

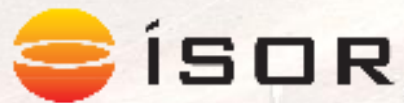


Photo Sigurður G. Kristinsson

ÍSOR – ICELAND GEOSURVEY

Bjarni Richter

Head of Marketing and Business Development





ÍSOR – ICELAND GEOSURVEY

- Owned by the Icelandic government.
- Provides specialized services to the Icelandic power industry, the Icelandic government and international companies.

75 YEARS OF EXPERIENCE

- The roots lie back in 1945, but as ÍSOR since 2003

HUMAN RESOURCES

- Geologists
- Physicists & Geophysicists
- Engineers & Technologists
- Chemists & Geochemists
- Other Academic Education
- Other Education



55 Employees

Photo Niels Giroud

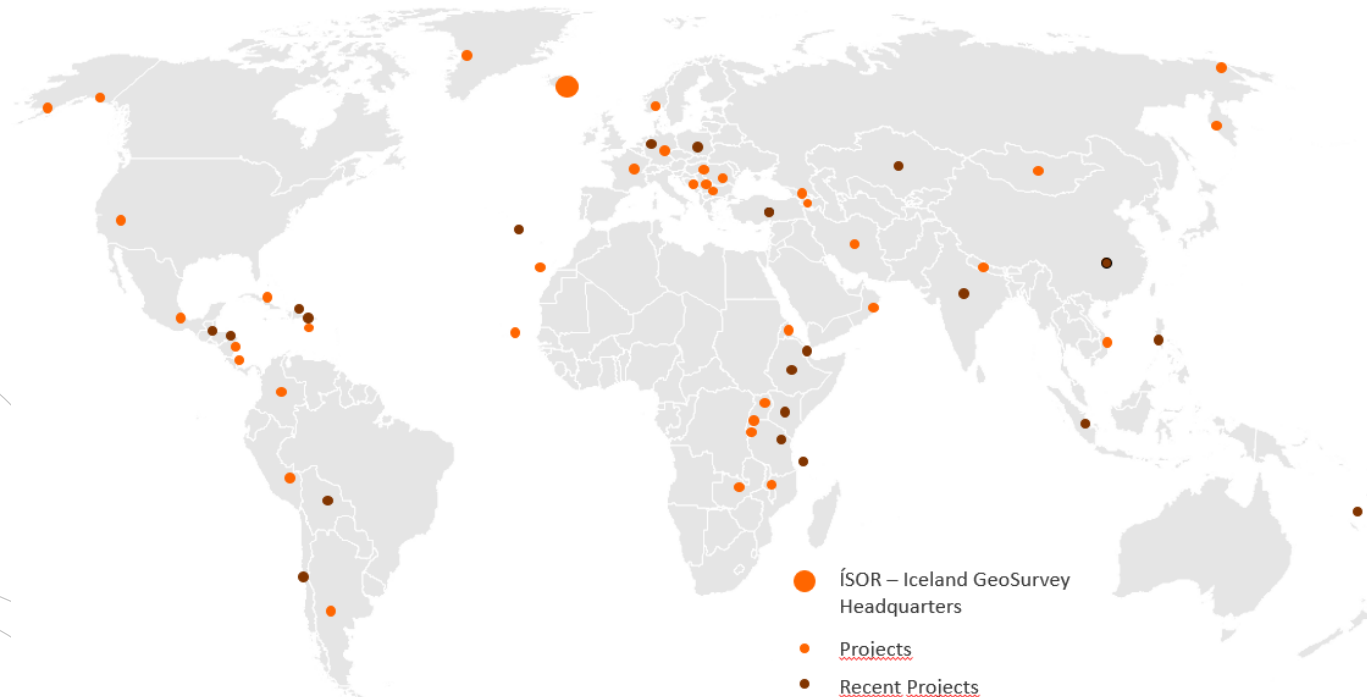
A FEW WORDS ON ÍSOR

SERVICES

- Geothermal exploration
3G: Geology, Geophysics, Geochemistry
- Drilling consultancy
- Well logging and mud logging
- Well testing and evaluation
- Resource assessment and management
- Due Diligence and Feasibility reports
- Geothermal training
- Environmental and Groundwater studies
- Engineering geology
- Offshore exploration
- Information technology

