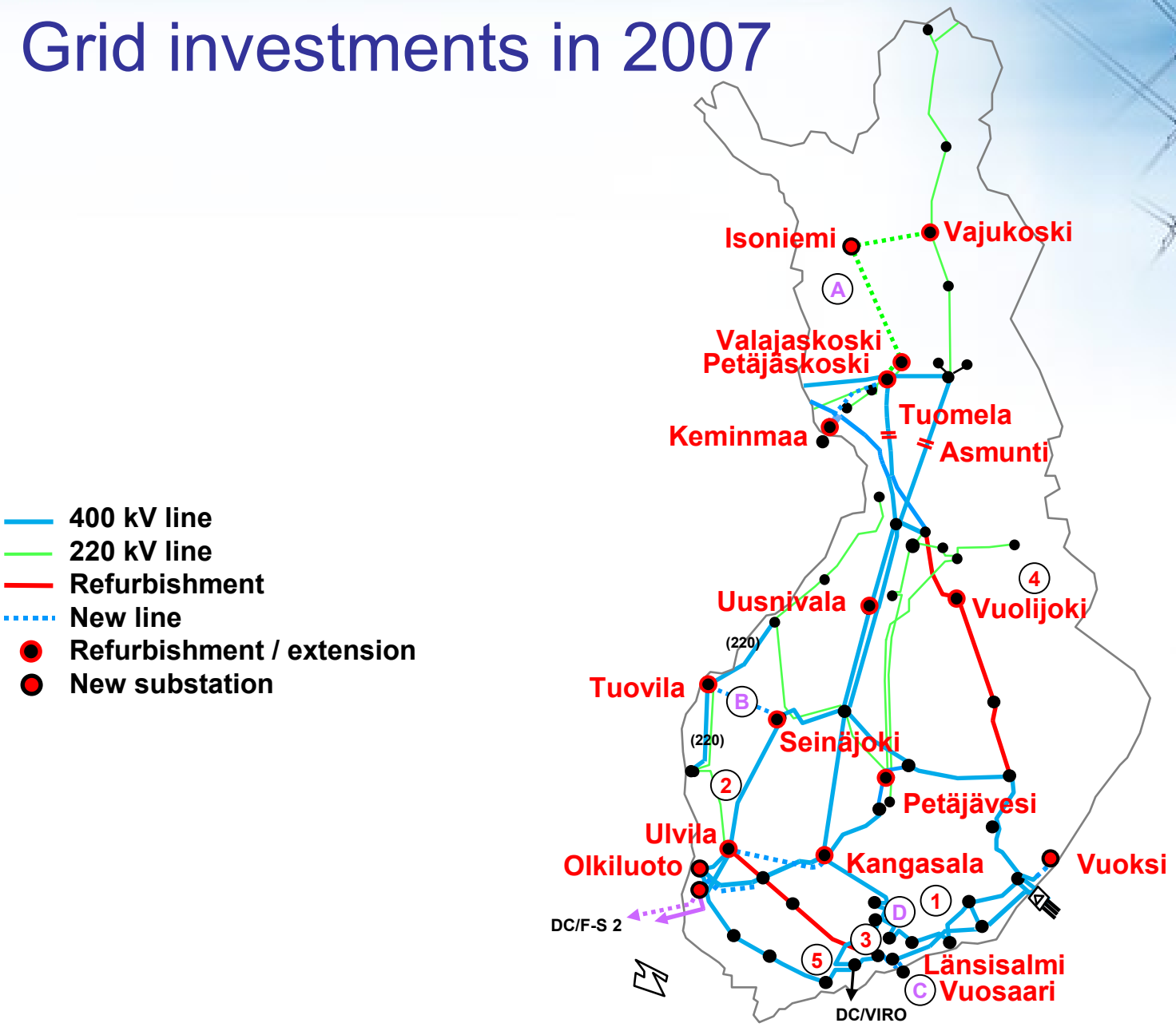
Olkiluoto 3 (OL3) under construction, estimated implementation during the year 2011 (first target was 2009)

An output of the nuclear power plant is 1630 MW, used in planning phase of Finnish power system.

