

# Wind Power

- Norway had a goal of 3000 GWh annual wind energy production within 2010.
- Government investment support - 1 Euro-cent per kWh wind energy.
- National potential for wind energy production – 245 000 GWh – would utilise 0,5% of the total land mass.
- Constructed wind power capacity in 2007 was 325 MW

- Total wind energy production 2010- 906 GWh (980GWh in 2009)
- Total installed wind power 2010 – 435 MW (431 MW in 2009)
- Sweden had an installed wind power capacity of 1579 MW at the start of 2010. Norway and Sweden had a similar starting point in 2002.
- Based on geography and topography that Norway would have a much larger wind power production potential than Sweden
- Wind power 0,7 % of the national electricity production in 2010.



- Europe accounts for about half of the annual wind power production in the world. Countries like Spain, Germany, France, GB and Denmark are leading European wind power nations in terms of installed capacity.

- Why are there such vast differences between Norway and Germany in terms of wind power development?
  - Abundance of hydro power and gas power in Norway
  - Need of new power sources in Germany due to ageing nuclear power and coal power.
  - No feed-in tariffs in Norway
  - Difference in wind power construction support in the public
  - High degree of conflicts with nature protectionists in Norway



# Points for dialog

- What are the success factors for construction wind power and expanding the capacity?
- In which way have the regional authorities in wind power-dense areas aligned public opinion and harvested sufficient support for large scale wind power construction?
- In what way have protestors and opponents to wind power been addressed?
- Regional versus national planning and processing of applications for wind power construction.

# Bioenergy

- Net growth of forests in Norway.
- An increase in the last 5 years in the use of bioenergy from wood for heating requirements.
- As of 2010, the annual energy production from bioenergy in Norway is 15 TWh, which comprises 7 % of the total stationary energy use in Norway.
- An increase in cost of electricity recent years in Norway has seeded the growth in use of bioenergy (mainly wood based).

- The use of bioenergy for electricity production is almost non-existent in Norway. The feed-in tariffs in Norway are about 1,3 Euro-cents, compared to 10-20 times more in Germany.
- There is an emerging biogas industry in Norway. Biogas is seen as a source for replacing mobile energy use in heavy transportation and public transport.
- There is a challenge in reaching profitability and achieving significant scale in the Norwegian projects. Only pilots have been basis for experience so far

# Points for dialog

- How to organise suitable programs for investment support and tax reliefs in order to sustain new, renewable energy projects through to self-sufficiency and profit?
- Which roles should the regional authority take in the development of bioenergy projects?