



Geothermal Potential and Technical Opportunities for Geothermal Based Electricity Production in Hungary

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How to describe the ambitions of Member States?



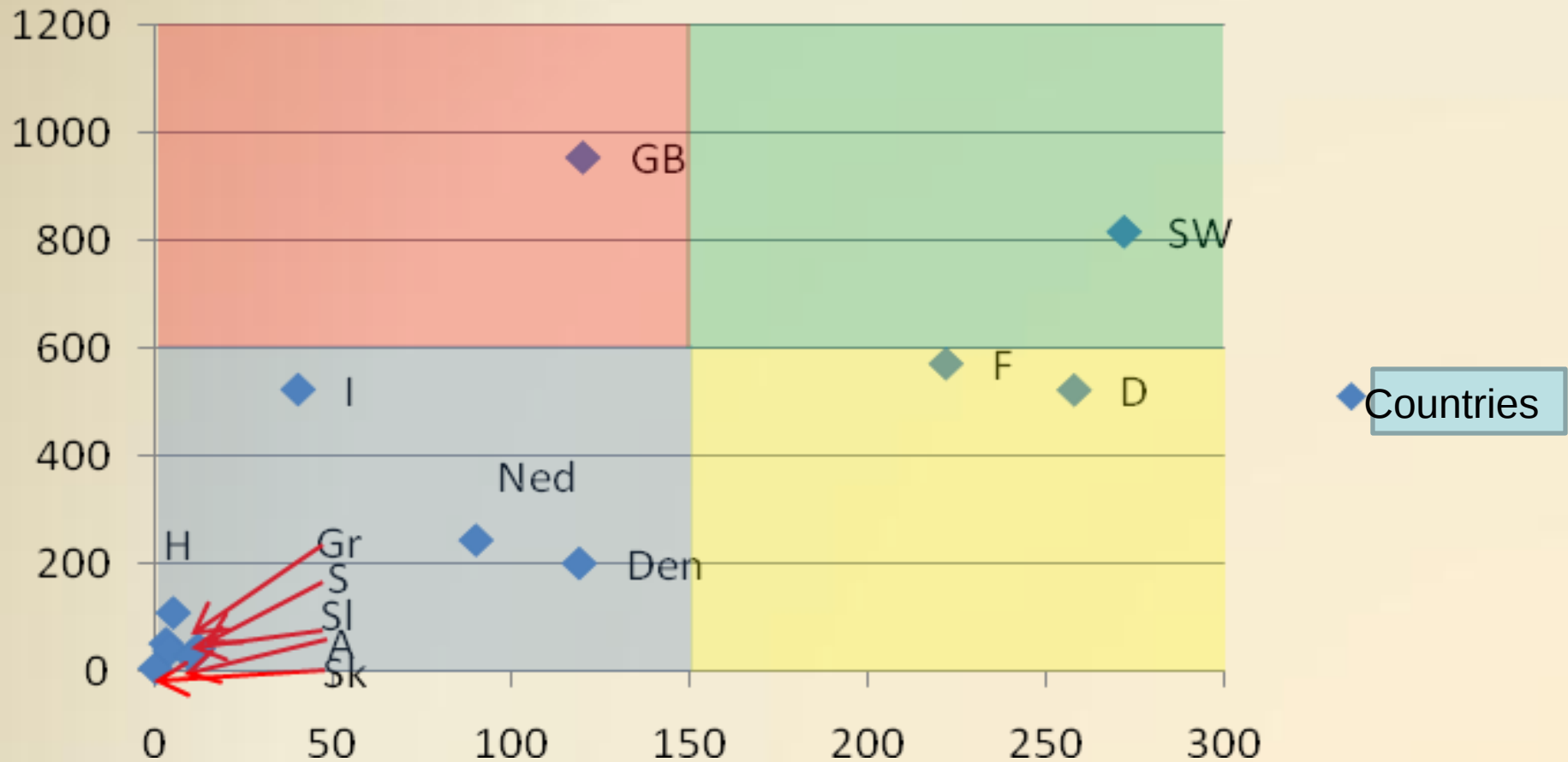
2010 value is marked horizontally,
2020 value is marked vertically.

