



# EIA: Industry and energy developments in Iceland

Hólfríður Sigurðardóttir & Sigurður Ásbjörnsson  
The National Planning Agency, Iceland



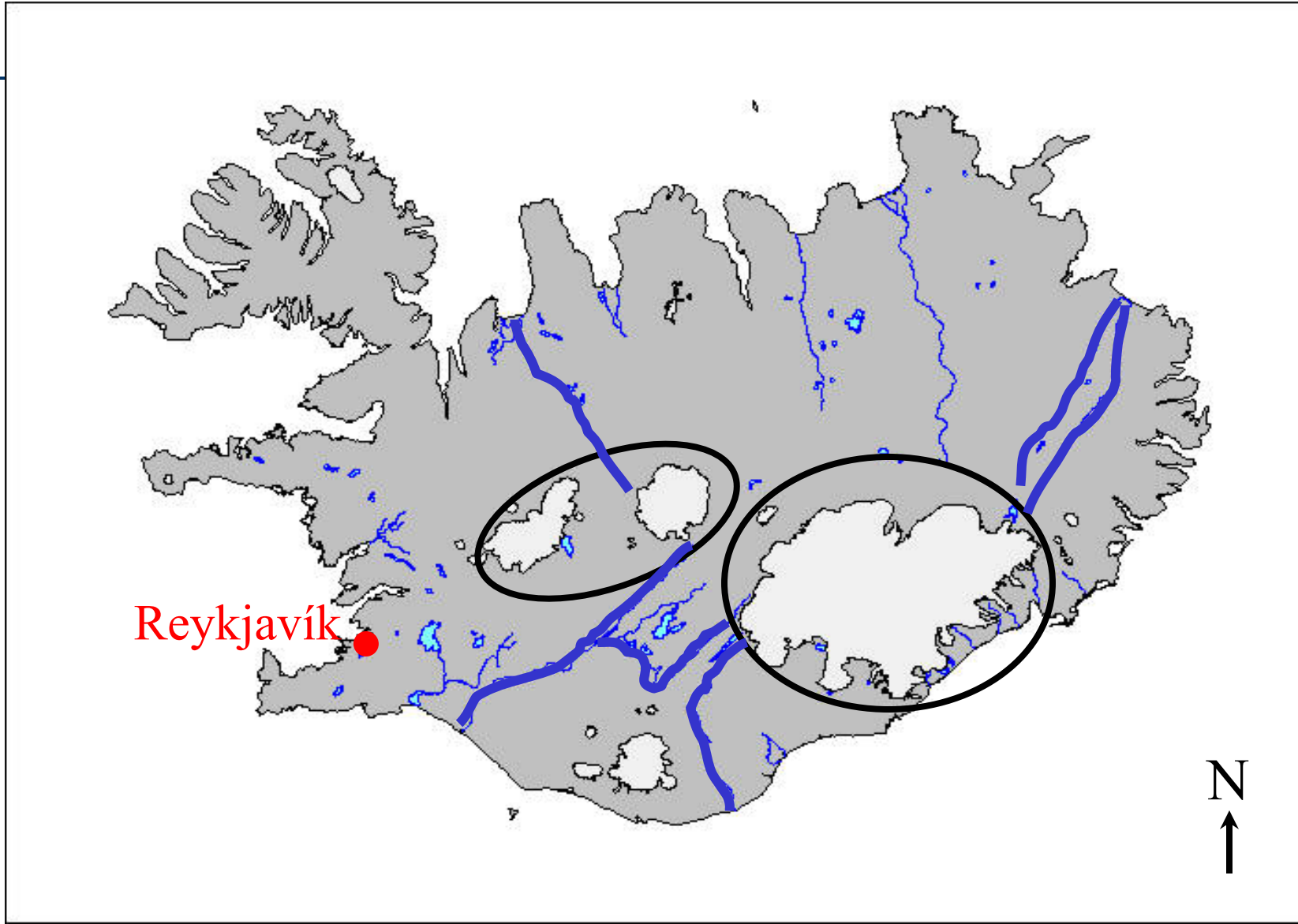
# Overview

---

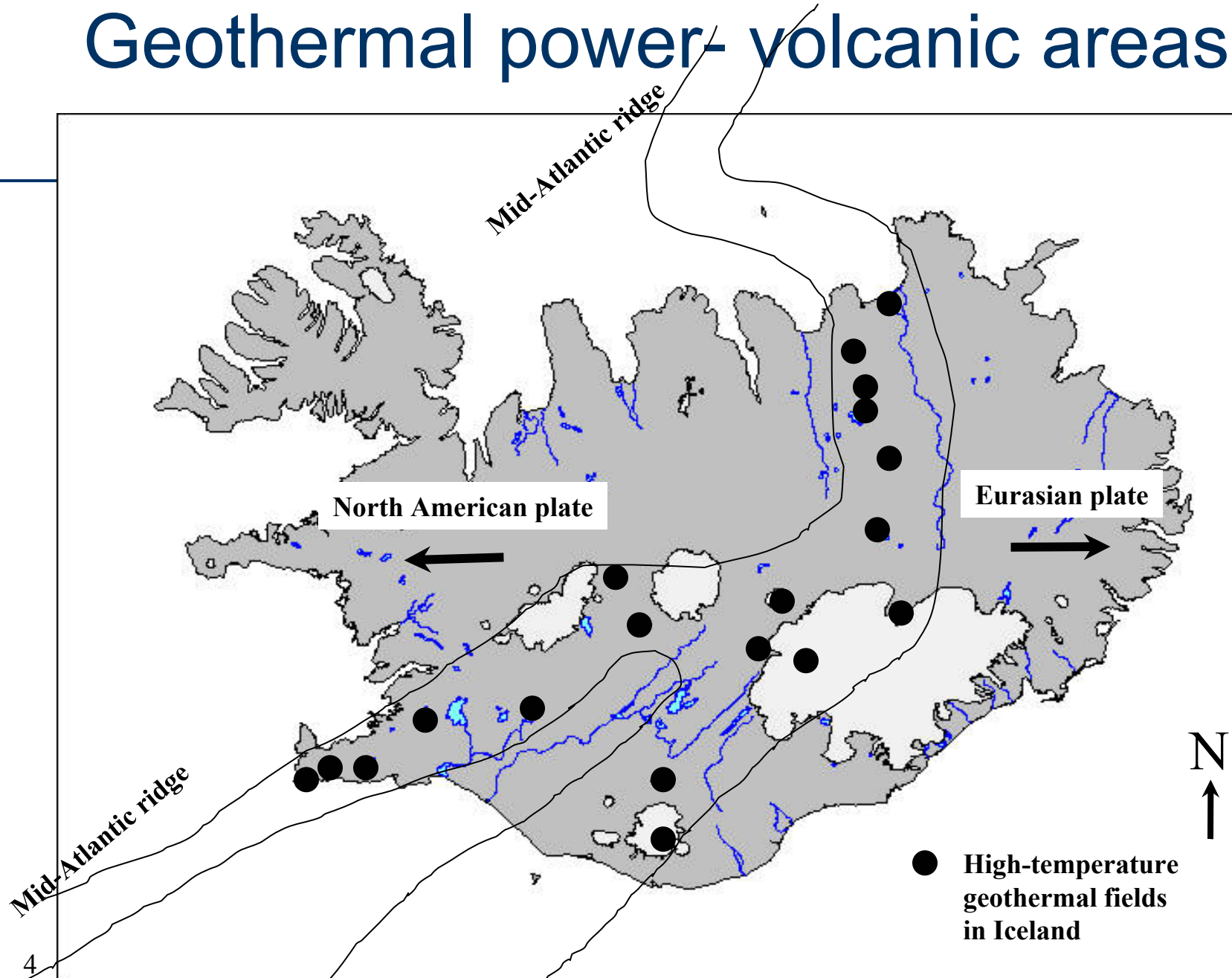
- Development in the aluminium industry and related energy projects in Iceland
- Environmental factors
- Utilisation and protection of regions that are suitable for harnessing energy
- Concluding remarks



