GeoHeat for Horticulture

Decarbonisation, Adaptation, and Resilience.

Host: Celia Wells

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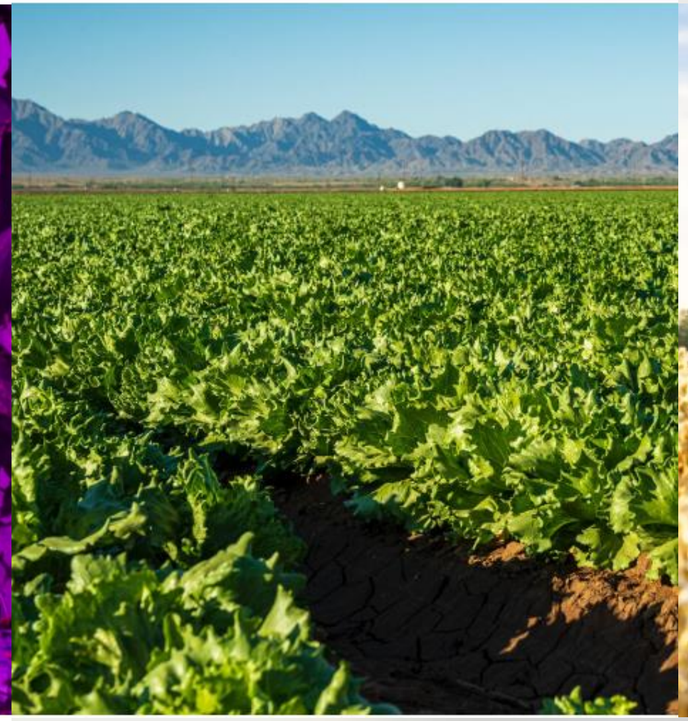
Geothermal Week | Taupō

