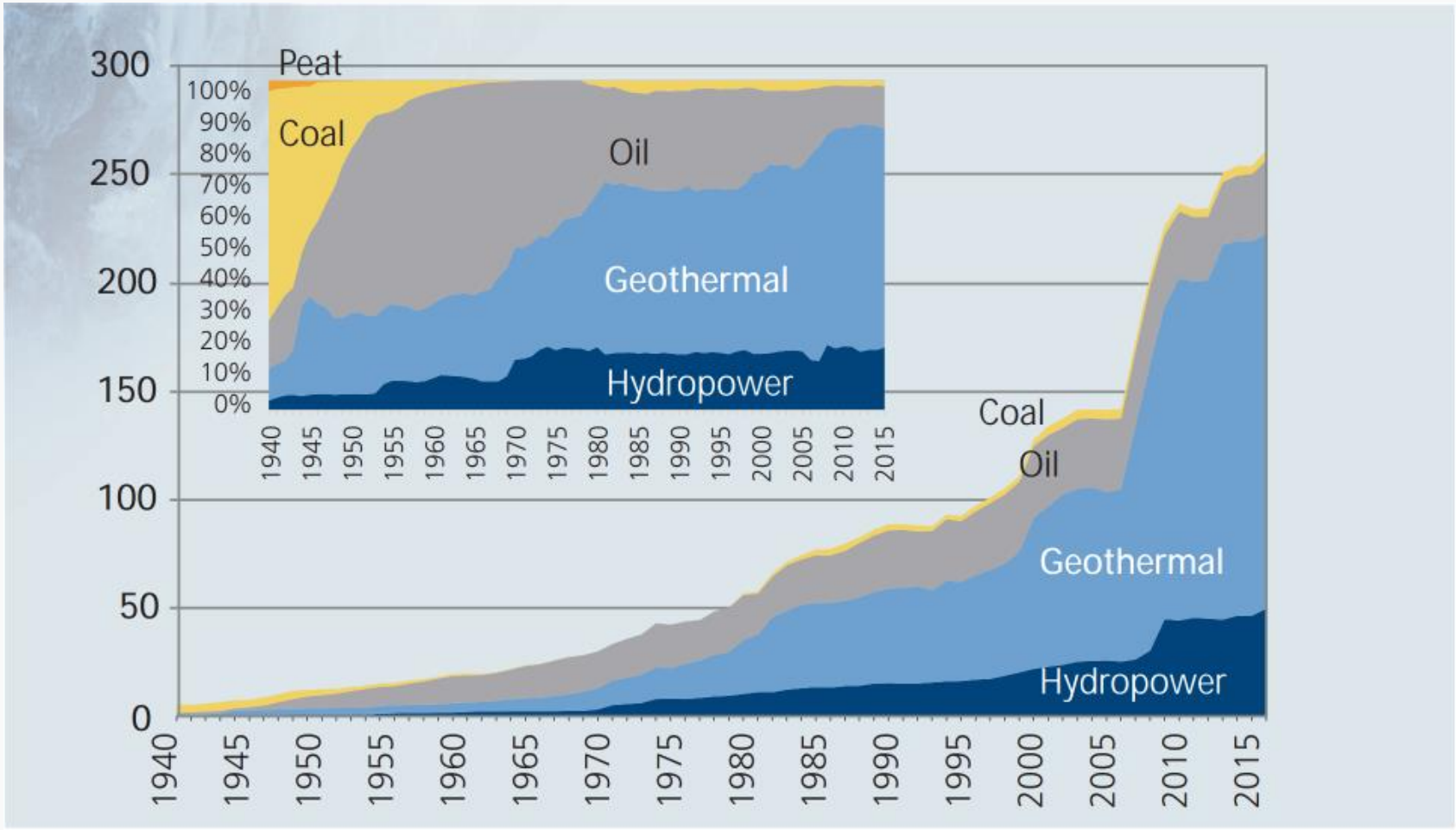
Renewable Energy in Romania, the past and the future

