# PROBLEM SOLVING WITH ENERGY STORAGE

NECPUC

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***Head of NA Retail Regulatory Offering***



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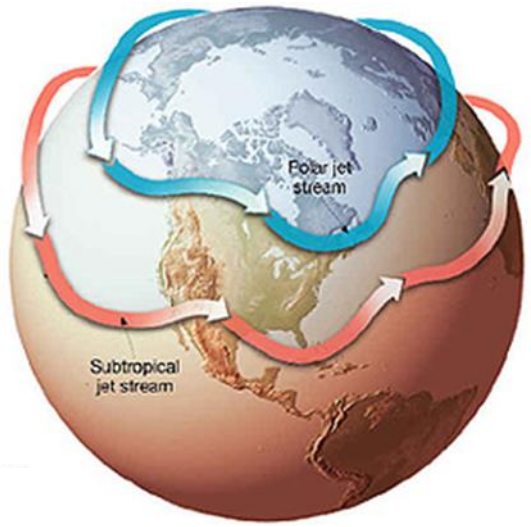
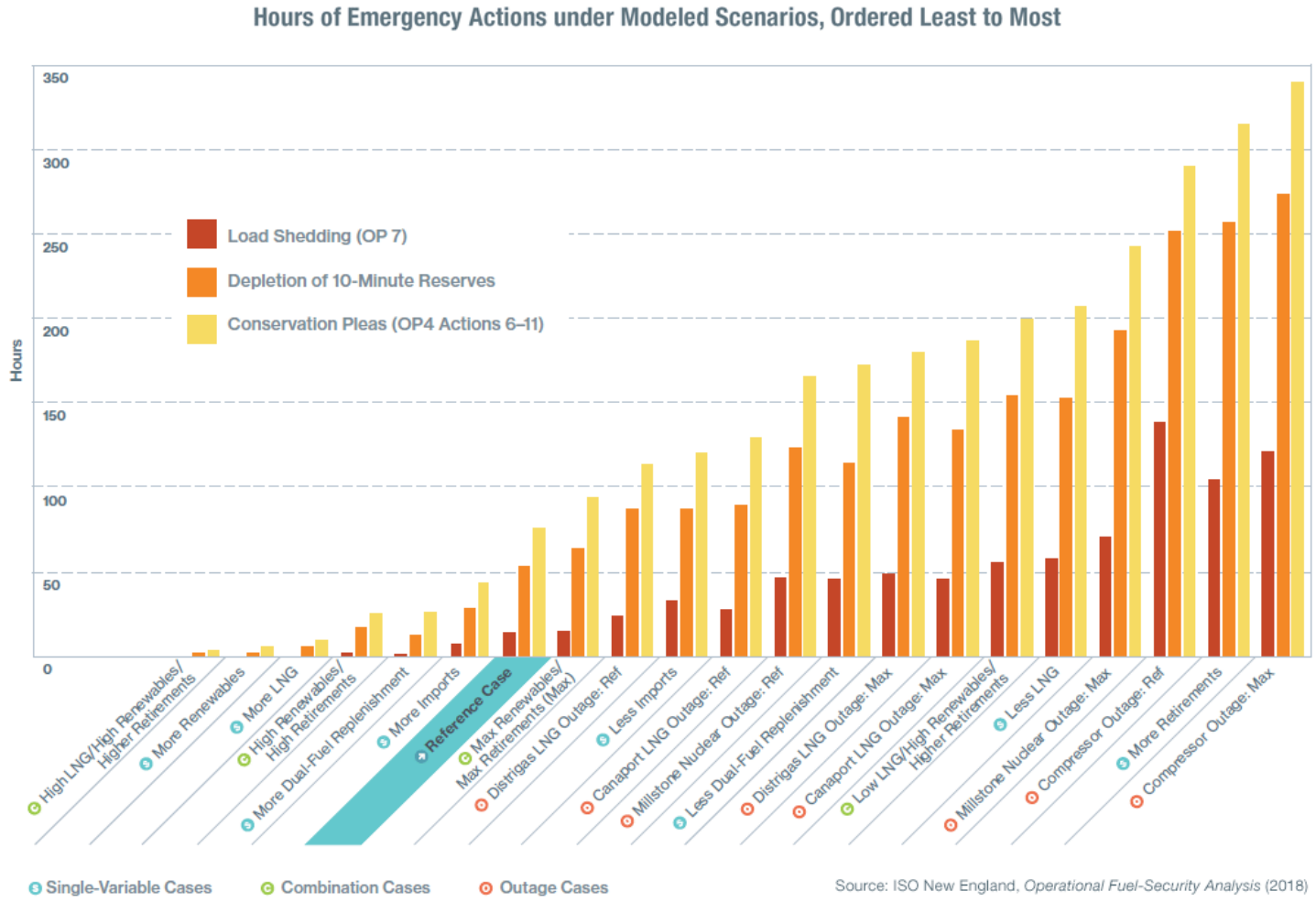
# PROBLEMS AND OPPORTUNITIES

1. What problems do we need to solve?
2. Can we take advantage of certain opportunities?

- How can we do so in the most cost effective way?

