Svensk Vindenergi

Wind energy in Sweden – opportunities and threats

Almedalen 2009

- Potential
- Support system
- Financial crisis
- Local production

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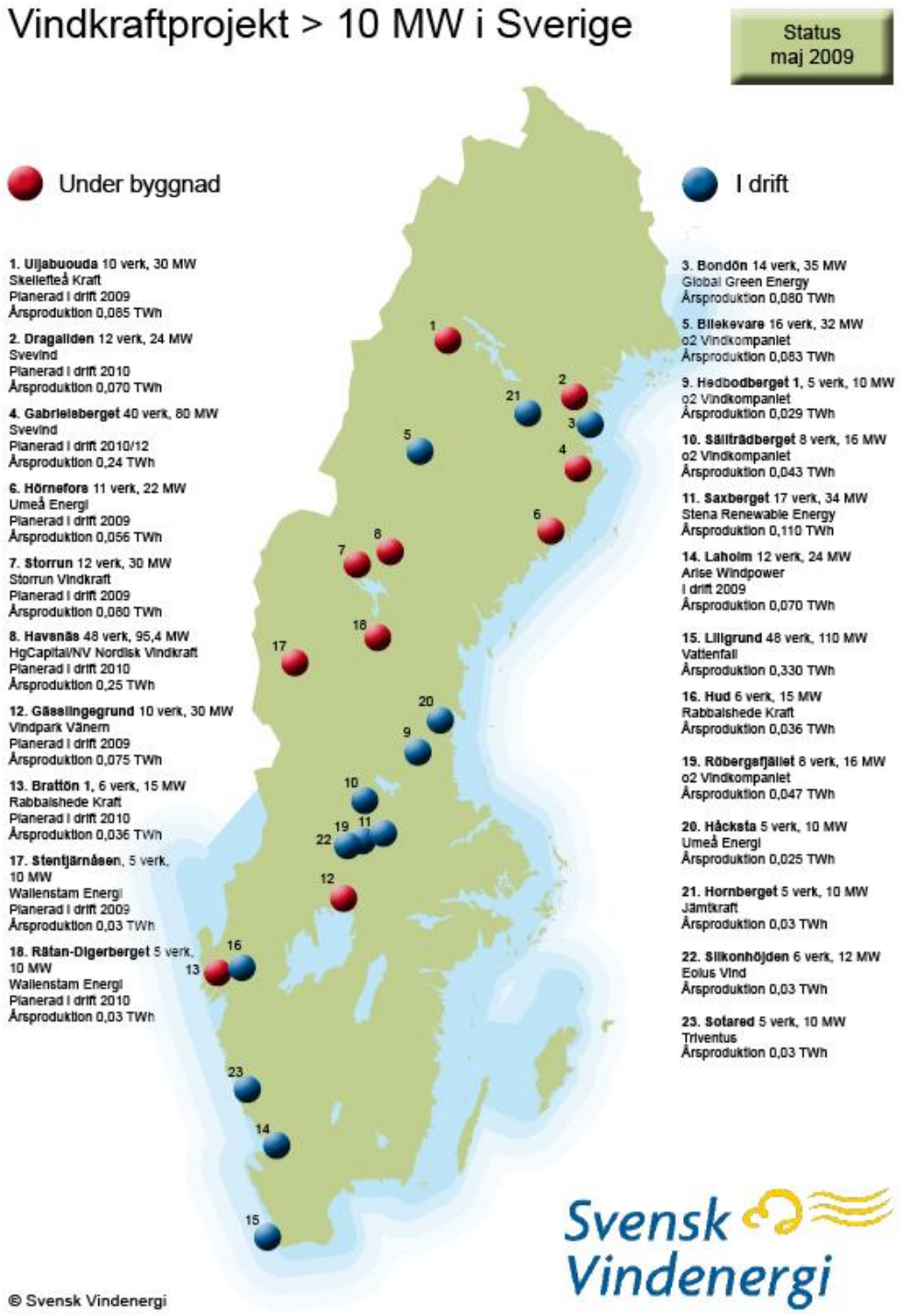
The projects under construction together with smaller projects and single WTG's are expected to contribute an additional 2 TWh of electricity before the end of 2010.