Energy | Food Production

Netherlands

United States



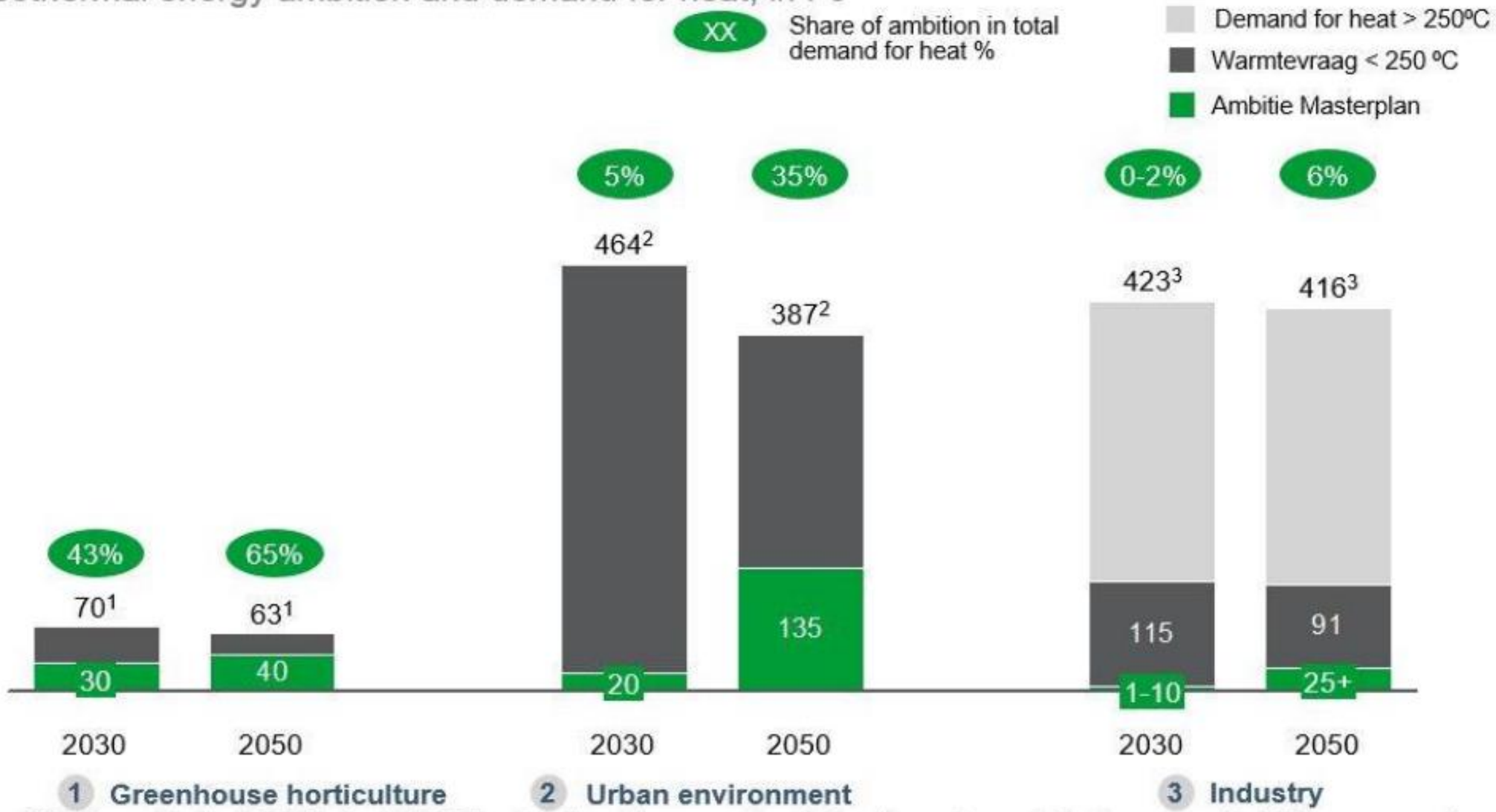
Fossil Fuels | Food production

The Dutch Geothermal Strategy for Greenhouses

2030 – 43% of heating from geothermal
2050 – 65% of heating from geothermal

Figure 4: Geothermal energy ambition compared to the demand for heat per end user sector

Geothermal energy ambition and demand for heat, in PJ

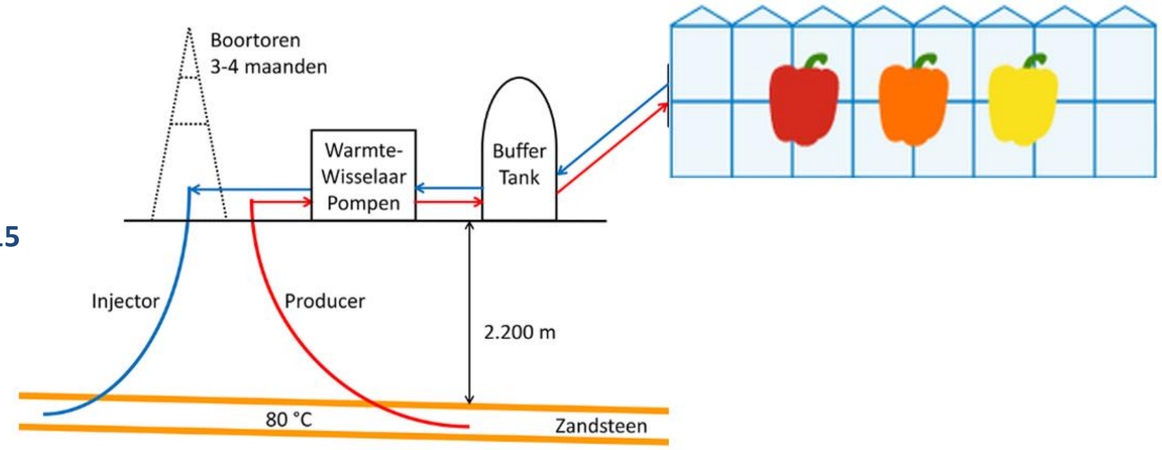


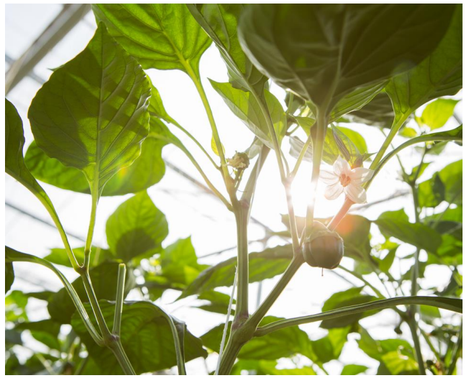
1 Source 2018 demand for heat LTO Glaskracht (75 PJ) and decline at the same rate as in the urban environment due to energy saving/efficiency assumed
2 Source 2050 demand for heat CE Delft and linear decline in demand for heat assumed
3 Source: McKinsey Energy Insights "Global Energy Perspective 2018"

