

Orkustofnun
The National Energy Authority

Prof.dr. Gudni A Jóhannesson
Director General

**The Role of Resource and
Energy Quality Management
in Sustainable Urban
Development**





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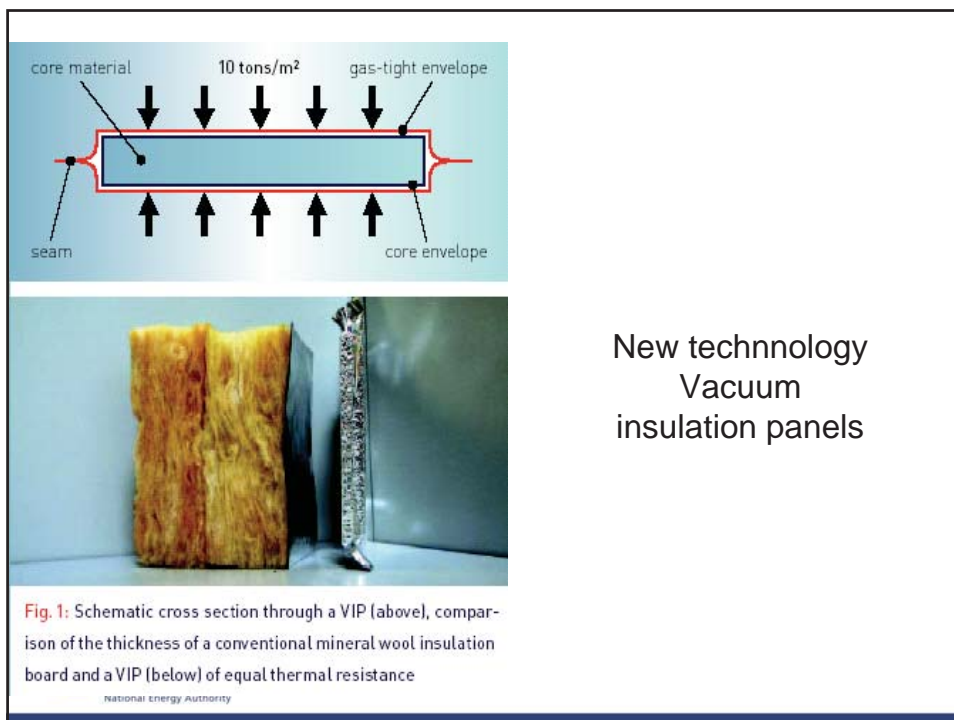
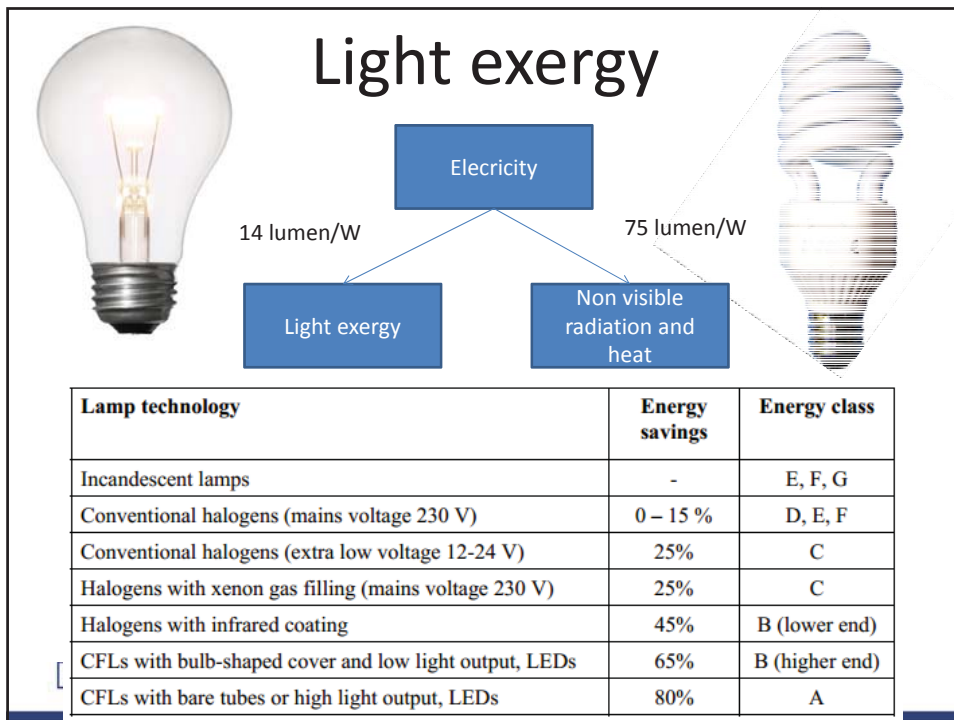
21st OSCE Economic and Environmental Forum,
Kyiv, 15-16 April 2013

