

Geothermal Power in the EU

By:

Tai Fukumoto

Jennifer Hansen

Sara Narciso

Nickie Perdomo

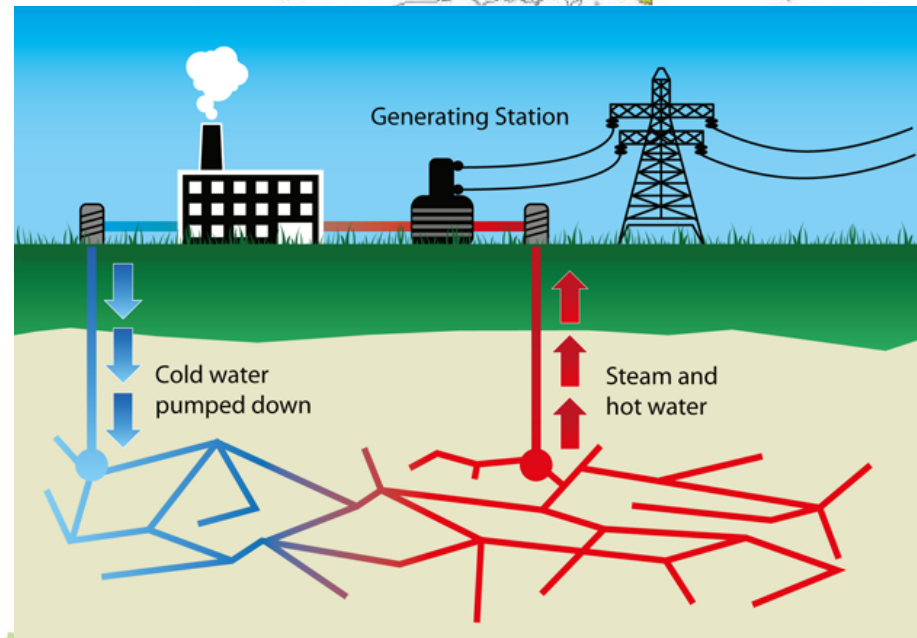
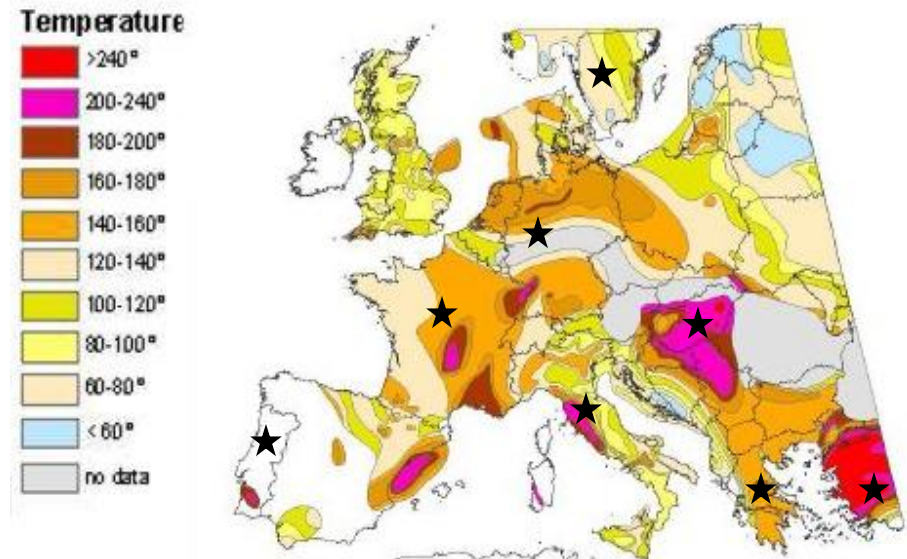
Torben Taros

Geothermic



General Information

- What is it?
- How does it work?
- Where/how is it used now?
 - Heating
 - Cooling
 - Electricity
- Potential?



History of Geothermal Energy

- In 1904, the invention of geothermal electricity plant in Italy.
 - Electricity generated by steam
- In 1922, the first operation was completed in the USA, with a capacity of 250kw
- In 1946, installation of the first ground-source geothermal heat pump in Oregon
- Due to the Oil Crisis and the Kyoto Protocol, plants spread in European countries
 - Italy, Iceland, Austria, Switzerland, etc.