There are four ambition types
with different colours

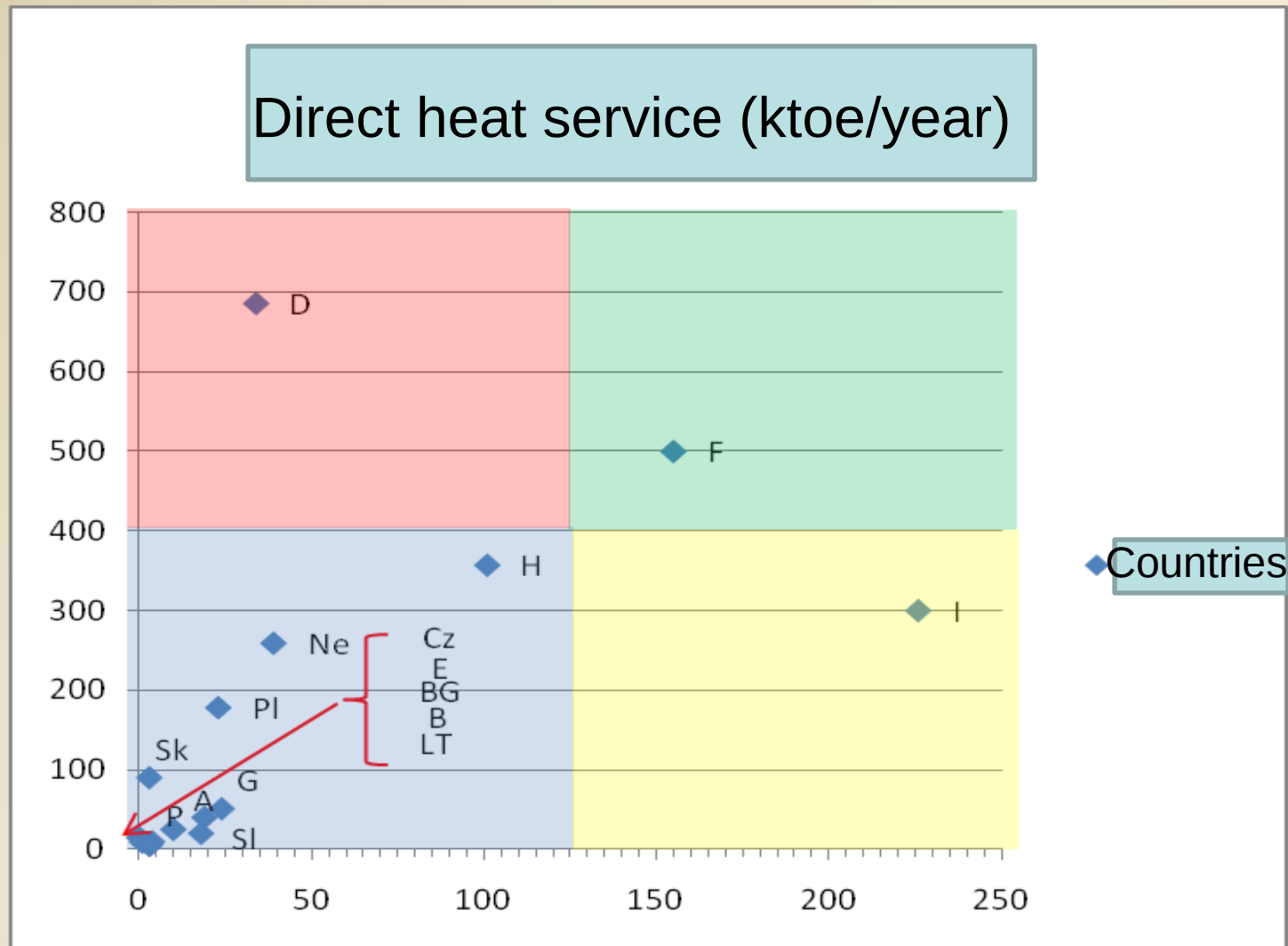
Under the black line lower,
above the line higher
ambitions.

Member States' NREAP data on graphs I.

