Wind Power

An introduction to a continously growing generation technology

Dr. Bernd Neuner

KELAG-Kärntner Elektrizitäts-Aktiengesellschaft

Key figures of wind turbines (average of EU)

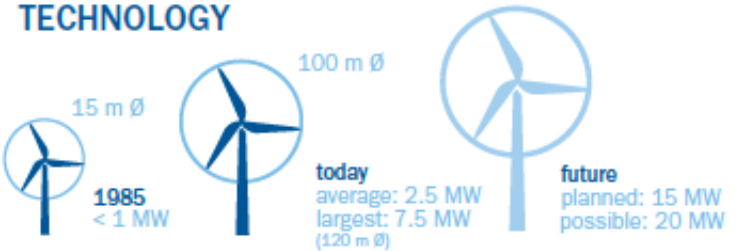
The average European ONSHORE wind turbine

- Capacity: 2.2 MW
- Capacity factor: 24%
- Average annual energy production: 4,702 MWh
- This can power more than 1,202 households
- CO_2 emissions avoided: 3,202 t
- This can fuel 2,315 electric cars

The average European OFFSHORE wind turbine

- Capacity: 3.6 MW
- Capacity factor: 41%
- Average annual energy production: 12,961 MWh
- This can power more than 3,312 households
- CO_2 emissions avoided: 8,827 t
- This can fuel 6,481 electric cars