SOURCE: LTO Glaskracht, CE Delft, IF Technology, McKinsey Energy Insights

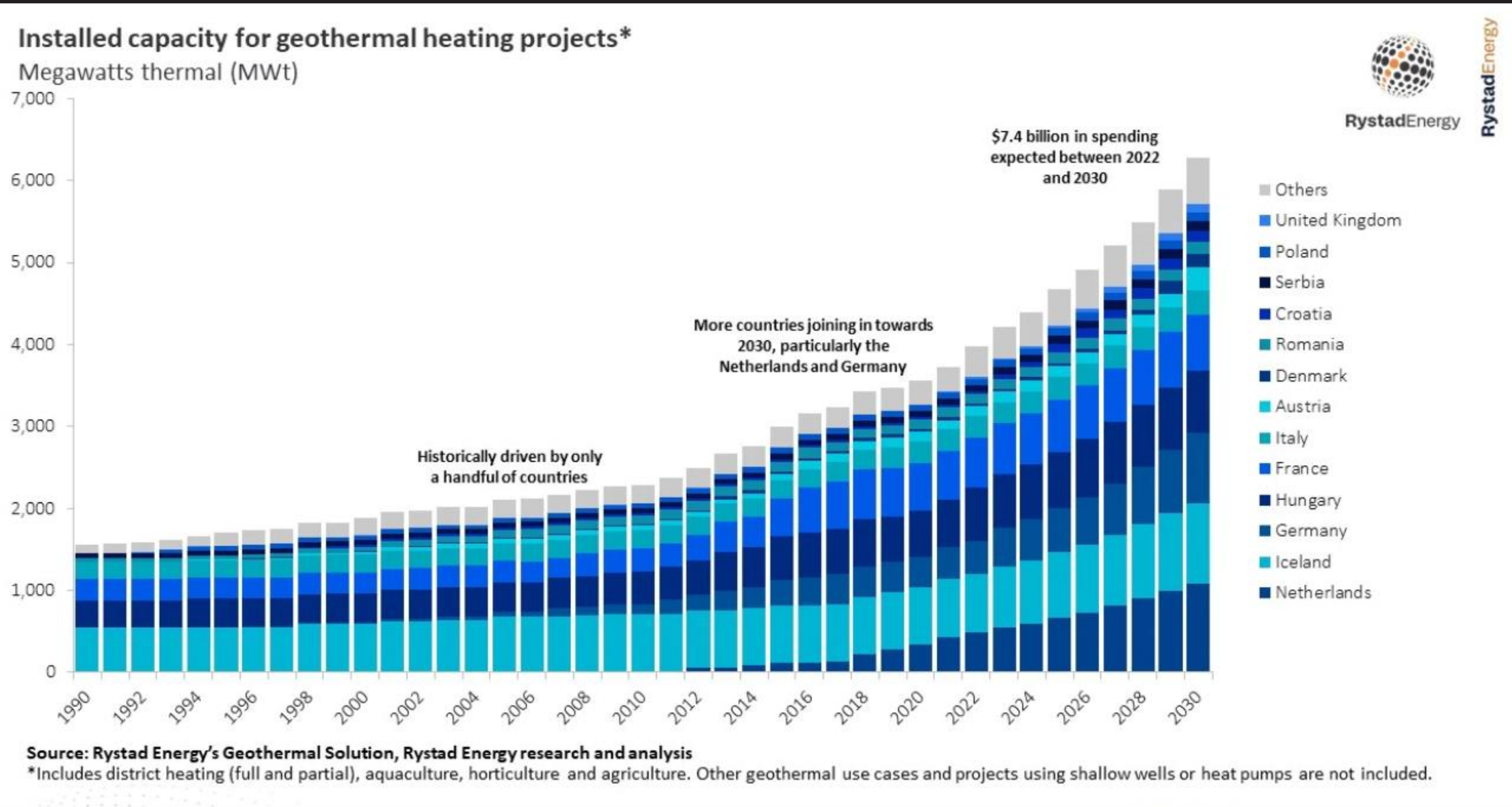
Direct-use low temperature geothermal (<150°C)

