

12 November 2019



Implementation of the UN's Sustainable Development Goals in Iceland with focus on energy

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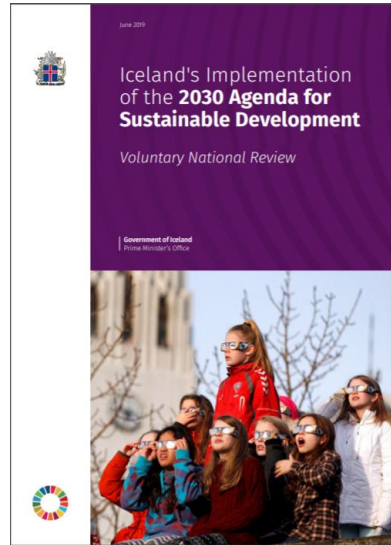
The Sustainable Development Goals

- 17 goals
- 169 targets
- Approved by 193 member states of the UN
- Universal
- Interconnected - interlinked
- 5 Ps: People, Planet, Prosperity, Peace and Partnership
- **“Leave no one behind“**





Iceland and the SDGs



- Inter-ministerial working group
- A status report published in 2018
- 65 priority targets
- The SDGs linked to numerous government policies and programs
- Voluntary National Review at the UN in 2019
- Data collection for SDG indicators
- PR and communications
- Youth Council
- Project Portal (heimsmarkmidin.is)





SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD

1 NO POVERTY 	2 ZERO HUNGER 	3 GOOD HEALTH AND WELL-BEING 	4 QUALITY EDUCATION 	5 GENDER EQUALITY 	6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY 	8 DECENT WORK AND ECONOMIC GROWTH 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	10 REDUCED INEQUALITIES 	11 SUSTAINABLE CITIES AND COMMUNITIES 	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION 	14 LIFE BELOW WATER 	15 LIFE ON LAND 	16 PEACE, JUSTICE AND STRONG INSTITUTIONS 	17 PARTNERSHIPS FOR THE GOALS 	 SUSTAINABLE DEVELOPMENT GOALS



Ensure access to affordable, reliable, sustainable and modern energy for all



Iceland's Implementation of the 2030 Agenda for Sustainable Development

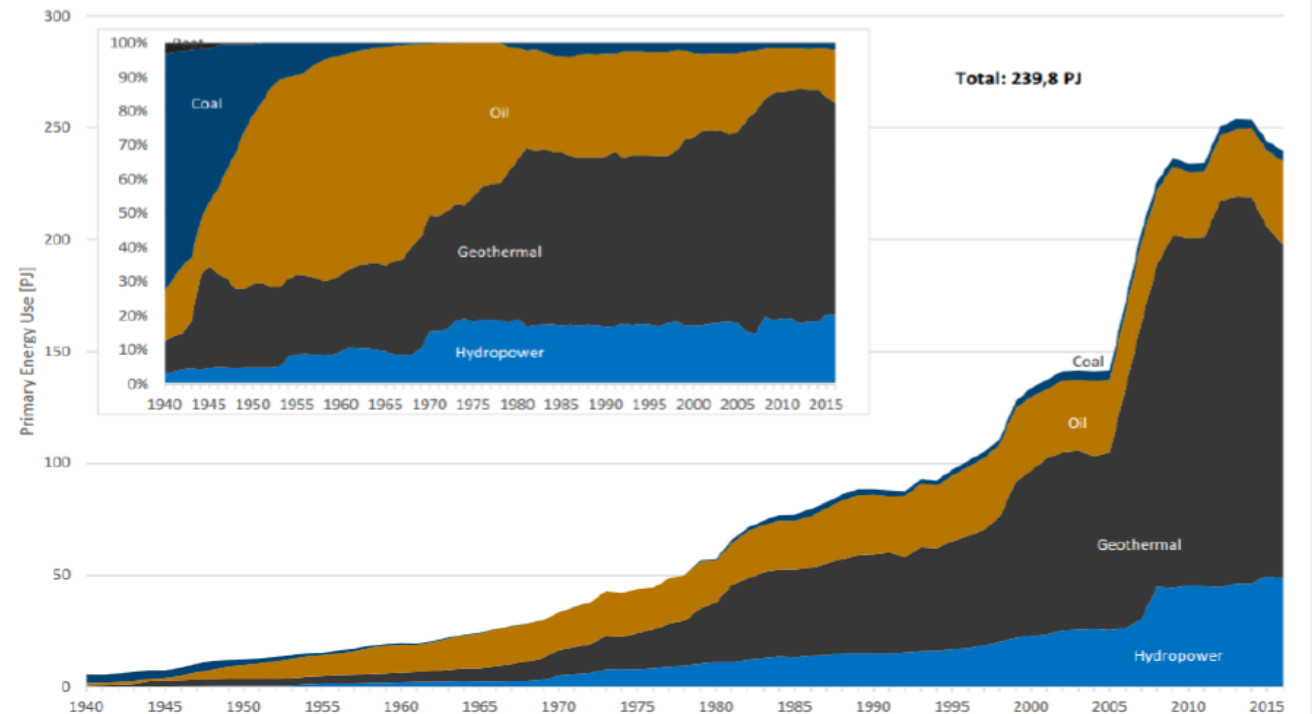
Main Challenges, according to the Voluntary National Review 2019:

- Ensure energy security in Iceland by maintaining a **balance between supply and demand** in the electricity market
- Increase the share of renewable energy sources through **energy transition** in sea, air and land applications
- Equalise **energy costs** related to electricity distribution and space heating at national level
- Ensure minimum requirements regarding the **security of electricity supply** throughout the country



State of play in Iceland

- ❑ In 2016, around 85% of primary energy use in Iceland came from renewable resources, of which 66% was from geothermal.
- ❑ Oil still meets around 15% of primary energy demand, about half to operate the fishing fleet and the other half largely for motor vehicle.





State of play in Iceland

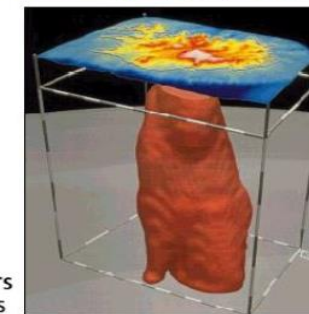
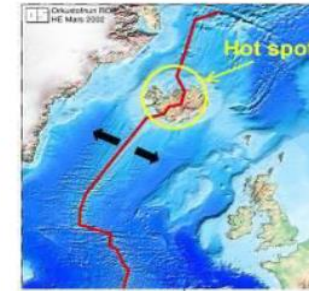
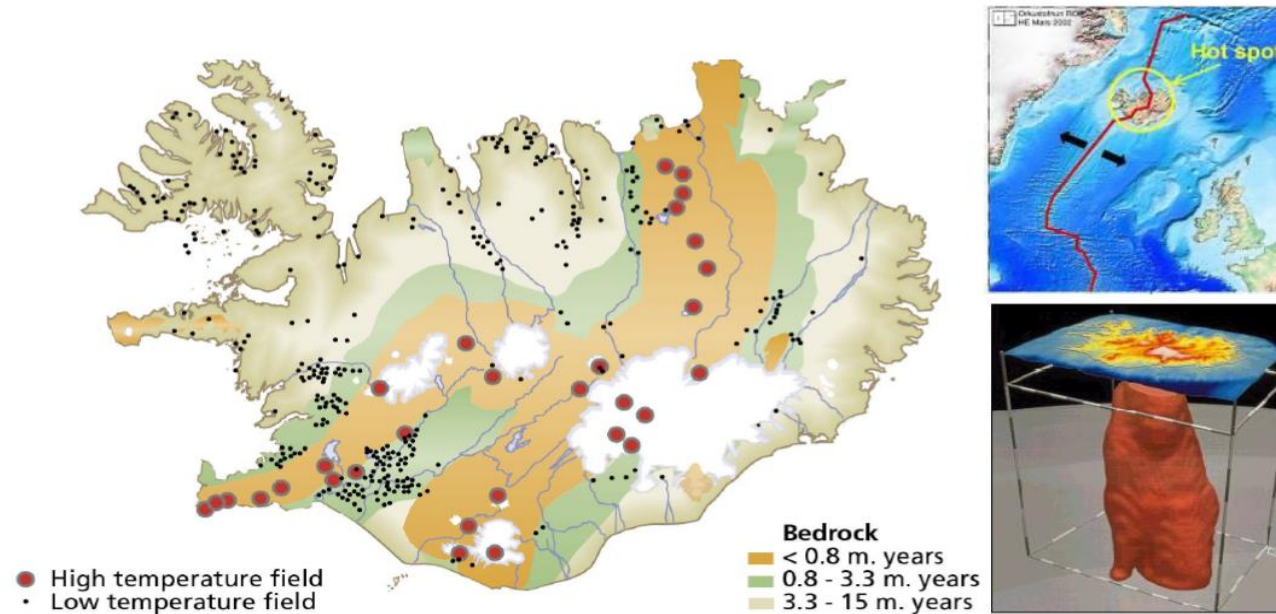
- Nearly all electricity (99.9%) is produced from renewable energy sources: hydropower, geothermal energy and wind power.
 - Over 99% of buildings in Iceland are heated with renewable energy, thereof around 90% with **geothermal** energy and 9% with **electricity** from renewable sources.
 - Iceland is unique in this respect in an international context.
- The secret of our success...