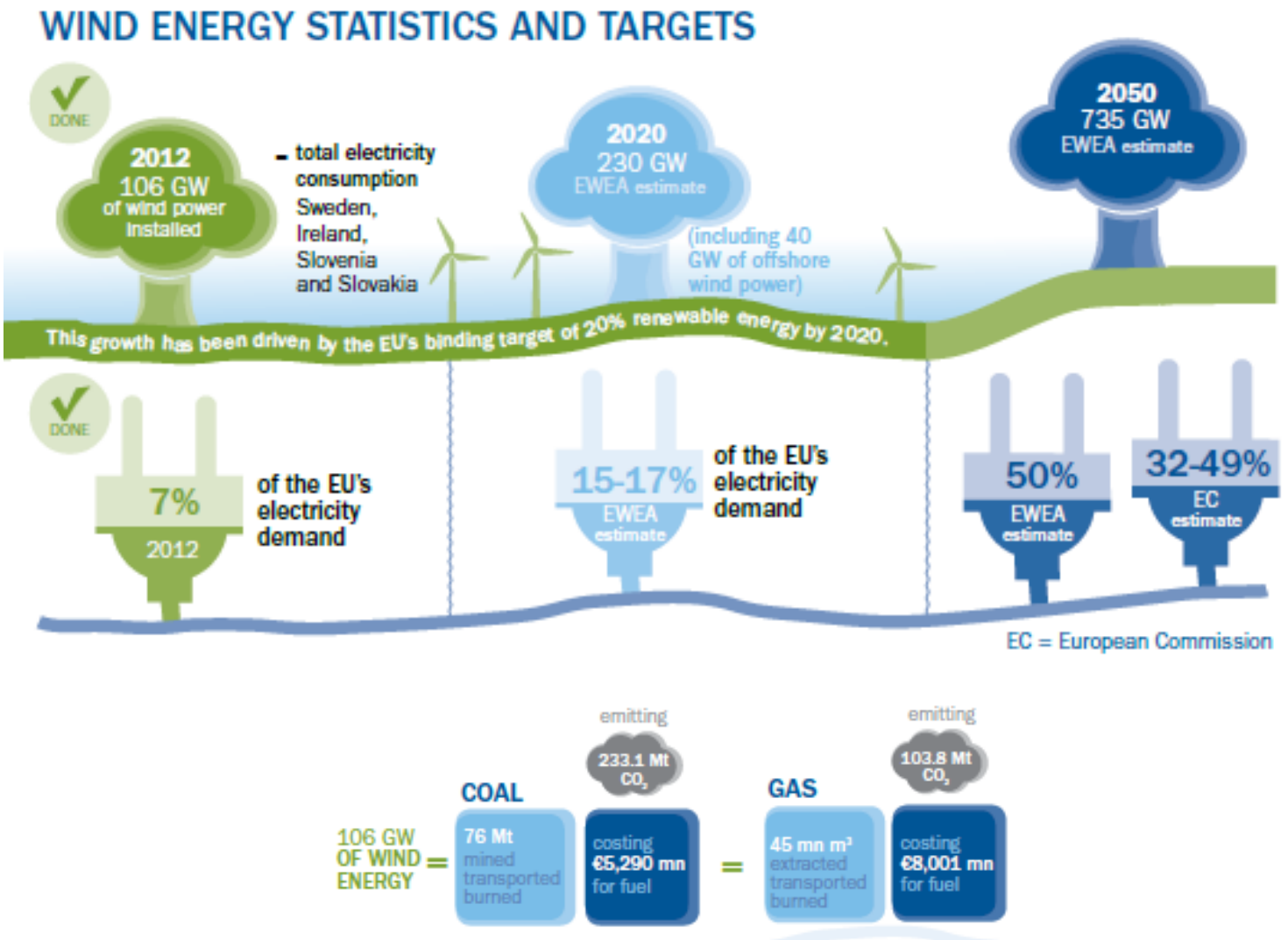
TECHNOLOGY



FINANCE

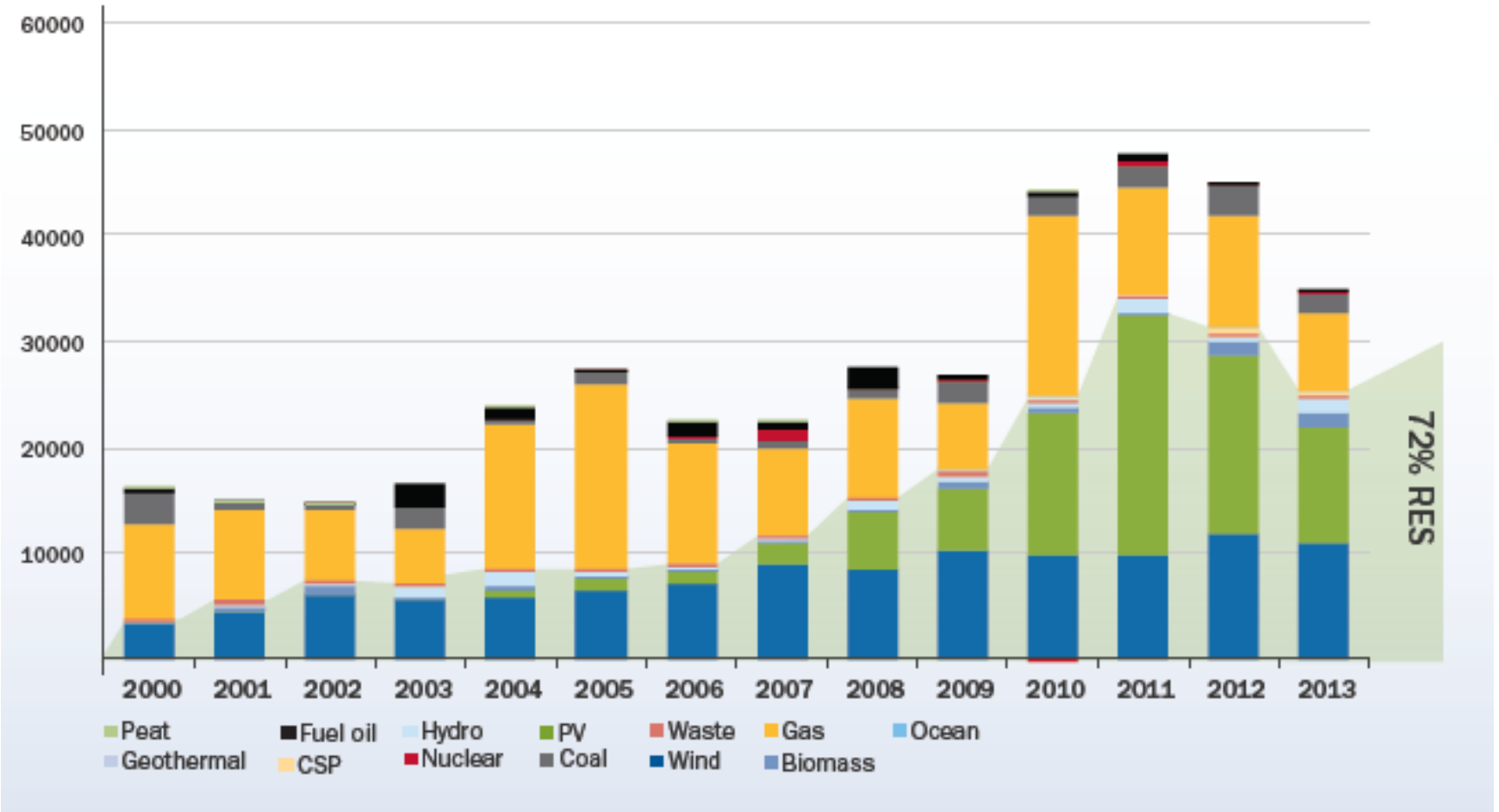
Source: EWEA, 2014

Wind energy is expected to further grow significantly



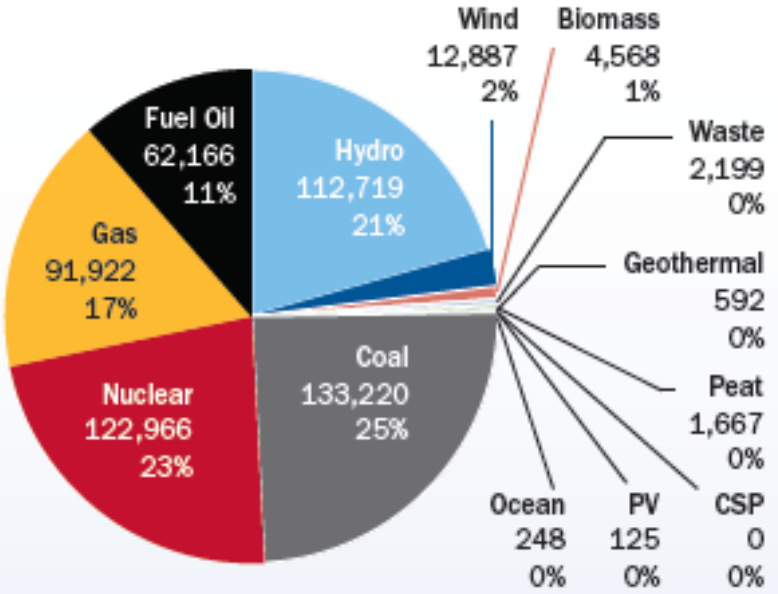
Source: EWEA, 2014

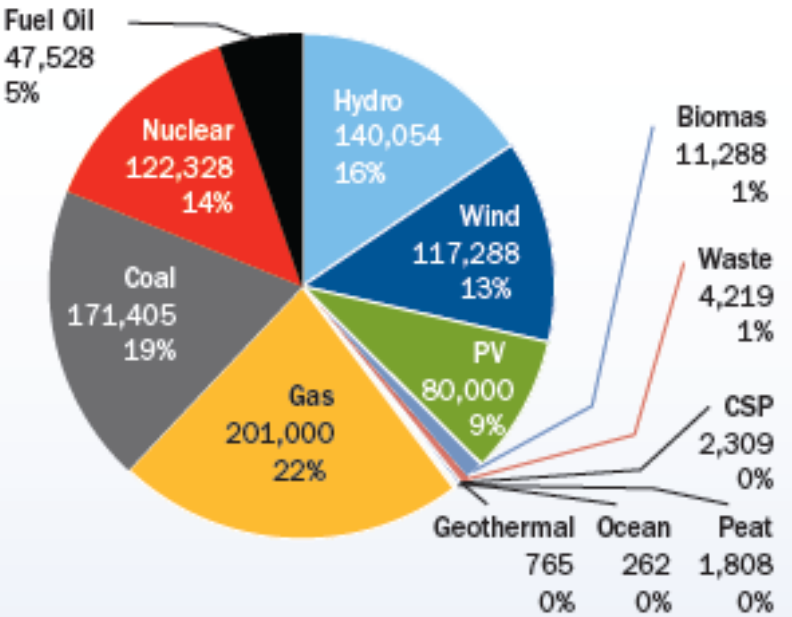
Installed power generating capacities per year in MW



Source: EWEA, 2014

EU power mix: year 2000 vs. year 2013





Total EU electricity consumption	Onshore wind energy production	Offshore wind energy production	Share of EU consumption met by onshore wind	Share of EU consumption met by offshore wind	Share of EU consumption met by wind
3,280 TWh	233 TWh	24 TWh	7.1%	0.7%	7.8%

Source: EWEA, 2014

Key challenges for a sustainable growth of wind power

- **Generation from wind power needs back-up solutions (storage, gas, etc.), which are not attractive for investors under the current market conditions**
- **Further growth of wind power needs proper transportation routes, e.g. from North to South Europe**
- **Wind power needs to get independent from supporting schemes in order to avoid further increase of end consumer‘s electricity bills (grid parity)**
- **Flexible and intelligent systems for generation and consumption are required to guarantee grid stability and safety as well as stable electricity supply**

Questions

What could be done from a political point of view as well as by the wind power industry to further boost the development of wind power in Europe (e.g. renewable energy targets beyond 2020, …)?

How could the general acceptance of wind power be further increased, particularly in regions showing strong concerns?

Questions

DI Dr. Bernd Neuner
Corporate Development , M&A

T: 0463 525 1672
Bernd.neuner@kelag.at

www.kelag.at

KELAG
Kärntner Elektrizitäts-Aktiengesellschaft
Arnulfplatz 2
9020 Klagenfurt
Österreich