**Ineffective processes - the
world is full of them**

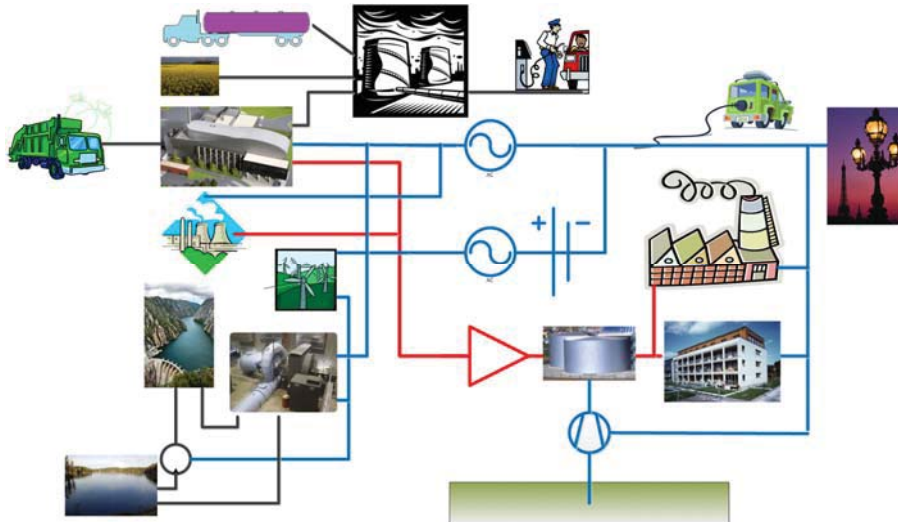
Existing technology	Best technology / Relative energy use
Double pane window	20 %
Masonry wall	25%
Exhaust ventilation	15%
Normal air tightness	33 %
Mechanical cooling	10 %
Resistive electrical heating	30 %



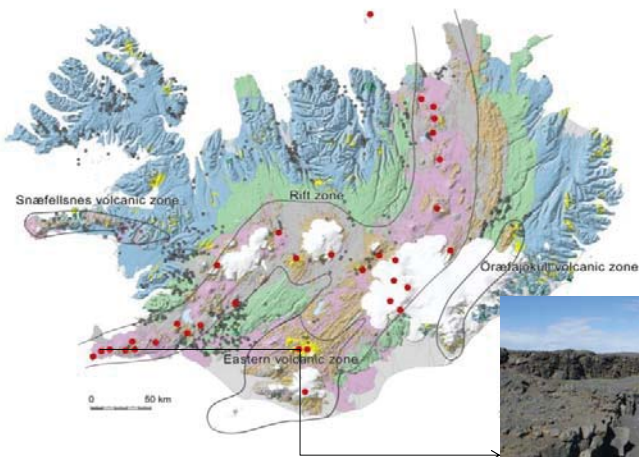
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Energy Quality Management



Icelandic Geology and Geothermal Energy



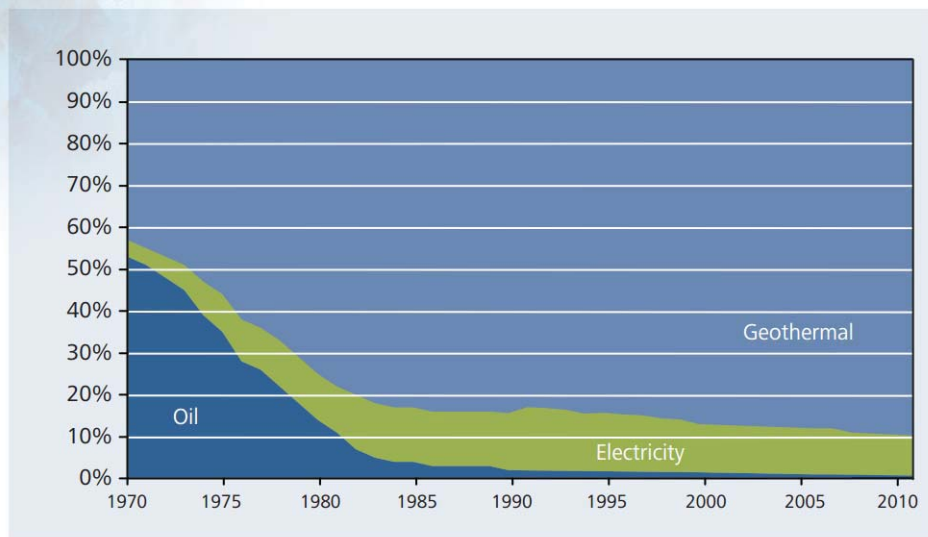
Geothermal map of Iceland. (Basemap: Geological map of Iceland by Haukur Jóhannesson and Kristján Sæmundsson 1999. Iceland. 1:1.000.000. Icelandic Institute of Natural History

