

Operational Needs for a High-DER Future

Bryan Hannegan, President and CEO

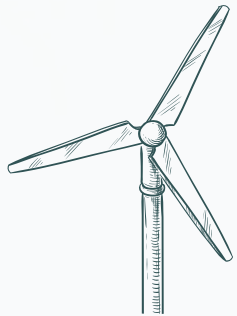


Your community. Your co-op. Your choice.



About Holy Cross Energy

Holy Cross Energy (HCE) provides safe, reliable, affordable and sustainable energy and services that improve the quality of life for our members and their communities.



In 2023, 50% of our power supply came from wind, solar, biomass and hydroelectric power, as well as coal mine methane recovery.

Founded in 1939, we serve more than 46,000 members in scenic Western Colorado with:

**275 MW
Peak
Demand**

**3,100 Miles
Distribution
Lines**

**120 Miles
Transmission
Lines**

**170
Employees**



Our Journey to 100% Clean Energy

These actions will allow HCE to achieve its vision of:

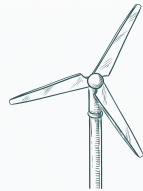
- 100% carbon-free power supply by 2030
- Carbon-neutral or better across the enterprise by 2035

in a way that ***does not sacrifice affordability, safety, or reliability*** for the sake of sustainability.



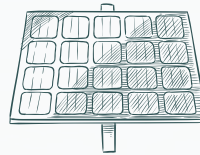
Energy Efficiency

Obtain additional reduction of electric sales from existing uses.



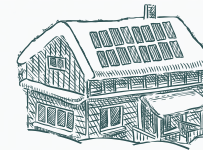
Cleaner Wholesale Power

Incorporate new, clean, dispatchable resources into HCE's power supply mix.



Local Clean Energy Resources

Continue our existing agreements for energy from local biomass, hydro, and solar projects



Distributed Energy Resources

Support installation of distributed solar systems, ideally paired with battery storage and/or flexible demand



Smart Electrification

Encourage expanded use of electricity for transportation, building heating and cooling, and industrial processes.



Our Progress Thus Far

New Resources Developed or Under Contract:

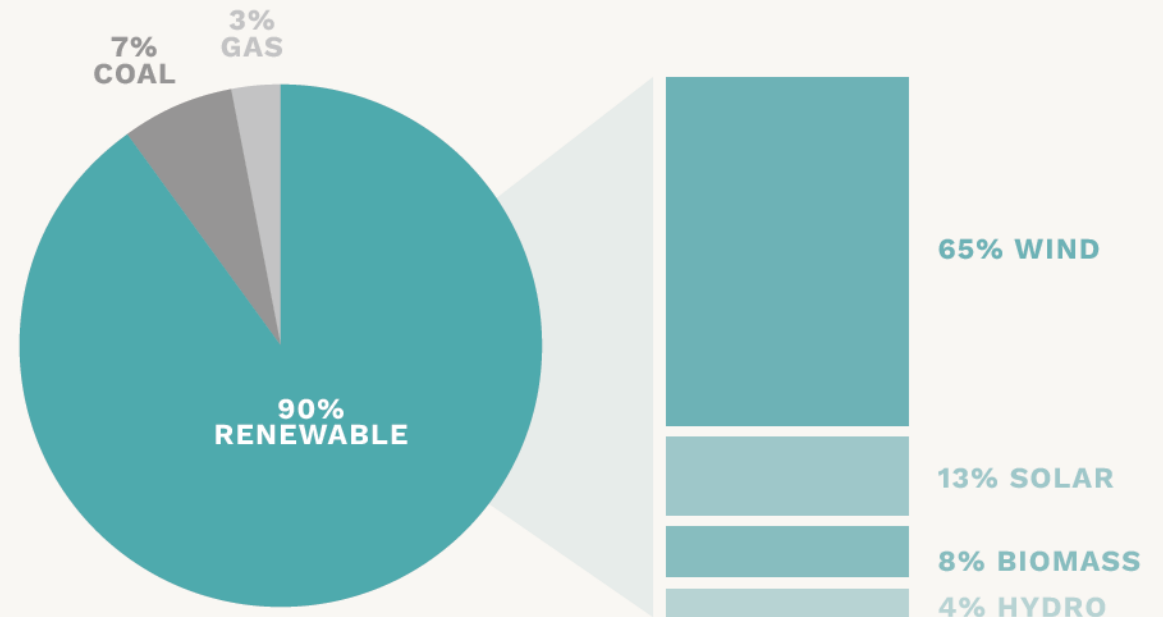
Eastern Colorado

- 150 MW wind
- 30 MW solar

HCE Service Area

- 5 MW solar
- 4.5 MW hydro
- 4.5 MW/15 MWh solar+storage
- 10 MW/20 MWh solar+storage
- 10 MW/20 MWh solar+storage