# REGIONAL PROBLEMS



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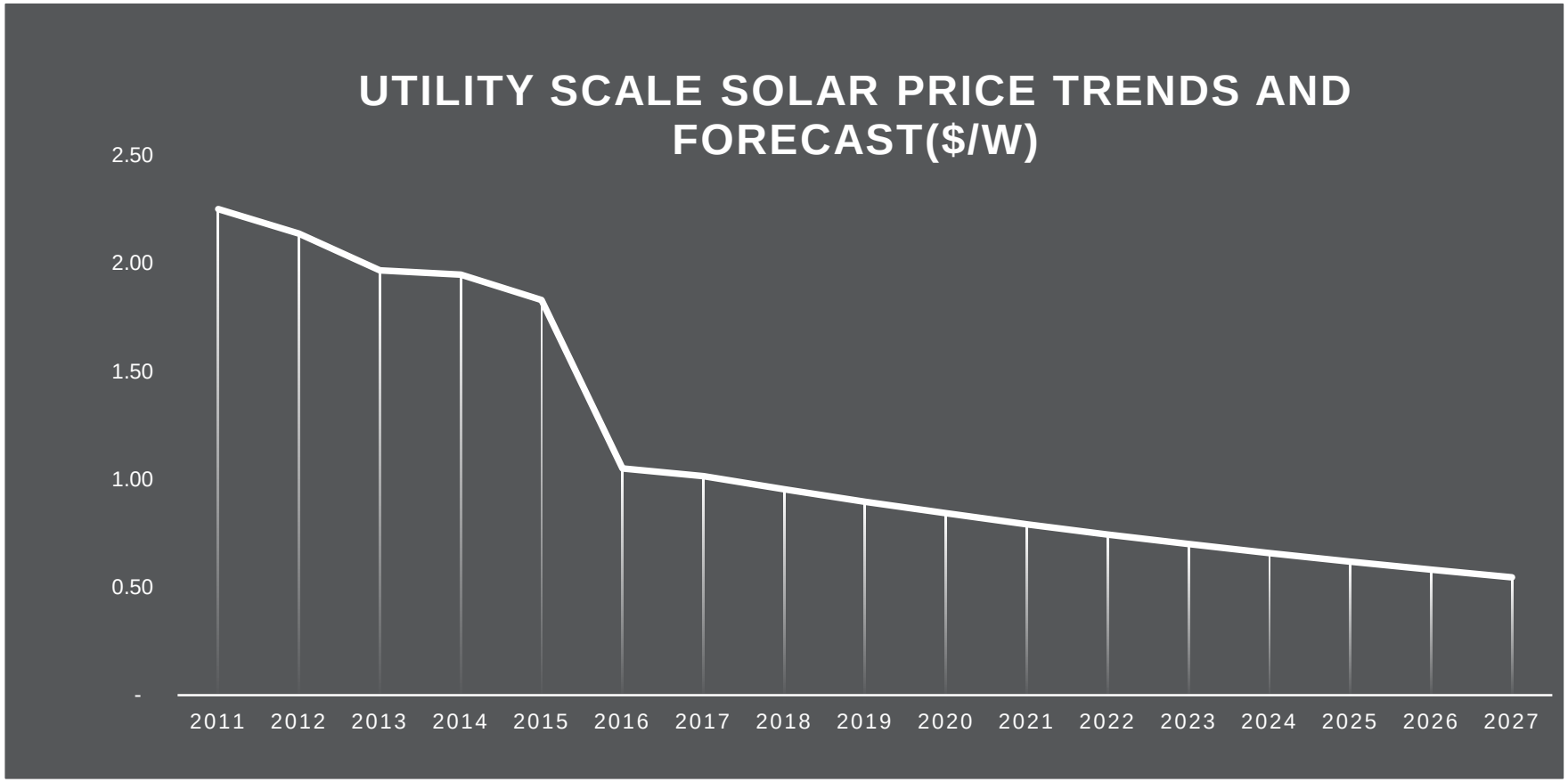
# REGIONAL OPPORTUNITIES