Hanna Björg Konráðsdóttir
Orkustofnun

Role and tasks of Orkustofnun

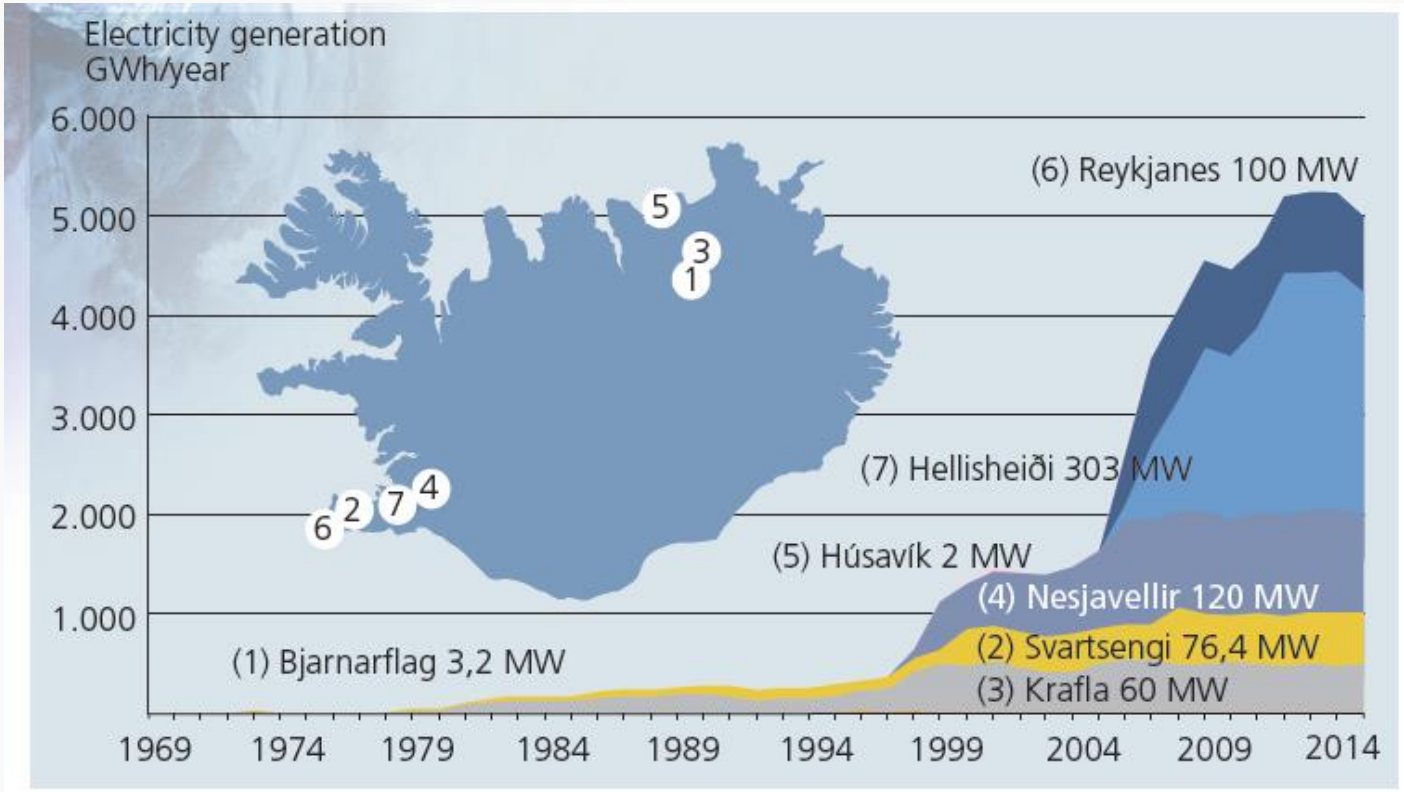
1. **Energy Policy Recommendation**
2. **Licensing resources**
3. **Monitoring resources**
4. **National Regulatory Authority**
5. **United Nations University (UNU-GTP)**
6. **International cooperation, EEA Grants, WEC, IGA, IEA, etc.**
7. **Energy Fund**
8. **The Energy Agency, (Orkusetur Akureyri)**
9. **Initiatives for geothermal exploration**
10. **Dissemination of information**
11. **Data, energy efficiency, research**

Primary Energy Use in Iceland 1940-2015



Source: Orkustofnun Data Repository OS-2016-T002-01

Geothermal Electricity Generation



Source: Orkustofnun Data Repository OS-2016-T003-01





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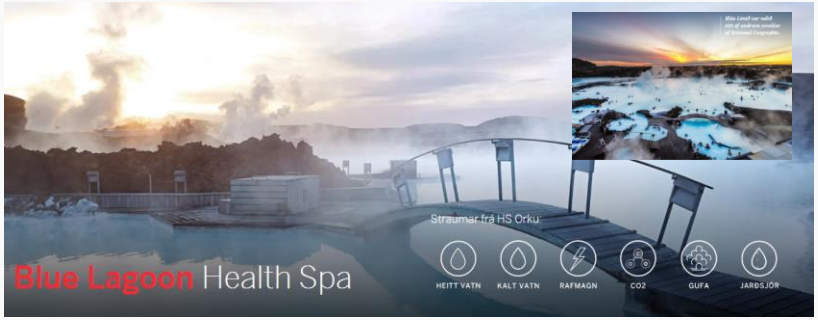
Utilisation of Geothermal Energy