Geothermal District Heating Storage Tanks In Reykjavik

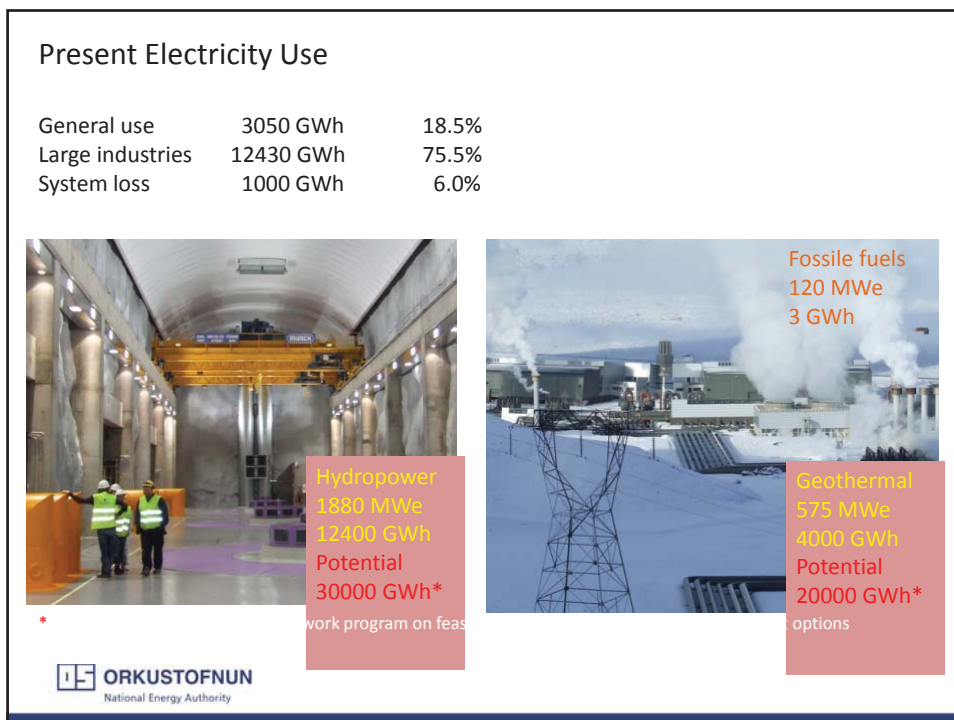
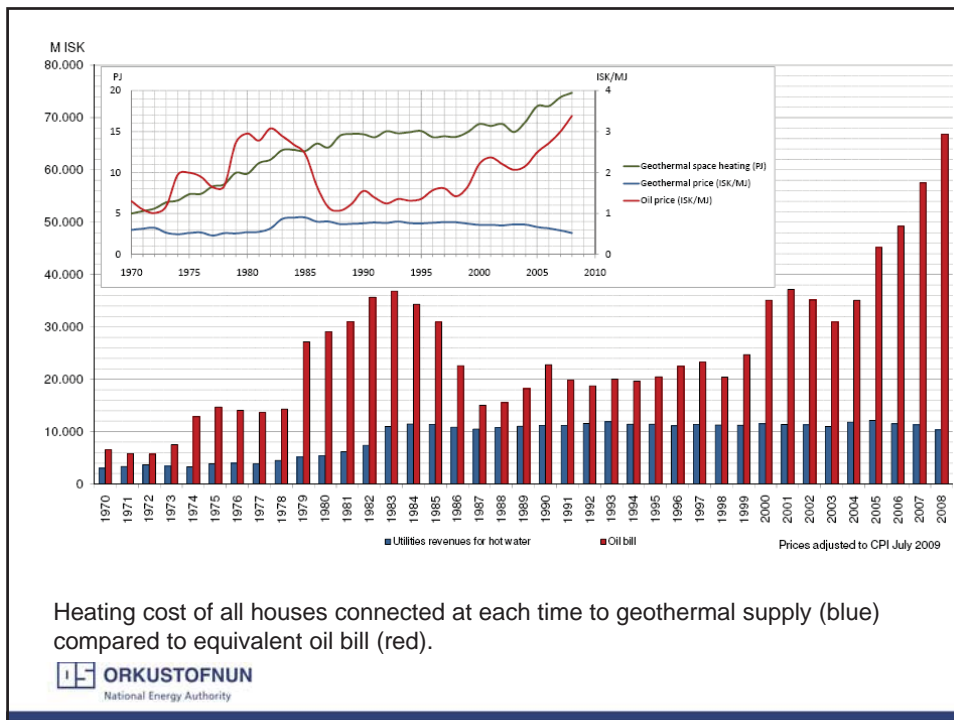


