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Regional Integration in Europe

– a Transmission Grid Owner's Perspective

Hydropower for Sustainable Development 2011
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Addis Ababa, Ethiopia
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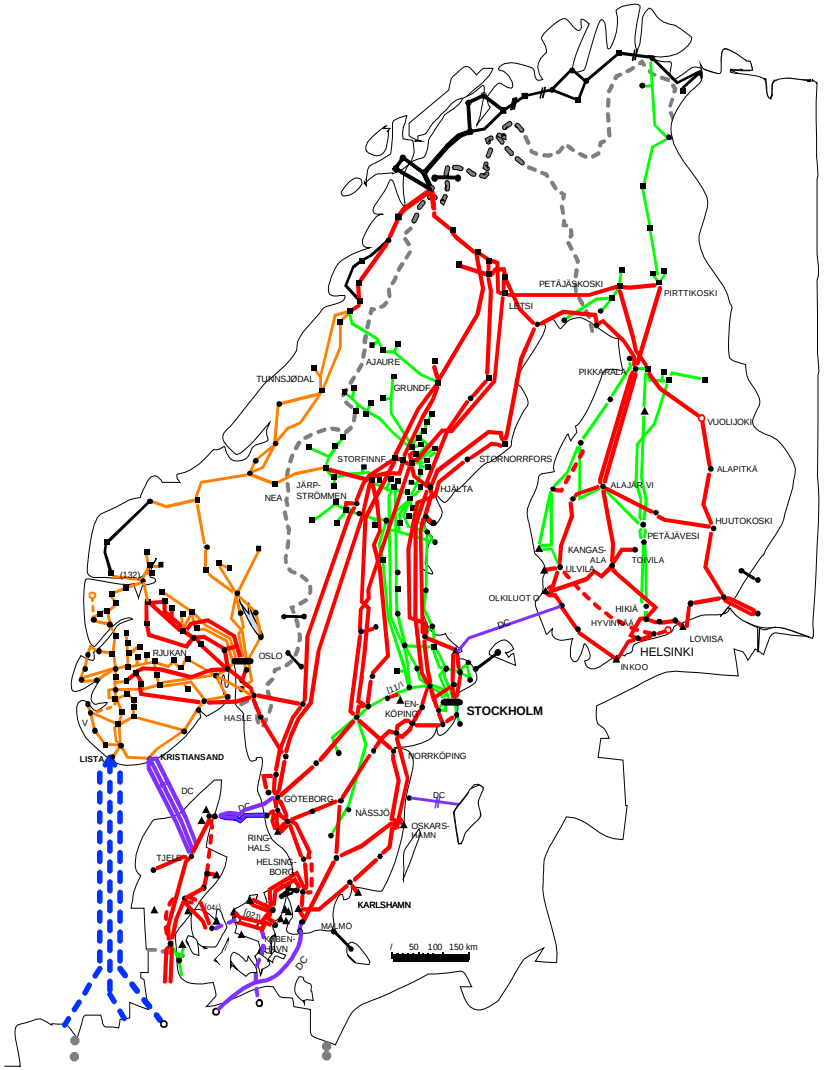
This is Statnett

- The state owned Transmission System Operator (TSO) of Norway
- Owns and operate 10.000 km of transmission lines
- Responsible for system operation within Norway in a fully integrated Nordic power market
  - Short version: ”keep the frequency at 50 Hz 24/7”
- Operate interconnectors (HVDC) to the Continental Europe
- Member of ENTSO-E – organization of European system operators
  - Key driver to integration of the Eurpean electricity markets.

