

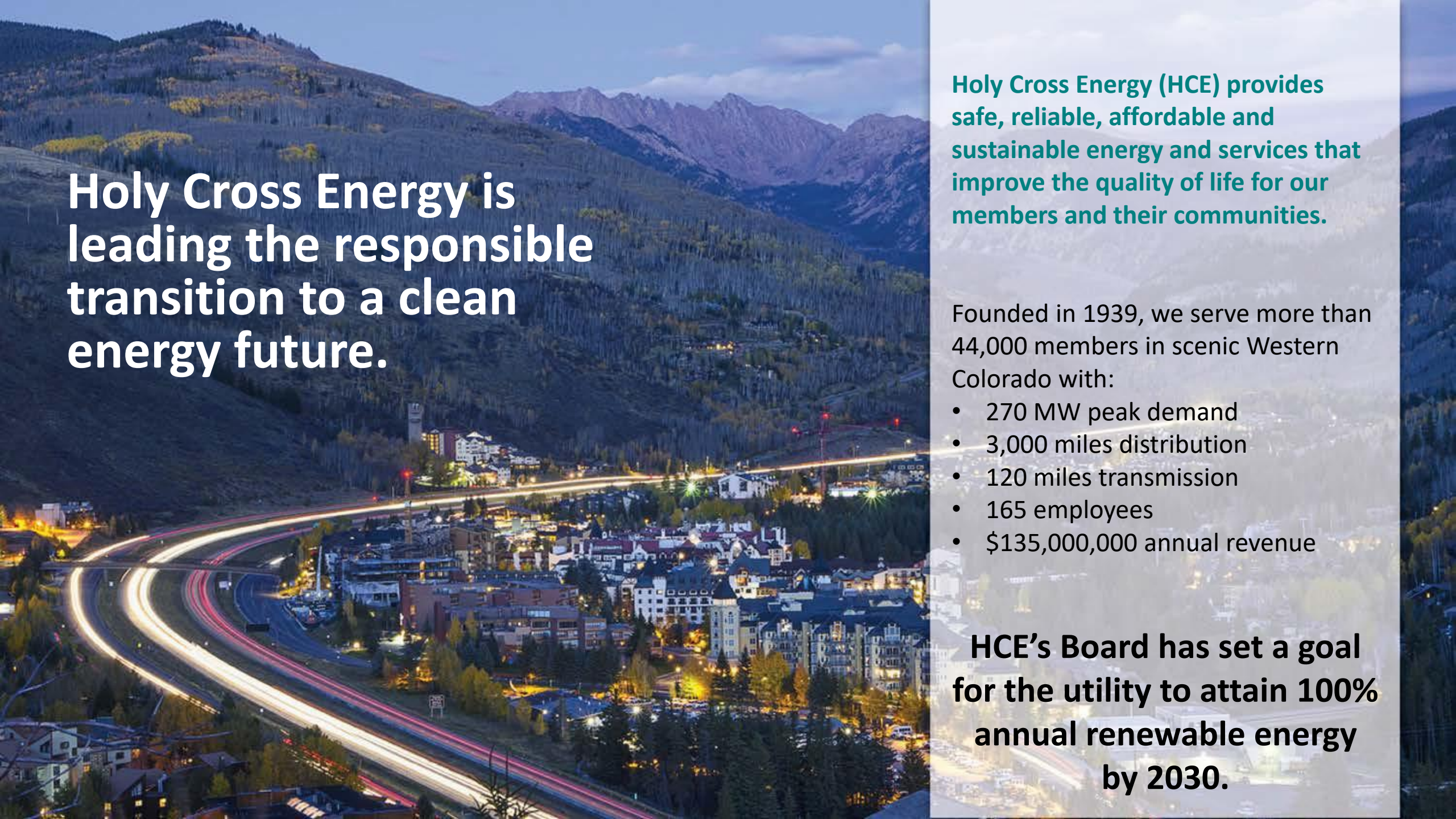


Leading the responsible transition to a
clean energy future.

ESIG

Electricity Rates and Demand Flexibility

Holy Cross Energy
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VP Power Supply & Programs
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Holy Cross Energy is leading the responsible transition to a clean energy future.

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.