The secret of our success

1. Location, location, location...

Geothermal Fields in Iceland



$T_{avg} = 0^{\circ}\text{C}$ (january) to 10°C (july) in Reykjavik

High and low temperature

In low temperature geothermal systems, temperatures in the uppermost 1,000 m may reach up to 150°C . In the high temperature fields, on the other hand, temperatures reach over 200°C at 1,000 m depth. High temperature geothermal areas are found within the active volcanic zone of Iceland.



The secret of our success...

2. Political Decisions

In recent decades, the government has supported the construction of geothermal district heating systems by providing initial grants to new systems, as well as grants for geothermal exploration.

The Main Milestones

1906-1930 Smaller geothermal projects (individual houses)

1930 First Geothermal based DHS, in Reykjavik.

1953 The parliament passed a law allowing the state to finance up to 80% of the total investment cost of drilling and building a DHS outside of the capital area.

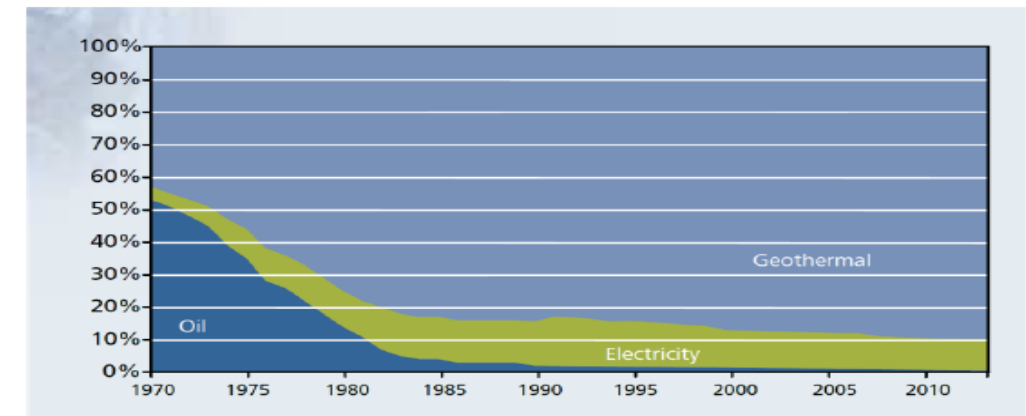
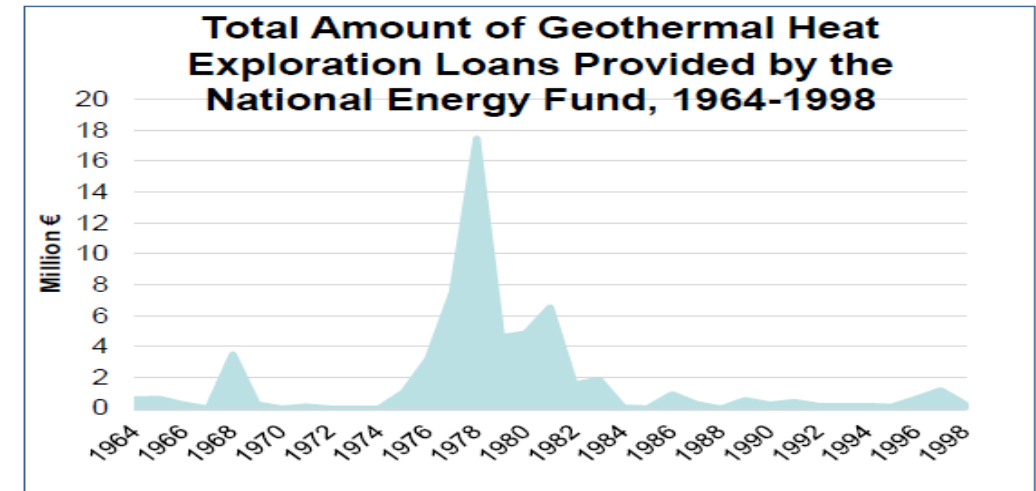
1961 The National Energy Fund and a State Drilling Company established, offering financing for research and drilling.