A common Nordic electricity market



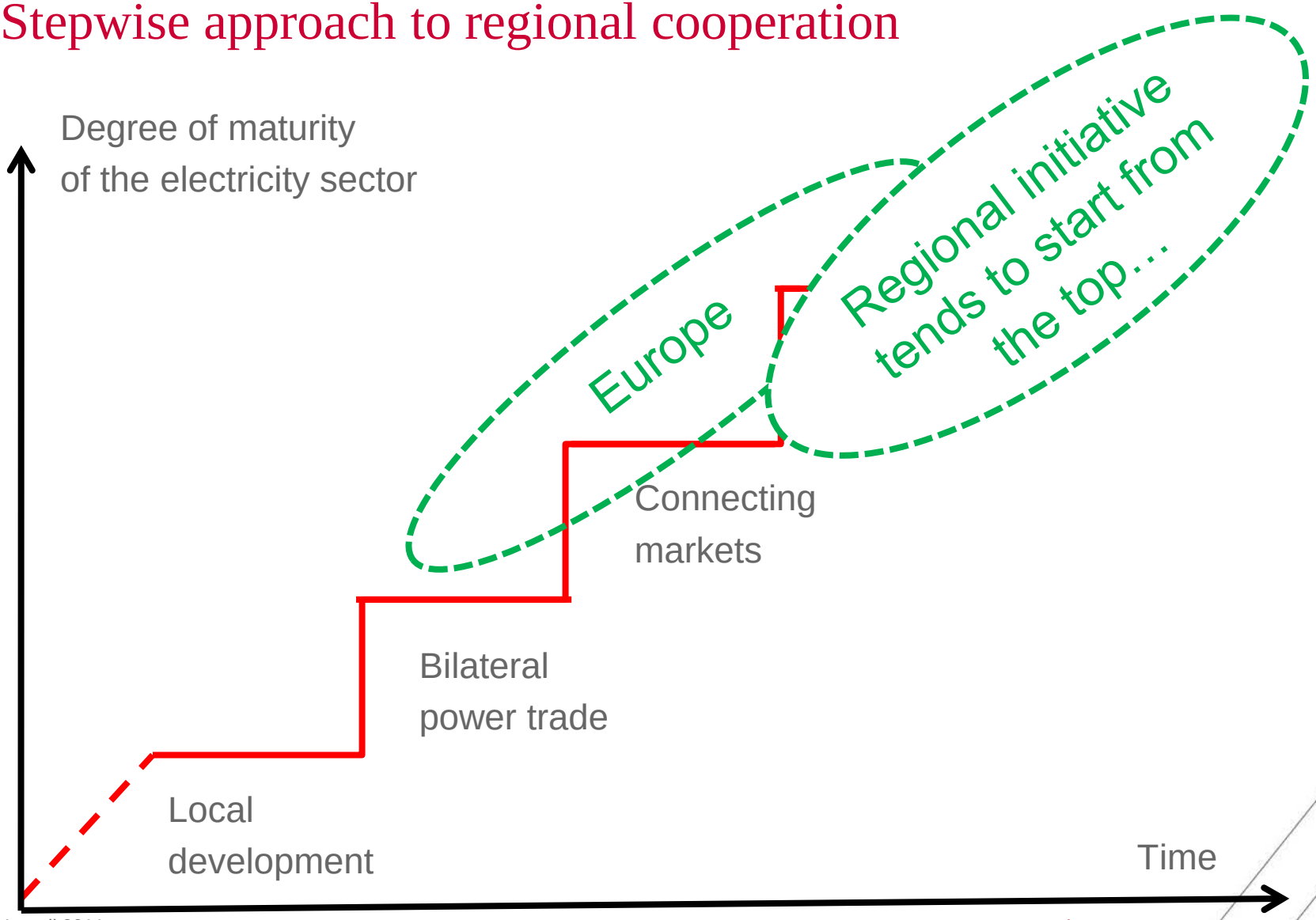
Norway:

Peak load:	24 000 MW
Installed capacity:	30 000 MW
Hydro:	96 %
Thermal	3,3 %
Wind	0,7 %

Nordic countries:

Peak load:	69 000MW
Installed capacity:	89 000MW
Hydro:	53%
Nuclear:	14%
Thermal:	32%
Wind:	2,6%

