

New Zealand and Iceland: Energy Similarities and Differences

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Overview

Geography

Population Density and Energy Loads

Energy Generation Types

Policies and Plans for Climate Change

Overview

Geography

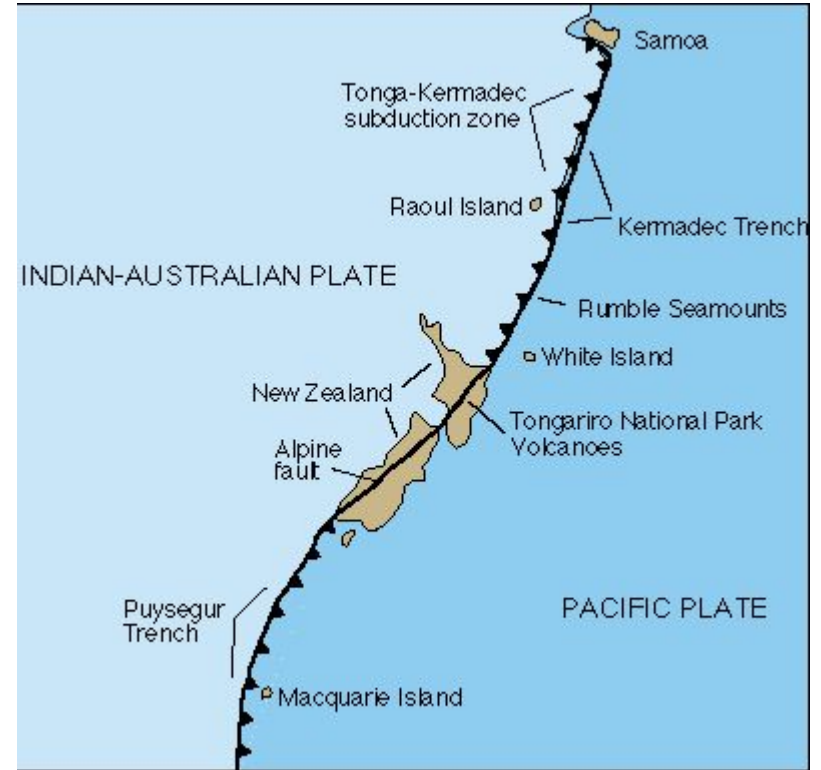
Population Density and Energy Loads

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Policies and Plans for Climate Change

New Zealand Geography

- Located between two tectonic plates
 - Australian west, Pacific east
 - Key for volcanic activity in the North (Taupo)
 - Key for hydropower in the South (Alpine Fault)
- Climate
 - Temperate Climate
 - Much of the islands are located near the coast
 - Warmer temperatures and moderate rainfall