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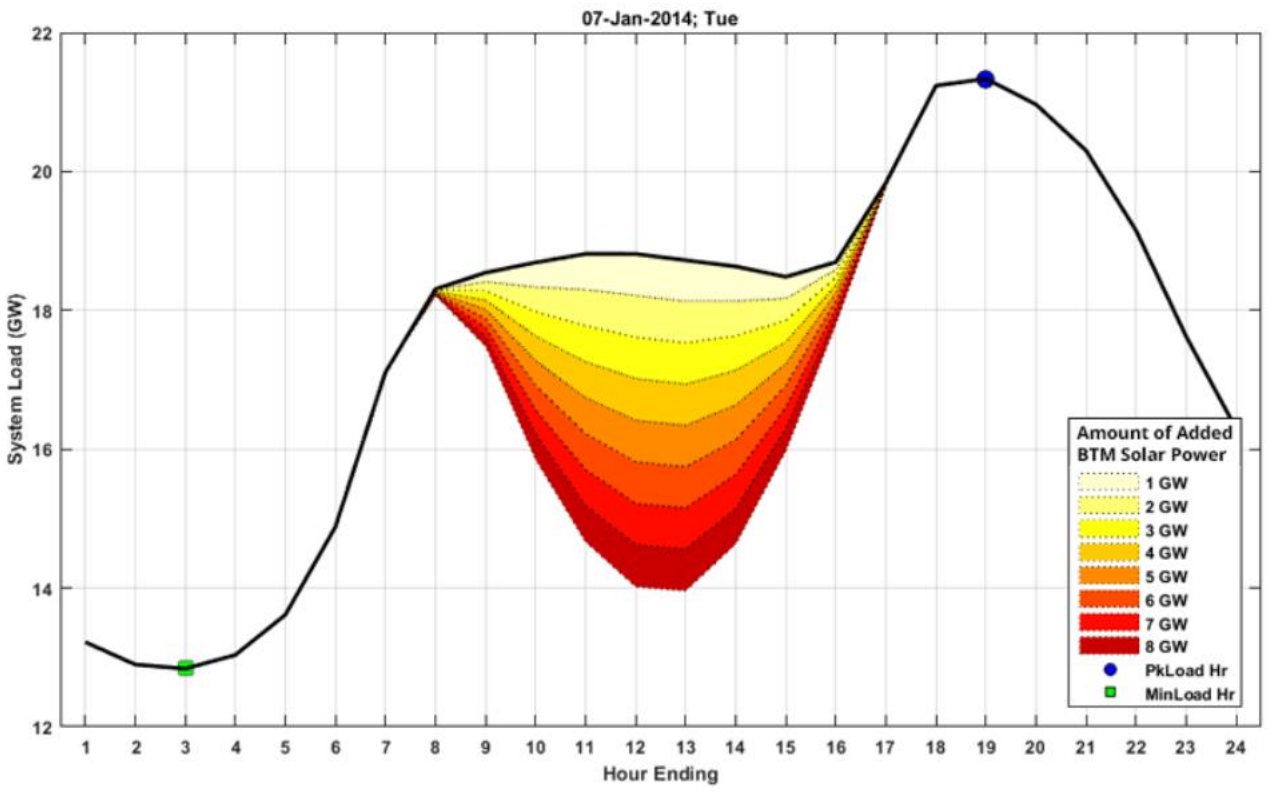
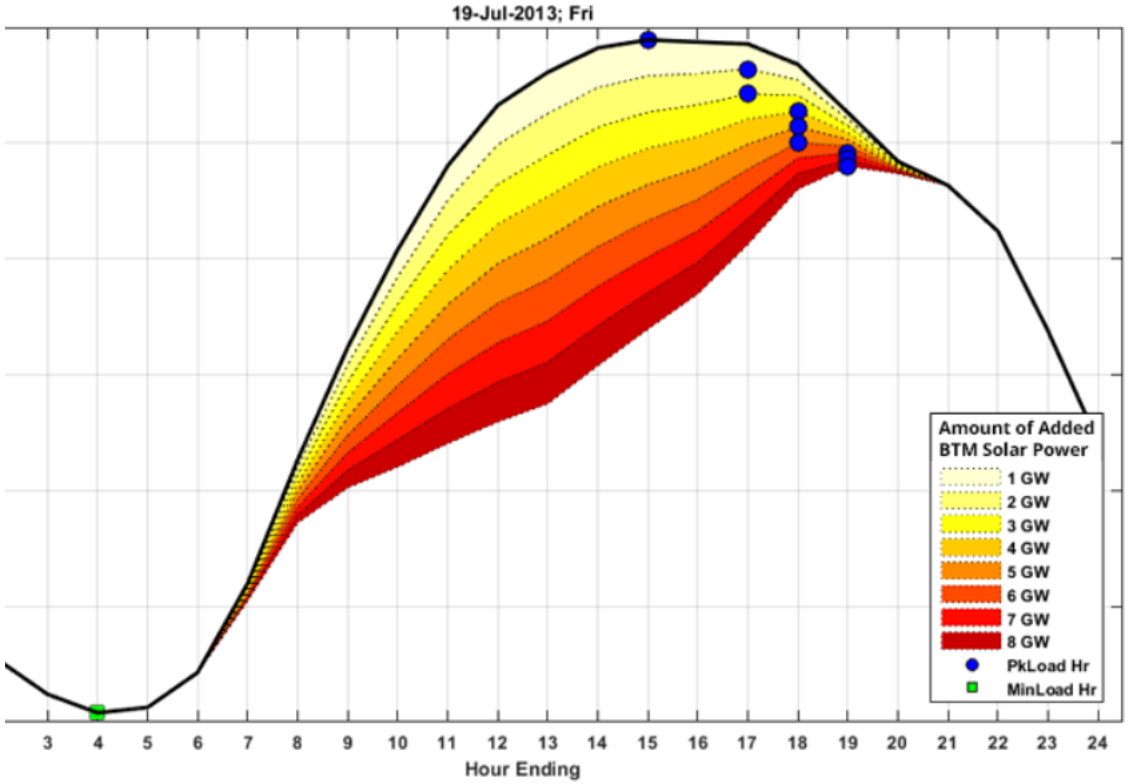
# REGIONAL PROBLEMS