Companies within the Resources Park at Reykjanes

Geothermal Power and Heat Generation

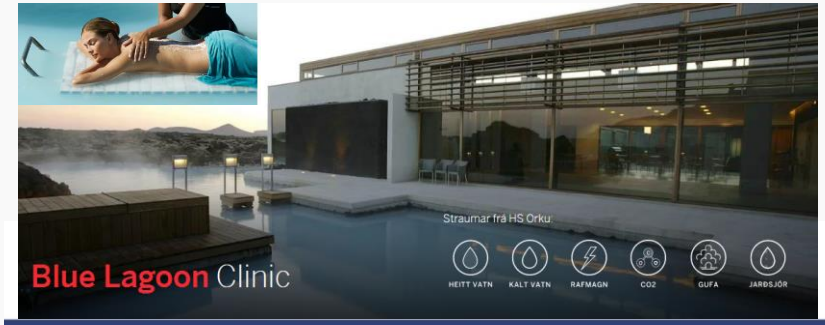
Geothermal Power and Heat Distribution

Blue Lagoon Health Spa

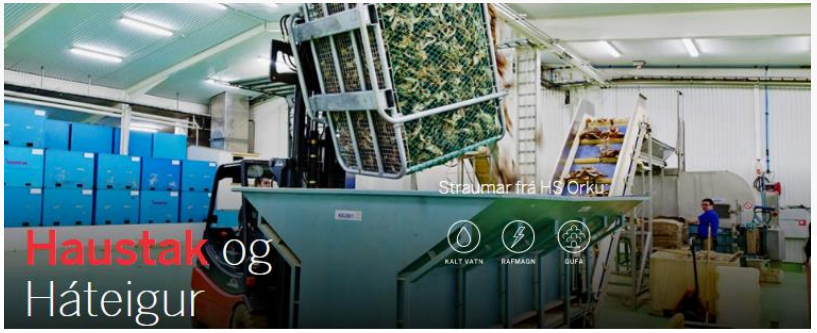


Blue Lagoon R&D Centre

Blue Lagoon Clinic



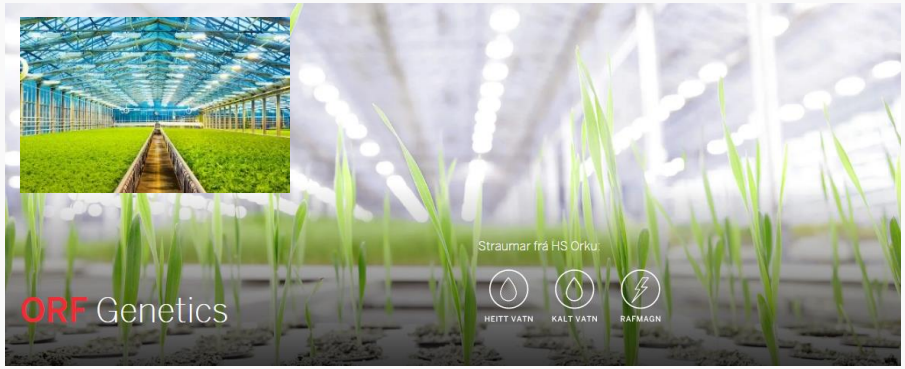
Fish Drying



Utilisation of Geothermal Energy

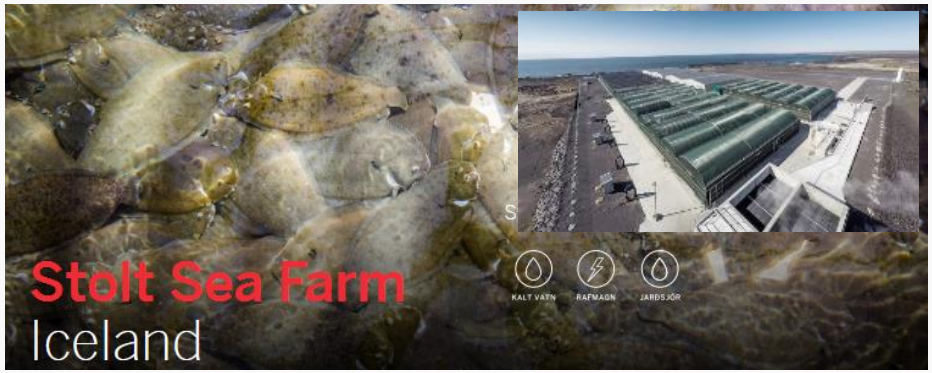
Companies within the Resources Park at Reykjanes

