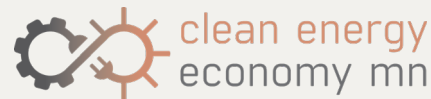


clean energy
economy mn

Business Case for Investing in Climate Action

Gregg Mast | August 6, 2019 | ASES Conference

Clean Energy Economy MN



What We're About

CEEM is an industry-led, nonprofit organization dedicated to growing and strengthening Minnesota's clean energy business ecosystem.

Our Mission

To provide educational leadership, collaboration, and policy analysis that accelerates clean energy market growth and smart energy policies.

We promote the business case for energy efficiency and clean energy to drive innovation and expand markets.



Our Members and Partners



The Business- Policy Nexus



LEGISLATION



Notable Energy Policies in MN



2007 Next Generation Energy Act

Renewable Energy Standard (RES): deliver 25% renewable electricity by 2025

Energy Efficiency Resource Standard (EERS): annual energy savings goal of 1.5% of average annual retail electricity and natural gas sales

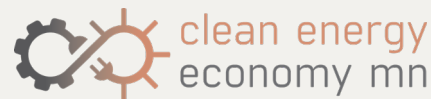
Greenhouse Gases (GHGs) Reduction Goals: 15% by 2015, 30% by 2025, and 80% by 2050 below the 2005 baseline

2013 Solar Energy Jobs Act

Solar Energy Standard: requires public utilities to generate 1.5% of electricity from solar by 2020; goal of 10% by 2030

Community Solar Garden Program created

Power Sector Transformation

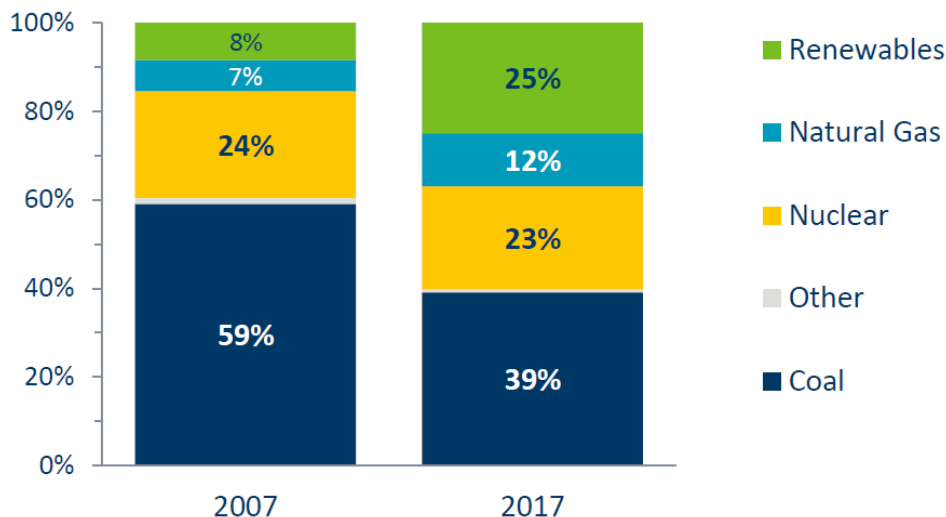


Renewables Up, Coal Down

- Cost-effectively achieved **25% renewables** seven years *ahead* of schedule
- Renewables have **tripled** since 2007 diversifying our electricity generation mix
- Wind accounts for **18%** of in-state generation (#7 in the nation)
- First retirement of coal-fired capacity in 2018 in three years; foreshadows smaller coal contributions