Winter Load Profile with Increasing Behind-the-Meter Solar Power




Summer Load Profile with Increasing Behind-the-Meter Solar Power



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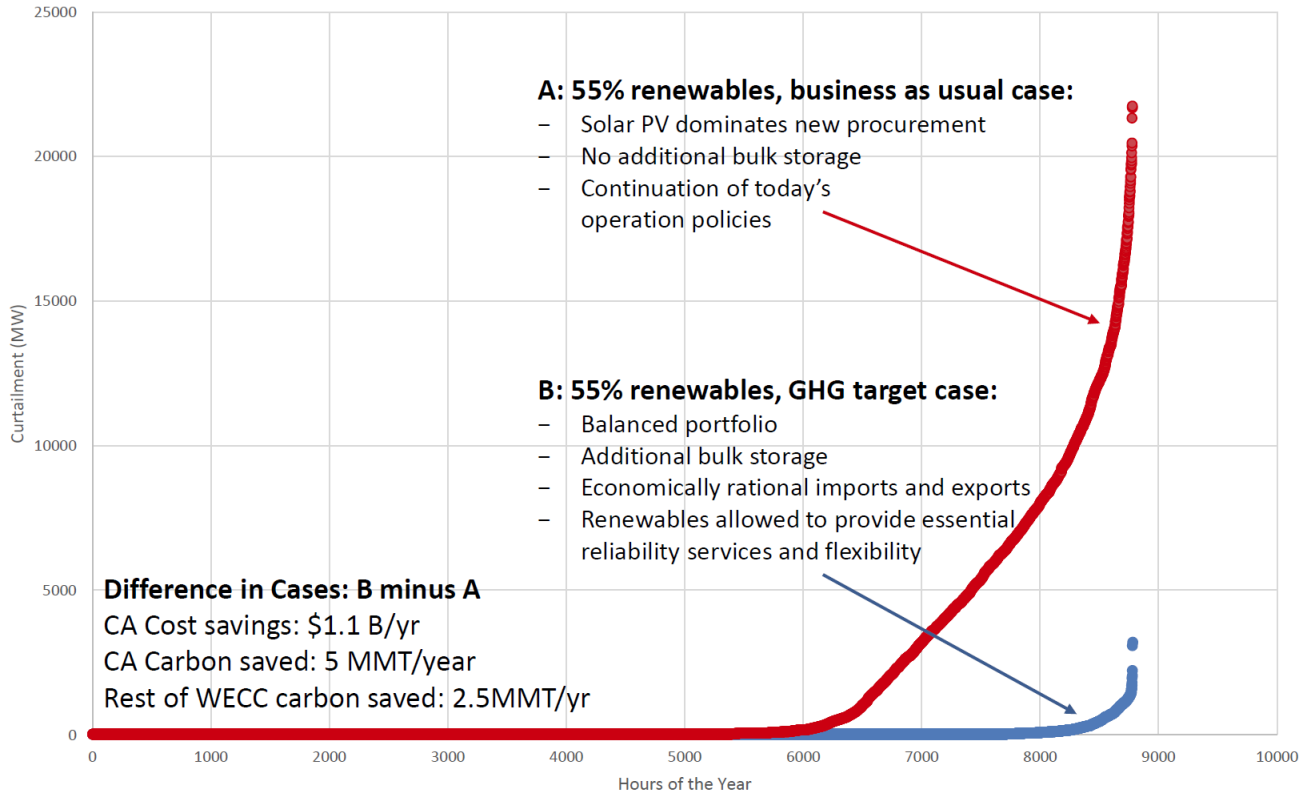
# MARGINAL BENEFITS OF A HIGH RPS ARE MINIMAL