# Hydropower–glacial outwash rivers



# Geothermal power- volcanic areas





# Electricity generation ~8,400 GWh/y

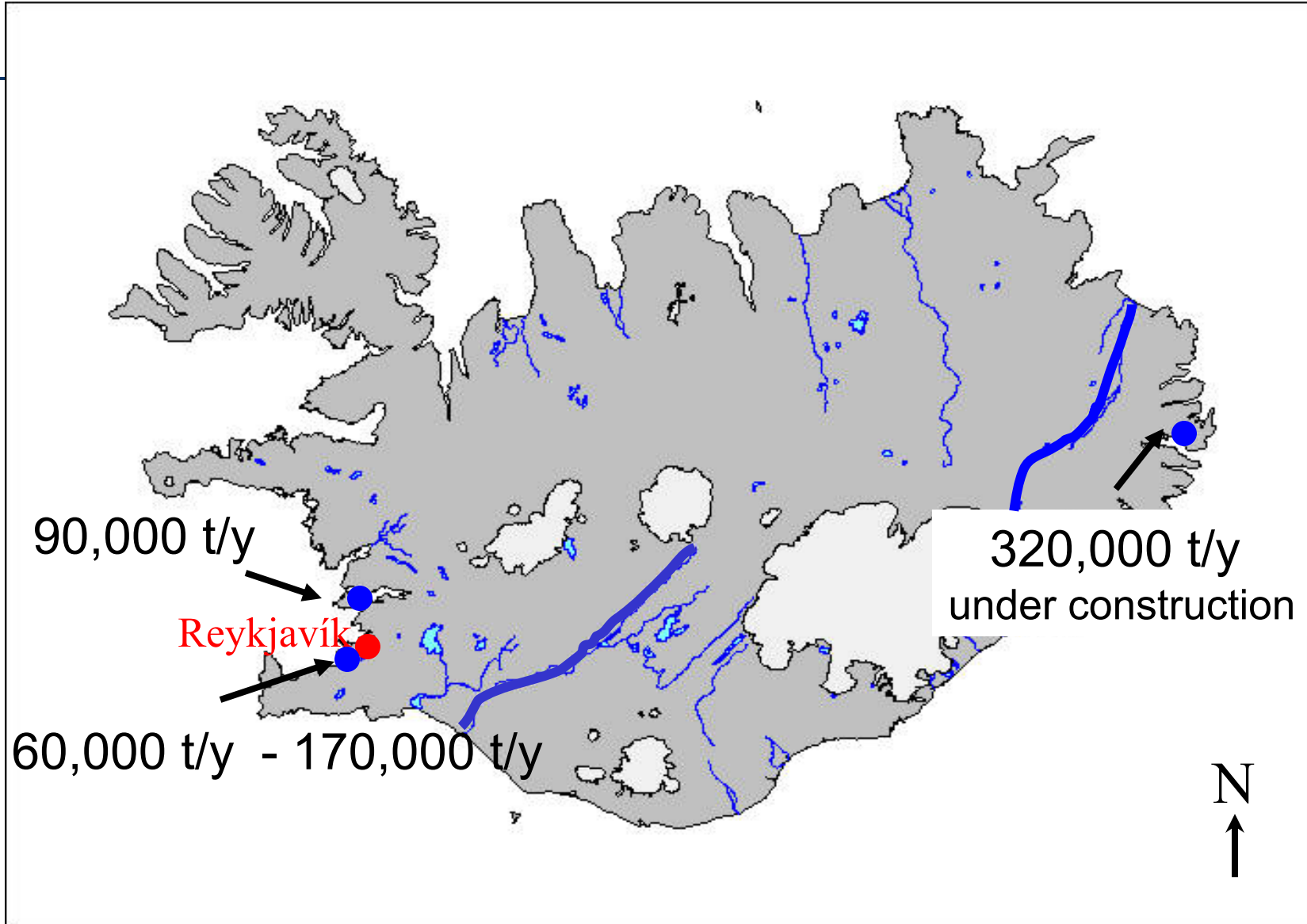
---

- Hydropower: 83%
  - Geothermal power: 17%
  - Oil: 0.1%
- 
- Energy intensive industry's gross consumption of electricity: ~ 65%



