



# **Swedish Environmental Protection Agency (SWEPA)**

**Planning offshore windfarms: legal frame, impacts  
and procedures**

**Workshop 29 – 30 May 2008**

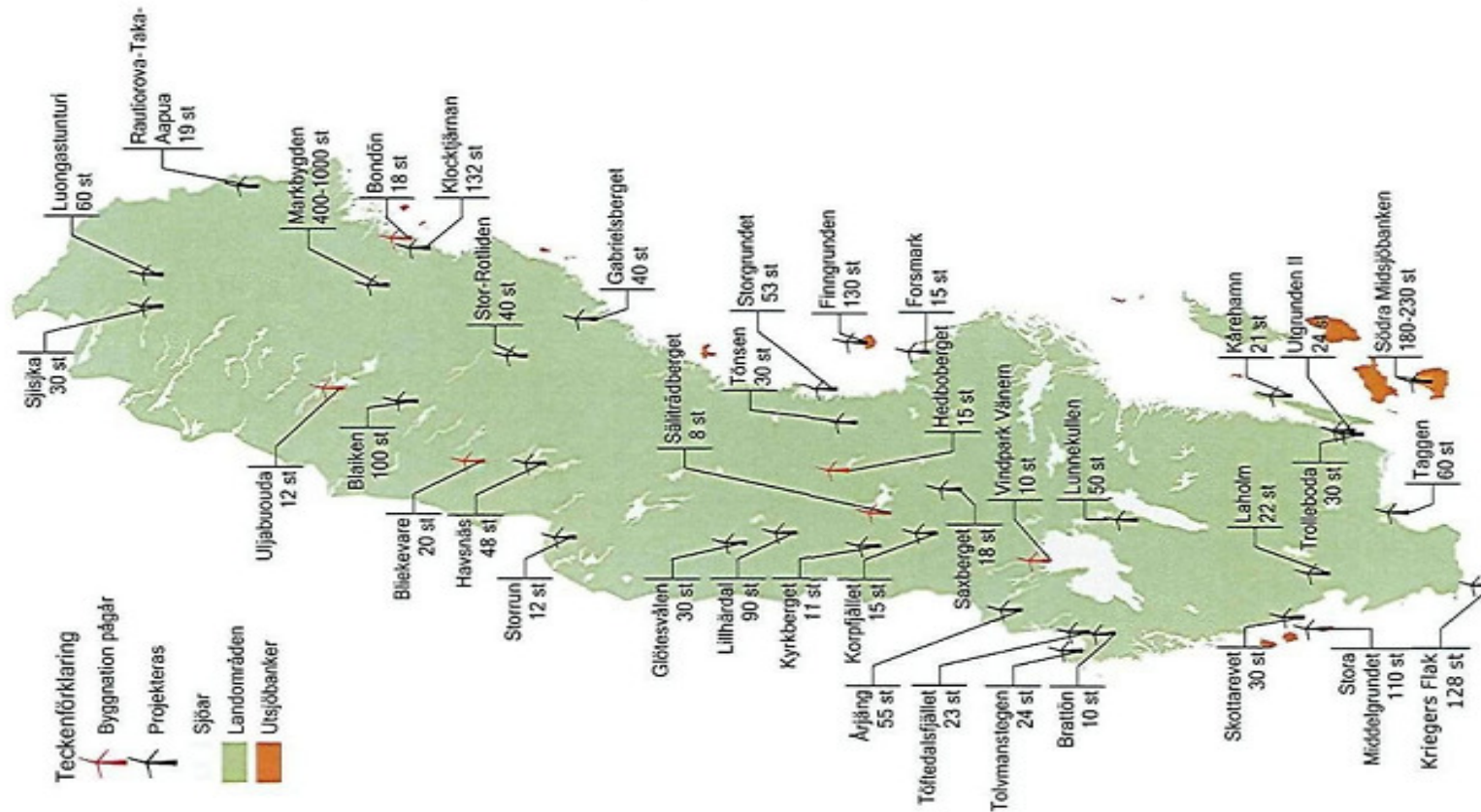
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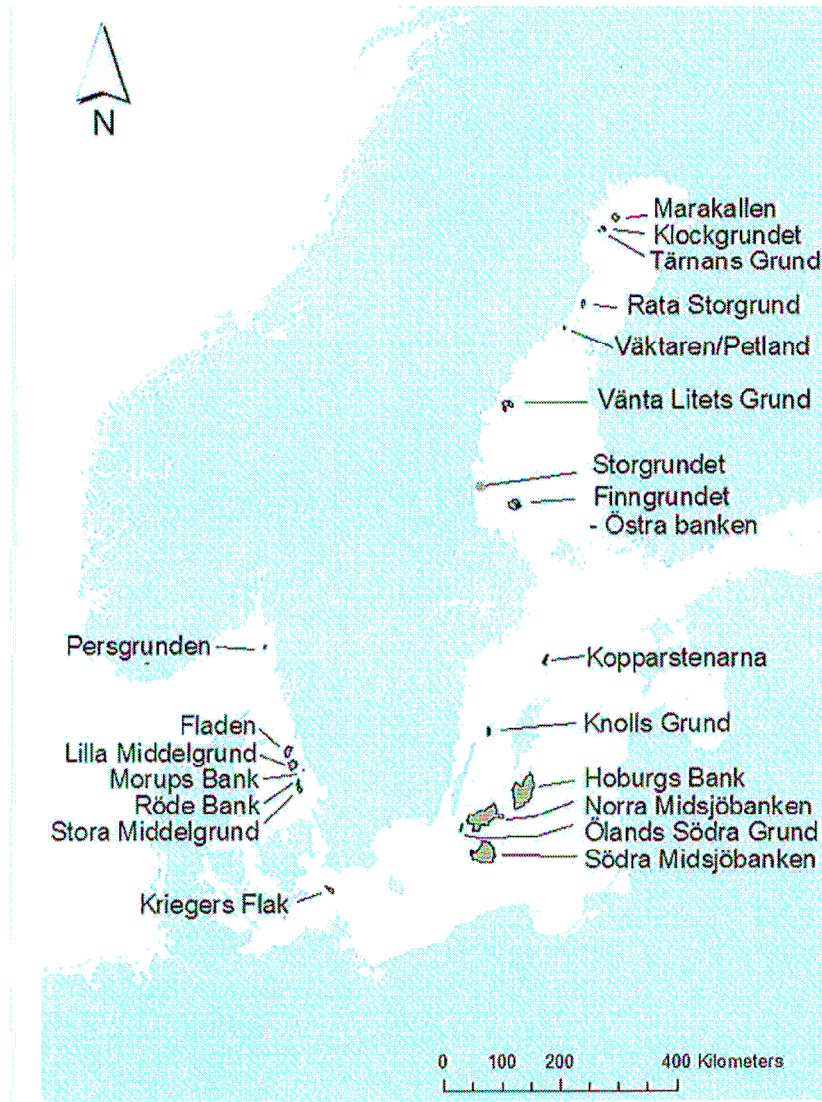
**[www.naturvardsverket.se](http://www.naturvardsverket.se)**