## Low Carbon Grid Study
### Curtailment of Renewable Energy




Low Carbon Grid Study (February 2016): http://lowcarbongrid2030.org/wp-content/uploads/2016/PDFs/160307_PhaseIIResults.pdf

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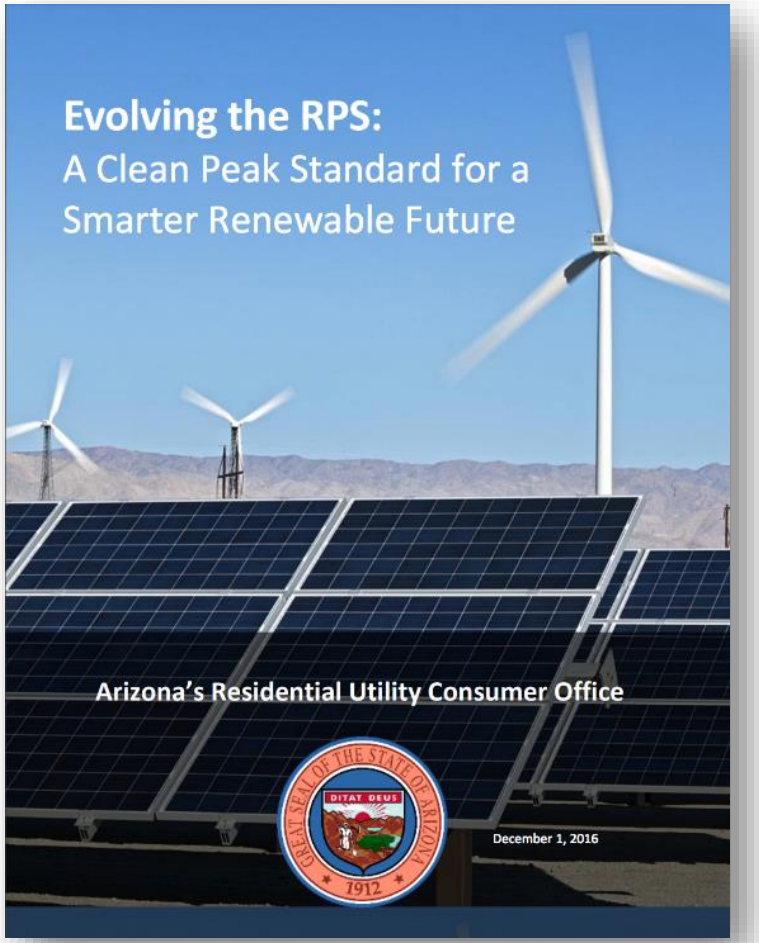
# CLEAN PEAK STANDARD (CPS) – TOU MEETS AN RPS

Renewable Portfolio Standards (RPS): X Percentage of retail sales must be met by eligible renewable energy sources by X date.

- Example – 30% of retail sales (MWh) by 2030

Clean Peak Standard: X Percentage of peak hours must be met by eligible clean energy sources by X date.

- Example – 30% of peak energy (on-peak MWh) by 2030



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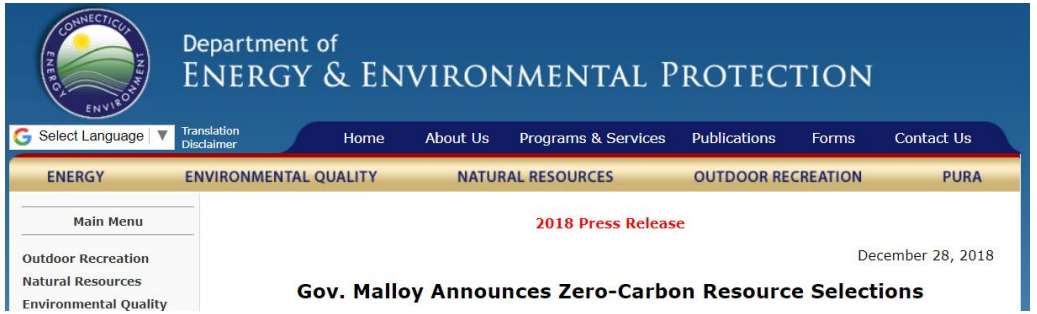
# REGIONAL OPPORTUNITIES

