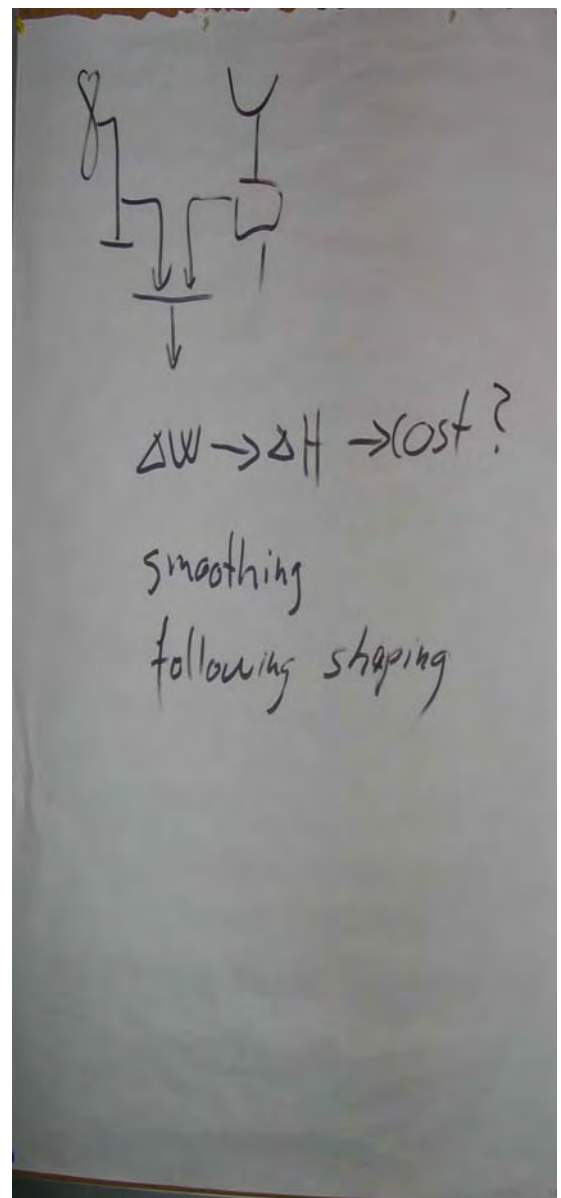
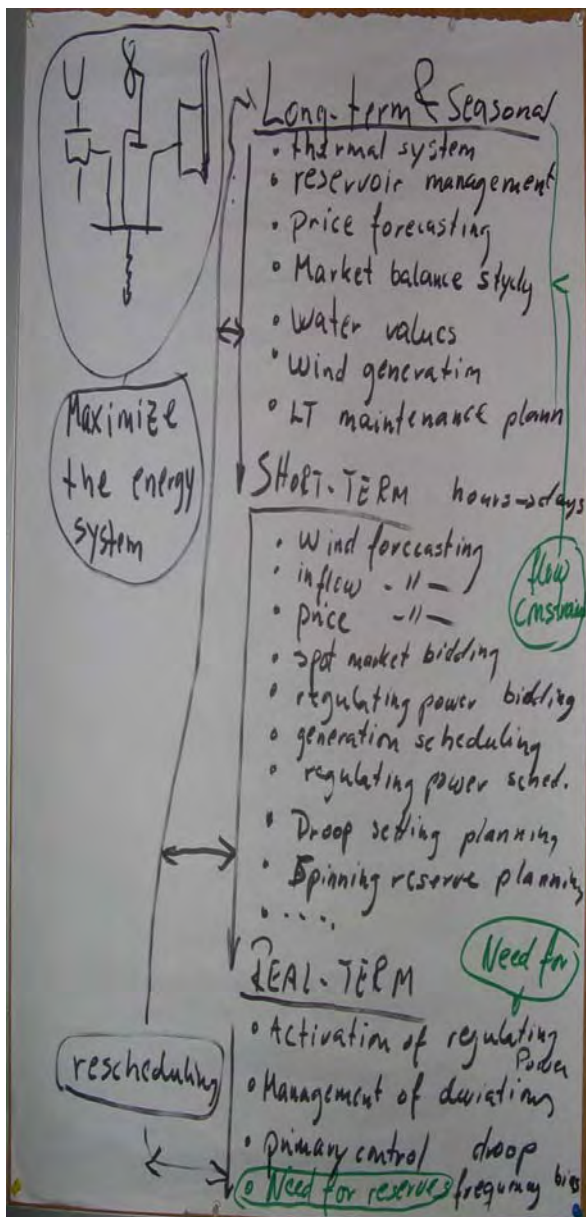