Today Sweden produces 2 TWh of wind electricity, some 1.5 % of the Swedish consumption



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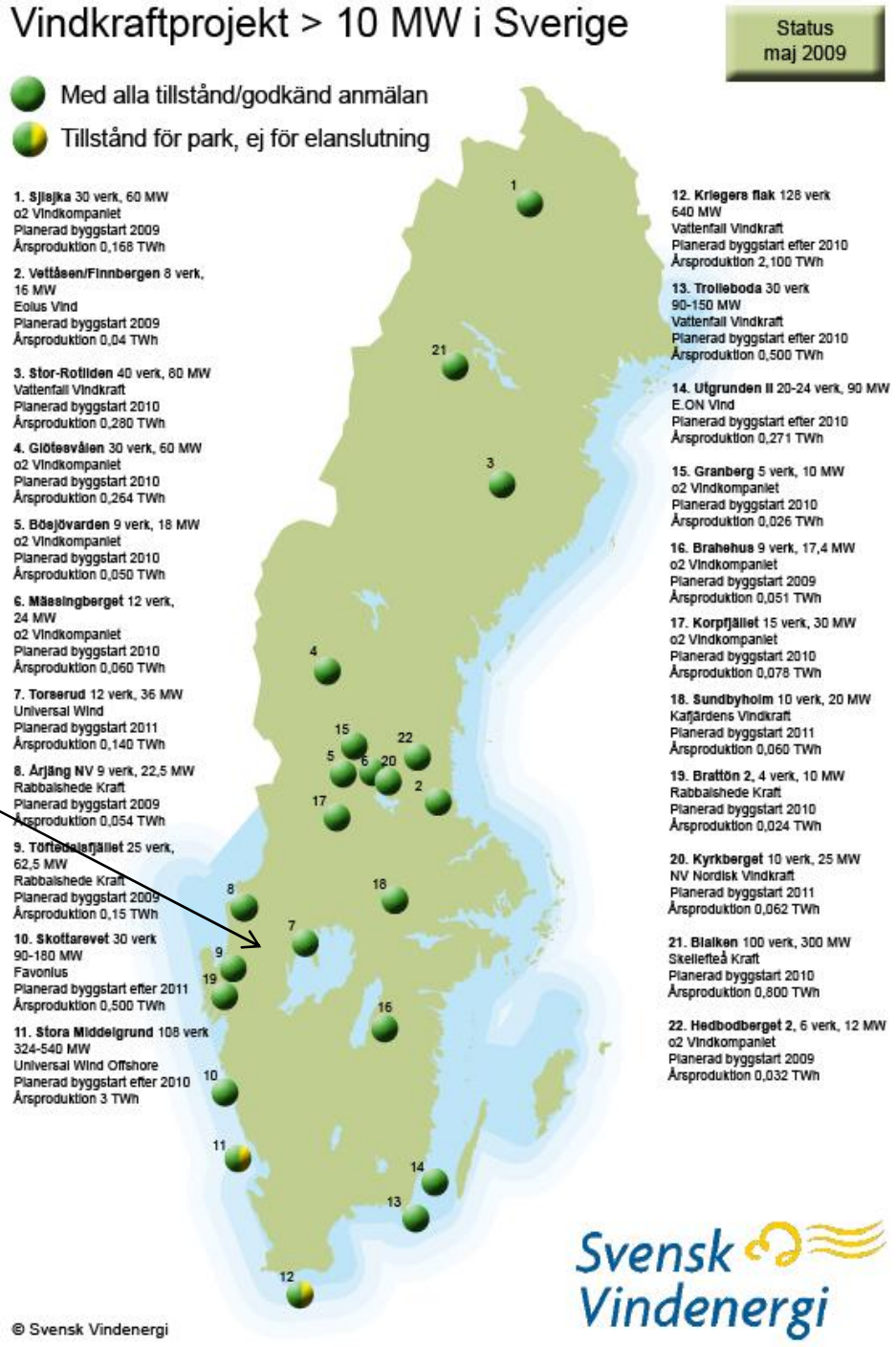
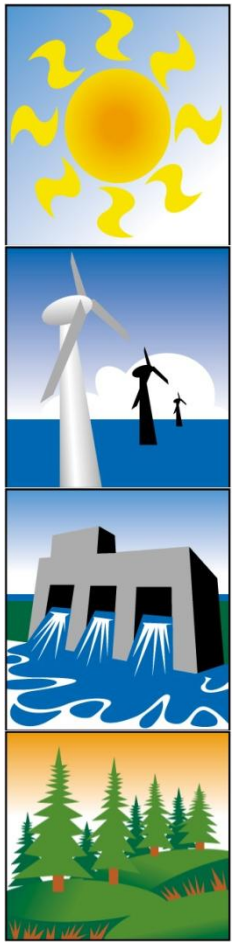
This map shows projects with all necessary permits in hand.
Due to the global financial crisis, most of these projects will face a delay in terms of financial close.
Almost all projects south of Lake Vänern are offshore projects and will only be built if the Government introduces a separate support system.



