

Finland



Trilemma Rank

# 4

Trilemma Score

82.1

Balance Grade

ABA

Finland is one of the strongest Trilemma performers, with high scores across the board. The Security score is particularly strong, while the Equity score provides the greatest challenge. The Sustainability score has shown improvements since the mid 2000s, driven by GHG emission management and reduced CO2 emissions per capita. Finland's balance grade is ABA and its global ranking is 4.

**Population**  
5.5 (millions)

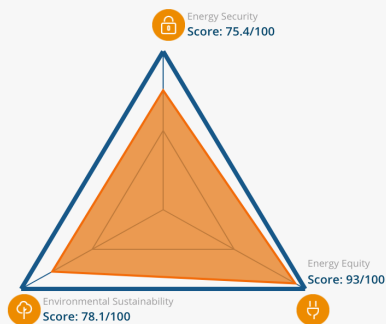
**Land Area**  
303.9 (thousand sq. km)

**GDP Per Capita**  
50,152 (PPP US\$)

**Industrial Sector**  
24.5 (% of GDP)

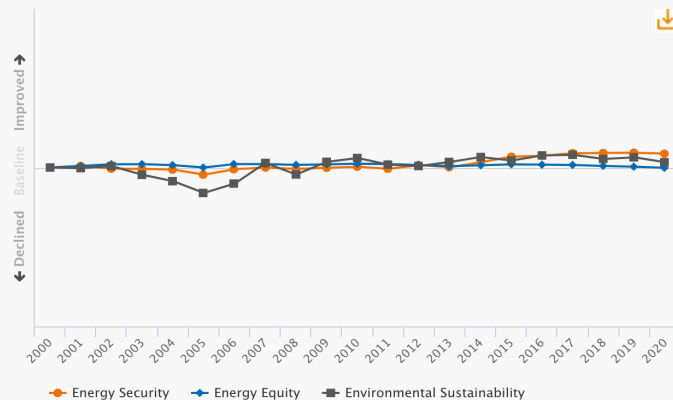
**GDP Growth**  
1.7 (annual %)

Balance



Historical Trilemma Scores

Trend lines track the country's performance in each dimension, beginning with a baseline of 100 in the year of 2000



Trends and Outlook

Finland has set out ambitious climate targets, which are supported by eight of the nine parties in the Parliament. The government programme aims at climate neutrality by 2035. The power sector in Finland is mostly (80%) decarbonised and covered under the EU Emissions Trading System. Finland's electricity generation consists mainly of nuclear energy (35%), hydro (19%), biomass (18%) and wind (9%), while the share of fossil fuels has declined in recent years. The use of coal for energy production will be phased out from 2029.

District heating covers significant demand for heat in Finland. Renewable energy accounts for 55 % of district heating and cooling, the second-highest in the EU. Almost 10% of district heating comes from recovered heat from data centres, wastewater and flue gases.

Import dependence is expected to remain high until a new nuclear power plant (1600 MW), and several wind parks (about 1630 MW) under construction are commissioned in 2021. Finland's energy-intensive industry structure, its cold climate and sparse population across a vast area are the reasons behind the country's high energy intensity. Transmission and distribution system operators have made significant investments in strengthening interconnections and networks. Collaboration of electricity markets across the Nordic countries is progressing towards a new regional market design. Transmission system operators and utilities are working on smarter grids with a data hub and a new balance model.

A natural gas pipeline to Estonia and some liquefied natural gas terminals have also become operational, helping to diversify sources of supply. The Finnish gas market has been open to competition since the beginning of 2020.

Well-endowed with forest resources, Finland has an export-oriented forest industry. The by-products and wood residues are used as fuels in CHP and heat generation or processed into second-generation renewable fuels.

Finland has been a leader in energy research and development spending (as a ratio of gross domestic product). The country's ranking is expected to improve in the future when the government removes regulatory barriers for smart energy sector integration and boosts industrial innovation.

Key metrics

Metrics are determined relative to other countries, with a full bar representing a score of 100.

	2020 Performance	Trend 2010-20
<b>Energy security</b>		
Import dependence	██████████	▲
Diversity of electricity generation	██████████	▲
Energy storage	██████████	▲
<b>Energy equity</b>		
Access to electricity	██████████	▶
Electricity prices	██████████	▼
Gasoline and diesel prices	██████████	▼
<b>Environmental sustainability</b>		
Final energy intensity	██████████	▼
Low carbon electricity generation	██████████	▲
CO2 emissions per capita	██████████	▲
<b>Country context</b>		
Macroeconomic stability	██████████	▲
Effectiveness of government	██████████	▼
Innovation capability	██████████	▲