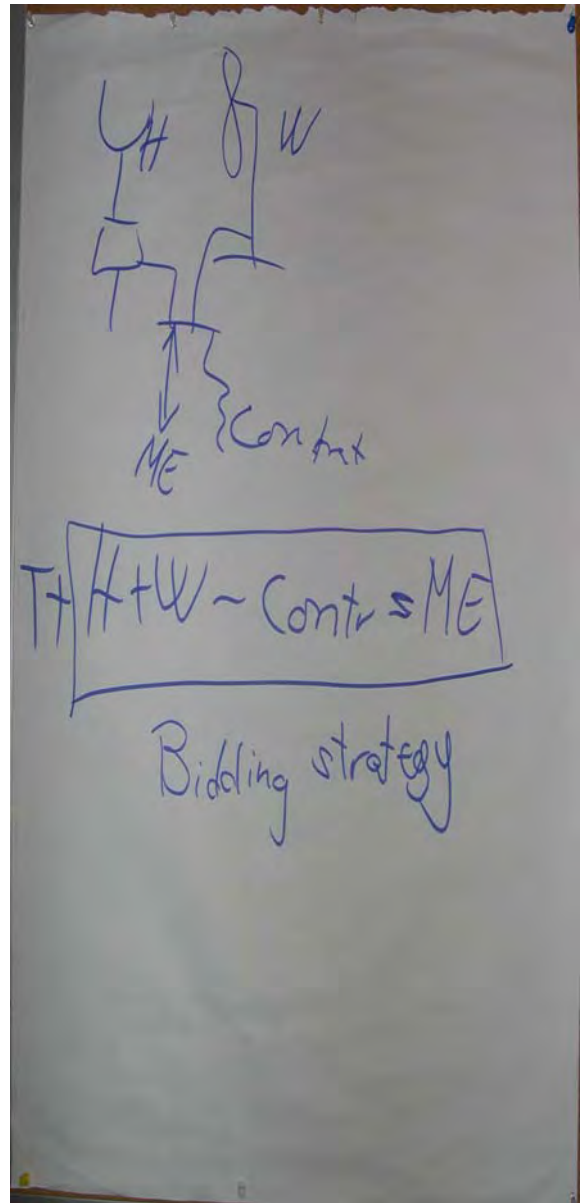
