

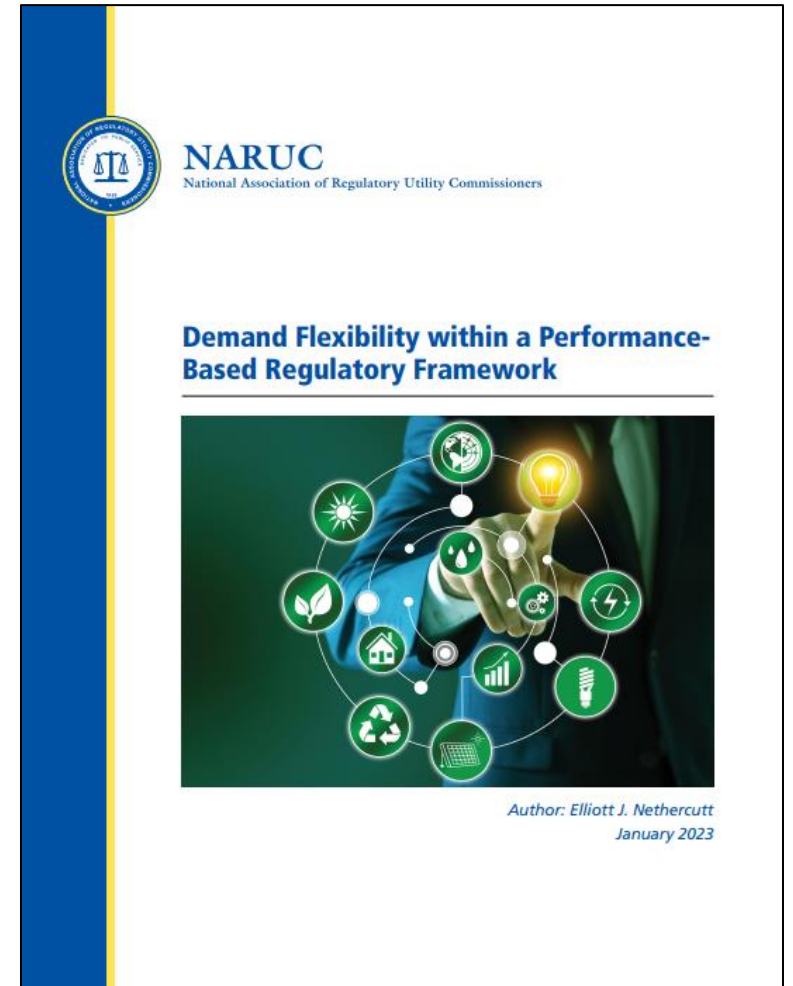
NASEO-NARUC GEB Working Group Forum

Performance-Based Regulatory Frameworks

Elliott J. Nethercutt

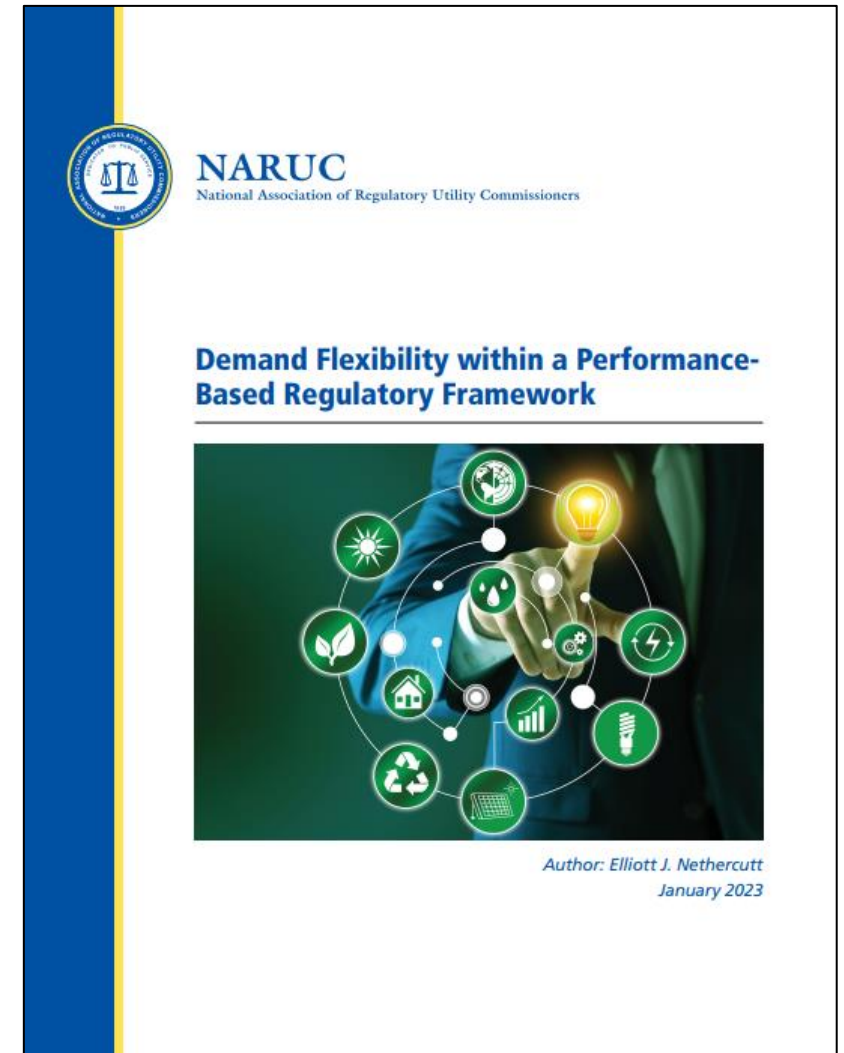
Principal Regulatory Policy Specialist, NARUC CPI

