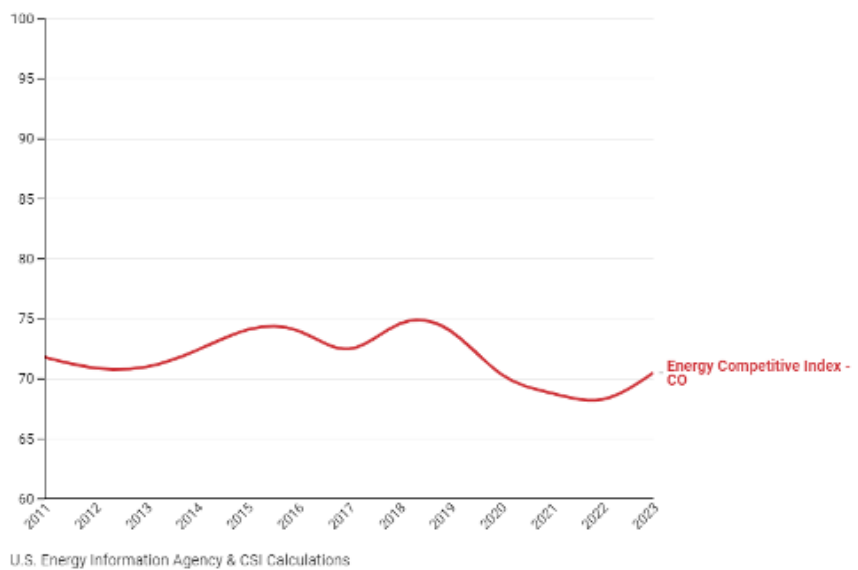


CSI Energy Competitiveness Index

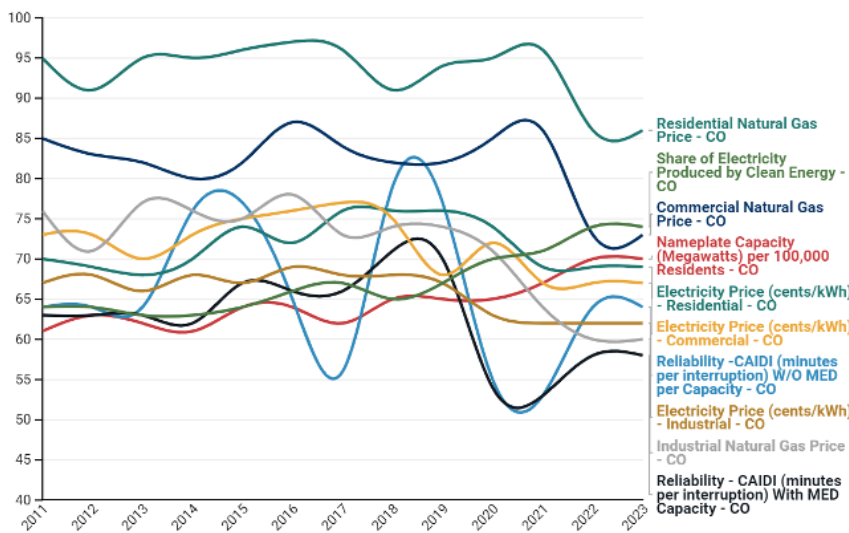
Colorado is experiencing unprecedented growth in the amount of renewable energy that is produced and consumed in our state. At the same time, natural gas and electricity costs have increased, the reliability of energy infrastructure has declined, and Colorado has surrendered some of its competitive advantage to other states. Energy is a crucial input for economic growth in every sector of the economy and as such, a competitive economy will have inexpensive energy prices, reliable energy deliverance, and sufficient energy capacity.

To measure how Colorado compares to other states CSI developed the Energy Competitiveness Index, shown in the following figure, measures Colorado's relative competitiveness compared to 49 other states and the District of Columbia. An increase (decrease) in the index signals an increase (decrease) in competitiveness. From 2011 to 2018, the index increased 3.9% as Colorado became more competitive. From 2018 onward, the index has fallen 5.5%. The index has declined 1.8% overall from 2011 to 2023.

Energy Competitive Index - Colorado



Energy Competitive Index Components - Colorado



The Energy Competitiveness Index already shows some concerning trends that have accompanied the early stages of decarbonizing the Colorado state economy.

The Colorado Competitiveness Energy Index is based on 10 state-level, sector-specific data from the U.S. Energy Information Administration on prices, capacity, clean energy production, and reliability to produce an overall score for the Colorado economy.

Since 2011, seven of the ten metrics used to calculate the index have declined. The only two to increase are nameplate capacity (14.8%) and the share of electricity produced by clean energy (15.6%). The biggest drivers of this downward trend are decreases in electricity and natural gas competitiveness as shown in the following table.

Energy Competitive Index Components – Colorado

	2011 Index	2011 Rank out of 51	2023 Index	2023 Rank out of 51	% Change in Index 2011-2023
Nameplate Capacity (Megawatts) per 100,000 Residents	61	39	70	30	14.8%
Reliability -CAIDI (minutes per interruption) W/O MED per Capacity	64	36	64	36	0.0%
Reliability - CAIDI (minutes per interruption) With MED Capacity	63	37	58	42	-7.9%
Electricity Price (cents/kWh) – Residential	70	30	69	31	-1.4%
Electricity Price (cents/kWh) – Commercial	73	27	67	33	-8.2%
Electricity Price (cents/kWh) – Industrial	67	33	62	38	-7.5%
Residential Natural Gas Price	95	5	88	12	-7.4%
Commercial Natural Gas Price	85	15	83	17	-2.4%
Industrial Natural Gas Price	76	24	70	30	-7.9%
Share of Electricity Produced by Clean Energy	64	36	74	26	15.6%
Energy Competitive Index	71.8	35	70.5	36	-1.8%

The decrease in electricity and natural gas index was the result of price increases as shown in the following table.

Electricity and Natural Gas Prices – Colorado

	2011	2023	Change in Price	% Change in Price
Electricity Price (cents/kWh) – Residential	11.27¢	13.07¢	1.80¢	16.0%
Electricity Price (cents/kWh) – Commercial	9.44¢	10.84¢	1.40¢	14.8%
Electricity Price (cents/kWh) – Industrial	7.06¢	8.01¢	0.95¢	13.5%
Residential Natural Gas Price (\$'s/1000 CF)	\$9.70	\$12.05	\$2.35	24.2%
Commercial Natural Gas Price (\$'s/1000 CF)	\$8.22	\$10.45	\$2.23	27.1%
Industrial Natural Gas Price (\$'s/1000 CF)	\$6.64	\$8.40	\$1.76	26.5%

The state's goals for the electricity sector could be artificially limiting the number of technologies that can be used to reduce carbon emissions. Revamping this policy to be technology neutral could allow the use of other energy sources including hydrogen, carbon capture and sequestration, nuclear to reduce carbon emissions.

A net-zero carbon emissions goal for mid-century that promotes technological diversity rather than a legislated list of preferred energy sources is a strategy worth considering. A net-zero approach also recognizes Colorado's economic and geographic diversity, too. Some sectors and some regions of the state are much tougher to decarbonize than others. A single timetable for cutting greenhouse gas emissions across a diverse economy could present challenges.

Any strategy for reducing carbon emissions should also include mechanisms like this Index to account for how much consumers and businesses are paying in energy costs, and how this impacts Colorado's competitiveness as a destination for job creation and investment relative to other states.

If these trends continue, Colorado's program for decarbonizing the state economy may fail, due to a lack of inexpensive energy and decreasing reliability in energy infrastructure, alongside climate-change and other environmental objectives.