ORF Genetics



Hotel

Stolt Sea Farm



Carbon Recycling

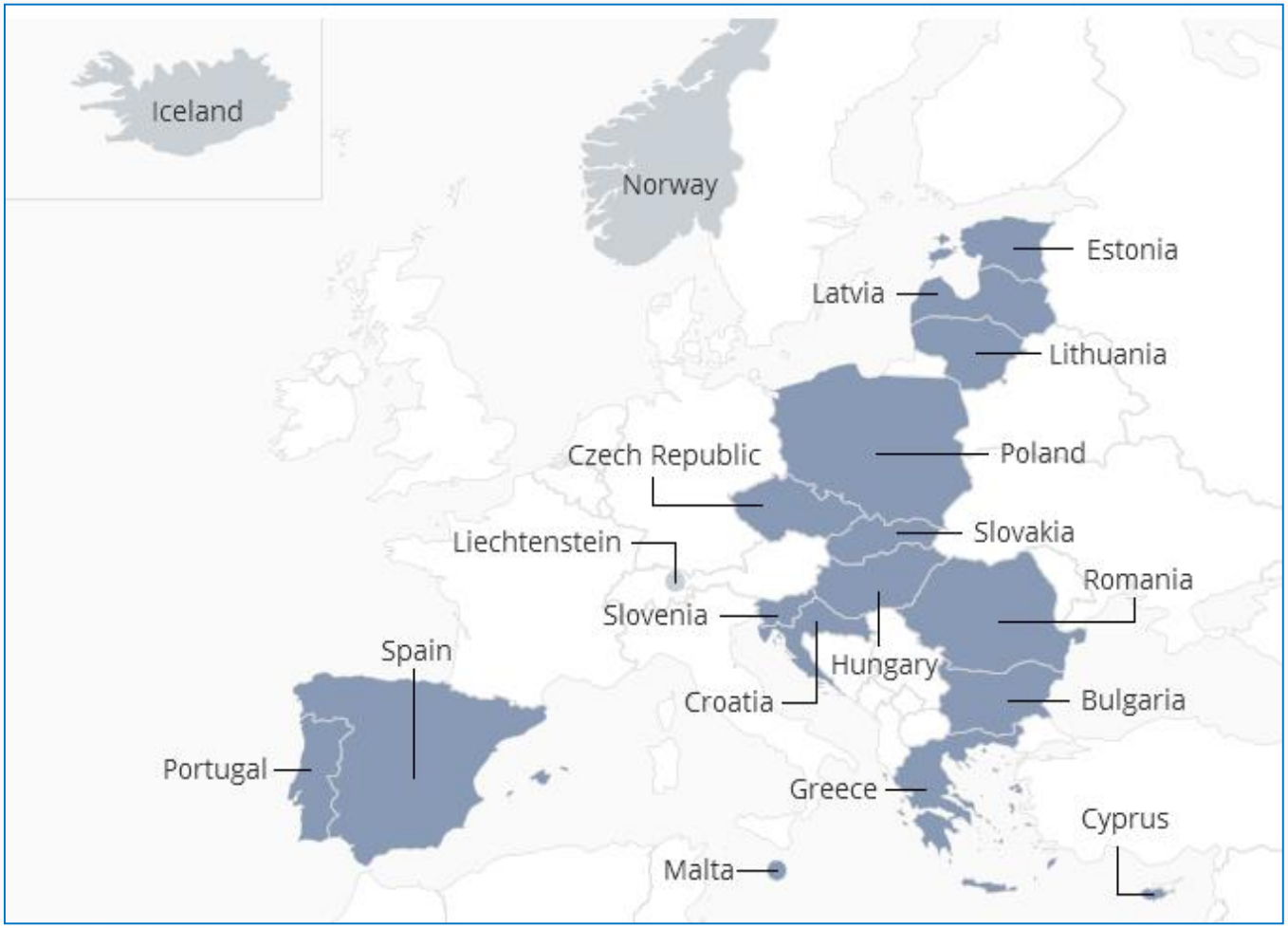
Orkustofnun has been involved in EEA Grants from 2010

Our EEA Grant Team

- Jónas Ketilsson, Senior Manager - Deputy Director General
- Baldur Pétursson, Manager - International Projects/Public Relations
- Hanna B. Konráðsdóttir, Specialist-Geothermal Law,
- María Guðmundsdóttir, Specialist - Geothermal Energy Economics
- Jón Ragnar Guðmundsson, Specialist - Engineering Management of DH
- Jón Ásgeir H. Þorvaldsson, Specialist-Geothermal Information Analyst
- Harpa Pétursdóttir, Legal Advisor - International Projects
- + additional experts