1961–1998 Over 350 loans issued for drilling and building DHS across the country and over 20 DHS where built.



The National Energy Fund

- **1961 National Energy Fund (NEF) established**
- **1961-1998 NEF issues 350 loans (60M€), which has a direct effect increasing the share of geothermal considerably.**



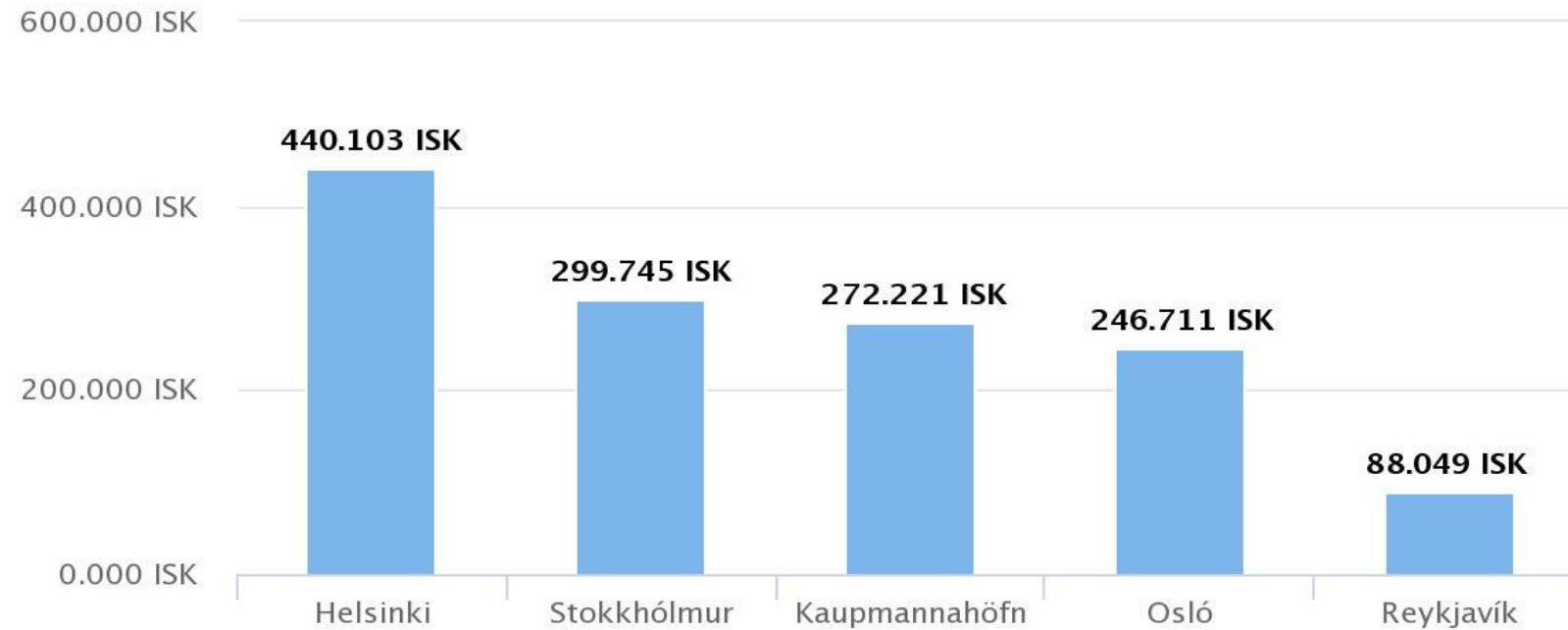
Space heating 1970-2015



Nordic Price comparison > Affordable Heating in Iceland

Nordic capitals (August 2017)

