

# Select DER, DR and Retail Rates

NOTE: High/Low Cases are provided for all streams. For VDER, Storage Values and Specific Component Analyses also available

2023 edition

NOTE: all forecasts in this product (with the exception of SMART) are portrayed on a “floating COD” basis, ie the forecasts are for values that an illustrative project would capture in a given forecast year. Separate programs/program components will then either lock values for periods of time or vary them annually



Energy+Environmental Economics

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# Disclaimer

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*E3 created the following analysis using the best available public information and our expertise and knowledge of the relevant markets. However, the future is uncertain, and this analysis (along with underlying market expectations) and our underlying assumptions and approaches may change due to many factors, including unforeseen events, new technology adoption or inventions, new market structures, regulatory actions, and changes in both state and federal government policies. E3 makes no guarantees related to this analysis or the information presented herein and should not be held liable for any economic damages associated with independent investment decisions.*

# Contents

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- + Introduction to E3
- + Price Outlook – Distributed and Clean Energy Programs
- + Price Outlook – Demand Response Programs
- + Underlying Wholesale Dynamics: Price Outlook – ISO-NE
- + Underlying Wholesale Dynamics: Price Outlook – NYISO

# Introduction to E3

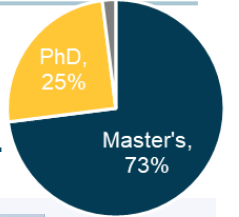


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# Who is E3?

Thought Leadership, Fact Based, Trusted.

100+ full-time consultants | 30 years of deep expertise | Engineering, Economics, Mathematics, Public Policy...



San Francisco



New York



Boston



Calgary

## E3 Clients

300+ projects per year across our diverse client base



## Recent Examples of Relevant E3 Projects

Buy-side diligence support on several successful investments in **electric utilities** (~\$15B in total)

Supporting investment in several **stand-alone energy storage** platforms and individual assets across North America (15+ GW | ~\$5B)

Acquisition support for several portfolios and individual **gas-fired and renewable generation assets** (20+ GW | ~\$4B)

Acquisition support of several **electric vehicle infrastructure companies** (~\$500M)

Strategic advisory support for a SPAC offering of a **distributed energy resource aggregation software company** (~\$1.3B)

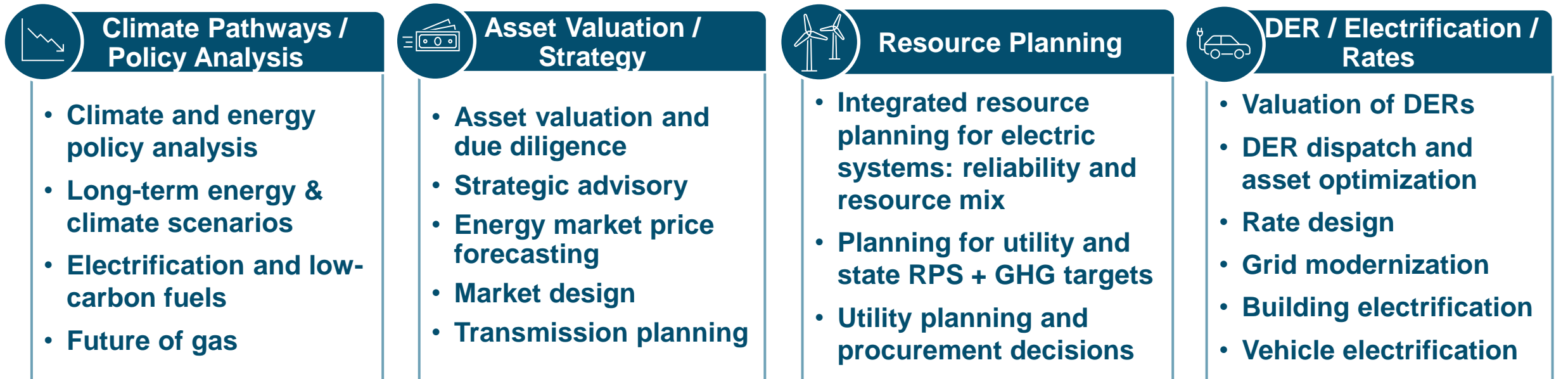
Supporting an investment into an **electric vehicle V2G software company** (~\$750M)