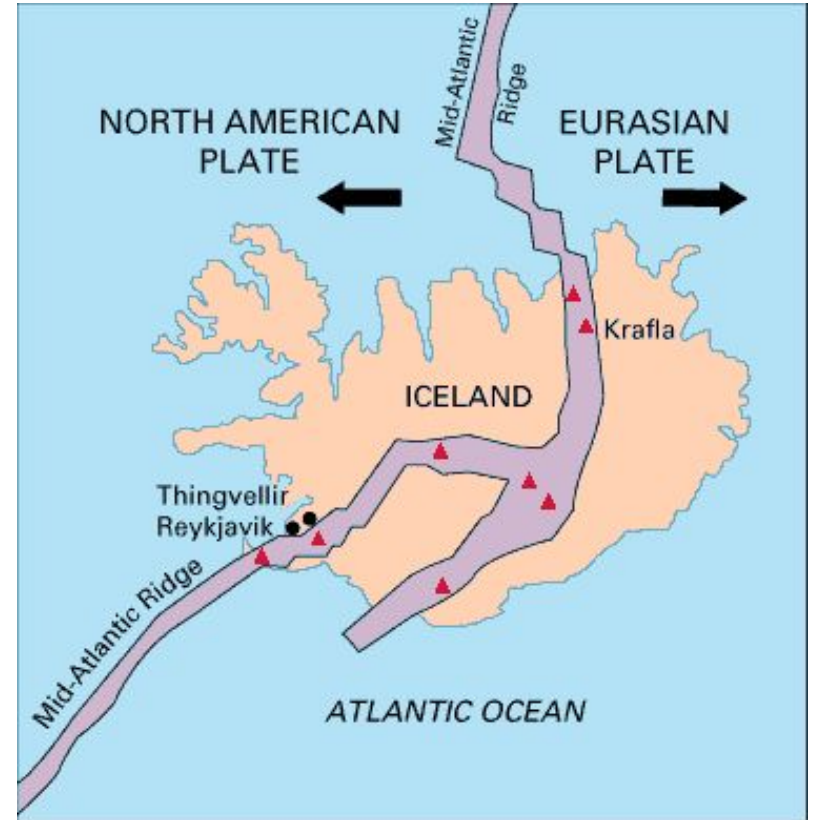


Credit: oregonstate.edu

Iceland Geography

Similar to New Zealand with tectonic plates

- Located on fault
 - North American west and Eurasian east
 - Utilization of volcanic activity and mountains
 - Prime for geothermal and hydro
- Climate
 - Subarctic - Just south of the Arctic Circle
 - Temperate climate - North Atlantic Current
 - Tundra Inland



Credit: USGS

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Population Density in NZ

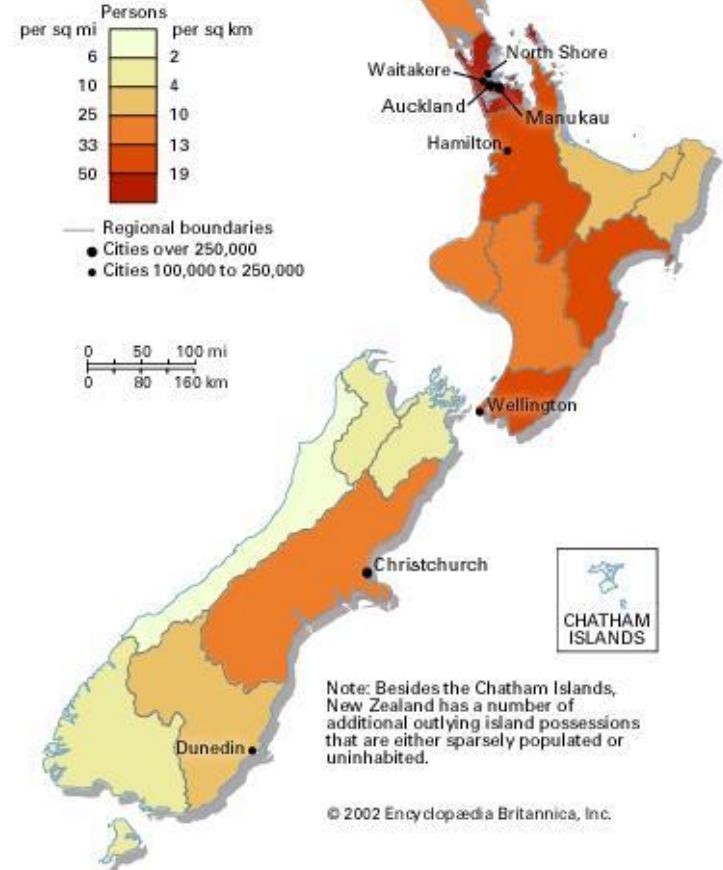
4.47 Million People in New Zealand

75% of population is in the North Island

- Auckland area most populated

25% of population is in the South Island

- Christchurch most populated



Energy Loads NZ

Heavy Users

- Auckland
- Wellington
- Christchurch
- Tiwai Point Aluminium Smelter

Large Producers

- Hydropower Stations in the South Island
- Geothermal in Taupo
- Huntly Power Station