# Planned windfarms in Sweden

(Source: Fredrik Dahlstöm, Swedish Energy Agency)



## A survey of offshore banks in Sweden 22 banks, 7 “stops”



## Windfarms in Sweden

**2006:**

<b>Total installed wind generation</b>	<b>570 MW</b>
<b>New wind generation installed</b>	<b>62 MW</b>
<b>Total electrical output</b>	<b>1 TWh/y</b>
<b>Wind generation of electric demand</b>	<b>1 %</b>
<b>Planning target</b>	<b>10 TWh/y by 2015</b>
<b>New planning target, proposal</b>	<b>30 TWh/y by 2020 (20 land, 10 offshore)</b>

## Legal frame

Windmills are “hazardous activity” regarding to Environmental code – healthy and good environment (include noise, light and landscape)

### Offshore

➤ 1 MW permit by the environmental court

125 kW- 1 MW notification to the municipality

SEZ, “Esbo” ...the government, SWEPA, SGU, ev BoV

### On land

➤ 25 MW permit by the county administrative board

125 kW – 25 MW notification to the municipality

... legal frame

## ... Environmental code (EC)

### General rules

Best possible technology, localisation principle, reasonable rules

### Fundamental and special provisions for management of land and water areas

Areas of national interest, because they are sensitive from the ecological viewpoint, but also from the interest of energy production

### Environmental impact assessment

If “significant impact on the environment” an EIS (EIA)

### Protection of areas

National parks, nature reserves, shore protection areas

... legal frame

## Plan and Building Act

**The municipality – “the monopole of (physical) planning”**

**Comprehensive plan**

**Detail plan**

**if “significant impact on the environment” a SEA (EIA) see EC (!)**

**Building permit (diameter of rotor blades > 2 meters)**

## Impacts

**Research program “Vindval” - the purpose is to support building  
of wind farms**

**Study impacts on**

**People**

**The life in sea**

**Birds and bats**

**... the program will end in 2009 - 18 projects subsidised**

# People

## Noise

**Annoyance, depends on if you live in an urban or rural area –  
and if you see them or not**

**40 dB(A) eqv is a relevant objective (“norm”) for people that live  
in the near of wind mills**

**... maybe higher in industrial areas and lower in “quite areas”  
or areas with “wind shade” ... maxium +/- 5 dB (?)**

## **The life in the sea**

**We need more research**

**Until now we can not see more than small effects, in general**

**But local effects - EIA is necessary and permits**

**Fishes (of prey) are studied, not disturbed of noise from wind farms**

**... not mussels either**

**Fundaments can be good artificial reefs ... or do the fishes avoid them ?**

## **Birds and bats**

**Small risk that sea or small birds come into collision with wind mills**

**In the day sea birds avoid them in a distance of more than 1 km, see the mills better than us ...**

**Can be more problem with swans, eagles etc**

**Eagles are studded in the mountains**

**Bats - a little higher risk of collision ... because of insects like to be in the near of the blades ...**

**... but most when the wind power is low (< 4 m/s) so it is possible to stop the wind mill then, without losing energy effect**