# Aluminium smelters - 1967-2004

EIA experience from Iceland





# Annual aluminium production

Year	2004	2010*
t Al/y	260,000	1,080,000

\*Estimated production



# Annual demand for energy

Year	2004	2010*
t Al/y	260,000	1,080,000
GWh/y	4,050	16,100

\*Estimated demand





# Aluminium smelters demand for energy

---

Issues, that authorities and power supply companies need to be concerned about:

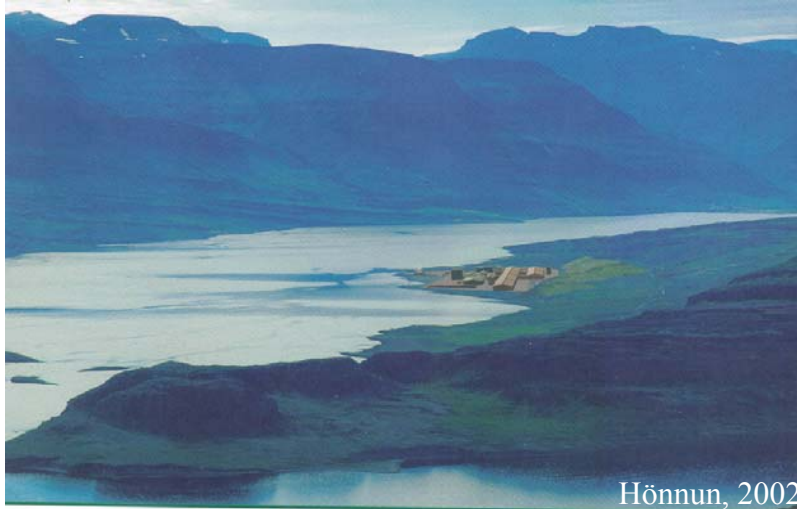
- Is it possible to harness the requested energy?
- Where, when, how?
- What are the environmental impacts accompanied?
- What are the local/national policies regarding this kind of land use?



- 
- Are the chief environmental factors that are being considered in the EIA process regarding aluminium smelters and power plants scale and location dependent?

YES!

# Environmental factors - scale and location dependent



Hönnun, 2002

## East Iceland:

Population – 10,000 people  
 Change in population and migration trends  
 Pollution - narrow fjord and calm weather



Hönnun, 2002

## Southwest Iceland:

Population – 210,000 people  
 Diverse employment opportunities  
 Pollution - windy area close to open ocean

# Environmental factors - scale and location dependent



## Lowlands:

Disrupted areas  
Vegetated and cultured land  
Cultural relics  
Popular tourist and  
recreation areas



## Highlands:

Relatively untouched land  
Landscape features  
Scarcely vegetated land  
Popular tourist and  
recreation areas

# Environmental factors - scale and location dependent



A sensitive geothermal area



A geothermal power plant

## Geothermal areas:

May vary in regards to existing land use,  
susceptibility to disruption, tolerability towards exploitation  
and protective values



# Utilisation and protection of areas

---

- Interest in further utilisation for energy production purposes in areas that can be of high nature conservation relevance
- National Programme for Hydro and Geothermal Energy Resources



# Concluding remarks

---

## The EIA process – pros and cons

- Limited to the review of a particular project
- Not a comprehensive assessment of a number of projects impacting extensive areas or impacts of various plans
- It has **however**:
  - Revealed impacts of projects and lack of baseline data
  - Raised discussion concerning the need for comprehensive plans for policy-making and sound decisions regarding utilisation of pristine areas