- “The average levelized cost of these nine projects is about 4.9 cents/kWh, which is approaching parity with the market price of energy, and represents continued price reductions compared to our last procurement of grid scale solar, as well as additional savings to ratepayers.”
  - GRE-3-ME-SACO in Maine paired with energy storage
  - Montville Energy Center, LLC
  - Black Hill Point Energy Center, LLC paired with energy storage
  - Gravel Pit Solar in Connecticut
  - Tilton Heights Energy Center, LLC in New Hampshire
  - Steel Mill Solar, LLC in New Hampshire
  - Old Mill Solar, LLC in Maine
  - Keay Brook Energy Center, LLC in Maine
  - Kennebec PV Partners, LLC in Maine




https://portal.ct.gov/Office-of-the-Governor/Press-Room/Press-Releases/2018/12-2018/Gov-Malloy-Announces-Zero-Carbon-Resource-Selections

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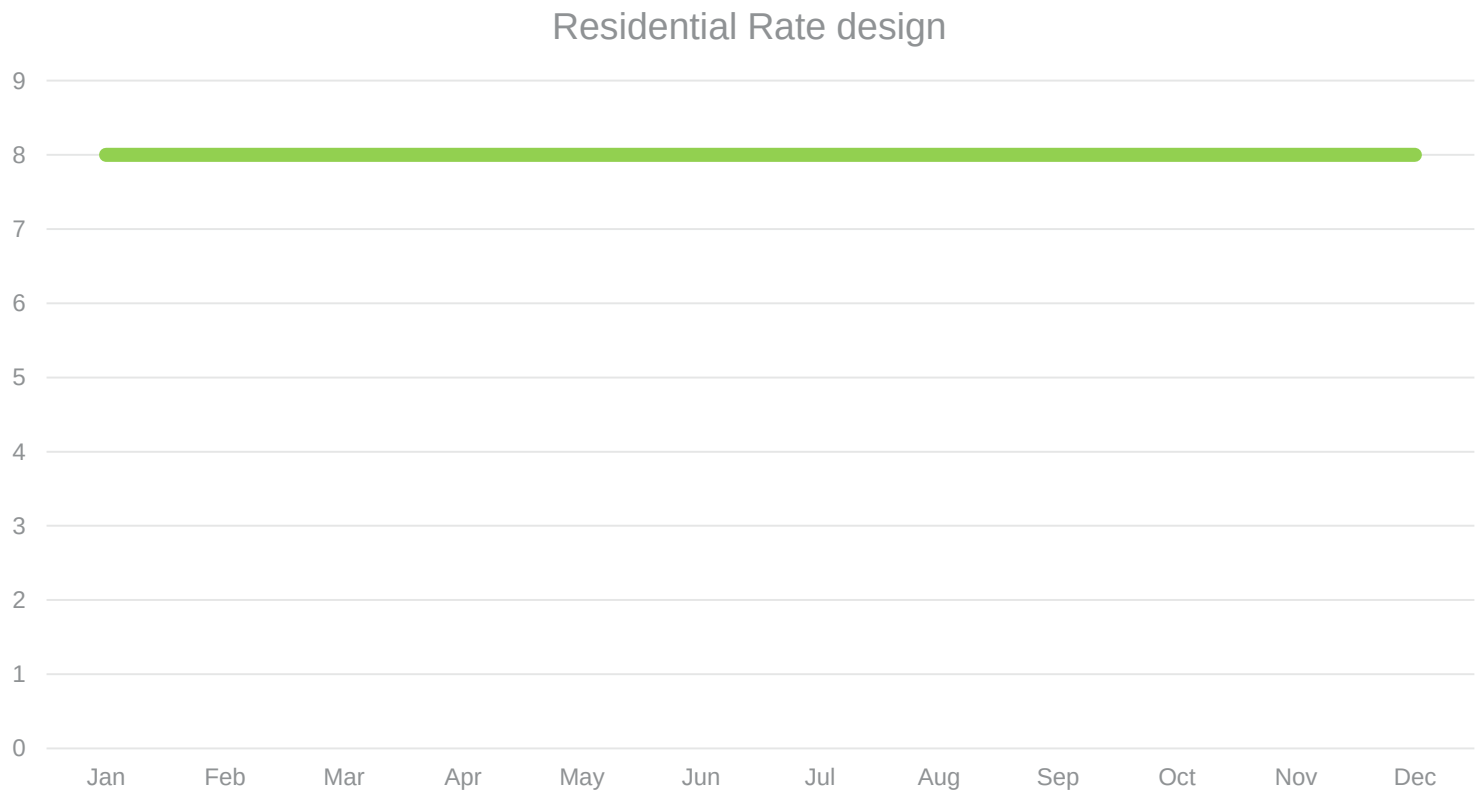
# WHAT ABOUT LOCAL CONSIDERATIONS AND CUSTOMERS?