OR
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Space heating 1970–2011

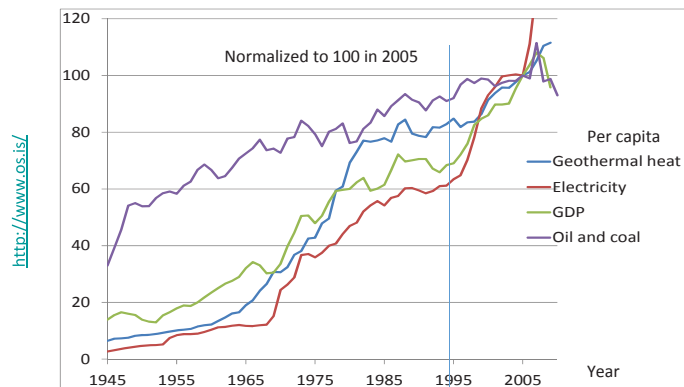


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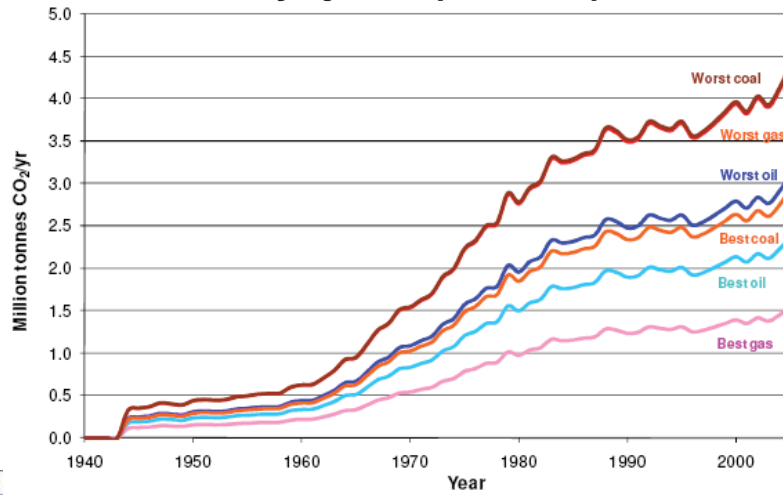


The impact on economy ICELAND 1945 - 2010



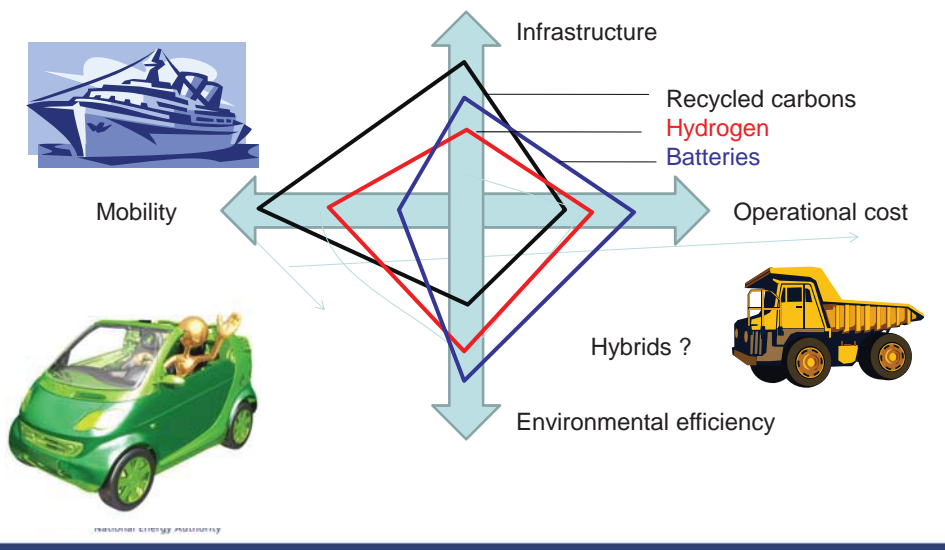
<http://www2.stjr.is/frr/thst/rit/sogulegt/english.htm>

