Cooperation between European countries through the

GEOTHERMAL ERA NET

Hjalti Páll Ingólfsson

Project Manager, Orkustofnun, Iceland

Geothermal ERA NET coordination Office

Co-author: Paul Ramsak,
GEO ERA NET Knowledge Exchange WP-leader

ORKUSTOFNUN
National Energy Authority

SEVENTH FRAMEWORK PROGRAMME

- Launched by Iceland, the Netherlands, France, Germany, Slovak Republic, Hungary, Switzerland, Italy and Turkey

- **Aims:**
  - **Deepen European cooperation** at national and administrative levels
  - Enable the **integration of national research programs**
  - Develop agenda for a coherent European geothermal R&D program

- **Focus** on the utilization of geothermal energy ranging from direct use to high enthalpy resources for power generation

- Budget of the Geothermal ERA NET: € 2.2 mln (2012-2016)

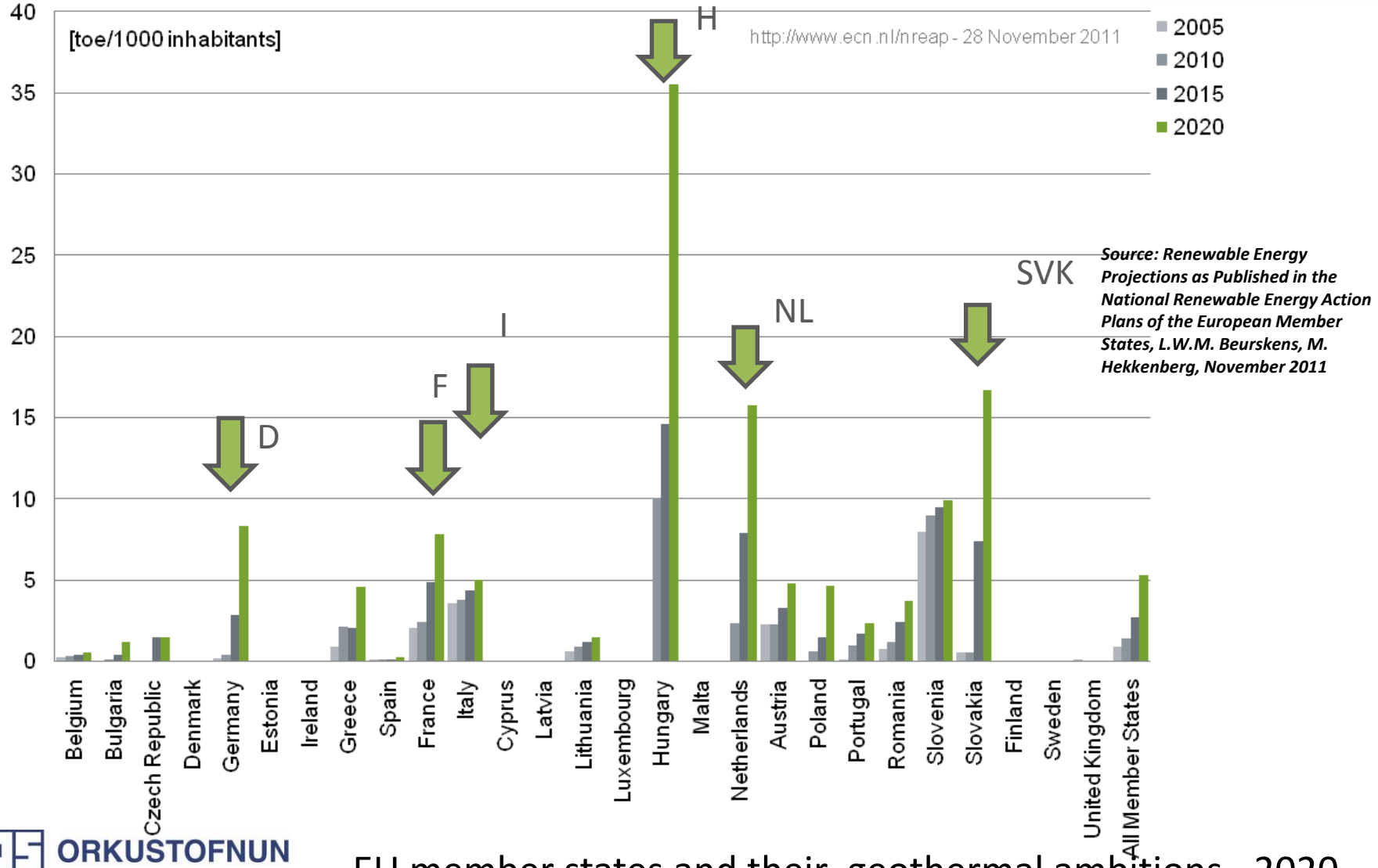
Geothermal ERA-NET

Lead partner is Orkustofnun (National Energy Authority of Iceland)

Good geographical balance (North-West to South-East Europe) Partner countries chosen a.o. on basis of their 2020/2050 geothermal ambitions

Adding partners is a high priority target to strengthen and broaden the ERA-NET

ORKUSTOFNUN
National Energy Authority



Source: Renewable Energy Projections as Published in the National Renewable Energy Action Plans of the European Member States, L.W.M. Beurskens, M. Hekkenberg, November 2011

ORKUSTOFNUN
National Energy Authority

EU member states and their geothermal ambitions - 2020

Geothermal ERA-NET (founding) partners