Support system 1



Photovoltaic

Wind power

Small hydro power

Bio power

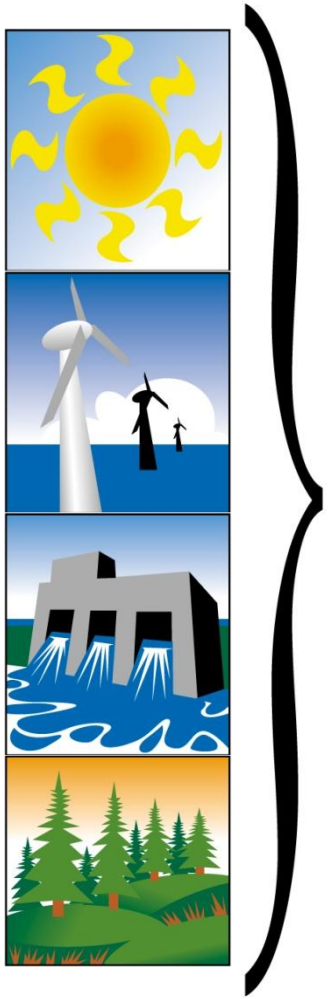
Every electricity wholesaler has to show at least a certain amount of these in their mix.

He does this by buying certificates from the producer

The amount of necessary certificates (the quota) rises up to 2016

Year 2016 Sweden will have 17 TWh *more* renewable electricity as compared to 2002

Support system 2



MWh

Two products to sell

Electricity → Price of electricity (€43/MWh)

Certificate → Price of certificates (€30/MWh)

This example: €73 /MWh

Wind investment in Sweden

- Support system
  - Tradable green certificate system since 2003
    - Works well and will result in 17 TWh new RES-E until 2016
      - About 7 wind, 9 biomass CHP and 1 hydro
    - The system will be extended in time and volume to generate 25 TWh RES-E until 2020
      - All of the additional 8 TWh will be wind
- Required investment
  - Additional 13 TWh wind energy
    - requires about 5 000 MW installed capacity
    - Equals 2 500 2MW WTG's
    - 7.5 billion euro

The Financial Crisis

- All industrial sectors are affected
- Renewable energy sector will come out earlier than others.
  - ”No money” available
  - The SEK has been devaluated against the €
  - Only the best projects will get funding
  - Developers try to postpone some of the projects.

The financial crisis

- Is global
- Cheaper wind turbines
- No waiting lists
- The not-so-good projects are ruled out

The targets will be met

- Swedes are very positive to wind power
- The government will do anything (almost) to fulfil the EU- directive of 49 % (50) renewable energy 2020.
- For this we will need some 15 TWh Wind Power.
- Some 5 000 MW, 3 000 turbines in 10 years

Local manufacturing

- Sweden has companies that play an important role as sub-suppliers to most WTG manufacturers
  - ABB, SKF, ESAB, Roxtec etc
- WTG manufacturers also produce components in Sweden
  - Enercon and WinWind produce towers
  - Vestas produces casting components

Local manufacturing

- The Government will support any company, foreign or Swedish, that wishes to establish a manufacturing base in Sweden
- Swedish industry is ready to enter into alliances
- The Swedish Wind Energy Association will warmly welcome and assist any company that wishes to manufacture WTG’s in Sweden

Thank you
For your attention!

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Wind investment in Sweden

- Onshore vs. Offshore
  - We expect that the 13 TWh will all be built onshore
    - We will have 0.45 TWh offshore at end of 2009
  - Offshore development requires a separate support system that we currently do not have in Sweden
- The Nordic region
  - Investments in wind energy will also take place in Norway, in Finland, in the Baltic states as well as repowering in Denmark
  - The total new installed capacity is expected to be 15 000 MW onshore plus some 3 000 MW offshore