FORECASTED 2025 Energy by Fuel



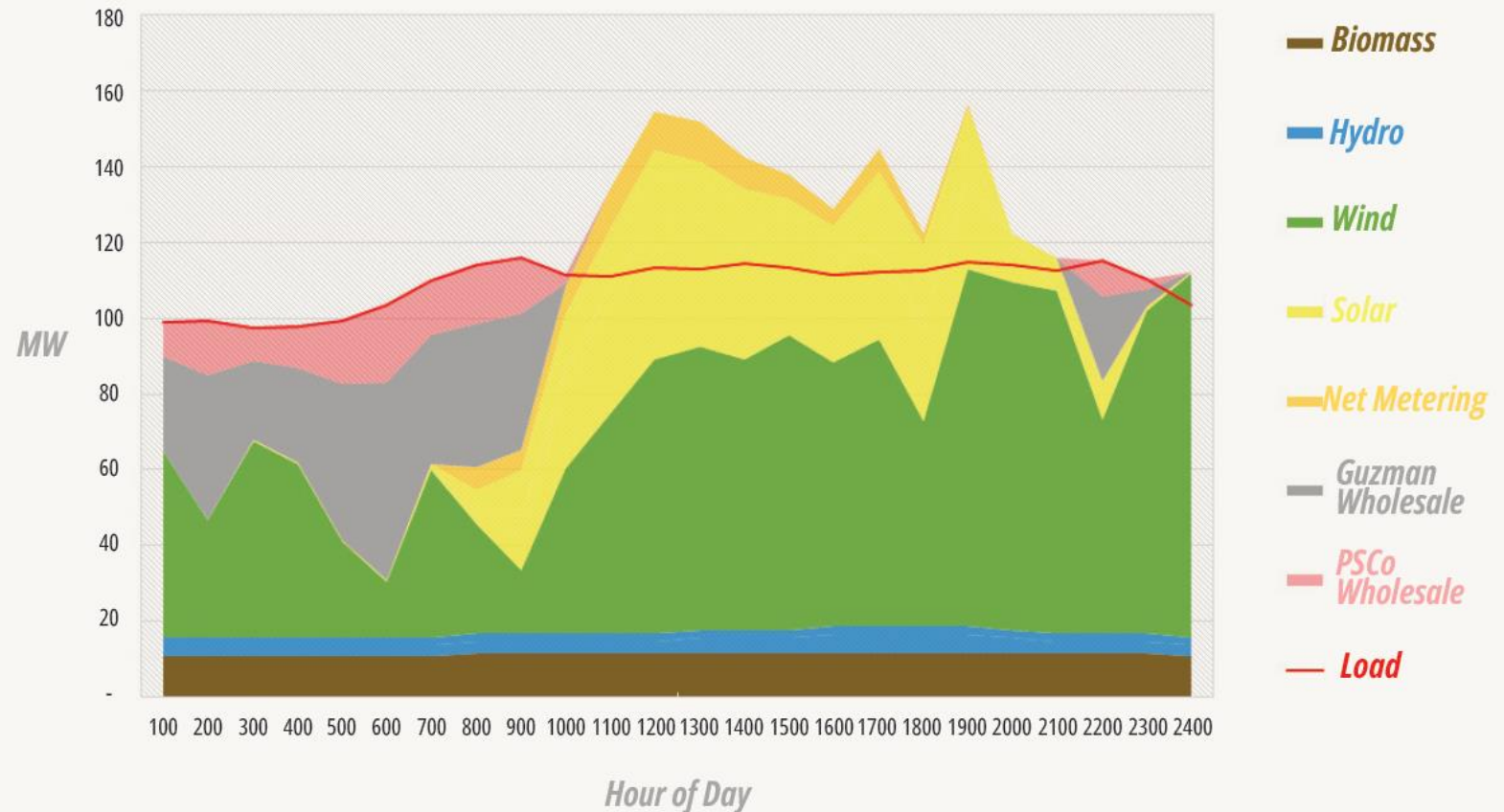
The remaining non-renewable energy in the HCE power supply mix in 2025 is related to wholesale purchases from Public Service Company of Colorado (Xcel Energy). With HCE's currently contracted resources and because of Xcel's Clean Energy Plan (80% renewable in 2030), HCE expects to reach between 95% and 100% renewable energy in the year 2030.