Geothermal energy program owners and managers

IS Orkustofnun (National Energy Authority of Iceland)

NL Agentschap NL (NL Agency)

CH Swiss Federal Office of Energy

I National Research Council of Italy (CNR)

D Project Management Jülich (PTJ)

F ADEME (French Agency for Environment and Energy; BRGM as third party)

IS Icelandic Centre for Research (RANNÍS)

TR TÜBITAK (Scientific and Technological Research Council of Turkey)

SVK Slovak Ministry of Education, Science, Research and Sport

ORKUSTOFNUN
National Energy Authority

Objectives (1/2)

- **Exchange information** on the status of geothermal energy

  including national support schemes and RD&D activities and identification of gaps

- Recognize barriers and recommend practical solutions
- **Recommend measures** to strengthen European geothermal development

  In order to meet goals set out in National Renewable Energy Action Plans and other country specific legislation and plans

- Lay groundwork to create a **European Geothermal Information Platform**

  with the purpose of sharing information on legal and regulatory aspects, policies, measures, institutions, research projects and data

- Utilize synergies at regional and pan-European level
- Achieve a critical mass to address cross-thematic research targets

Objectives (2/2)

- Gain a clear understanding of the principal **stakeholders**
- Communicate with principal stakeholders and enhance public awareness on the added value and benefits of geothermal scientific and policy issues.