- ÍSOR has been involved in most geothermal projects in Iceland, both for power production and direct usage of geothermal fluids.
- ÍSOR has also been involved in geothermal development all over the world for many decades.
- Successful harnessing of geothermal energy, i.e. power or direct use, needs well executed exploration, proper data processing and combined interpretation of available data.
- In that, ÍSOR has excelled for decades.

ÍSOR PROJECTS AROUND THE WORLD



GEOHERMAL POWER STATIONS IN ICELAND

Nesjavellir 1996 - 2005
120 MWe + 300 MWth



Hellisheiði 2006 - 2011
303 MWe + 133 MWth



Svartsengi 1977 - 2007
75 MWe + 190 MWth



Reykjanes 2006
100 MW



Total 753 MWe

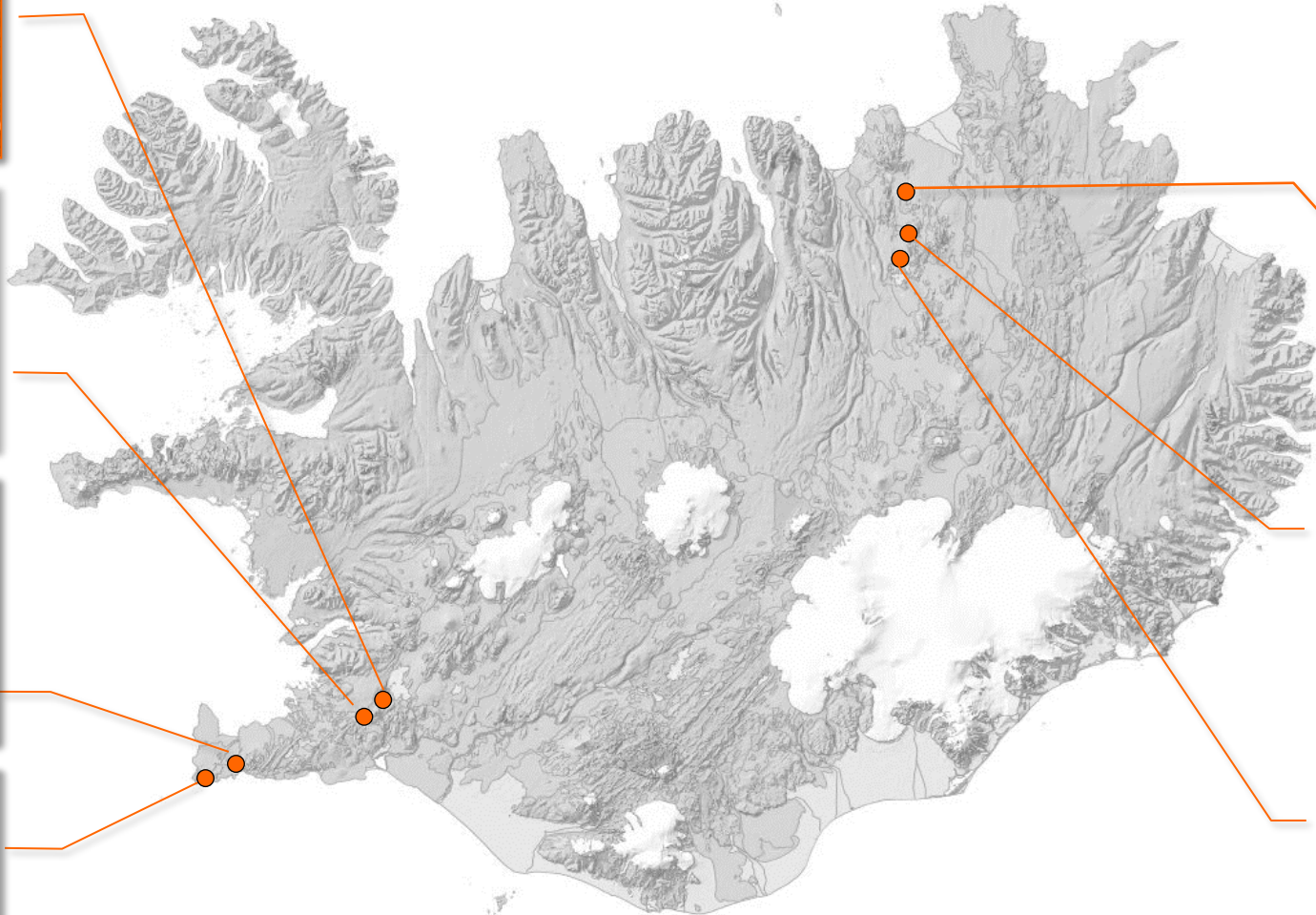
Peistareykir 2017
90 MWe



Krafla 1977-97
60 MWe



Bjarnarflag 1969
5 MWe



ÍSOR has been a key actor in all development of geothermal power production in Iceland.



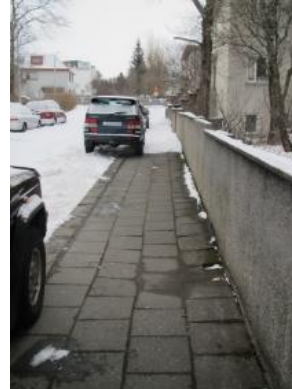
Photo: Brynja Jónsdóttir

GEOHERMAL DISTRICT HEATING

- Iceland GeoSurvey has been a key actor in all developments of district heating in Iceland, which is providing a total of ~ 2300 MWth.
- A few key figures from geothermal district heating utilities in Iceland:
 - Reykjavik Energy: ~1200 MWth
 - HS Veitur: ~200 MWth
 - Veitur (several systems): ~180 MWth
 - Akureyri: ~120 MWth
 - Mosfellsbæri: ~70 MWth
 - Selfoss: ~50 MWth