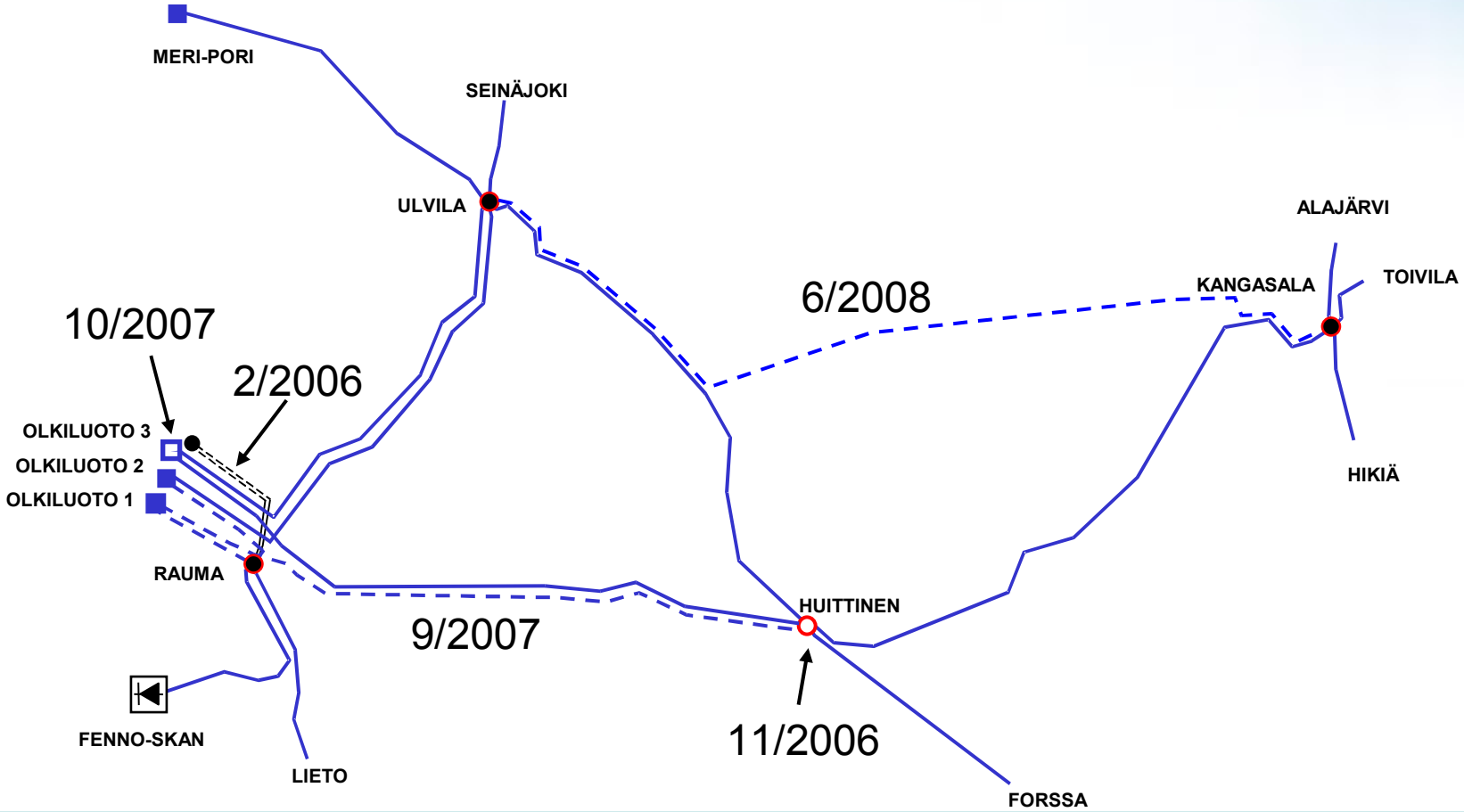
A starting point for the planning was that OL3 with 1630 MW is much bigger than earlier dimensioning fault 865 MW. On that account there was a need for studies concerning

- **adequacy of the transmission network => reinforcements**
- **system security => power system protection**
- **adequacy of reserves => an increase in fast disturbance reserves**

Grid investments in 2007



Olkiluoto 3 connection to the network
Complements to the Finnish grid



A connection of a big power generation unit to the Finnish network

Power system protection

For maintenance of power system security there is a need for power system protection.

When OL3 1630 MW is lost because of disturbance the protection decreases impacts of the unit in the power system to 1300 MW by switcing out industrial loads quick as a flash (200 ms).

Fingrid has maid long-term agreements with industry for maintaining disconnectable loads.