Founded in 1939, we serve more than 44,000 members in scenic Western Colorado with:

- 270 MW peak demand
- 3,000 miles distribution
- 120 miles transmission
- 165 employees
- \$135,000,000 annual revenue

HCE's Board has set a goal for the utility to attain 100% annual renewable energy by 2030.

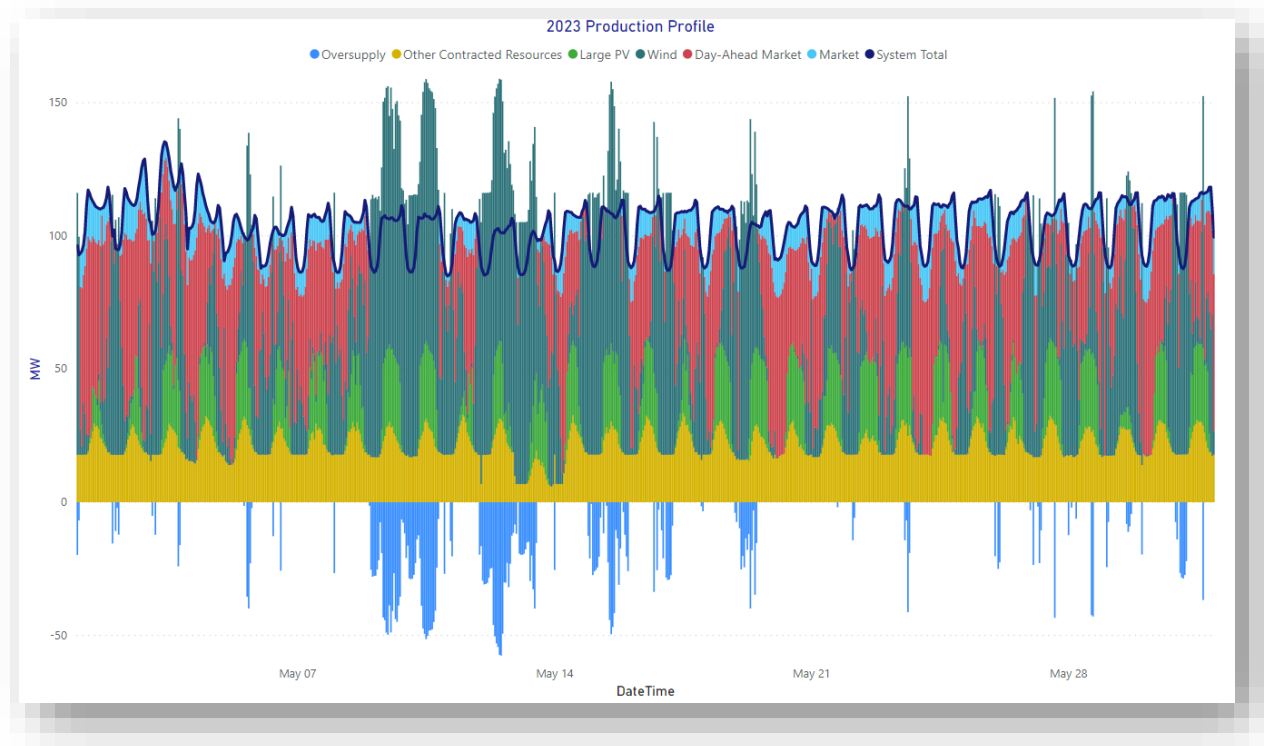
Load Flexibility & DER Control – why are we interested?

Today's Main Value Streams:

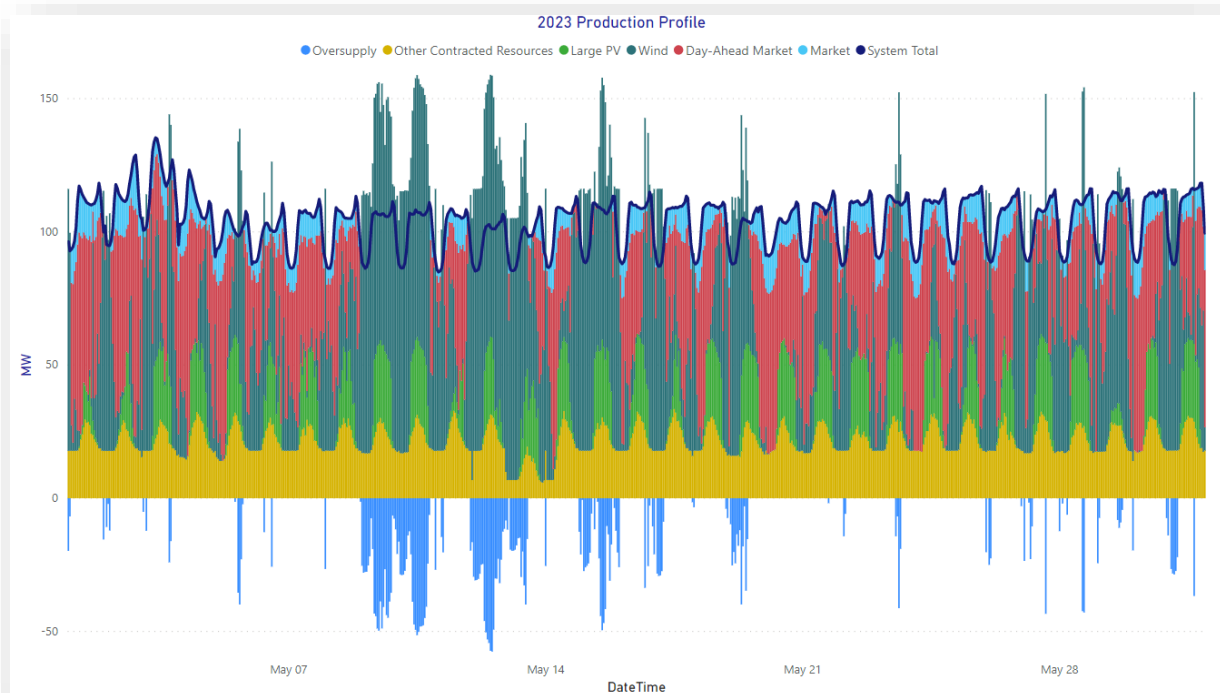
- **Capacity Costs** (need for peak demand reduction)
- **Renewable Oversupply** (need for balancing supply/load or load/supply)

Future Added Value Stream:

- **Ancillary Services Self-Provision Option** (viewed as a hedge on BAA or Market cost)



Load Flexibility & DER Control – why are we interested?



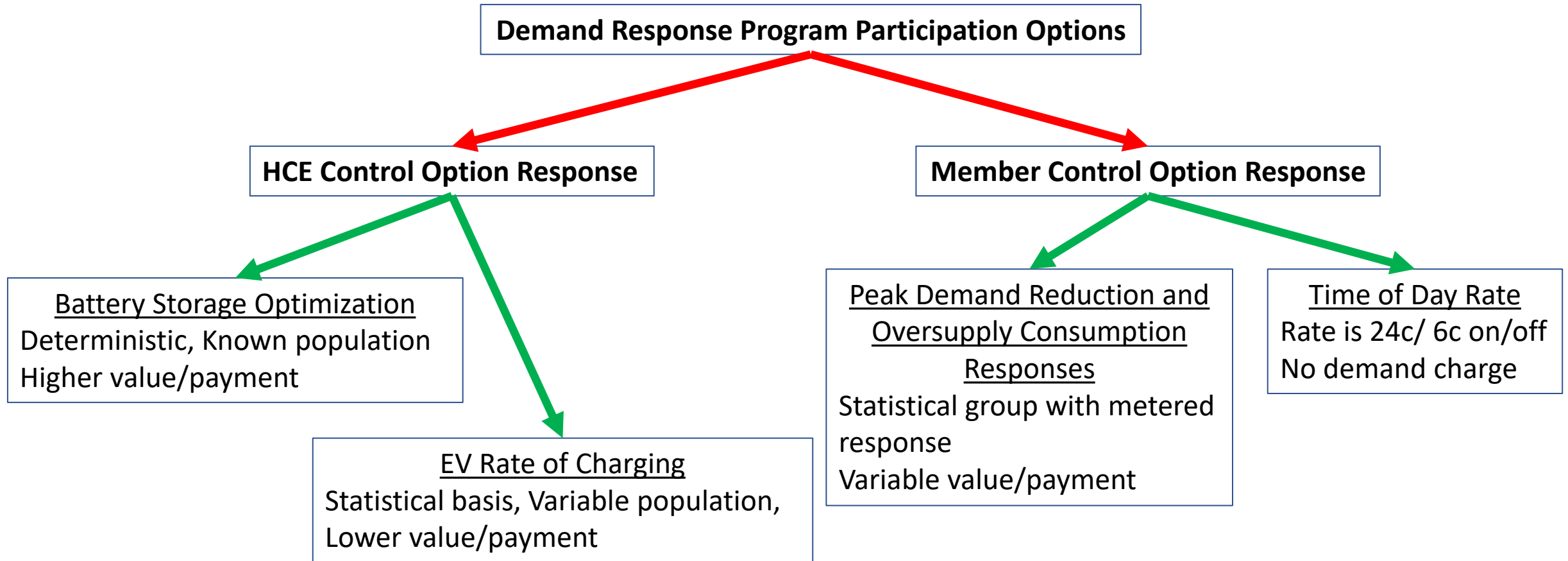
Our Approach:

- **Member Option to Control** – Dynamic rates are messaged to participants to provide voluntary price signals and incentives to members that exercise control over their own DERs and/or usage
- **Utility Option to Control** – HCE offers a bill credit in exchange for the member giving HCE operational control over the DER
- **Cover installation costs** - A Service Agreement helps members overcome investment hurdles and repay the DER installation cost to HCE over time

Load Flexibility & DER Control – Philosophy

- **We seek best value; no bias to capital investment**
- **Primary wholesale supplier sets a known capacity cost and billing determinates; helpful in program design and valuation**
- **Accurate day-ahead forecasting of own hourly load, area hourly load, plus wind and solar production is essential**
- **Customer interest in local resilience is driving behind-the-meter storage growth and creates a win-win with utility participation**
- **Regional markets, FERC Order 2222, RTO-based grid access; many changes on the horizon; better efficiency does not eliminate risks**

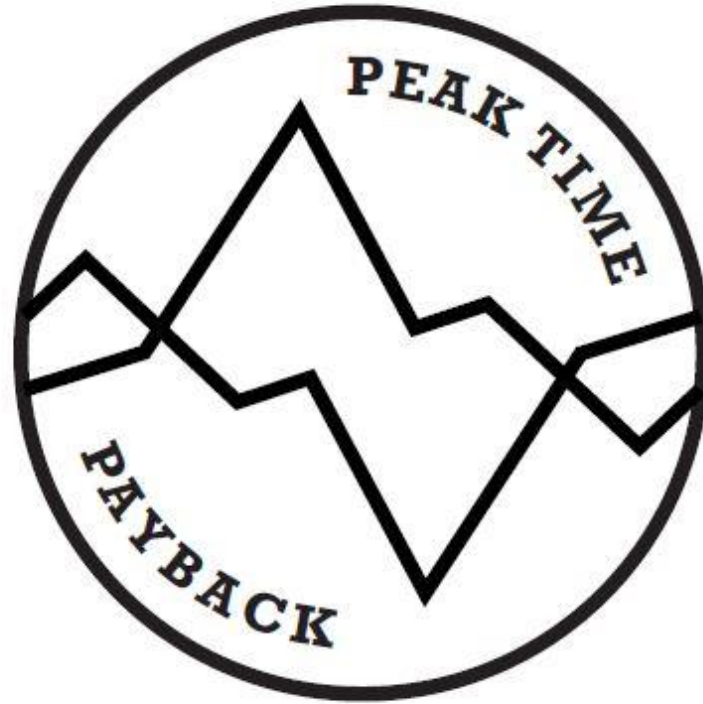
Demand Response Program Structures



Dynamic Rates – Peak Time Payback:

Peak Time Payback – behavioral demand response rate for ~100 hours per year

- Credits provided based on consumption that is less than the baseline
- \$0.50/kWh reduction for “High” events
- \$1.00/kWh reduction for “Critical” events