International Cooperation – EEA Grants

Orkustofnun is Donor Program Partner (DPP) for Renewables in some Countries



Romania

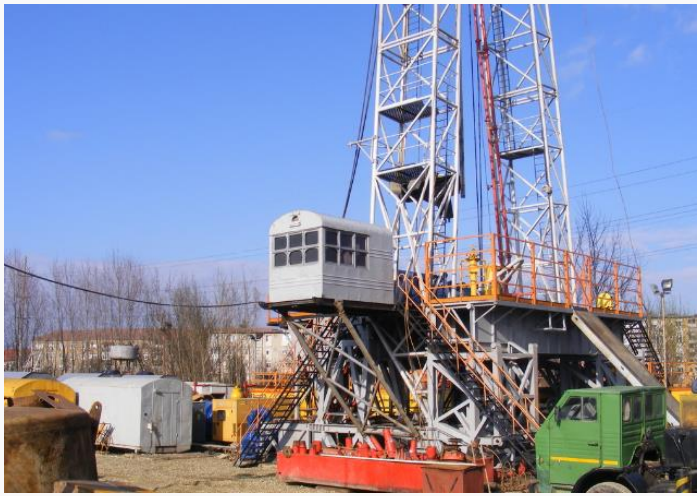
- RONDINE Programme in Romania (12,3 M€)
  - Small hydro power plants across Romania and geothermal projects.
  - Icelandic experts participated in both portions, with good results.
  - Feasibility studies in Oradea and Beius.
  - Four fellows attended the 6 month UNU-Geothermal Training Programme in Iceland in 2016.
  - UNU-GTP short courses and workshops in Romania.
  - Several trips organized for experts from both countries to visit each other.

Romania

- Ilfov County project – geothermal district heating (1,45 M€)
  - Geothermal heating using an existing well for a hospital in Balotesti in Ilfov county, north of Bucharest, was successfully implemented in 2016 with the support of the EEA grants, and has replaced the gas heating system, producing great savings for the hospital.
  - Geothermal heating potential in the Bucharest area has now been proven.
  - Ilfov county is planning to move ahead with the development of at least two more geothermal heating systems, following the success of the EEA grants project in Balotesti.
  - Plans to further utilise the geothermal fluid for pools for the patients in the hospital.

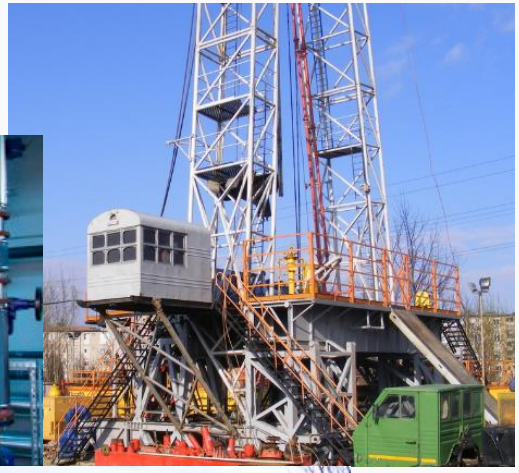
Romania

- Oradea project – geothermal district heating(3 M€)
- When geothermal energy replaces fossil fuels it reduces emissions, increases energy security by shifting to local resources and prices remain stable, giving a long term benefit to consumers
- In Oradea in Romania, coal is replaced by geothermal energy from water in district heating.



Romania

Old coal power plant in Oradea is (500 MW) – closing and replaced by gas and geothermal resources – reducing emission, mitigating climate change
and improve quality of life.



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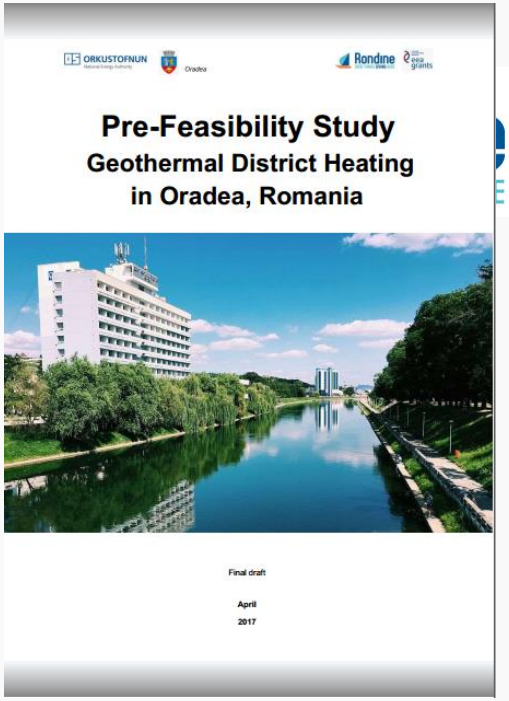
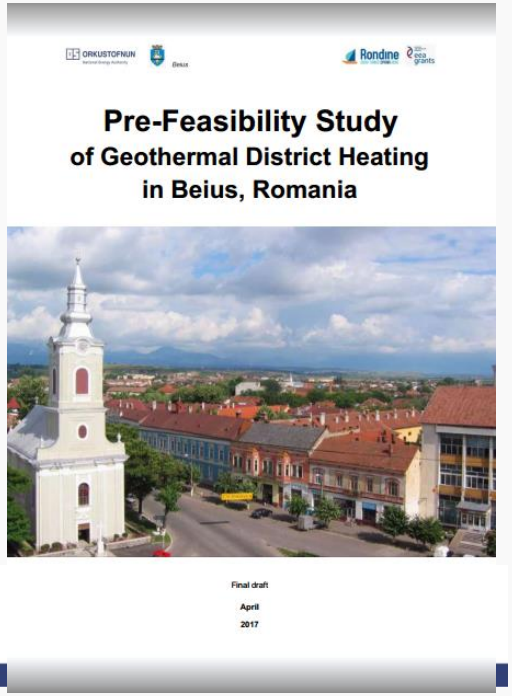
Romania

