



Summary

- Iceland's climate goals need to better adapt energy production and energy transport, which are the basis for the implementation of energy transition in our society. In addition to the energy needs for the implementation of an energy transition is the demand of energy for the growth of the economic sector.
- Energy security requires more electricity production and a more robust transport and distribution network, which in turn calls for a comprehensive planning of the energy network and integration of different working procedures.
- The assessment of the country's need for electrical and geothermal energy for the next two to four decades is set out in the form of numerical energy forecasts and calculations which need to be reviewed regularly. Six scenarios are set out in the report, of which four take Iceland's climate goals into account, ranging from little to no addition to Iceland's electricity output, up to more than doubling it, or to a 124% increase by 2040.
- Energy production aiming to reach, by stages, a full, sustainable energy transition also entails energy efficiency, increased energy savings, e.g. through technological advances, increasing the power output of existing power plants, and adding new power plants.
- Efforts must be made to attain maximum social accord on the protection and use of geographical areas and the natural resources found there.
- Investments in energy development have hitherto not been made with a view to adhering to climate goals. A sufficient assessment of what the goals entail has not been made and no decisions have been made as to appropriate responses. Opinions have been raised that the complexity of the regulatory framework and time-consuming permission process have delayed developments within the energy network and that opportunities for industrial development have not been facilitated. There is an appeal for more energy and more energy security from all regions of the country.
- Considering the developments in recent years and for the future, the possible buyers of energy in Iceland include diverse industries, e.g. metalworks, data centres, the biotechnology industry, food producers, aquaculture companies and producers of e-fuels.
- Climate measures to reach carbon neutrality have set off a green industrial revolution all over the world. Iceland must be able to approach this mission by choosing methods that can range from being active participants in this revolution through continuing economic growth and improved standards of living, to slowing down, looking inward, decreasing economic activities with a high energy demand and looking towards other values.
- If the first path is to be taken alongside reaching the climate goals, energy production in Iceland must be increased by upwards of 100 MW per year for the next 20 to 30 years, and a clear message in relation to that be sent. This would entail an effort to increase exports, as well as a full energy transition. Additionally, the efficiency of the preparatory and permission processes must be increased, and the institutions involved must be given support to reach the relevant investment and protection goals.
- It is important to boost the Icelandic Energy Fund, increase research into local energy opportunities and seek wide collaboration with foreign institutions and companies to develop and implement energy solutions.



- It is important to ensure, in connection with actions regarding energy and climate, that these measures lead to real reductions within the country and do not cause increased emissions elsewhere.

Image 1 Energy demand scenarios

Scenarios involving Iceland's increased energy demand with reference to the climate goals

Scenario	Main criteria	Additional energy demand until 2040/2050	Change from 2020
Scenario 1 The National Energy Authority – Basic forecast	<ul style="list-style-type: none"> Basic public energy demand Minimal energy transition 	1,717 GWh by 2040 2,519 GWh by 2050	+9% +13%
Scenario 2 The National Energy Authority – “Green future”	<ul style="list-style-type: none"> Basic public energy demand Partial energy transition, climate goals not fully achieved No growth in industries with a high energy demand/energy intensive users 	2,688 GWh by 2040 3,980 GWh by 2050	+14% +21%
Scenario 3 Hydrogen roadmap (Roland Berger)	<ul style="list-style-type: none"> Complete energy transition on land, at sea and in the air The energy demand of the public market and energy intensive users not taken into consideration Direct electricity supply to vehicles, ships and aircraft not included in the numbers 	13,000–24,000 GWh by 2050	+68–125%
Scenario 4 Samorka – new climate goals	<ul style="list-style-type: none"> Complete energy transition on land, at sea and in the air The energy demand of the public market and energy intensive users not taken into consideration 	15,648 GWh by 2040	82%
Scenario 5 Samorka – new climate goals and energy intensive users	<ul style="list-style-type: none"> Basic public energy demand according to the National Energy Authority’s forecast Complete energy transition on land, at sea and in the air Including intensive users of electricity according to the National Energy Authority’s forecast, industries with a high energy demand (export pillar) 	23,694 GWh by 2040	124%
Scenario 6 The Icelandic Environment Association The Iceland Nature Conservation Association – no economic growth	<ul style="list-style-type: none"> Energy transition without an increase in electricity production GDP per person remains unchanged (no economic growth) The 4 biggest users to use waste energy to produce electricity or for the aluminium smelter in Straumsvík to close before 2035 	Not specified	Not specified