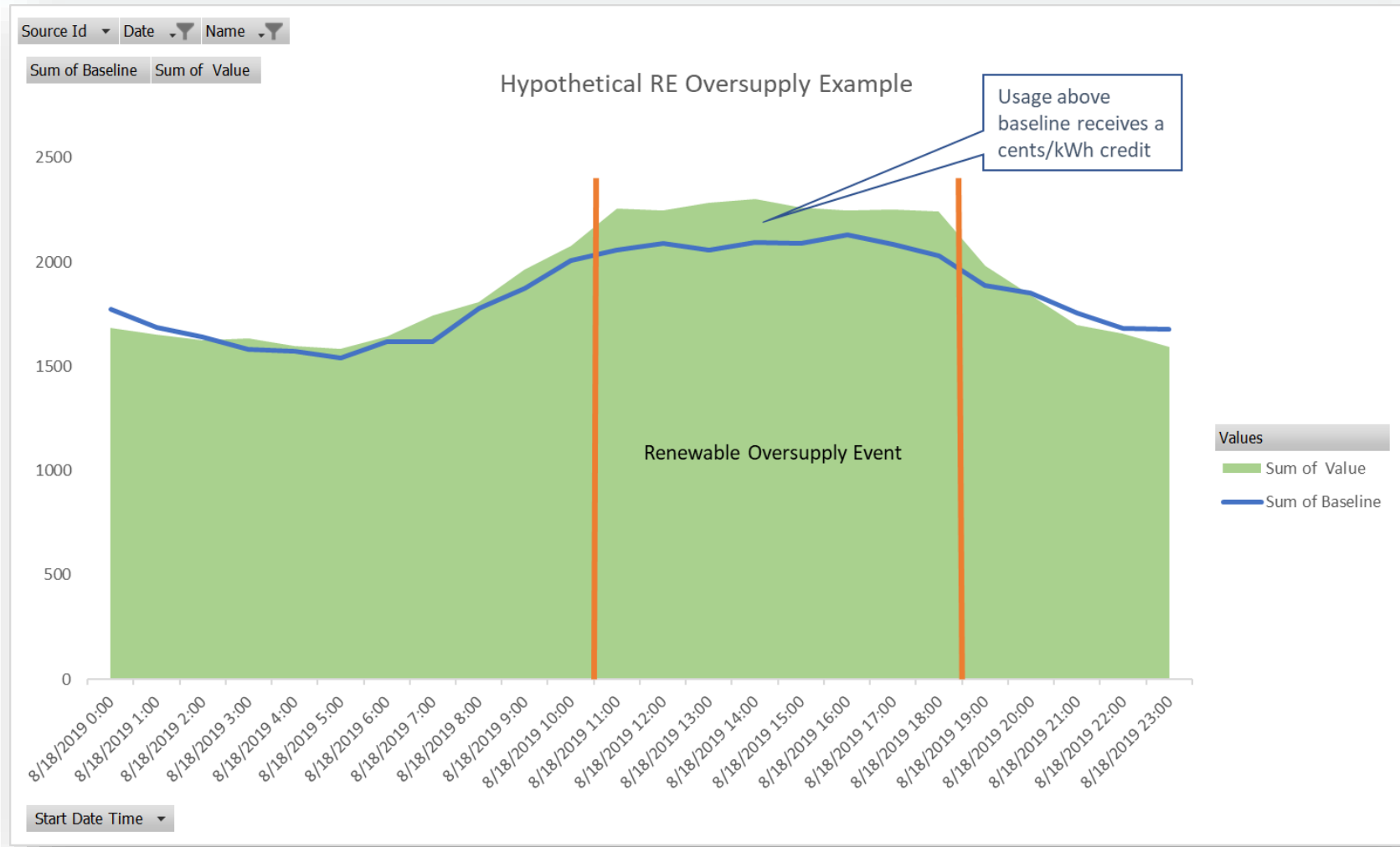
Recent Results

- Over 2k members enrolled as of October (~3% of members)
- Has been a source of supply cost savings for all customers
- Aggregate average reduction of **25%**
- Consistent response, even with August heat wave
- Less participation “fatigue” than pessimists originally projected