CO2 savings using geothermal water in Reykjavik (Iceland)

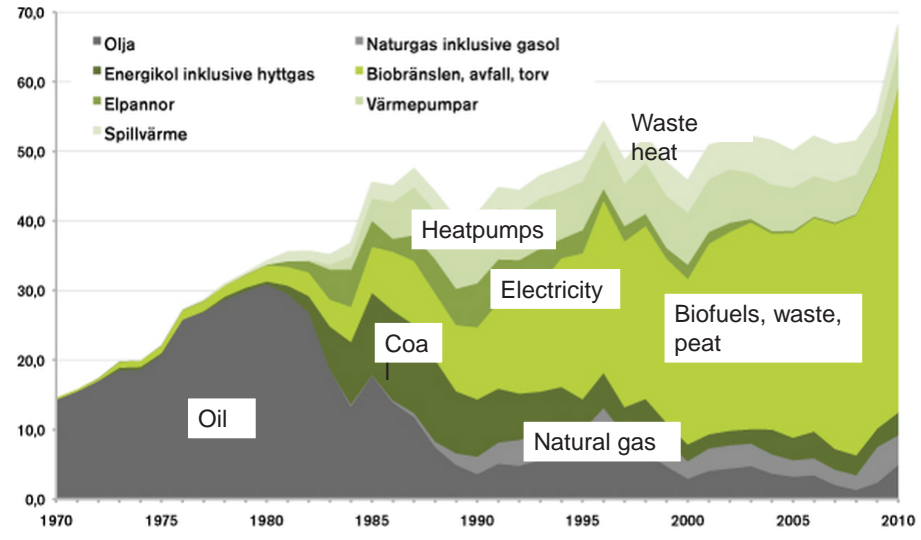


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Gunnlaugsson, 2008

The Alternative Fuel Race



Supplied energy for district heating in Sweden, TWh

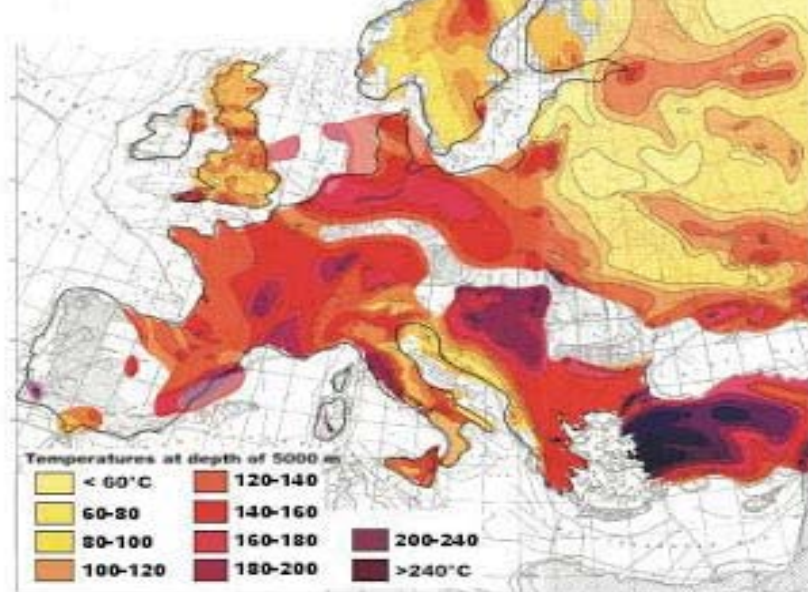


The Scandinavian experience

Källa: Energimyndigheten och SCB.

EUROPEAN GEOTHERMAL RESOURCES

Working document based on data integrated on 01/09/2000



Best technologies
Good Energy Quality Management
Local Renewable Energy Sources

Geothermal is Everywhere



Photo Gudni A Johannesson 2009