Buy-side diligence support to acquire several **residential solar portfolios** (~1+ GW | 200,000+ customers)

Supporting investment in over 5+ GW of **community solar and distributed energy resource projects**

# Who is E3? (cont'd)

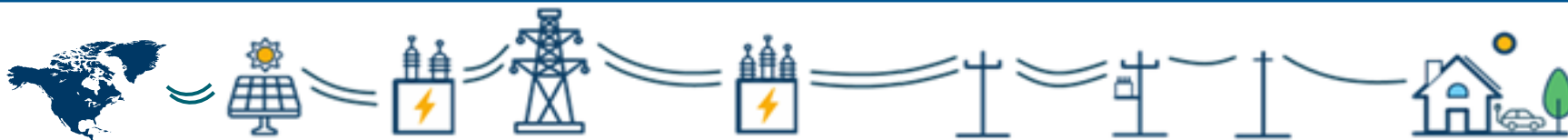
- + E3 is the **largest consulting group** focused on the clean energy transition in North America
- + E3 is a **recognized thought leader** on decarbonization and clean energy transition topics
- + E3 has **four major practice areas** covering energy systems from bulk grid to behind the meter



Economy-wide energy systems

Bulk grid power systems

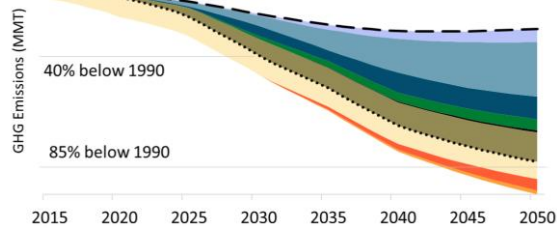
Grid edge & behind-the-meter



# E3's Comprehensive and Best-in-Class Modeling Toolkit

## PATHWAYS

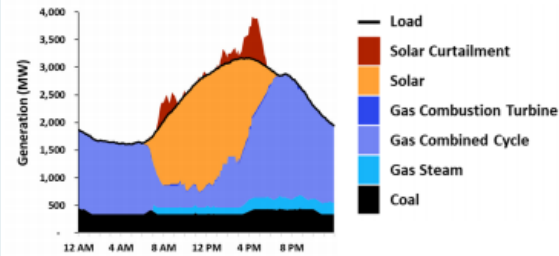
Economy-wide accounting of energy supplies and demands under deep decarbonization scenarios



## Production Simulation

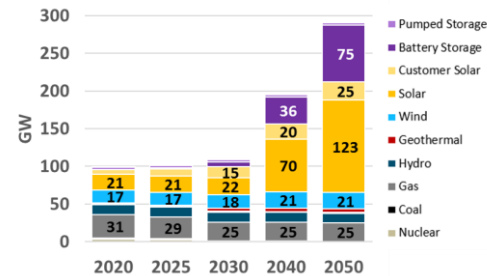
(AuroraXMP and PLEXOS)