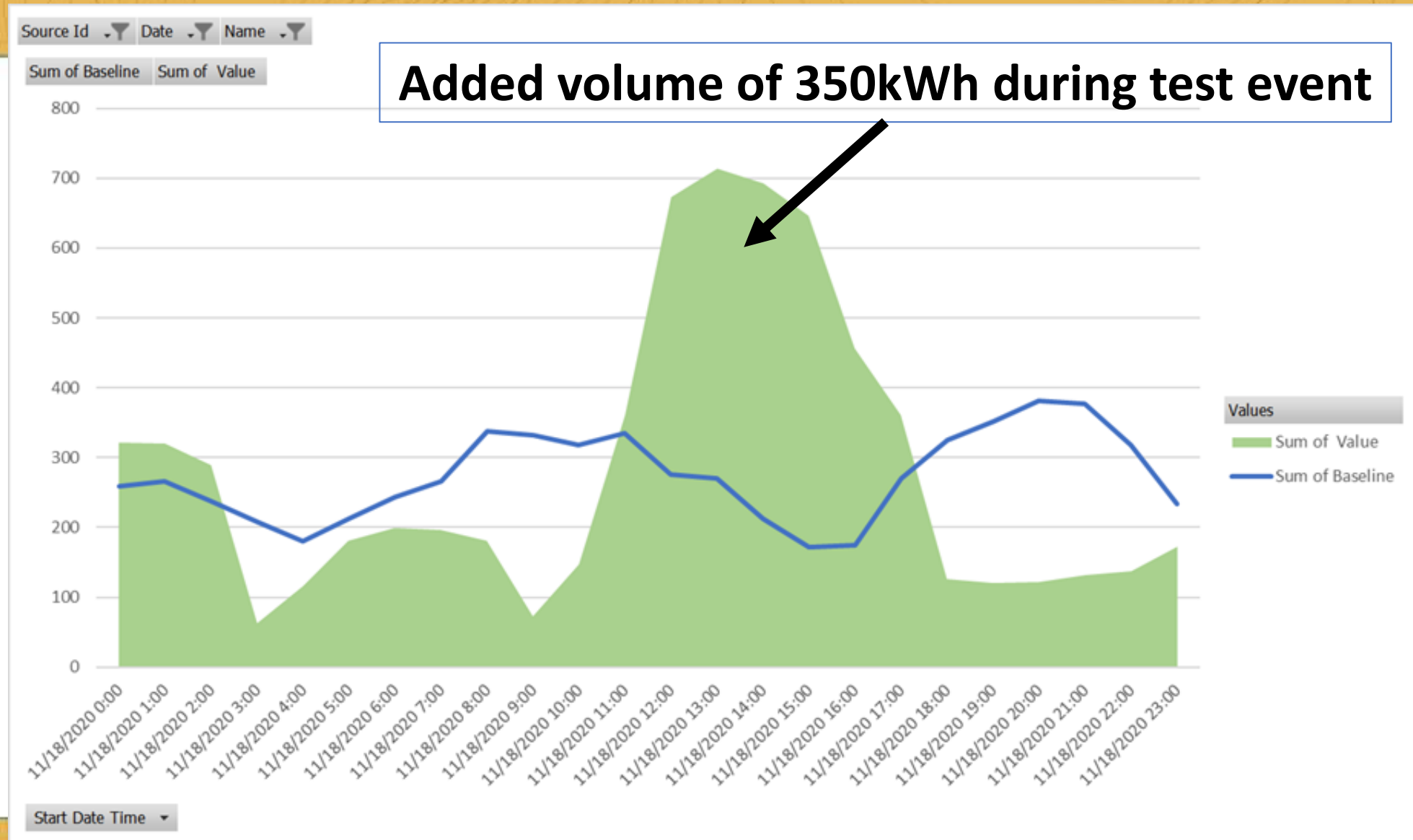
Dynamic Rates – “Green-up” Renewable Optimization Pilot:

Dynamic Renewable Pricing – behavioral demand response rate for ~300 hours per year

- Variable rate “credits” based on consumption that is greater than the baseline
- Rate credits will vary based on market conditions (i.e. renewable curtailments, market pricing, other system operation conditions)



Dynamic Rates – Pilot “Green-up” Renewable Optimization



Program and Product Pairings

- **Smart Electric**

- **EV Programs** – 1.25MW controllable residential load; significant growth in transit and DCFC
- **Power+ Program** –launched storage control and member resilience service for net member cost of around \$40/mo
- Program support with on-bill payback of installation costs over time, zero interest rate

- **Demand Response**

- **Voluntary reductions or increases (PTP and GreenUp)** – piloting use of home energy monitoring device for members upon request; goal to increase response

- **Control**

- **Camus Energy Platform** – provides integration of market operations, insight into DER capabilities, and dispatch/control of DERs



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