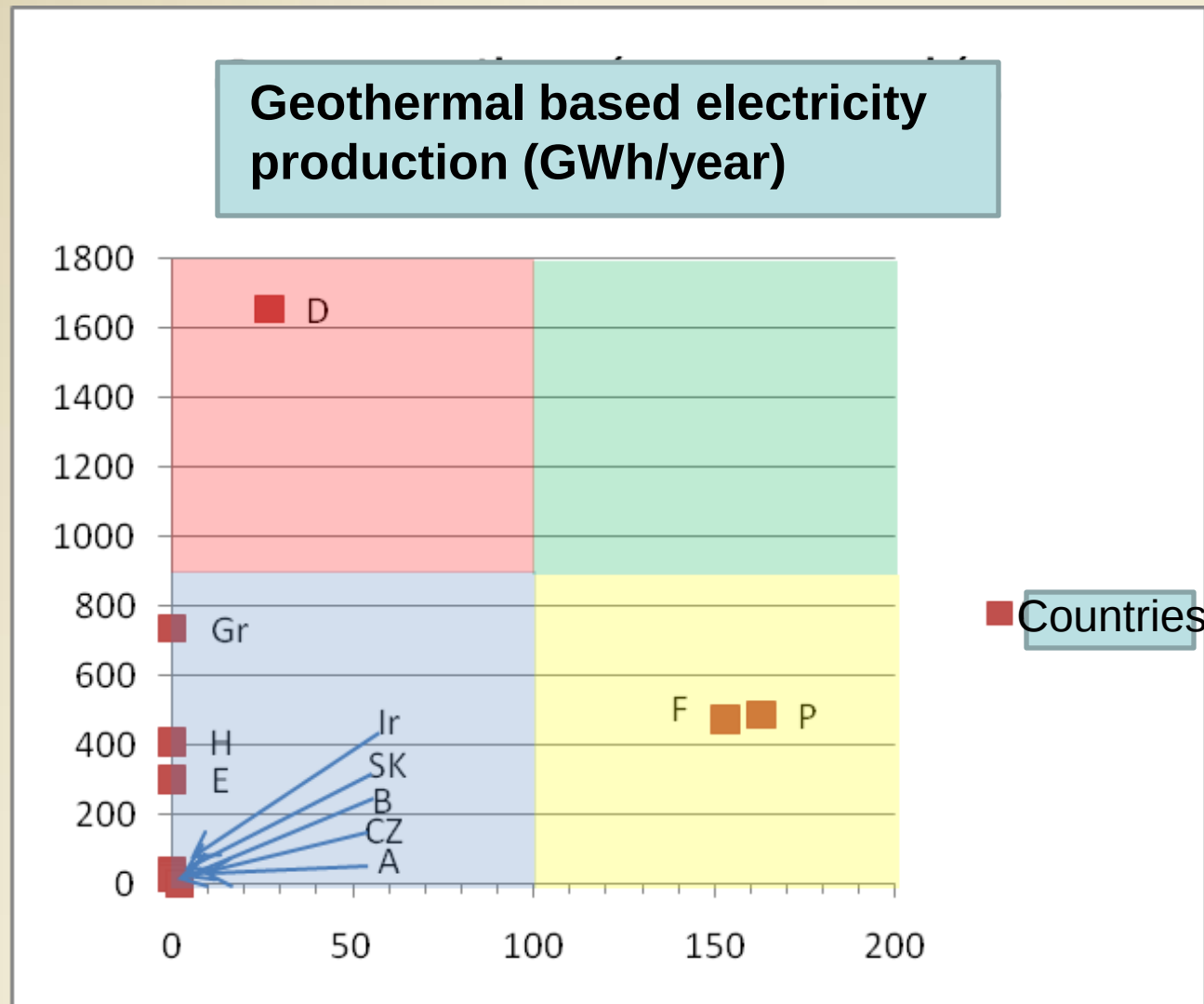
Ground source heat pumps (ktoe/year)



Member States' NREAP data on graphs II.