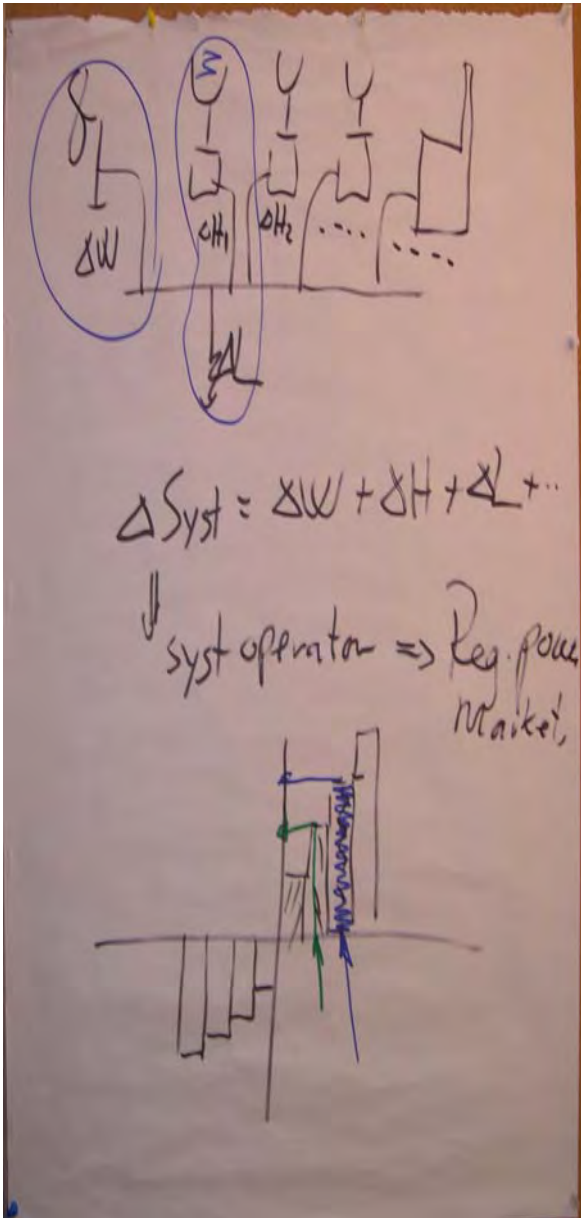
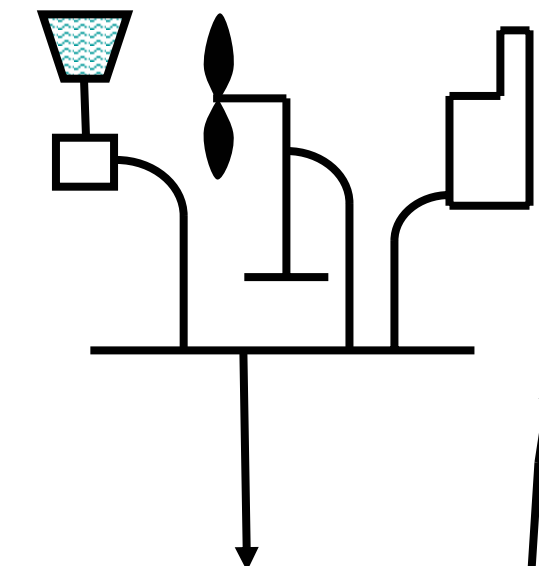