Pre-Feasibility Studies on geothermal possibilities in cities in Romania





Romania

Various meetings and conferences in Romania and Iceland

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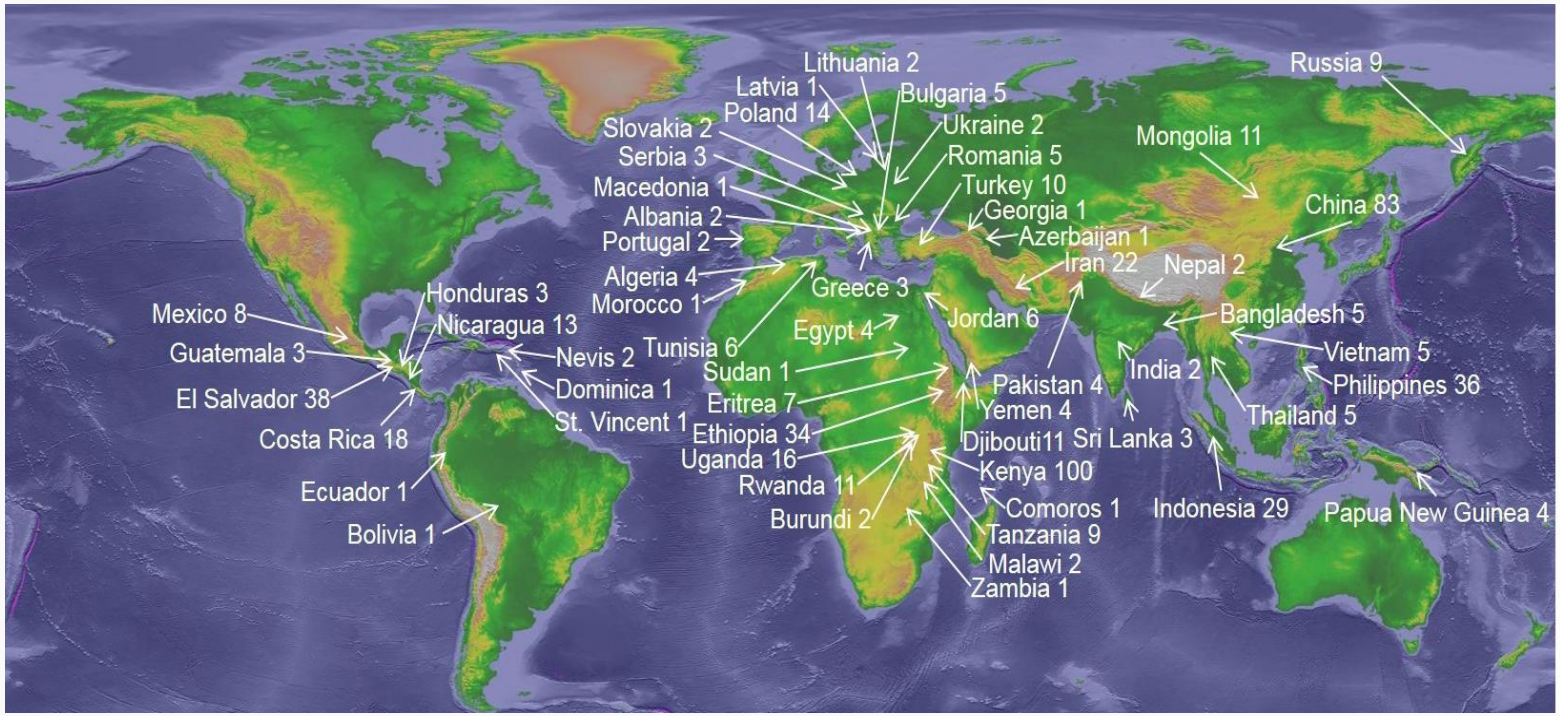
International Cooperation - Geothermal

The United Nations University Geothermal Training Programme in Iceland



UNU-GTP Fellows in Iceland 1979-2014 – 583 from 58 countries.

The Geothermal Training Programme of the United Nations University (UNU-GTP) is a postgraduate training programme, aiming at assisting developing countries in capacity building within geothermal exploration and development. The programme consists of six months annual training for practicing professionals from developing and transitional countries with significant geothermal potential. Priority is given to countries where geothermal development is under way, in order to maximize technology transfer.