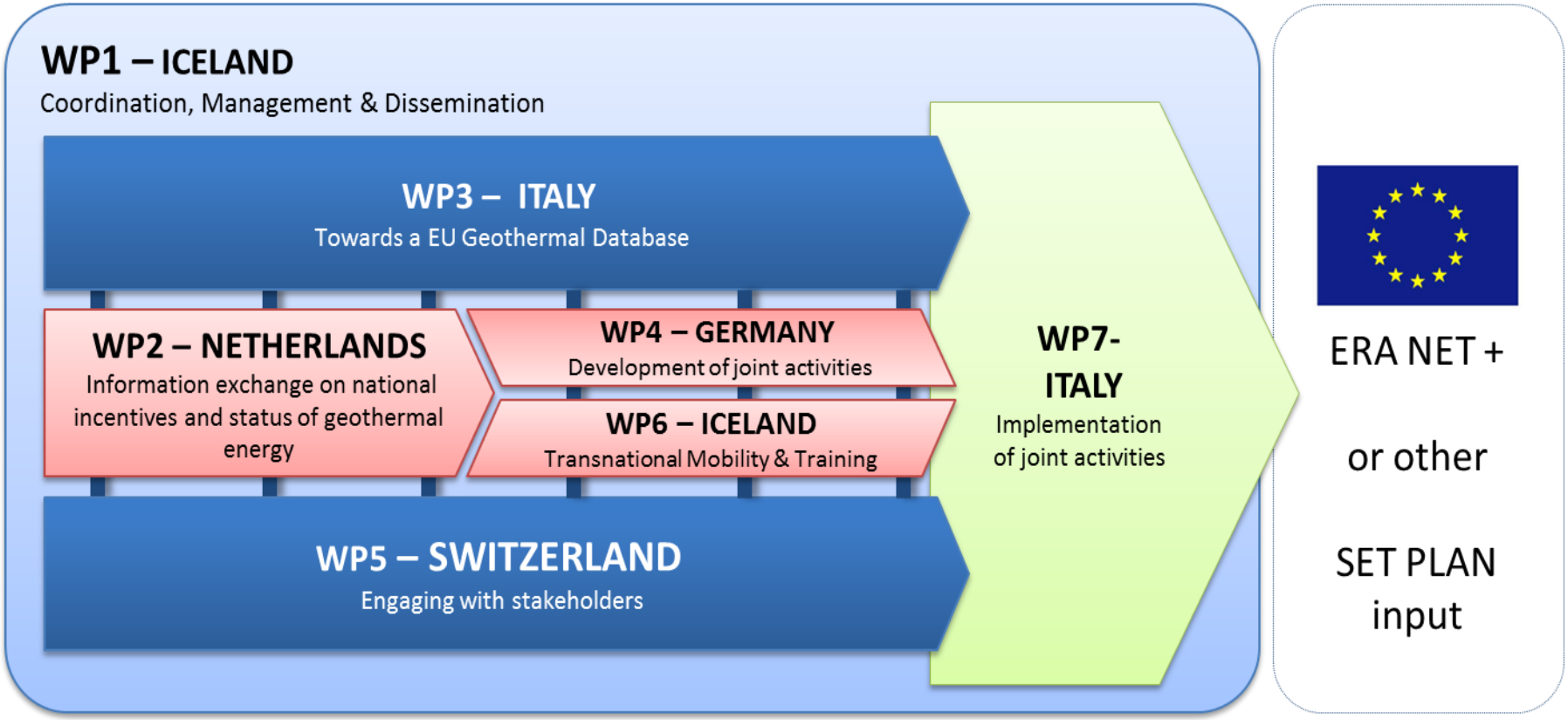
- Increase transnational collaboration in **research training and mobility**

- **Prepare the ground for the formulation of a common European action plan**

  for geothermal energy technology research, development, deployment and innovation supported by member states
- **Prepare and implement Joint Activities**

  (e.g. transnational funding activities)

