英語で学ぶ国際キャリア「国際実務英語 II」

A. 環境先進国デンマークに学ぶクリーンエネルギー政策

Terminology for『 Clean energy policy- learning from Denmark, environmentally advanced country』

In relation to the energy policy:

Action plan
Emission (CO_2, SO_2, NO_x)
Sustainable development
Renewable energy
Utilization of wind energy (or liquid organic waste and manure, inflammable waste)
CHP (Combined Heat and Power).

In relation to utilization of the wind energy:

Wind turbine

$P=½ \cdot \rho \cdot Cp \cdot \eta \cdot A \cdot V^3$ from this.

ρ is the air density (kg/m^3),
Cp is the power coefficient, max.16/27=0.593 (Alfred Betz theory from 1924)
Ɲ is the mechanical/electrical efficiency
A is the rotor disk area (swept area)
V^3 is the10 minute average velocity in front of the rotor, (wind speed in the third)

Nominal output
Power regulation (stall or pitch)
Nominal wind speed f.x. 14m/s
Cut-in and Cut-out wind speed
Rotor diameter and swept area
Brake system
- Blade tip air brake, hydraulic, fail-safe
- Disk brake, hydraulic fail-safe

Drive train
- Gear type, planetary-parallel axle
- Ratio
- Main shaft
- Main bearing and cooling, heat exchanger with pump

Generator
- Asynchronous
- Nominal voltage
- Nominal frequency
- Name plate rating and cooling liquid/cooled with pump

Yaw system
- Type ball bearing
- Yaw brake friction brake/motor brake

Controller

- Computer controlling
- Capacitor bank, no-load compensated
- Remote control by modem

Noise level defined db(A)

In relation to the utilization of liquid organic waste and manure:

Biogas plant
Slurry =manure
Process tank (call digester)
Retention time
Biogas=CH_4 + CO_2+ H_2S from this:
CH_4 methane
CO_2 Carbon dioxide
H_2S Sulfur hydrogen

In relation to the utilization of inflammable waste:

District heating plant
Incineration plant

. . . . . .

Denmark 28th July 2011.

Kenji Stefan Suzuki