- Hoogweg capsicum greenhouses
- 160 hectares of greenhouse
- 1 prodction well, 2 reinjection & expanding
- Geothermal is supplimented with biomass (2 x 15 MW boilers)





Geothermal trends | Europe and UK



Source: Rystad Energy's Geothermal Solution, Rystad Energy research and analysis

*Includes district heating (full and partial), aquaculture, horticulture and agriculture. Other geothermal use cases and projects using shallow wells or heat pumps are not included.

European investment on geothermal expected to reach USD 7.4 billion

European Commission (source: Sébastien Bertrand / flickr, creative commons)

Carlo Cariaga
28 Sep 2022

The total installed geothermal heating capacity in Europe is expected to increase by 58% by 2030 according to a research done by business intelligence company Rystad Energy.

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Investment flows in Europe

- 58% increase from today's total development by 2030
- USD 7.4 billion between 2022-2030
- Public and private capital

Big Challenge to NZ | Primary Industry opportunities

Large-scale salmon farming operations to tap geothermal

Planned salmon farming operations, Reykjanes, Iceland (source: Samherji fiskeldi)

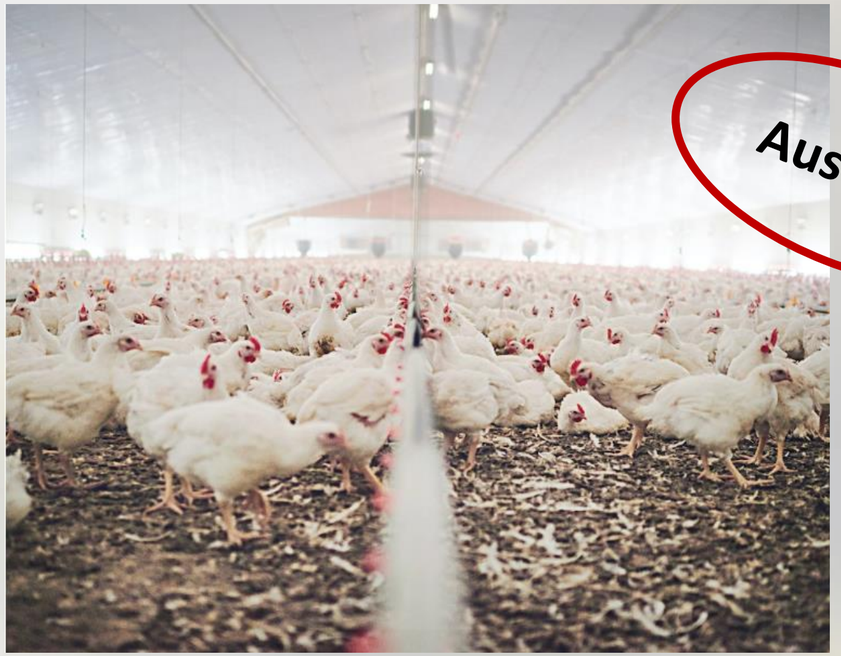
Alexander Richter
17 Jun 2021

With a planned investment of $370 million, land-based salmon fish farming operations to tap into geothermal energy from the Reykjanes geothermal plant by HS Orka in Iceland.

INNOVATION

Geothermal powered poultry meat

A new hybrid geothermal and solar energy system could dramatically reduce emissions and energy costs for more than 800 Australian poultry farms.



> "There still needs to be gas in the tanks for emergencies, but the goal is to remove the annual gas bill. Instead of the farmer paying the gas company, we run the geothermal system giving the farmer significant cost savings.
>
> **Ground Source Systems director Brad Donovan.**