Hungary

- Renewable Energy Programme in Hungary (7,7 M€)
  - Focus on geothermal areas where a market for heat is in place (GeoDH)
  - Higher education in geothermal and specialized courses
  - Increase awareness and public acceptance
  - Icelandic expertise
  - UNU Program - education, training capacity building
  - Drilling in Kiskunhalas

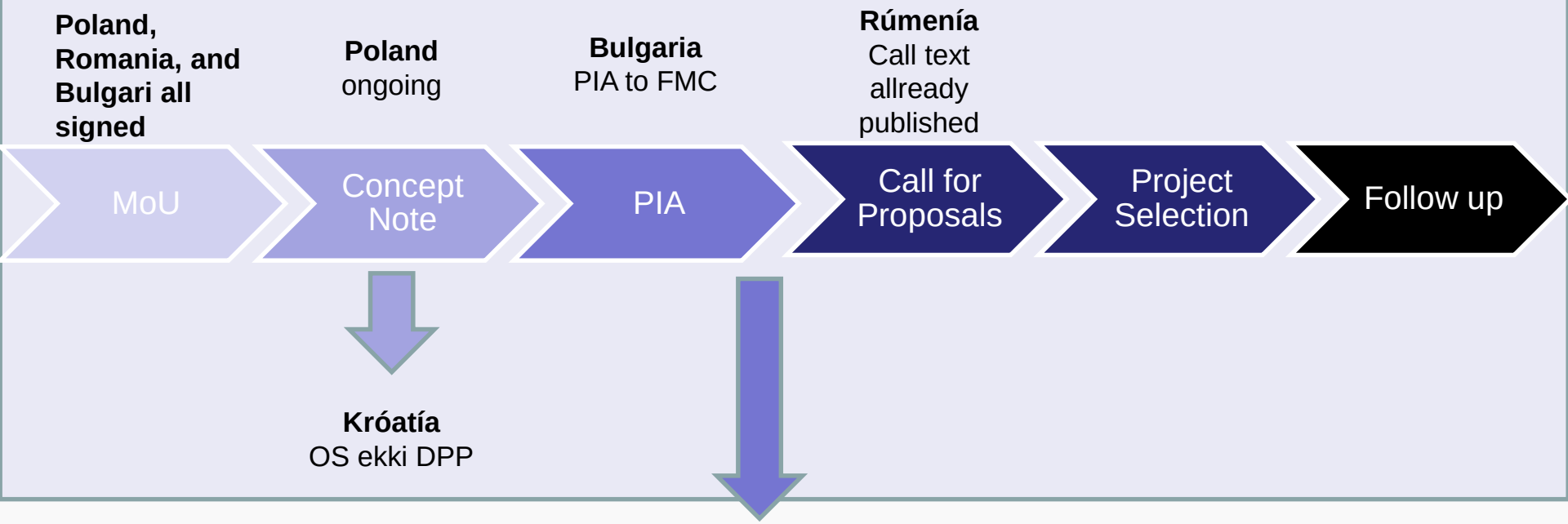
Portugal

GAia Programme
Geothermal Azores - Iceland

- GAia Programme in Portugal (4 M€)
  - Build 3 MW geothermal power plant in Terceira, Azores
  - Use existing high temperature production wells
  - Icelandic expertise
  - Six months training at UNU-GTP and short courses organized by the school