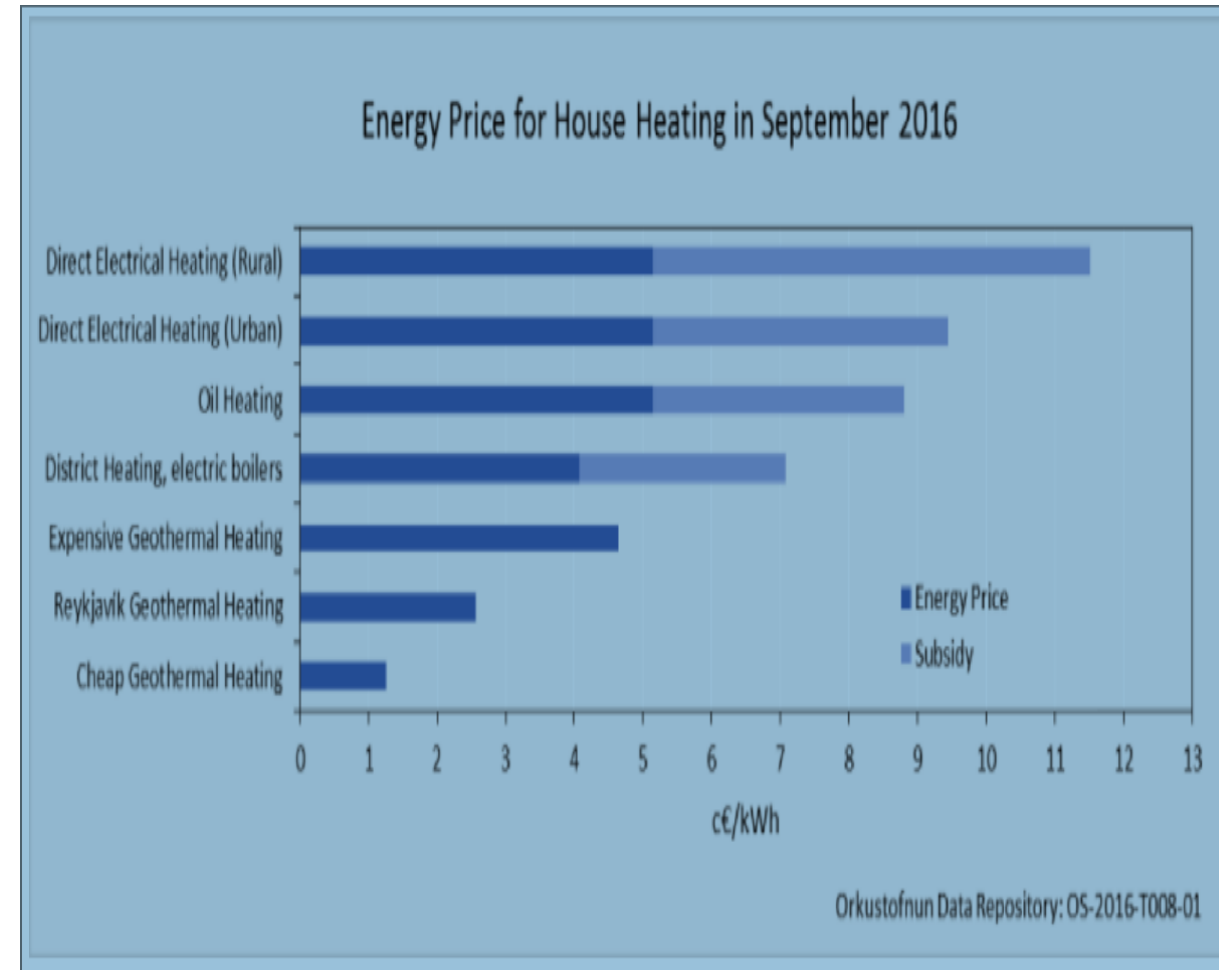
100m² apartment, total cost per year (Source: Samorka)