Implications of High Renewables

- Significant new forms of supply variability (and financial risk)
- In general:
 - oversupply during midday solar production peaks
 - oversupply during low demand overnight hours
 - undersupply during peak demand hours (mornings and afternoons)
- Role of distribution utility becomes one of balancing
 - flex demand to meet available supply (+ stored energy)
 - opportunity for DERs

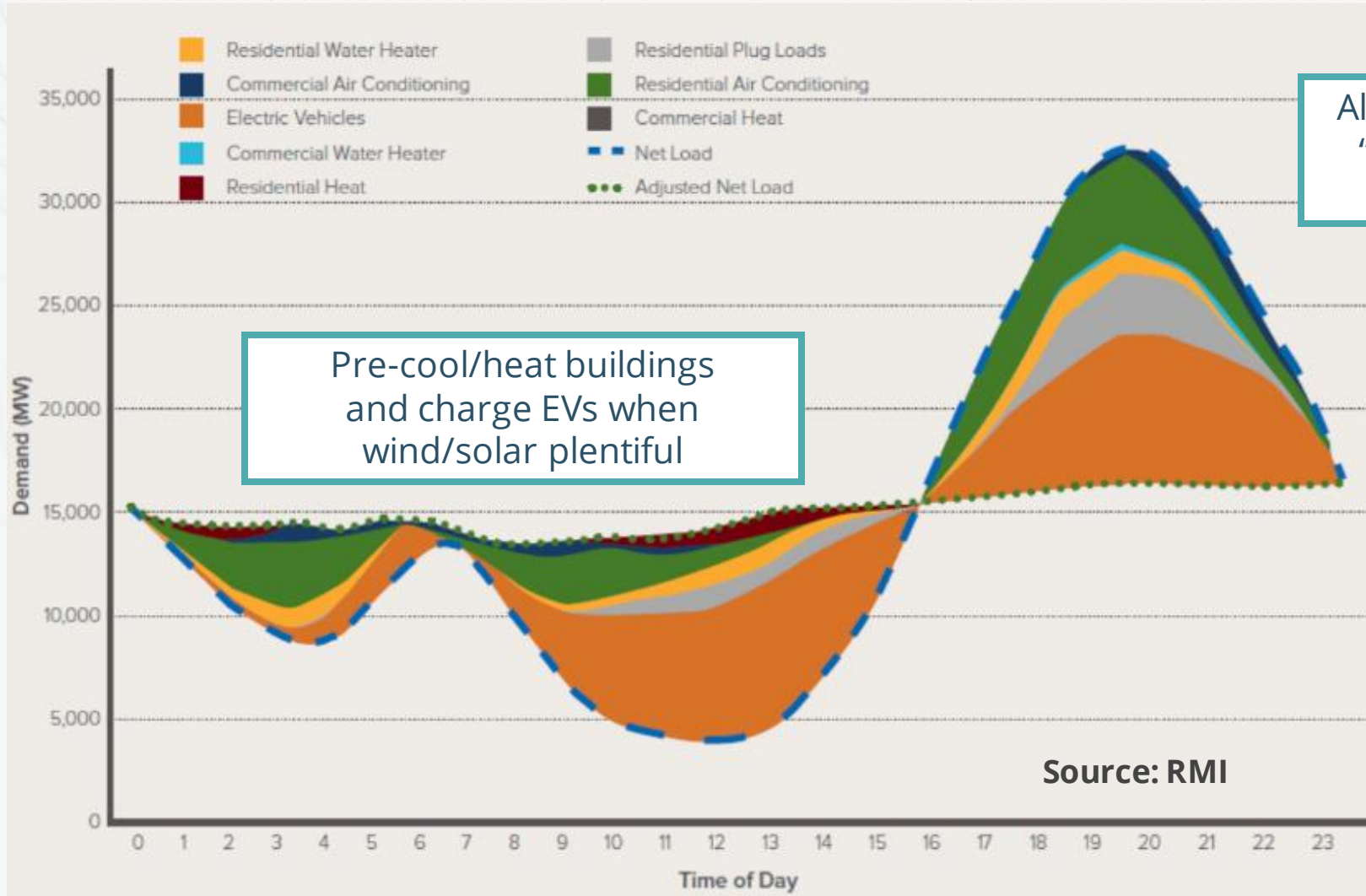
Forecasted Load and Generation from Base Case Resource Model
May 19, 2024