# Terje Gjengedal







Maximize the energy system

### Long-Term & Seasonal

- Thermal System
- Reservoir Management
- Price forecasting
- Market balance study
- Water values
- Wind generation
- Long-term maintenance plan

### Short-term

- Wind forecasting
- Inflow forecasting
- Price forecasting
- Spot market bidding
- Regulating power bidding
- Generation scheduling
- Regulating power scheduling
- Droop setting planning
- Spinning reserve planning

### Real-term

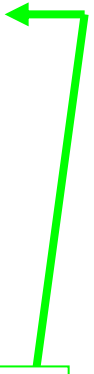
- Activation of regulating power
- Management of deviation
- Primary control
- droop frequency bias

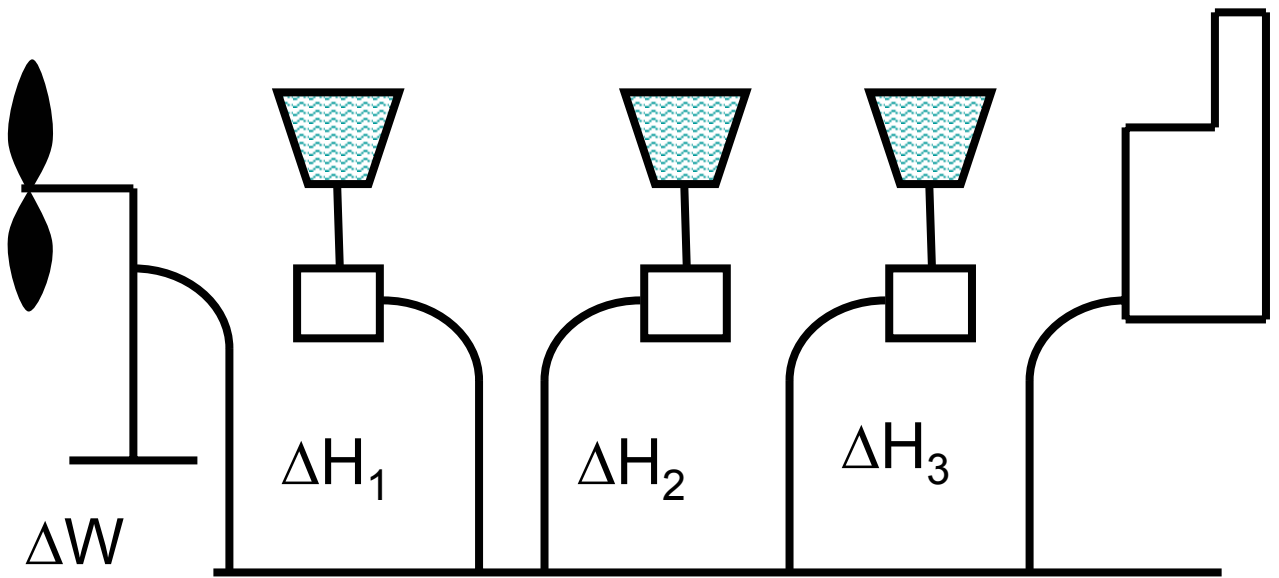
Rescheduling

Flow Constraints

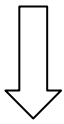
Need for

Need for reserves

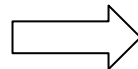




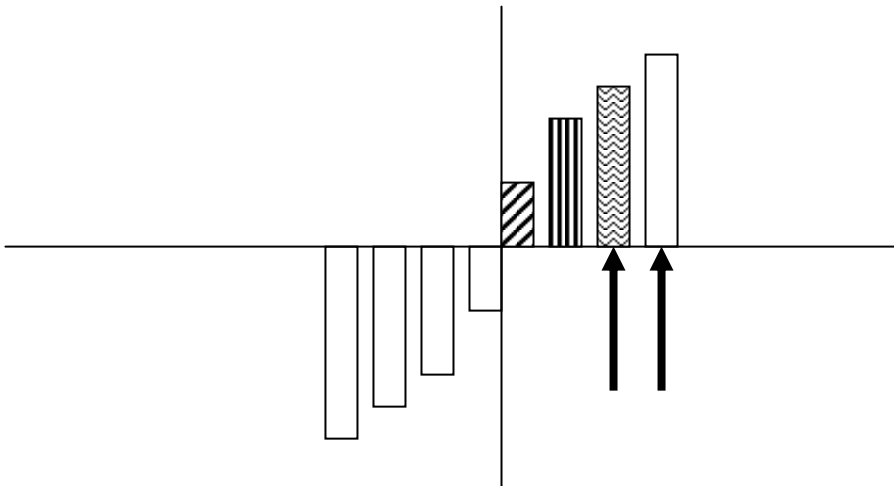
$$\Delta \text{SYSTEM} = \Delta W + \Delta H + \Delta L + \dots$$