- Reliability
- Clean backup
- Optionality
- Green aspirations
- Deferring or avoiding certain grid investments

- **The sweet spot: merging regional and local considerations**

# RESIDENTIAL RATE DESIGN



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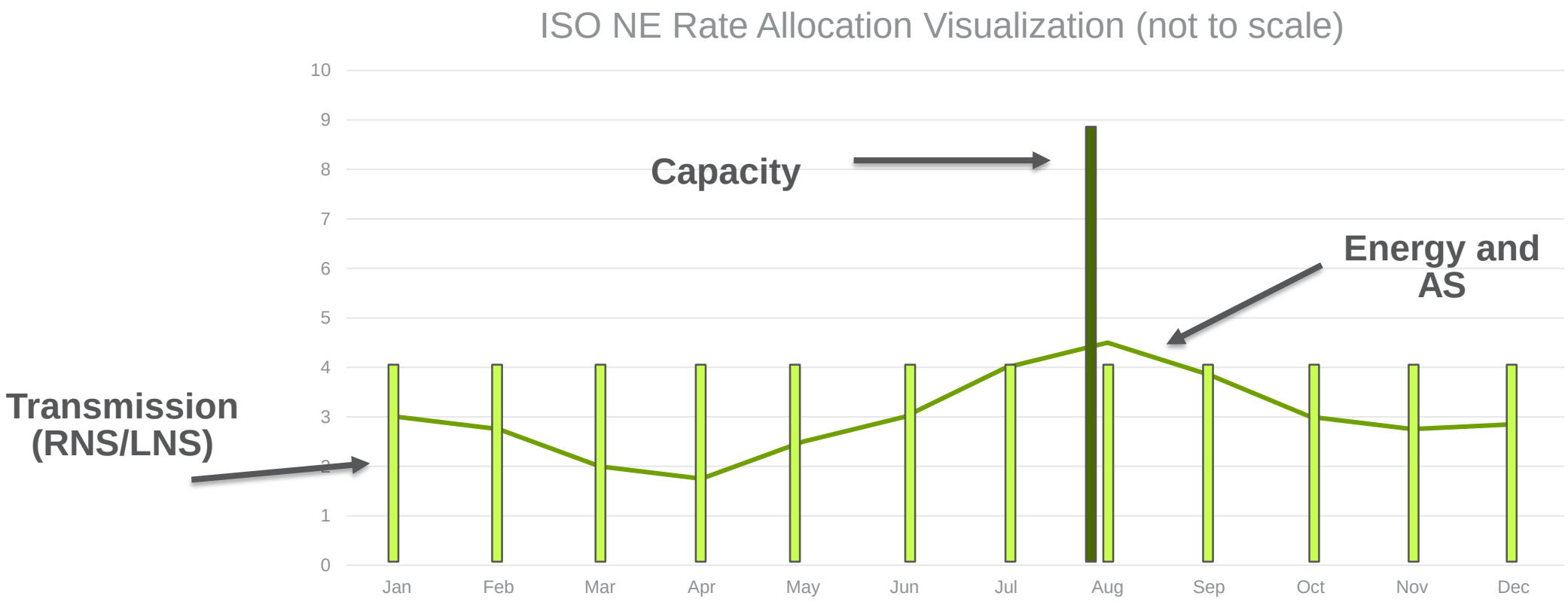
# BETTER PRICE SIGNALS



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# LIBERTY UTILITIES IN NEW HAMPSHIRE

DEEP DIVE

## Is New Hampshire on the verge of battery energy storage history?

The only question left to be settled is a big one: Should utilities own behind-the-meter batteries?

AUTHOR

Herman K. Trabish

PUBLISHED

June 19, 2018

A small investor-owned utility in New Hampshire may be on the verge of regulatory approval for one of the most ambitious U.S. tests yet of utility-owned, customer-sited battery energy storage systems.