Flexible Demand is Key

Distributed Energy Resources (DERs) must provide important services to help balance supply and demand



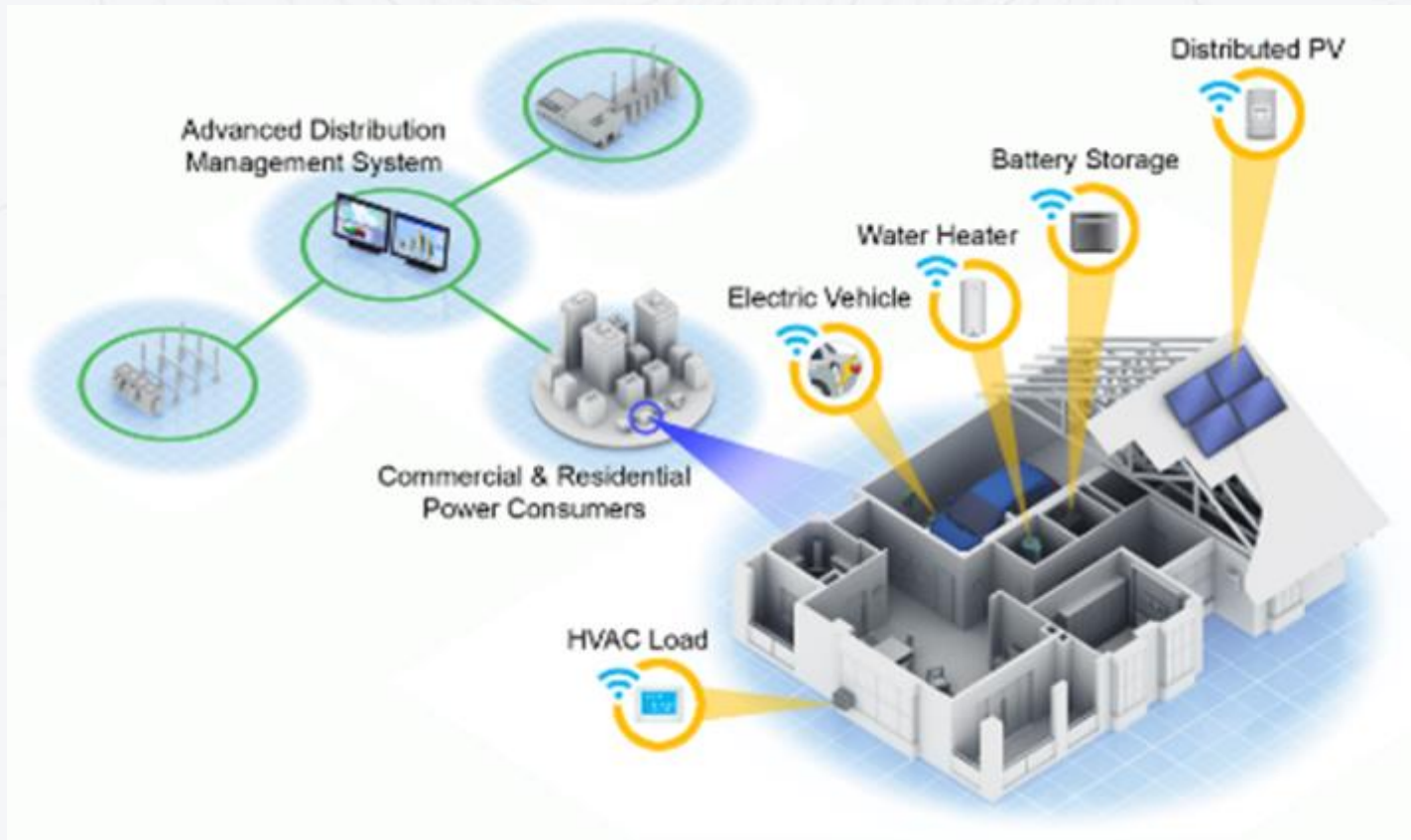
Pre-cool/heat buildings and charge EVs when wind/solar plentiful

Allow building to "ride through" peak

Discharge from batteries to address PM solar ramp (incl. V2G)



Operational Requirements



- Grid operator visibility and situational awareness
- Fast, secure and private communications infrastructure
- Grid-responsive and interoperable hardware devices
- Software optimization platforms (multiple levels)
- Innovative programs and equitable financing options
- New utility business model (delivery, not kWh sales)



Join us on our Clean Energy Journey

For more information –

www.holycross.com

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