Stepwise approach to regional cooperation



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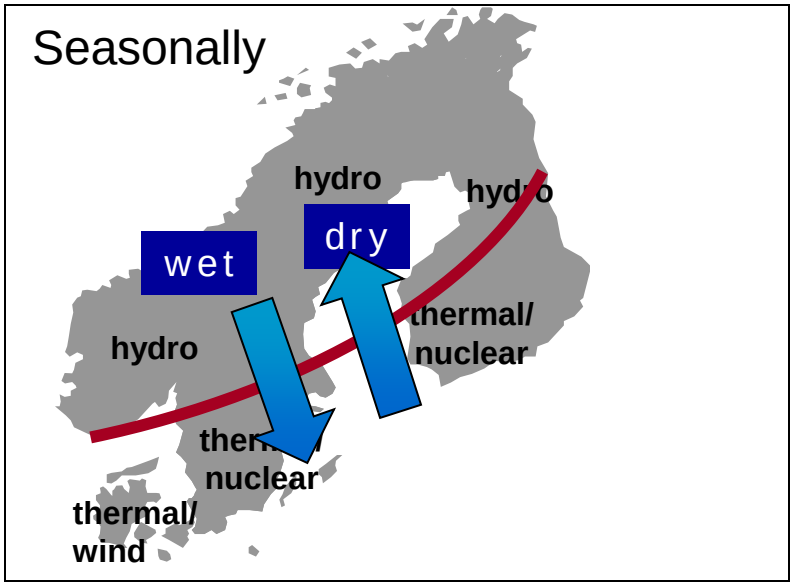
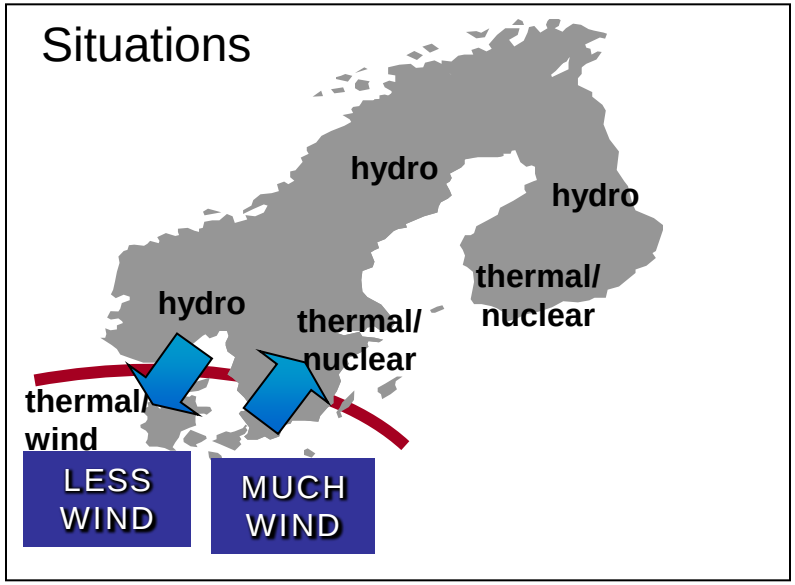
Statnett's experiences from regional integration

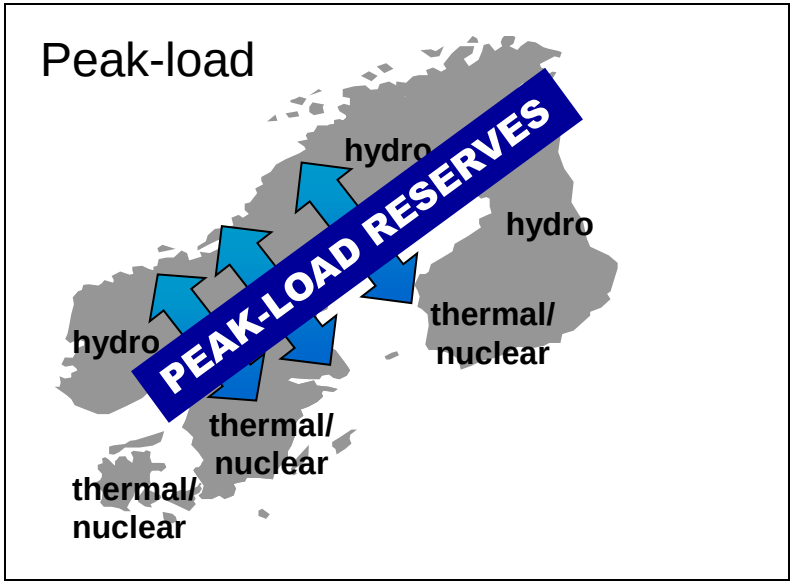
- The electricity industry developed from a local perspective
  - Main focus: electrification, build-up of larger industry
- Regions within Norway interconnected to optimize the resources
  - Main focus: optimal use of hydro resources
- Nordel – a cooperation between the Nordic transmission system operators established on the basis of bilateral trade of electricity
  - Main focus: common rules for use of interconnectors
- Further development of Nordel in parallell with the stepwise growth of a common electricity market – Nordpool power exchange
  - Main focus: common market design and grid planning
- Nordel incorporated in ENTSO-E – cooperation of TSOs on an European level
  - Main focus: intergrations of regional markets

Rationale behind regional integration:

Interconnections - connecting what's different







- Complementary production
- Security of supply
- Cost synergies

Establish a framework for regional integration:

Need for cooperation on all levels of the value chain

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DUTIES

- Consumption
- Generation
- Transmission
- Balance responsible
- Coordinate trade with balance services
- Coordinate spot trade
- Coordinate finanzial trade
- Regulate the market
- Provisions
- Legislative

DISTRIBUTION OF RESPONSIBILITIES

- Players
- Transmission System Operators
- Exchange
- Regulator
- Legislator

TSO's interface with other stakeholders

CHALLENGES

The TSOs do have key responsibilities when it comes to power exchange over borders

Alignment necessary to ensure power flow over borders

Common TSO's duties should be established and specified.

Recommendations for further regional integration

- Allow for a stepwise approach to regional cooperation and integration.
- Connect what's different
- Do not underestimate the complexity of interconnection projects!

Thank you for your attention !

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