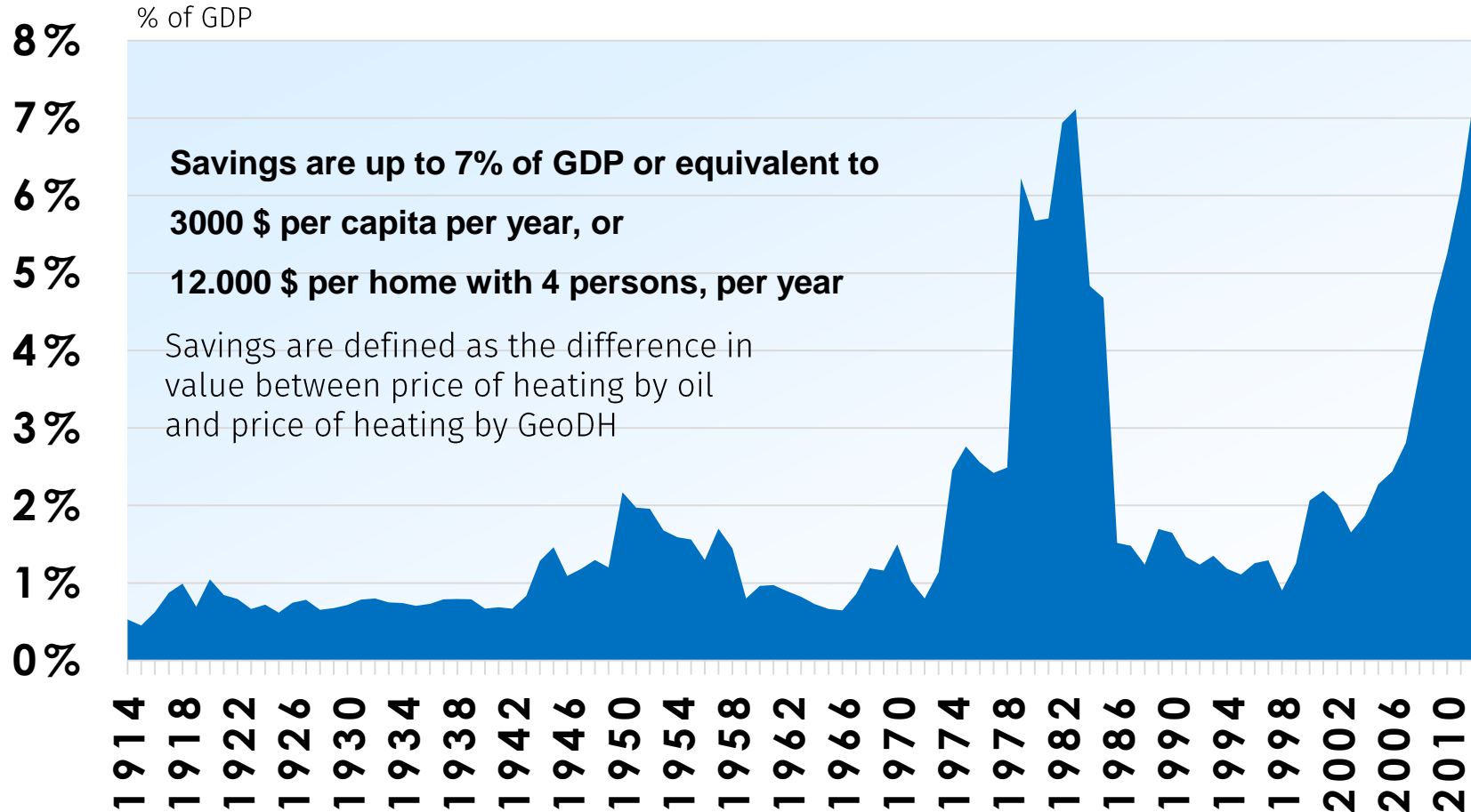
Comparison of Energy Prices for Residential Heating

- Household energy costs are higher for those who lack access to geothermal energy and use electricity for indoor heating.
- The difference has been partially bridged with public subsidies.
- Energy companies & local authorities in regions without geothermal are still conducting geothermal exploration.
- A lump sum of the state subsidy for up to 12-16 years is available to support District Heating Companies and home owners to transform to renewable heating.