Minnesota's Electricity Generation Mix

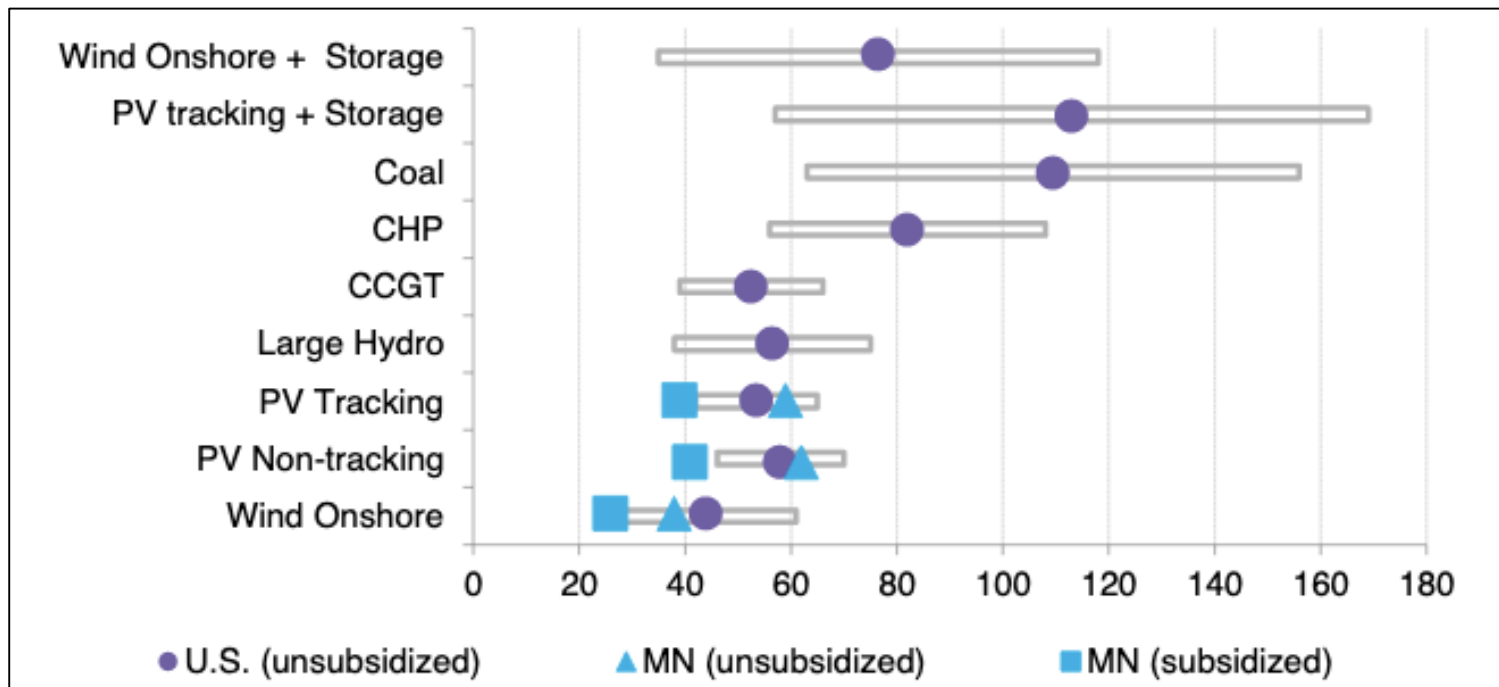
(% Megawatthours, source: U.S. EIA)



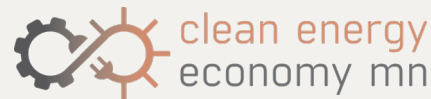
Source: BNEF MN State Energy Factsheet, 2019; MN Dept of Commerce, 2018

Economics are Driving Clean Energy Growth

Levelized Cost of Electricity (LCOE) of Select Technologies in the U.S. Compared to LCOE of Wind and Solar in Minnesota



