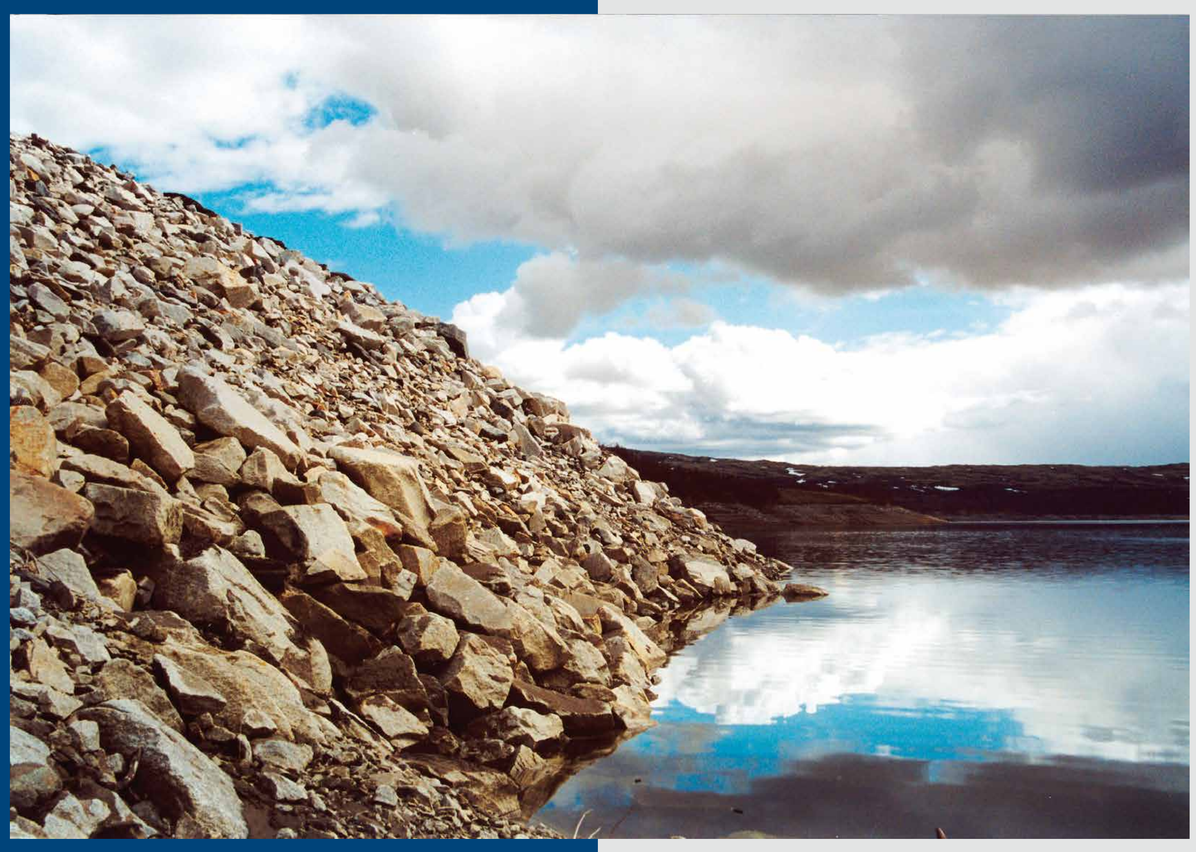
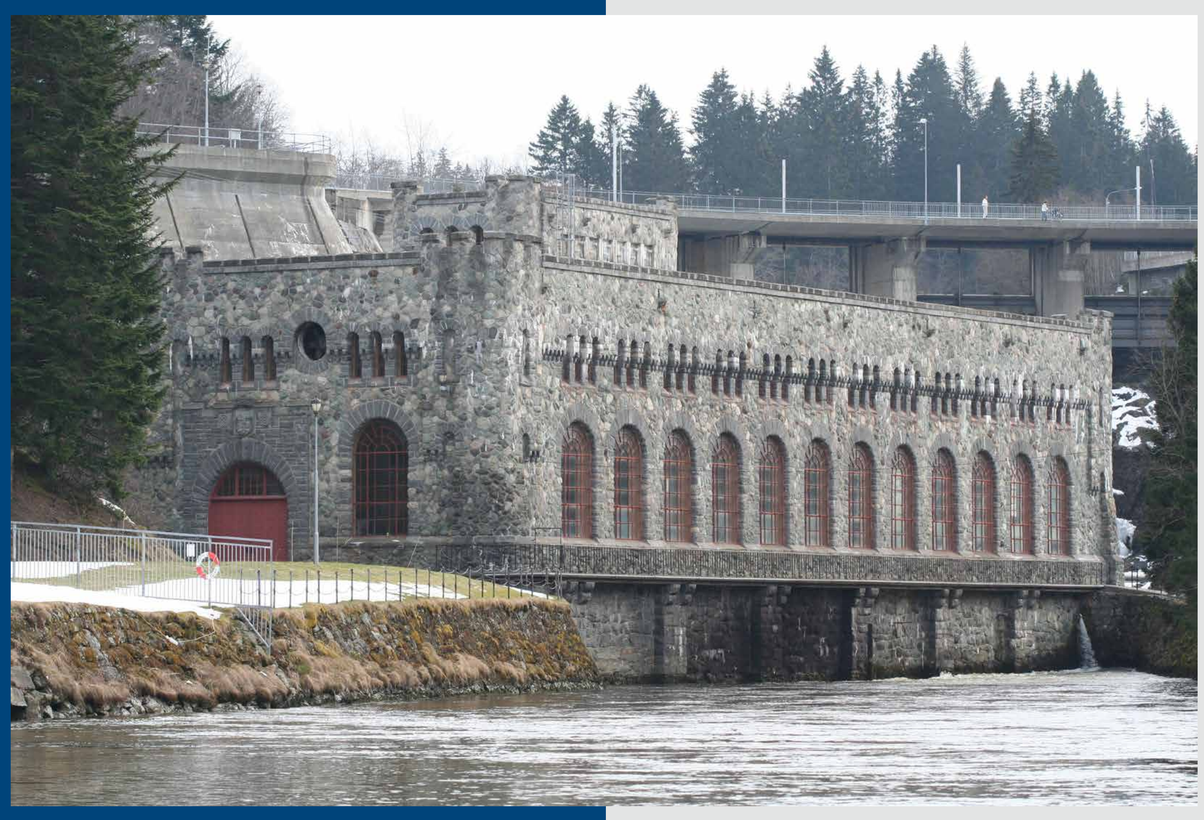
Local Long and Medium Term Planning





- Exogenous stochastic market
- Endogenous market
- Combinations

ProdRisk

Stochastic optimal scheduling

- Long to mid term scheduling of hydropower systems
  - SDDP solution algorithm – Optimization of detailed hydro system
  - Supplement to EOPS/Vansimtap
  - May include utility functions, futures trading
  - Ideal for scheduling generation, maintenance
  - Provides endpoint water values for short term scheduling
  - Time consuming – Parallel processing used
- Flexible time resolution
  - Sequential or accumulated intra-week price periods
  - Start-up day
  - Daily or weekly inflow
  - Daily pumped storage
- Flexible use of penalties
- Investment analysis
  - Serial simulation of inflow and price scenarios
  - Valuation of reservoir storage
- Main focus of recent development
  - Modelling specific hydro details
  - Greater variation in price, greater uncertainty
    - Correct valuation and operation of flexible hydro
    - Time resolution
  - Expansion planning/investment analysis
  - Reduced computing time

ProdNett – An SDDP-based nodal pricing model

- Detailed hydro and grid stochastic optimization
- Nodal pricing
- Daily pumped storage
- Stochastic hydro strategy based on detailed model

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