Detailed operational simulations of system dispatch and flexibility needs



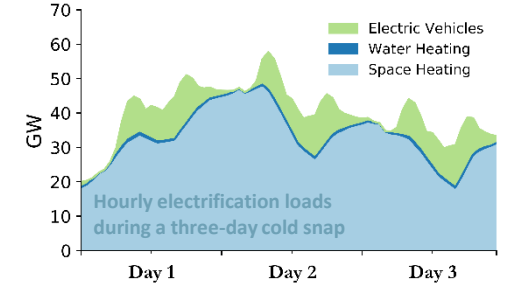
## RESOLVE

Optimal capacity expansion model for electric systems



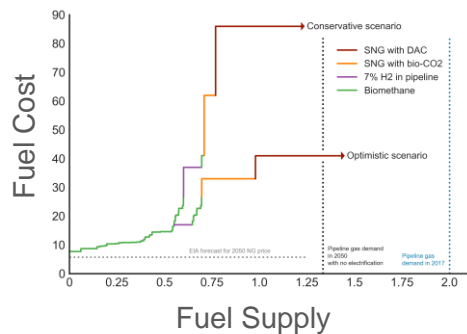
## RESHAPE & EVGrid

Hourly simulations of electric loads for specific end uses



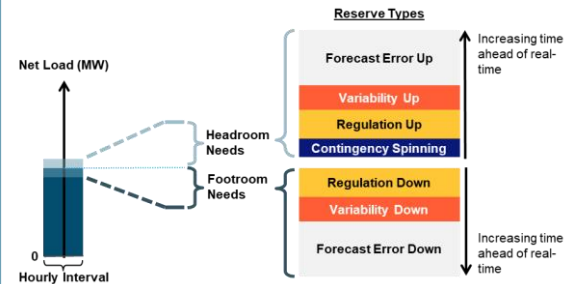
## Low-Carbon Fuels and Future of Gas

Role of fuels in deep decarbonization



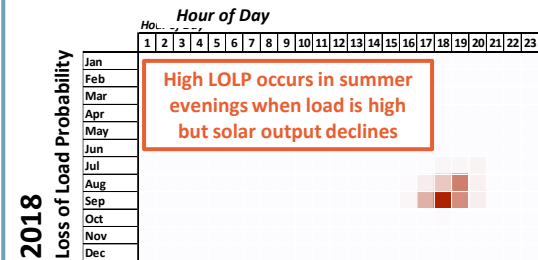
## RESERVE

Dynamic operating reserves for renewable integration



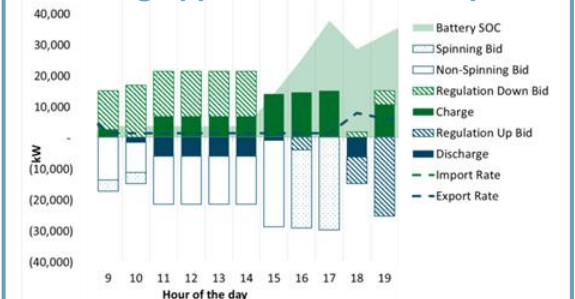
## RECAP

Loss of load probability simulation to measure resource adequacy



## RESTORE & IDSM

DER Toolkit for optimizing DER value stacking opportunities and adoption



Economy-wide energy systems

Bulk grid power systems

Grid edge & behind-the-meter

# Asset Valuation and Strategy Practice Area

- + The Asset Valuation and Strategy practice area works primarily with project developers, asset owners, and investors
- + Insights informed by work being done across the firm that provides a unique 360-degree perspective of rapidly evolving markets
  - Clean Energy Policy → how will policy change the playing field for different resources?
  - Planning → what resources will power the grid in 2020? 2030? 2050?
  - Market Analysis → how will market prices evolve in the grid of the future?
- + The E3 Asset Valuation and Strategy team provides a variety of analytical support tailored to client needs.
- + Typical services include:
  - Transaction support and due diligence on both the buy side and sell side
  - Strategy formulation and market entry
  - Board-level reports on market outlook and asset performance
  - Customized forward-market price projections incorporating impacts of policy and technology changes
  - Revenue stream/benefits analysis, either on an individual asset or portfolio basis



## Asset Valuation / Strategy

- Analyze asset value from multiple perspectives in vertical, bilateral, and wholesale markets
- Strategic support for project development, acquisition, and operation, including market entry
- Proprietary in-house models and in-depth knowledge of public policy, regulation and markets



# Price Outlook – Distributed and Clean Energy Programs



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# Price Outlook – Demand Response Programs



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# **Underlying Wholesale Dynamics: E3 Market Price Outlook – NYISO**



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# **Underlying Wholesale Dynamics: E3 Market Price Outlook – ISO-NE**



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