



Where is the energy?

Non-investment in renewable energy in an
electricity deficit

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The talk

- What is an «electricity crisis»?
 - Do we have one now?
- Investment in renewable
 - Why so little?
- Current policy
 - What is needed?
- Some qualifiers
 - What about gas?

The situation in Mid-Norway

- Regional electricity deficit of 8 TWh
- Weak transfer capability means higher prices
 - 4Q mean price of 0,54 NOK/kWh (about EU mean)
- Politically untenable
 - Three possible solutions: gas plants, renewable energy, grid investment
 - Debate over best alternative
 - And what about energy efficiency?
- Growing wind sector promising investments

What's in a crisis?

- Prices at their highest reach European levels
 - No blackouts
 - Substitution to wood
 - Saving electricity
- Media rhetoric is always overblown
- Still, it is problematic
 - Shifts in consumption easier for some
 - Fluctuations worse than stability
 - Bad for business

Investment in renewables

- Requires:
 - High and stable prices
 - Government permission
 - Infrastructure
 - Local support
- Subsidies
 - Direct
 - Feed-in tariffs

Why so little?

- Permissions have been given
 - For 3500 MW, 450 built or under construction
- Prices are high
 - But not very stable
- NIMBY exists
 - But not everywhere
 - Also related to infrastructure

The question of subsidies

- Renewables are not commercially viable
 - Need some sort of subsidy
- Two main types of subsidies
 - Direct: Based on price estimates
 - Feed-in: Guarantees a minimum price for all power delivered to the grid
- “Green” certificates
 - Buyers of electricity are required to buy a certain amount of certificates, which are only handed out to renewable producers

Current policy

- Enova
 - Has a subsidy scheme, but not widely used
- Certificate scheme with Sweden
 - Unclear effect, requires widespread participation
- No feed-in tariffs
- Technology neutral

Some qualifications

- Are high prices bad?
 - Helps energy efficiency
- Do we need more renewables?
 - Environmental costs involved
- Does every region have to be self-reliant?
- Gas plants more likely
 - Pressure to realise this

Thank you!