 - Húsavík: ~40 MWth
 - Seltjarnarnes: ~40 MWth

SOME DIRECT UTILIZATION OF GEOTHERMAL ENERGY IN ICELAND, WITH ÍSOR INVOLVEMENT

- DISTRICT HEATING – ABOUT 90% OF ALL HOUSES IN ICELAND ARE HEATED WITH GEOTHERMAL
- BATHING AND SWIMMING – SPAS AND PUBLIC SWIMMING POOLS
- AQUACULTURE, SUCH AS FISH FARMING IN REYKJANES PENINSULA
- DRYING OF FISH PRODUCTS, AND OTHER TYPES OF FOOD PROCESSING
- SALT PRODUCTION FROM SEAWATER – NORÐURSALT AND SALTVERK
- SEAWEED PROCESSING PLANT AT REYKHÓLAR BY ÞÓRVERK
- AGRICULTURE, GREENHOUSE GROWING
- PRODUCTION OF METHANOL IN SVARTSENGI
- CO₂ PRODUCTION, HÆÐARENDI
- DIATOMITE PLANT AT MYVATN
- SNOW MELTING / DE-ICING



WHY GEOTHERMAL?

- Offers Base Load Power and Heat. Will produce no matter the weather or time of day
- In almost all cases considerably more environmentally friendly than coal, oil and gas
- Direct use applications (from low temperature resources) are numerous and will save energy.
- House heating, with geothermal resources, is most advantageous in the northern countries, colder climates
- Cascaded use of power and direct use makes sense in most cases
- Resources can be managed in a sustainable way for decades or centuries
- Due to its baseload qualities, it works well in combination with other clean, renewable energy sources

THANK YOU



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