A new Fundamental Market Model

Including individual water values and power flow constraints

2016

Prototype

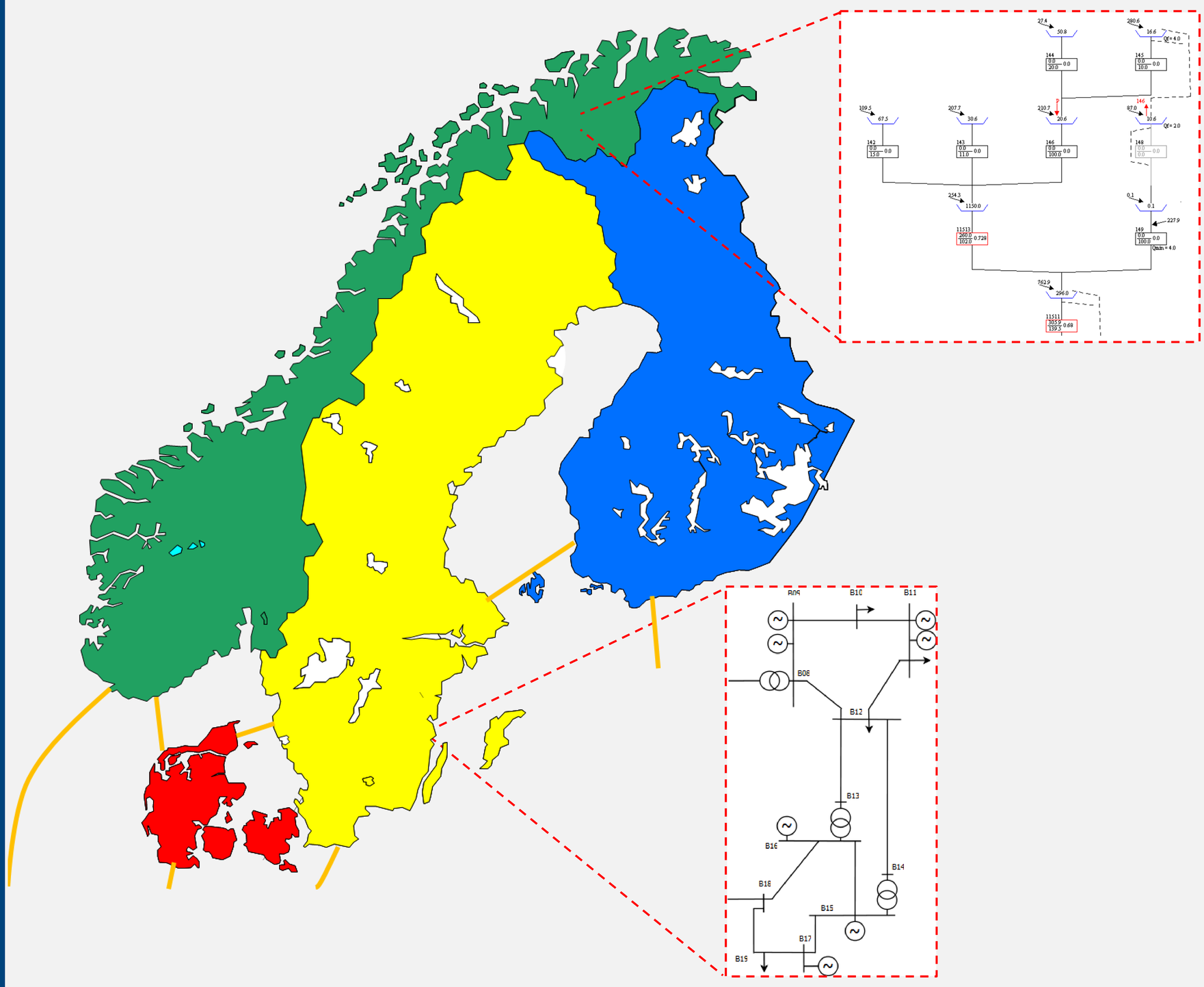
Testing and verification

Large-scale parallel proc.

Implementation

Methodology

2013



Motivation

- Need for a decision tool assisting robust investment decisions (new cables, increased hydropower flexibility, etc.).

Model requirements

- Based on formal optimization.
- Detailed representation of hydropower.
- Possibility to include power flow constraints.
- Reasonable computation time.

Relations to existing models

The new model will:

- Solve the fundamental market problem as in EMPS, Samlast, Samnett and ReOpt, but without heuristics.
- Model the hydro system in detail as in ProdRisk and the medium-term model, but in a fundamental market model.

Main challenges

- Computation time, due to:
  a) Size of the optimization problems.
  b) The number of state variables (reservoirs).
- Representation of inflow stochasticity.

Possible methodologies

- Scenario tree simulator.
- Stochastic dual dynamic programming.

Participants

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