Organisational structure / Work packages



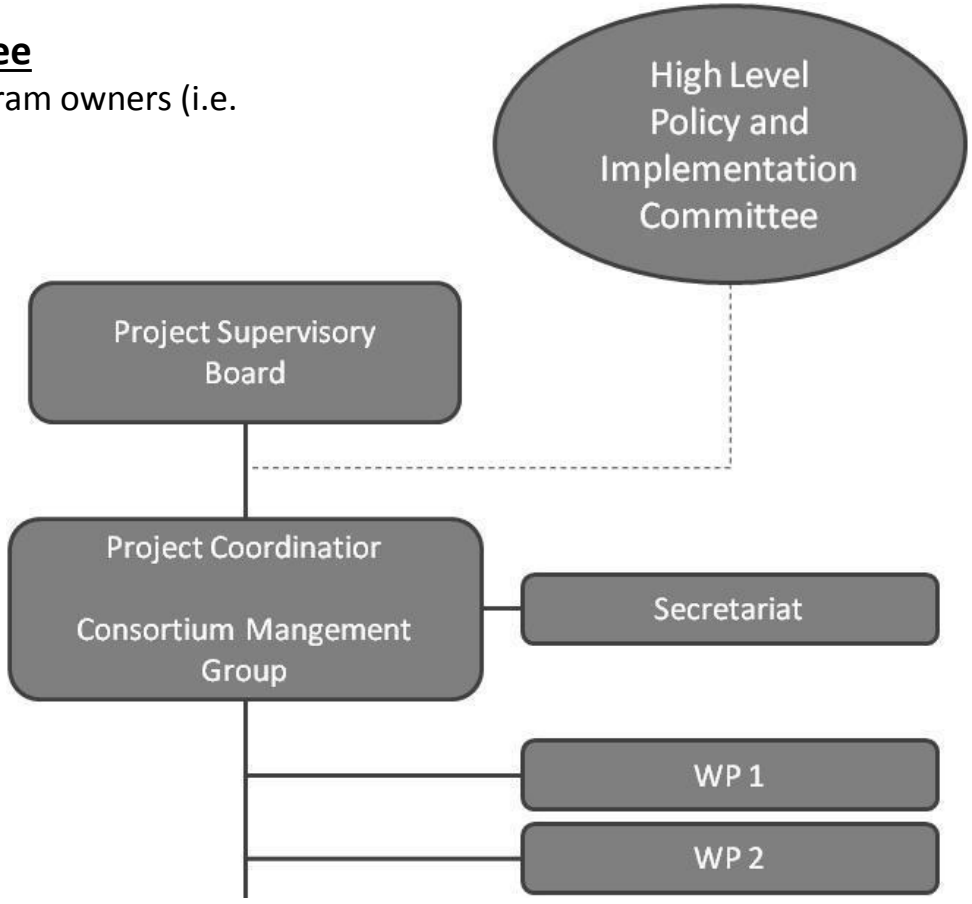
Governance structure

<u>High Level Policy and Implementation Committee</u>
supports the Geothermal ERA-NET, encompassing program owners (i.e. ministries of member and associated states)

Each partner agency has a single seat in the **<u>project supervisory</u>** board. The board is responsible for all major strategic and operational decisions

The **consortium management group** consists of all work package leaders and will occasionally be attended by leaders of individual tasks.

Close cooperation with relevant organizations at European (EERA, EGEC, etc.) and national levels (geothermal associations, research institutes, etc.)



ORKUSTOFNUN
National Energy Authority

Activities on the road

- Define potential **new partners**: UK, Norway, Romania, Slovenia, Austria, Spain, Greece and Portugal ...
- The ERA NET **website** : www.geothermaleranet.eu
- Information Exchange started; information collection through questionnaires:
  - Status, programmes and public incentives
  - RD&D highlights (selected projects)
  - Mapping of national stakeholders
  - Available data and databases
- Prepare the ground for **EGIP**, 1st Roundtable in Reykjavik, 5th of March 2013, 2nd Roundtable in Pisa, 3rd of June 2013

… and ahead

- Identify and analyse technical and non-technical barriers (and opportunities) for geothermal development and map the need for future RD&D
- Propose (joint) actions to bridge gaps, overcome barriers and promote the use of geothermal energy in Europe

Outlook (1/2)

- **GEOTHERMAL ENERGY offers major opportunities for**
  - Reducing greenhouse gas emissions
  - Reducing dependence on fossil fuels for energy use
  - Improving quality of life
  - Growing the low-Carbon technology industry and creating employment opportunities