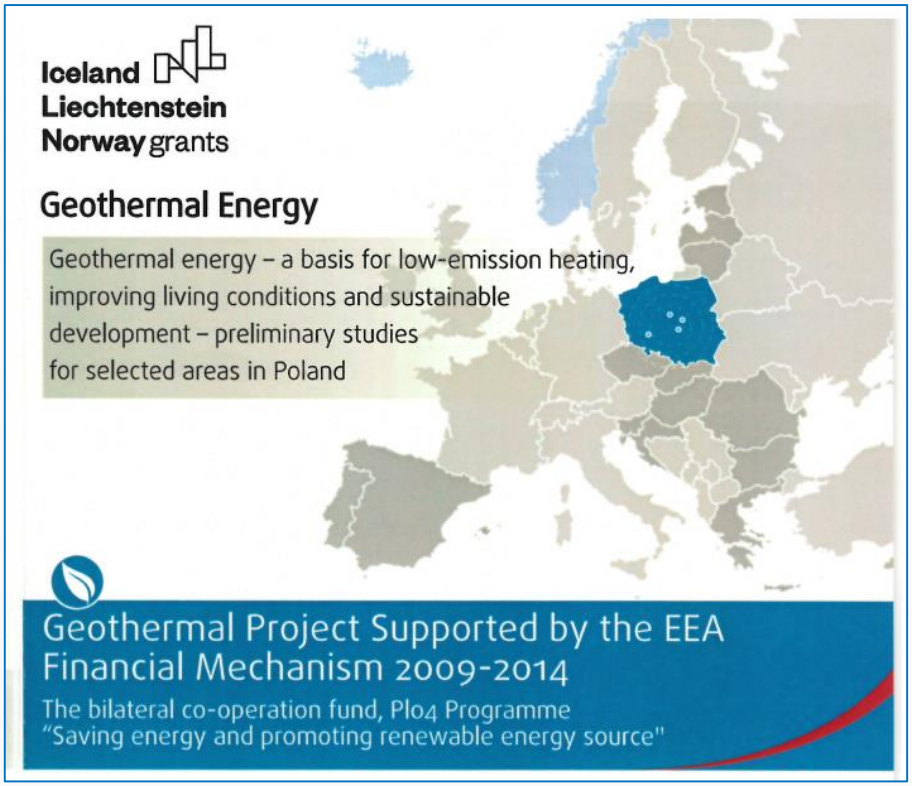
Projects status **2018**

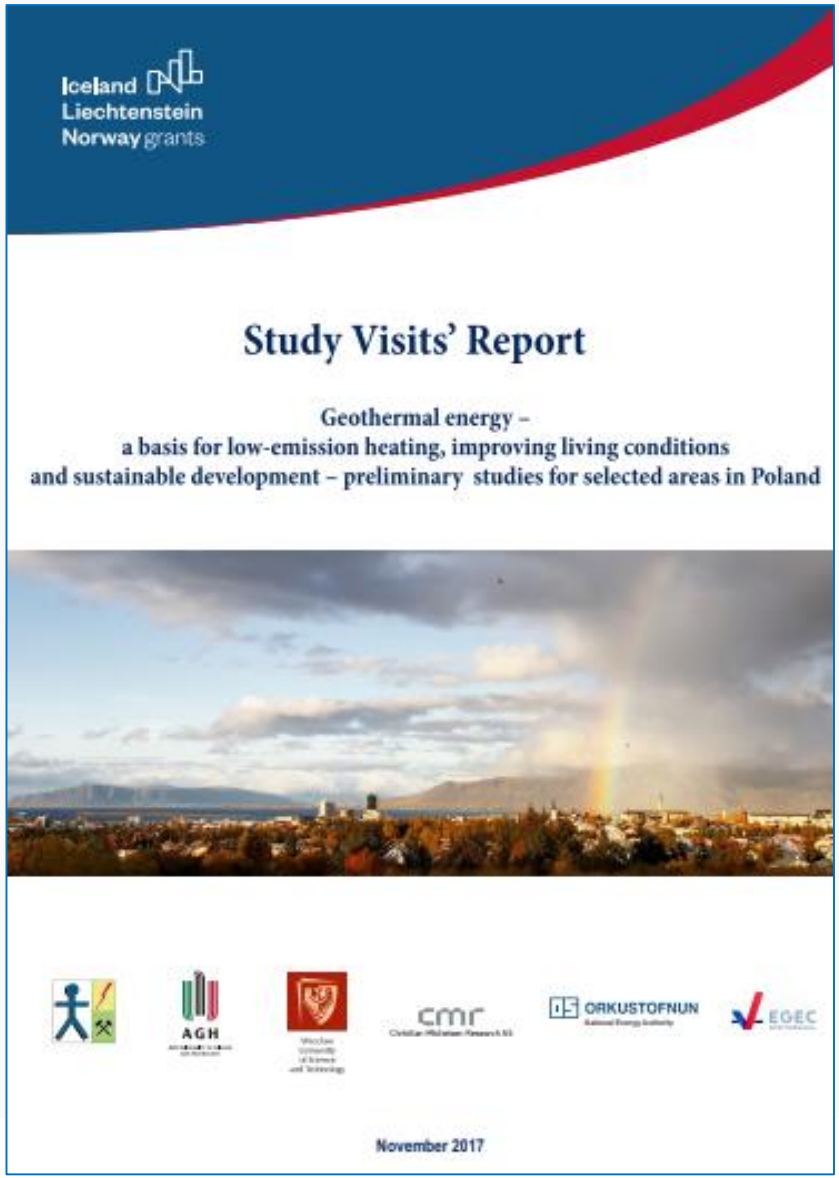
OS sem Donor Programme Partner



OS sem Donor Project Partner

Bilateral Projects in Poland in 4 cities





Looking forward to constructive cooperation – with Innovation Norway as Fund Operator

Innovation Norway

Iceland Liechtenstein Norway grants

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Energy Programme in Romania

The first Calls for Proposals is open for Renewable Energy focus area. See individual links below to reach the information

Renewable Energy - is a Powerful Tool to Fight Against Global Warming