Pros

- Most “green” energy (no combustion)
- Enormous amount of untapped energy
- Quickly replenished
- Not susceptible to price fluctuations

Cons

- Very high initial investment
- Access to energy
- Not easily transported
- Superheated water is dangerous for workers



Facts & Figures

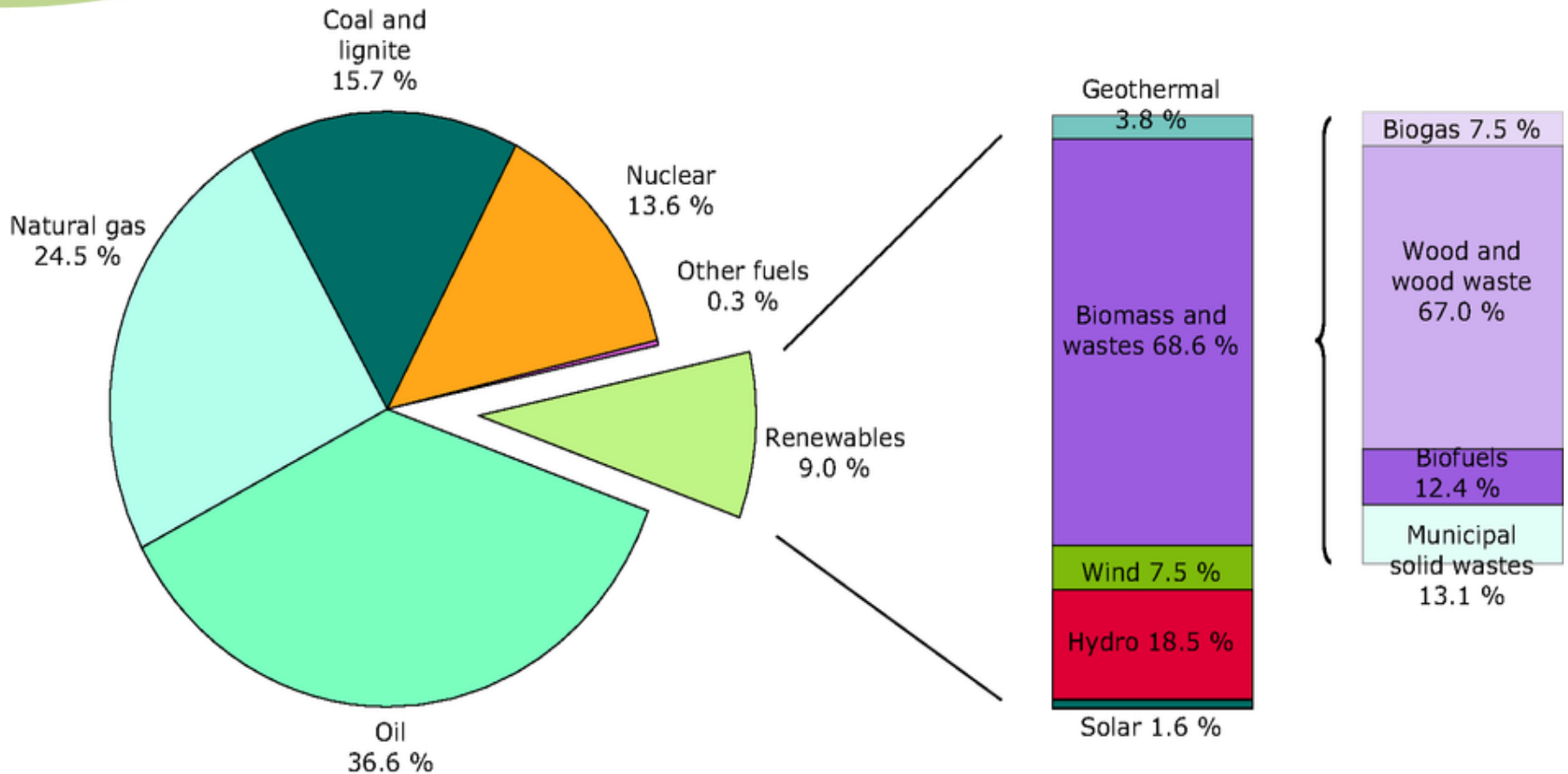


Figure: Total primary energy consumption by energy source in 2009, EU-27

EU Comparison

Country	2030
Ireland	2,7%
Italy	1,9%
Portugal	1,9%
UK	1,2%
Spain	0,9%
France	0,6%
Germany	0,4%

Country	2030
Denmark	0%
Estonia	0%
Finnland	0%
Lativa	0%
Lithuania	0%
Luxembourg	0%
Sweden	0%

Figure: Geothermal Energy Production in relation to Gross Electricity generation (in GWh)

References

European Commission Info on Sustainability: <http://ec.europa.eu/>

EU Energy Trends for 2030 – Update 2009. European Commission, Directorate- General for Energy

Geothermal Pros and Cons: <http://geothermalprosandcons.net/>

History of Geothermic Energy: <http://www.conserve-energy-future.com/GeothermalEnergyHistory.php>

Renewable primary energy consumption (CSI 030/ENER 029) - Assessment published Apr 2012: <http://www.eea.europa.eu/data-and-maps/indicators/renewable-primary-energy-consumption/renewable-primary-energy-consumption-assessment-7>

Sustainability Info: Can the European Union's Market Liberalism Ensure Security in a time of Economic Nationalism?