For the future of our European cities

For the future of our Food supply

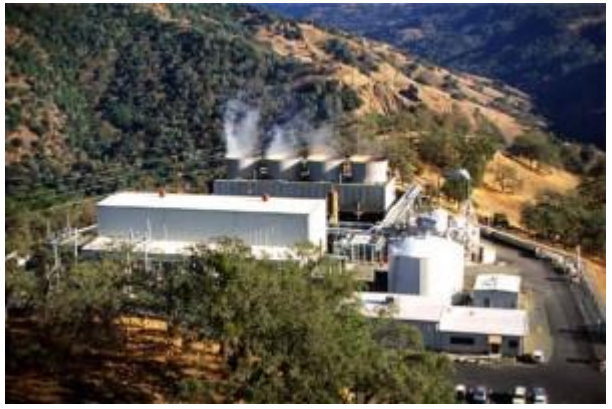
For our Industry and Power

ORKUSTOFNUN
National Energy Authority

Industry and Power Generation
Icelandic Geothermal Power

Industry and Power Generation

Italian Geothermal Power



ORKUSTOFNUN
National Energy Authority

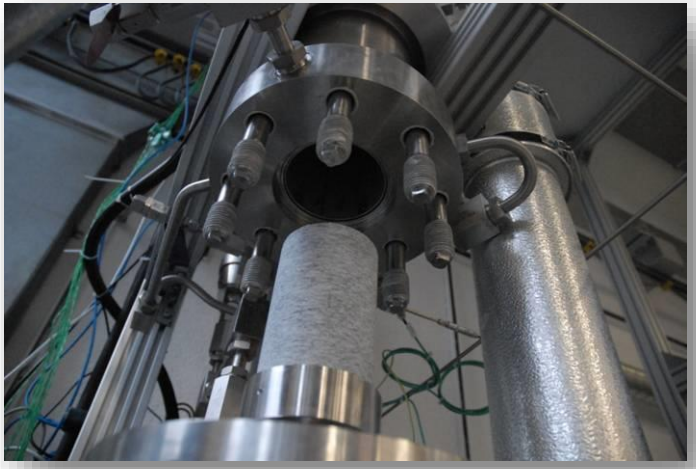
Industry and Power Generation

Turkish potential

ORKUSTOFNUN
National Energy Authority

Industry and Power Generation

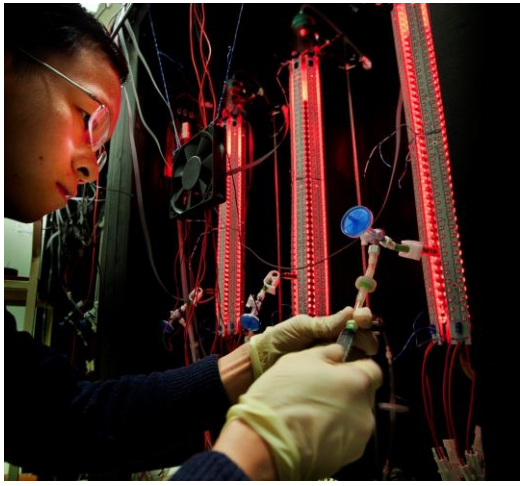
Innovative Slovak + Swiss drilling



ORKUSTOFNUN
National Energy Authority

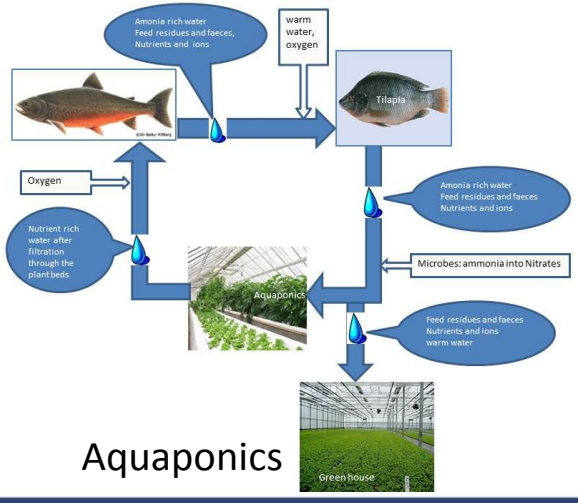
Industry and Power Generation

Diversity in utilization possibilities