Wednesday, March 15, 2023



Demand Flexibility within a Performance-Based Regulatory Framework

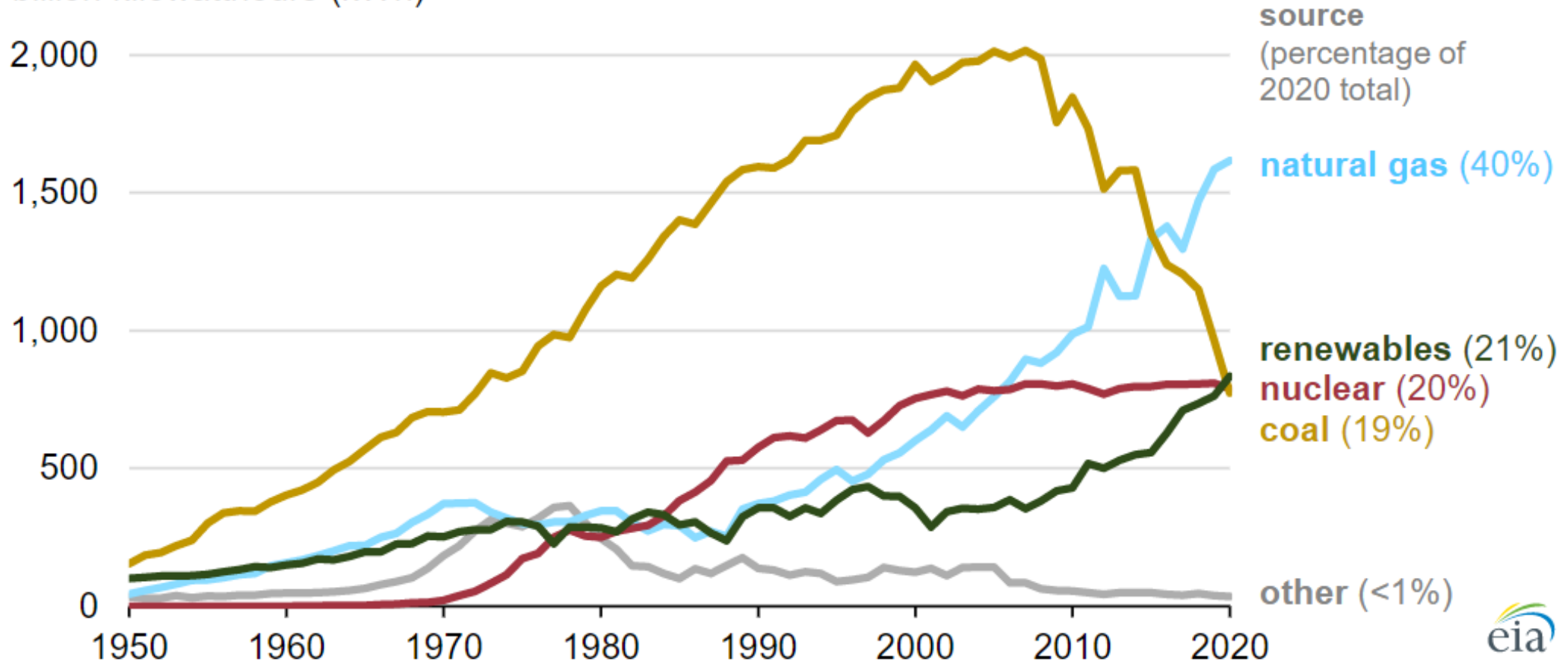
- Provides an overview of GEBs and DF
- Explores performance-based regulatory strategies aimed at advancing DF
- Outlines the steps for designing and implementing a PBR framework
- Discusses ongoing evolution of regulatory approaches for incenting energy savings / DF
- Explores three case studies of states at various stages of DF implementation through a PBR Framework: Hawaii, Vermont, Colorado
- Offers best practices/regulatory tips