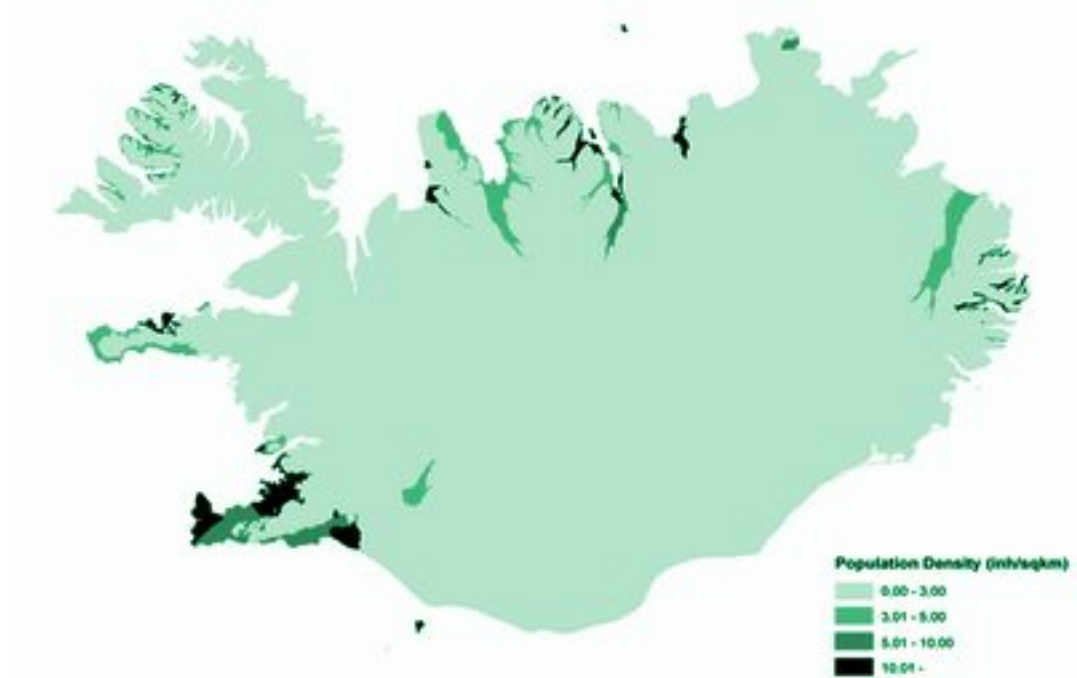


Population Density of Iceland

60% of the population lives in the capital city of Reykjavik

333,979 population

Northern, Eastern, and Western Fishing Towns house remaining 30%



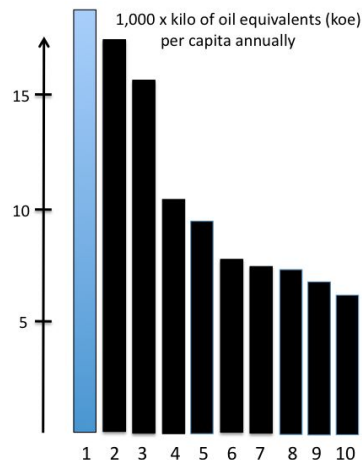
Energy Loads - Iceland

Icelanders are the top energy consumers per capita in the world due to their overabundance of energy (718 GJ)

Aluminum smelting industry uses up to 75% of their electricity consumption (way of exporting their energy)

World's largest energy consuming countries per capita

1. Iceland	18,774 koe
2. Qatar	17,418 koe
3. Trinidad	15,691 koe
4. Kuwait	10,408 koe
5. Brunei	9,427 koe
6. Luxembourg	7,684 koe
7. UAE	7,407 koe
8. Canada	7,333 koe
9. USA	6,793 koe
10. Finland	6,183 koe



Source: World Bank / Oilprice.com

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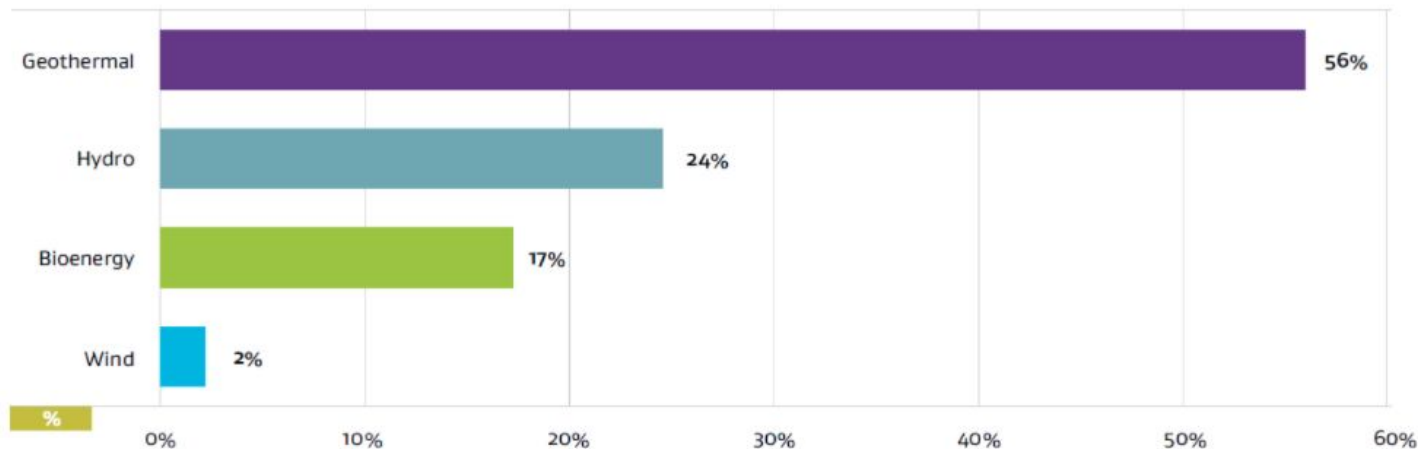
Renewable Energy Generation