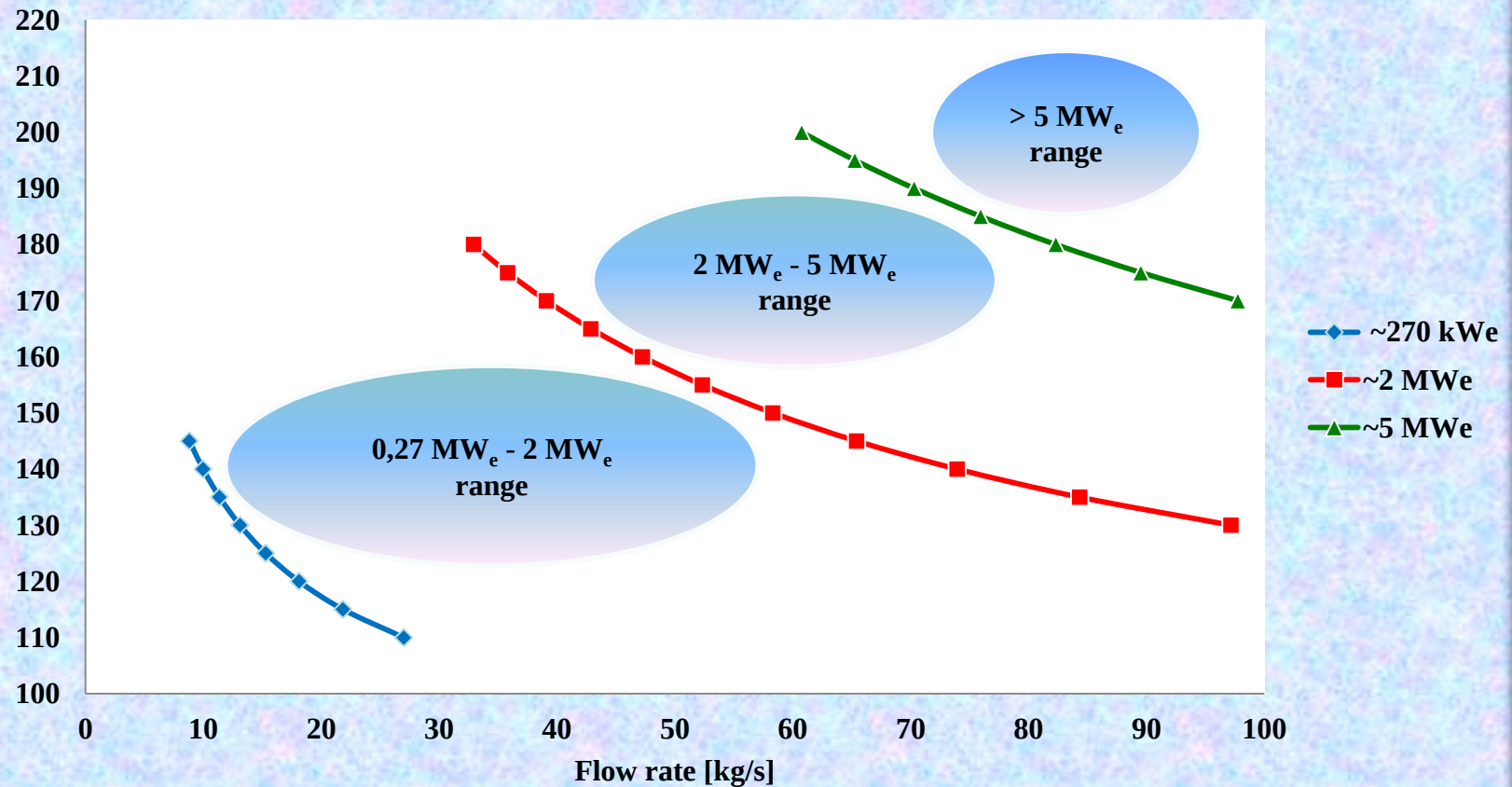


Member States' NREAP data on graphs III.



Power Plant Ranges

Temperature °C



Hungarian NREAP aims 57 MW_e geothermal power plant capacity by 2020

Plant model, MW _{el}	Depth in Pannonian Basin (m)	Thermal water temperature range (°C)	Average electric power (MW _{el})	Estimated number of installed power plant	Total power (MW _{el})
5 - 12	> 4000	160 - 200	7	3	21
2 - 5	3000 – 4000	120 - 160	3	8	24
max. 2	< 3000	< 120	1.0	12	12
Total			2.7	21	57

This program depends on:

- Research&Development; Innovation
- Regulations
- Macroeconomic background
- EU and Government subsidies
- Existence of all market actors

Geothermal Power Plant Project Types

1. Micro Power Plant Projects ($<1 \text{ MW}_e$)
Deeper zones of sandstone reservoirs

Depth: 2-2.5 km,

Temperature range: 110/80°C

Further heat service: 80/40°C range

Yield range: 30- 60 kg/s

2. Small Scale Power Plant Projects
(1-3 MW_e)

In fractured carbonate reservoirs

Depth: 2.5-3.5 km

Temperature range: 140/80°C

Yield range: 60 -100 kg/s

3. EGS Power Plant (2-5 MWe)

Stimulated fractured carbonate reservoirs

Depth: 2.5 – 4.5 km

Temperature range: 160/80°C

Yield range: 60- 100 kg/s

4. EGS Power Plant (5-12 MWe)

Hydrofracking the basement under the Pannonian sediments

Depth: 4 – 5.5 km

Temperature range: 200/90°C

Yield range: 80 – 120 kg/s



Thank you for your attention!

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