In the process, regulators and stakeholders of the DE 17-189

 

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# NEW HAMPSHIRE BATTERY PILOT

- Balance between status quo and true cost of service rates
  - Volumetric TOU with utility dispatch to 12CP and 1 CP price signals

- Use cases:
  - Transmission allocation avoidance
  - TOU arbitrage
  - Non wires alternative (down the road)
  - Backup power

- Goal is to avoid intra-service territory cost shifts and double counting

- ROE adder based on forecast accuracy

- Proposal to allow third party aggregators to perform dispatch and include solar energy
  - Maybe shared savings

 

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# THANK YOU!

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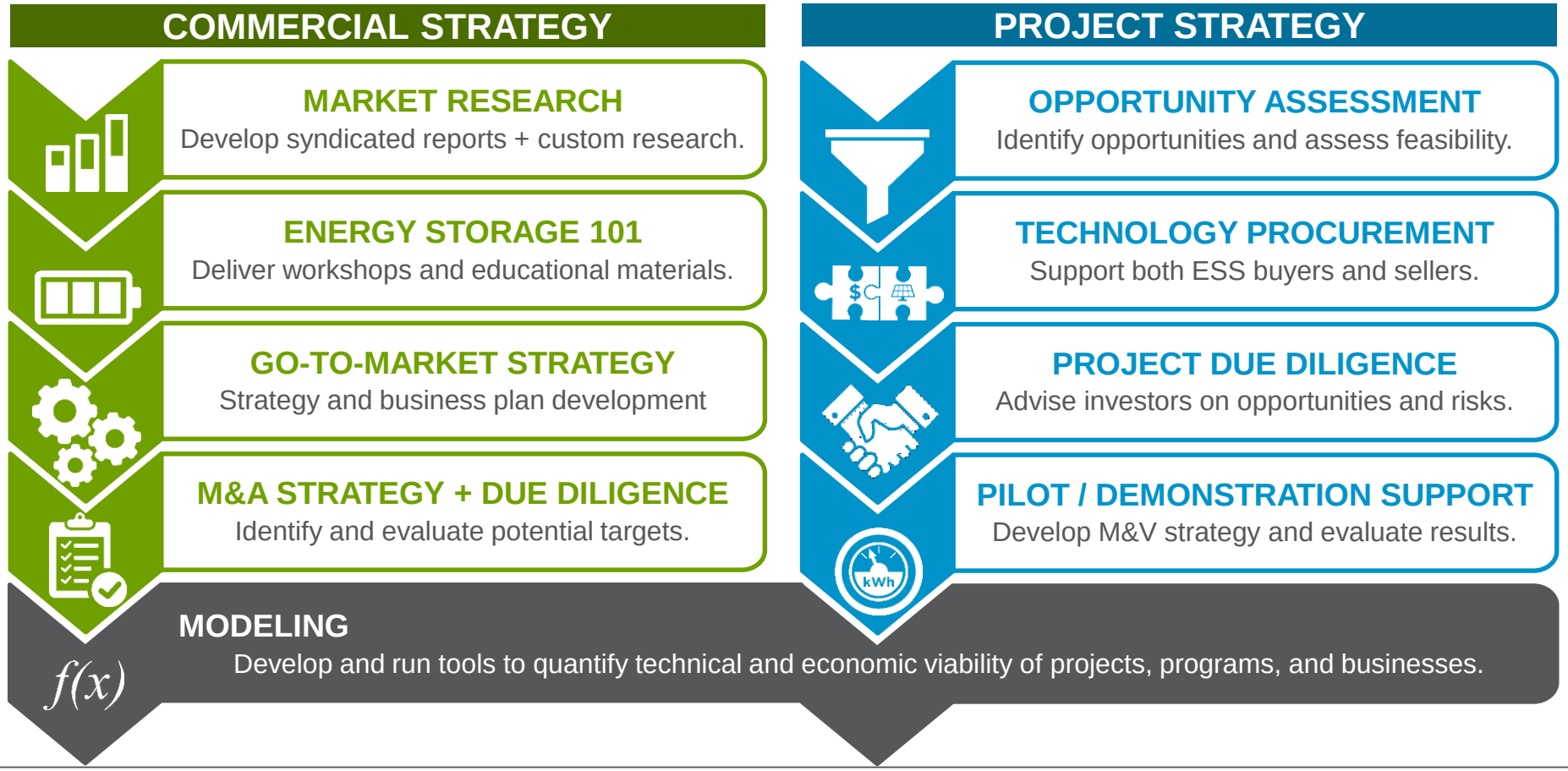
# NAVIGANT STORAGE CAPABILITIES & EXPERIENCE

**Navigant has assisted developers, vendors, utilities, investors, and government in developing energy storage strategies and implementing projects.**



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