Policies and Plans for Climate Change

Renewable Energy Distribution NZ

40% primary energy supply from renewables

80% of electricity from renewables



Renewable Energy Distribution in Iceland

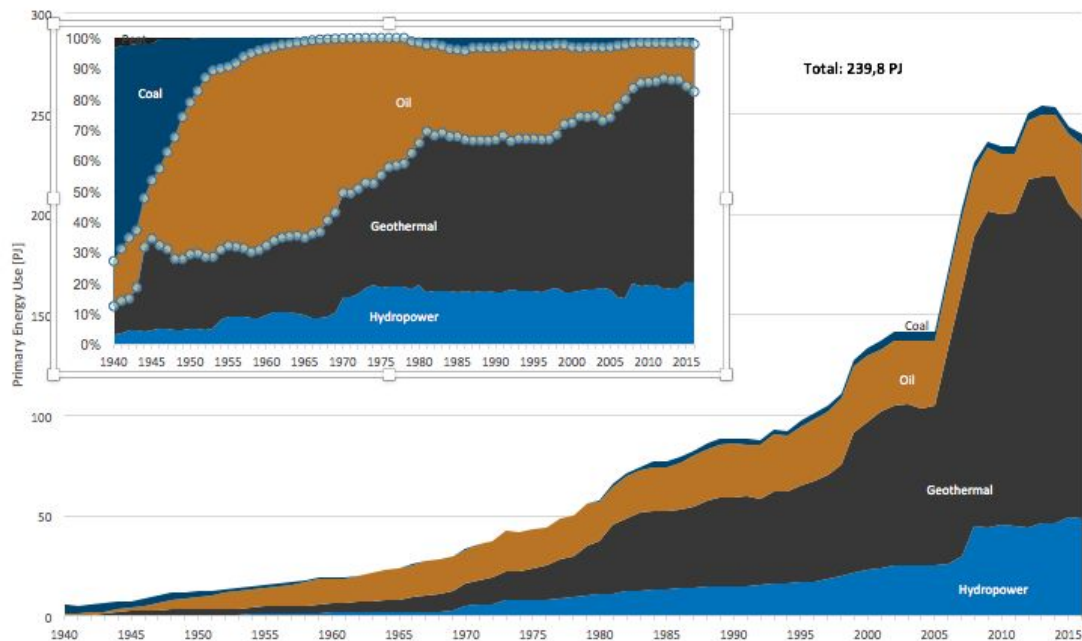
Primary Energy Usage:
82.5% Renewable Energy

Coal and Oil Use

100% Electricity from
renewables

73% Hydropower

27% Geothermal



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New Zealand Climate Change Initiatives