Long-Term Shift is Powering Progress

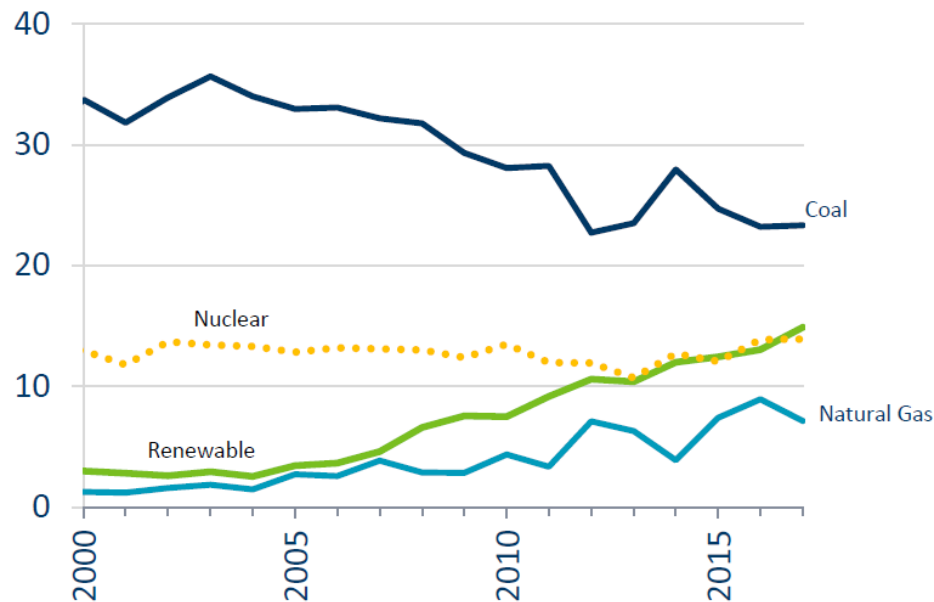


Benefits Include:

- **Diversifies** our energy supply and reduces dependence on imported fuels
- Spurs **economic development** and **job growth**
- Generates **tax revenues** and **landowner payments**
- **Stabilizes** energy prices - with wind and solar the fuel cost is free

MN Electricity Generation 2000-2017

(Terawatthours, Source: U.S. EIA)

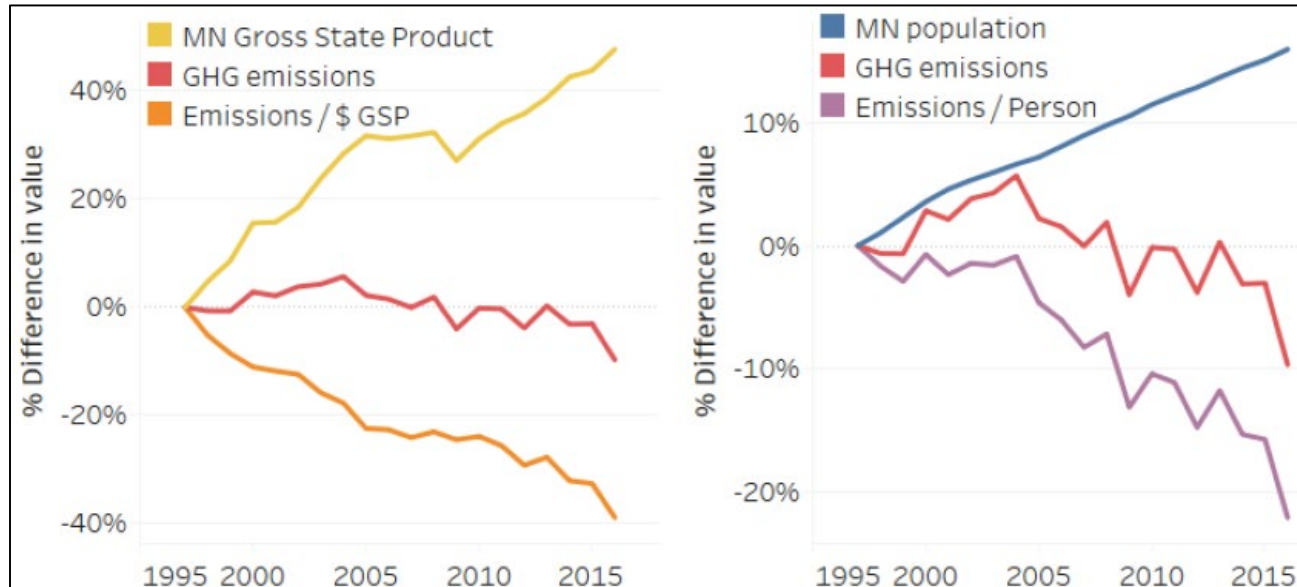


Source: MN Dept. of Commerce, 2018

Work to Do on GHG Emissions Reductions



Minnesota's GHG Emissions Per Dollar Gross State Product (GSP) and Minnesota's GHG Emissions Per Capita 1997 - 2016