Proteins from plants and algae

Cosmetics



Aquaponics

Food supply

Industrial Greenhouses in the Iceland

Hellisheidi Geothermal Plant

The GeoGreenhouse

Electricity

Hot water

Cold water

CO2

Geothermal heat and CO2

Cold water

...Icelandic Geothermal tomatoes

ORKUSTOFNUN
National Energy Authority

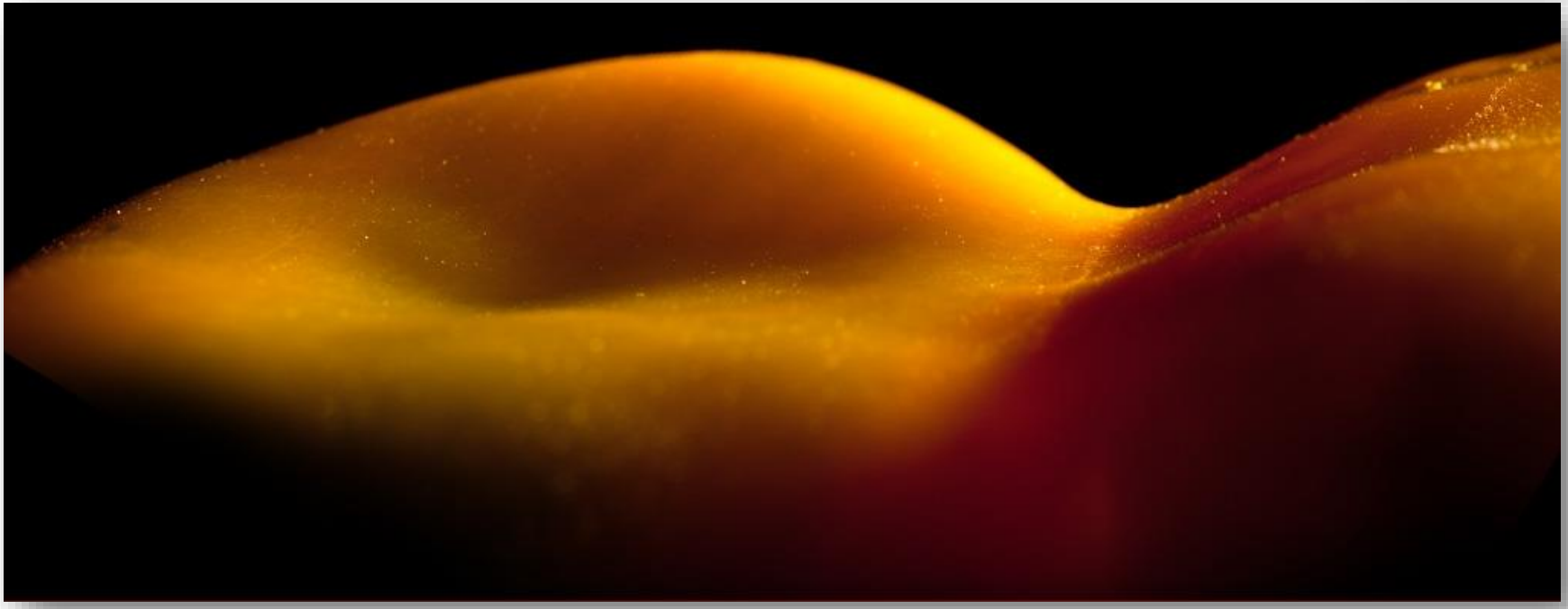
Pure Energy - Healthy Living

Food supply

Greenhouses in the Netherlands

…Geothermal Dutch tomatoes

Food Supply



…Dutch Geothermal sweet peppers

Food Supply

Italian Geothermal Cheese

European Cities
Geothermal Paris

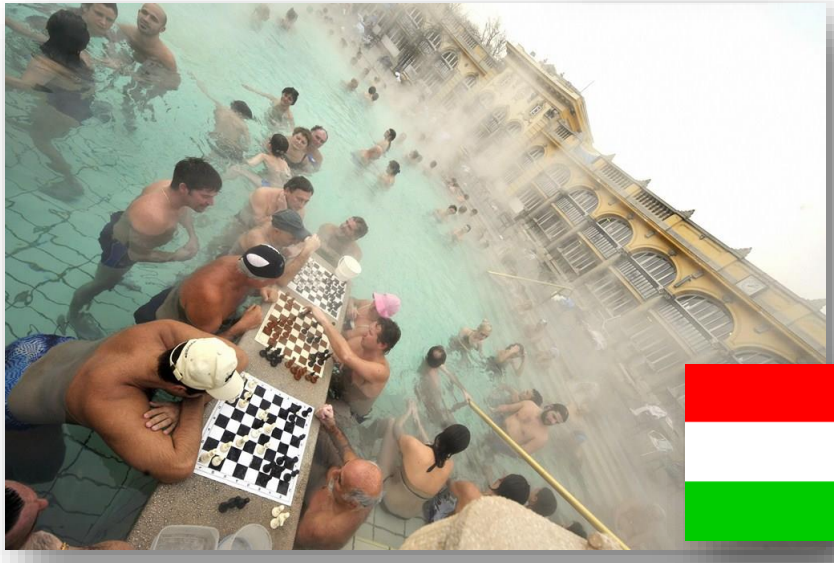
ORKUSTOFNUN
National Energy Authority

European Cities
Geothermal Munich

ORKUSTOFNUN
National Energy Authority