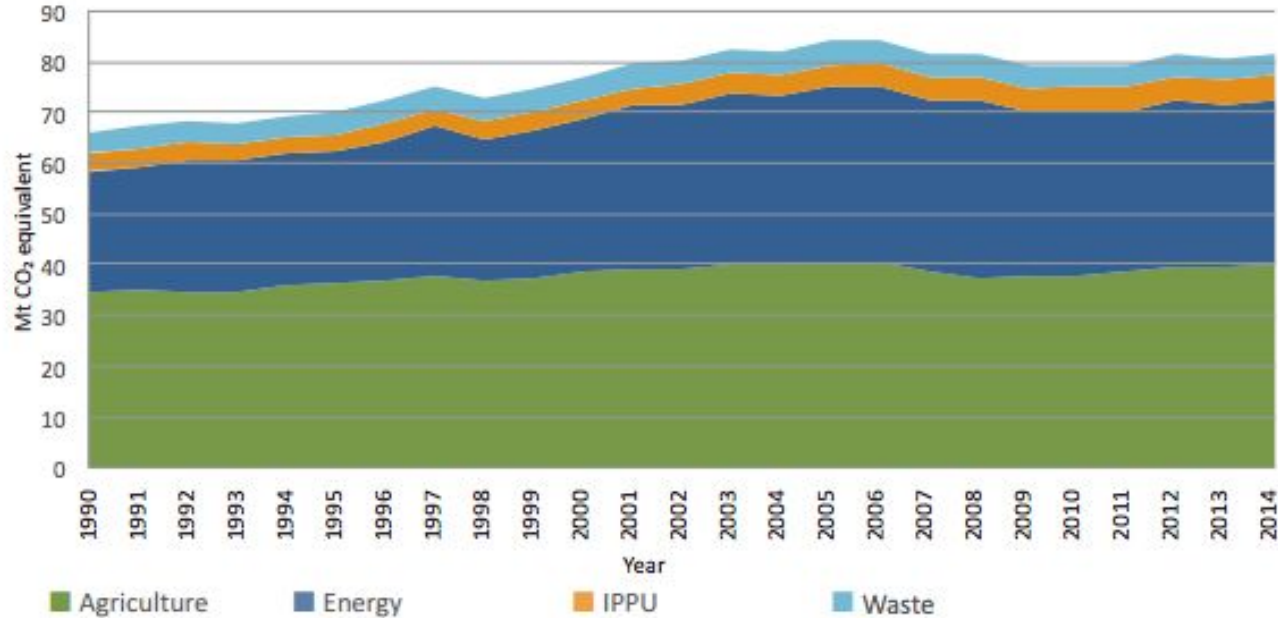
1. Push back on fossil fuel subsidies
2. Funding research on reducing agriculture emissions
3. Pacific Island financial support
4. Emissions Trading
5. Improvements to Infrastructure
6. EV Program
7. Forestry Program

Reduce emissions by 30% by 2030 from 2005 levels.



Reductions in GHG

Figure 3: New Zealand's gross greenhouse gas emissions by sector from 1990 to 2014



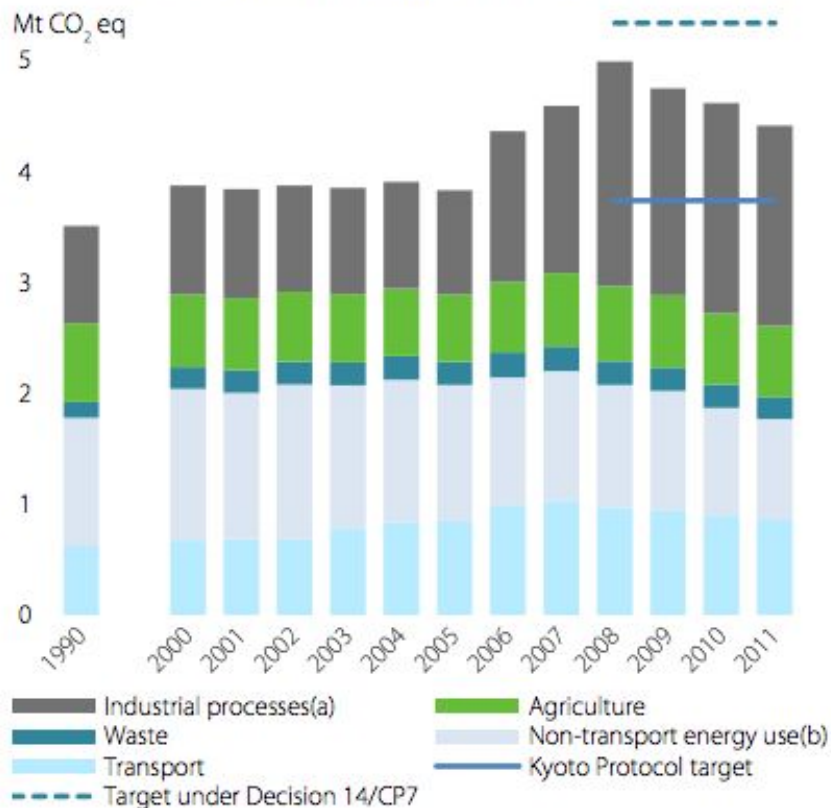
Iceland Climate Change Initiative

1. 10% Electric Vehicle Share by 2020
2. Improving national infrastructure for electric vehicles
3. Reducing fishery emissions
4. Climate-friendly agriculture
5. Forestry, wetland, and soil reclamation
6. Campaign against food wastes



Reductions in GHG

Figure 2: **Greenhouse gas emissions by sector, 1990 - 2011**



References

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Questions?