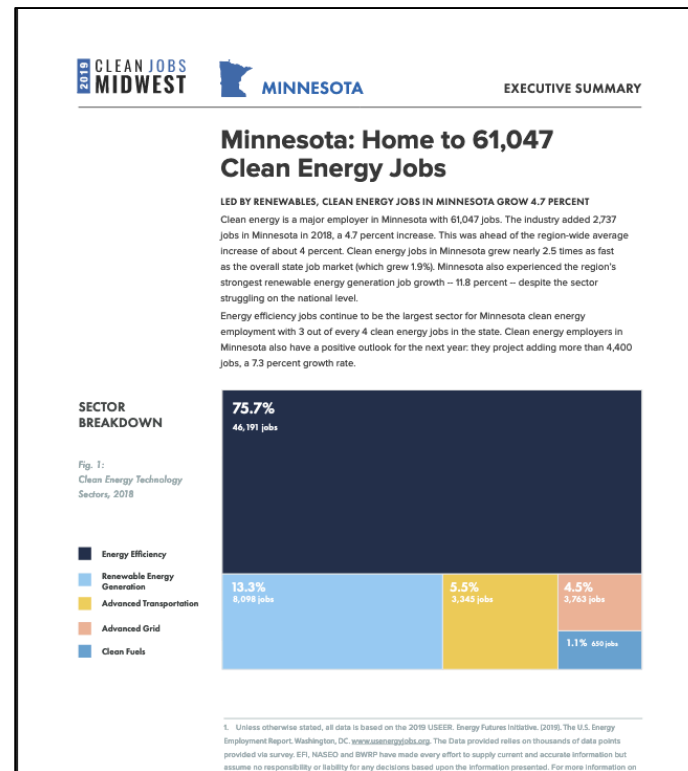


Source: MN Pollution Control Agency, 2019

MN Clean Energy Jobs are Booming



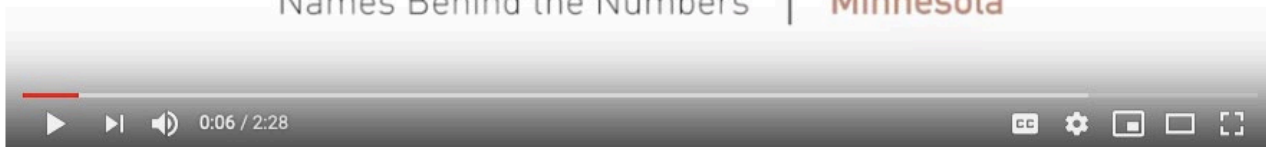
- **61,000+** clean energy jobs in Minnesota
- **40%** of jobs located across Greater Minnesota
- Industry is adding jobs **2.5X faster** than all other sectors of the state's economy
- **72%** of MN's clean energy businesses employ fewer than 20 individuals
- Employers project adding **4,200 jobs** next year - a growth rate of **7.3%**



Names Behind the Numbers



Names Behind the Numbers | Minnesota



Names Behind the Numbers | Minnesota Highlight Reel

The Business Voice Matters!

- Clean energy was the **#1 issue** legislators heard about in 2019
- Two Walz/Flanagan press conferences showcased clean energy's **economic impact**
- **Clean Energy Business Day** attracts hundreds
- Xcel Energy announces **100% clean energy by 2050**
- **100% clean energy by 2050** bill passes the House
- **Clean Energy First** introduced in Senate by Republicans



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