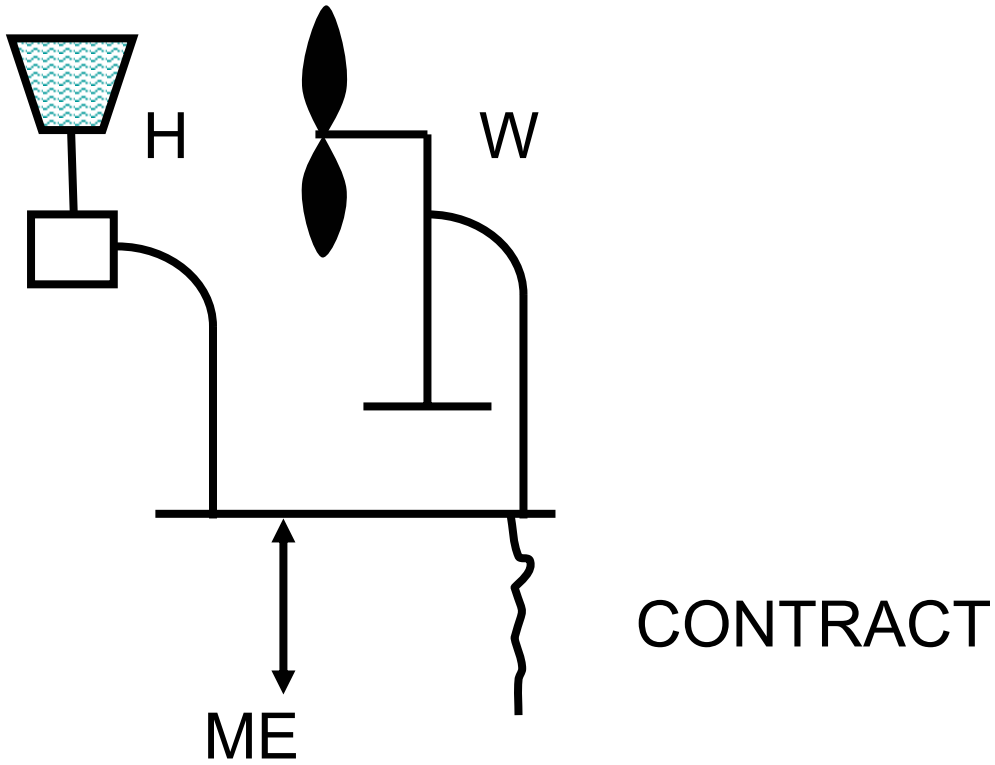


SYSTEM OPERATOR



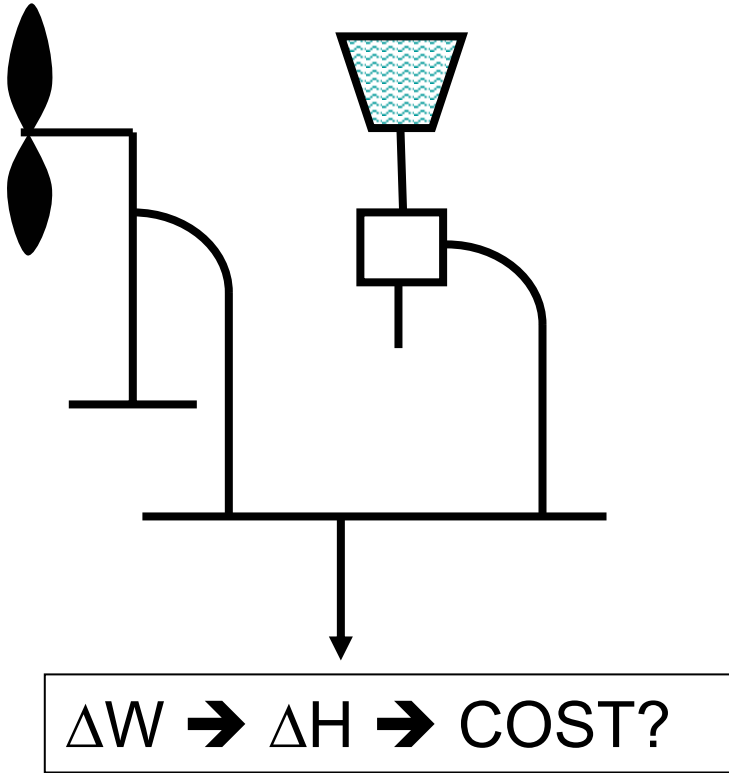
REGULATED  
POWER  
MARKET





Tt  $H + W - \text{CONTRACT} = \text{ME}$

Bidding Strategy



Smoothing  
Following  
Shaping