The Changing Nature of the System

Annual U.S. electricity generation from all sectors (1950–2020)

billion kilowatthours (kWh)

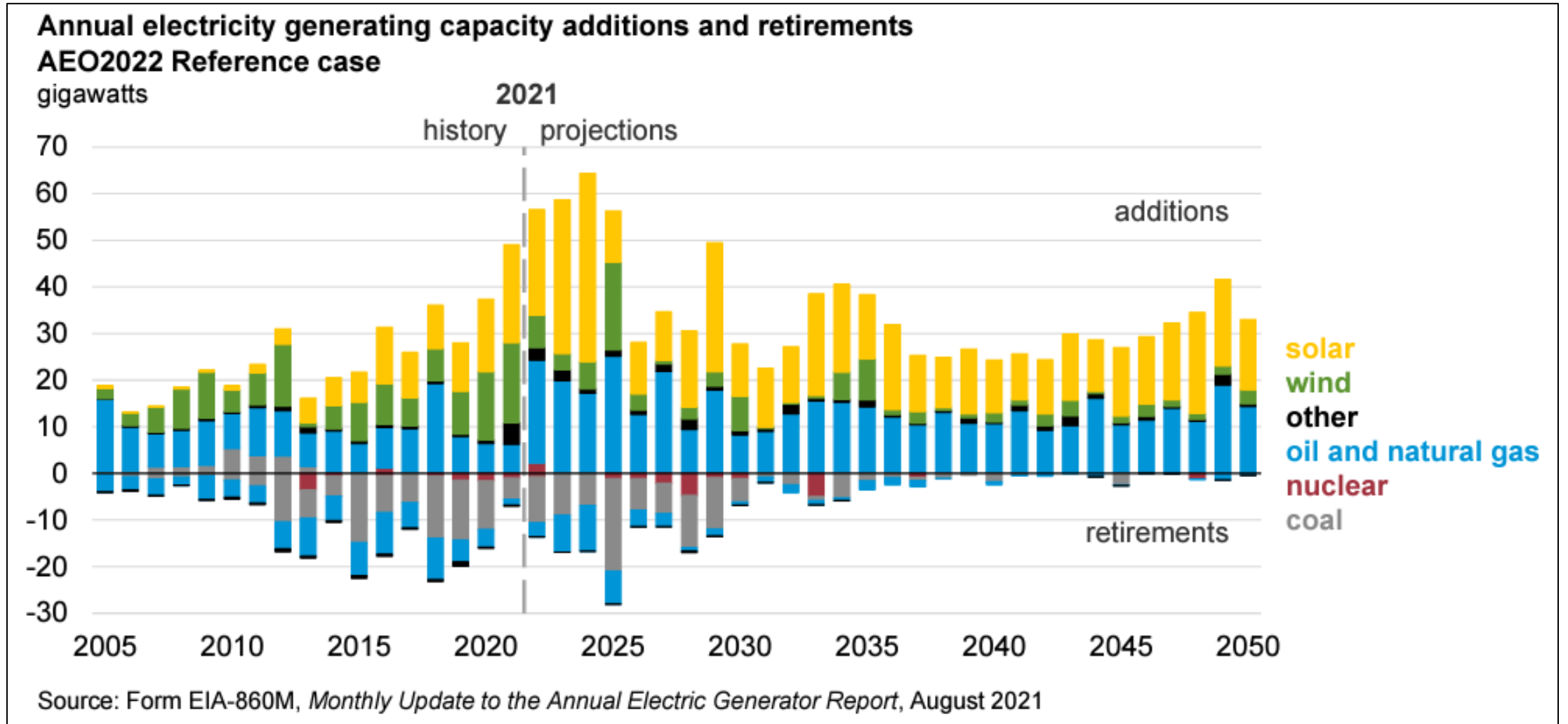


Source: U.S. Energy Information Administration (EIA), *Monthly Energy Review*