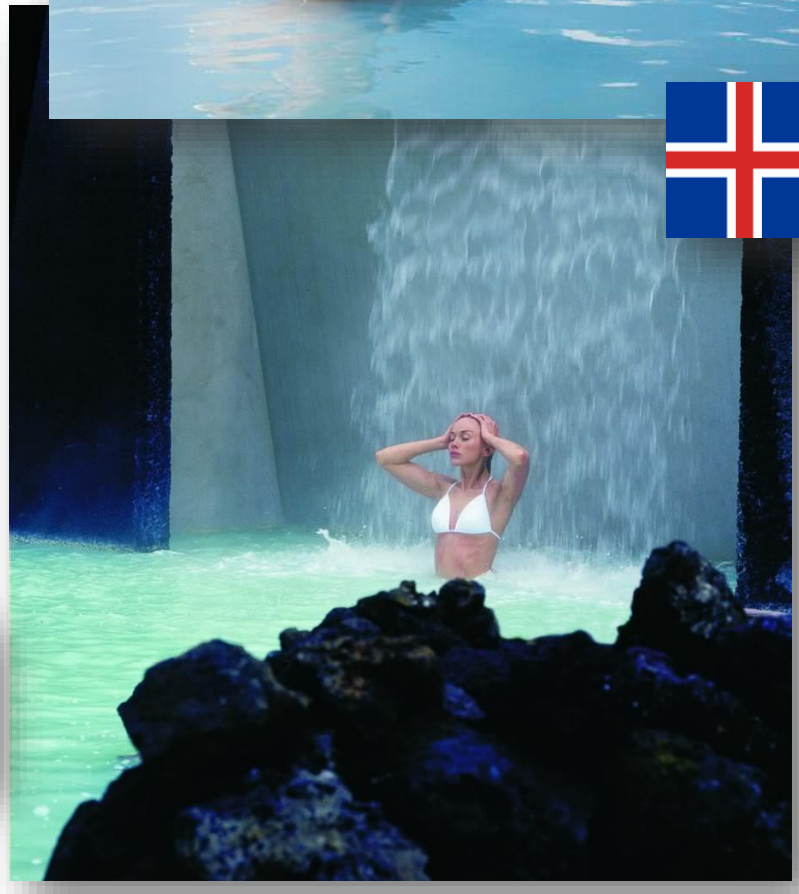
European Geothermal Spas and natural wonders

Pamukkale Springs



Budapest Spa Capital of Europe

The Blue Lagoon, Iceland



ORKUSTOFNUN
National Energy Authority

Outlook (2/2)

- **The GEOTHERMAL ERA-NET will**
  - Minimise the fragmentation of geothermal research in Europe
  - Build on European know-how and know-who to utilize geothermal energy
  - Contribute to a framework to realise large opportunities in the utilization of geothermal energy through joint activities

Enhance **knowledge-exchange** and **cooperation** between

European states

thus **propelling Geothermal Energy** in **Europe**

ORKUSTOFNUN
National Energy Authority

The Blue Lagoon
photo: VERKÍS