Economic Benefits of Geothermal District Heating

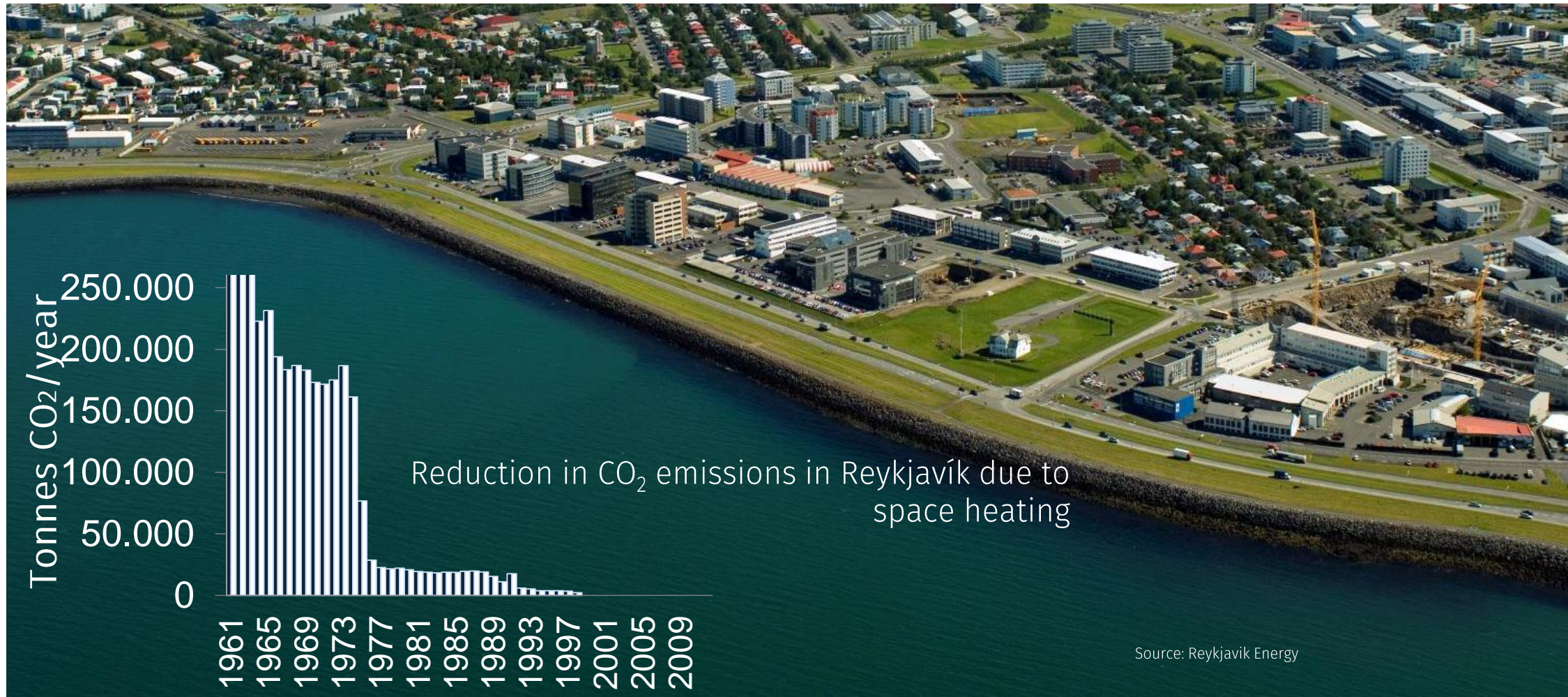


Source: Orkustofnun, 2014

13 CLIMATE ACTION



Emissions from energy production are low in Iceland and therefore there is not much scope for reducing emissions in the sector, since both electricity and heating come from renewable energy resources.





International Actions

- ❑ An important part of Iceland's contribution to international cooperation on sustainable energy is the United Nations University Geothermal Training Programme, which provides technical expertise to professionals in developing countries.
- ❑ Iceland also contributes to a number of organisations and funds involved in various ways with energy projects in poorer countries.
 - ❑ World Bank's Energy Sector Management Assistance Program (ESMAP)
 - ❑ Technical consultancy to other World Bank's geothermal projects.
 - ❑ Since this collaboration began the World Bank's geothermal investments have increased substantially.
 - ❑ Sustainable Energy for All (SEforALL)
 - ❑ The International Renewable Energy Agency (IRENA).
 - ❑ Bilateral cooperation in the field of renewable energy with East African states.
 - ❑ Specific measures to promote the position of women in this field.



International Geothermal Projects with Icelandic Participation





Lessons learned from Iceland's Policy on renewable energy

Iceland is a leader in the field of geothermal utilisation for heating & electricity production. With its expertise and extensive experience in the utilisation of renewable energy, Iceland has an international impact far exceeding the size of the country.

- 1. Harnessing domestic renewable resources**
 - 2. Political decisions and support needed**
 - 3. Economic opportunities and savings**
 - 4. Improved energy security**
 - 5. Reduced greenhouse gas emissions**
 - 6. Establishing new industries and employment opportunities**
 - 7. Increasing innovation and export of knowledge**
 - 8. Improving quality of life**
- The Sustainable Development Goals...