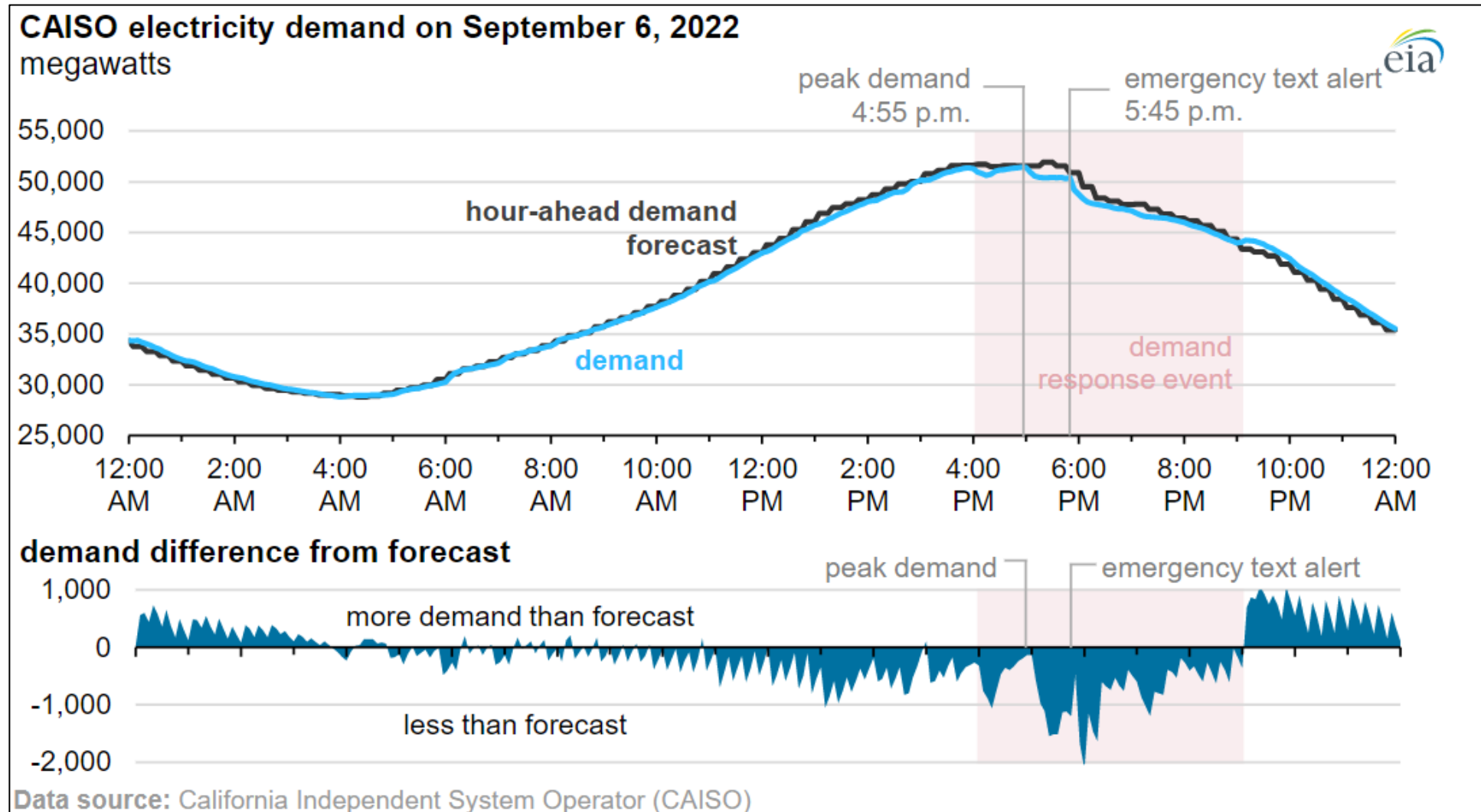
Note: This graph shows electricity net generation in all sectors (electric power, industrial, commercial, and residential) and includes both utility-scale and small-scale (customer-sited, less than 1 megawatt) solar.



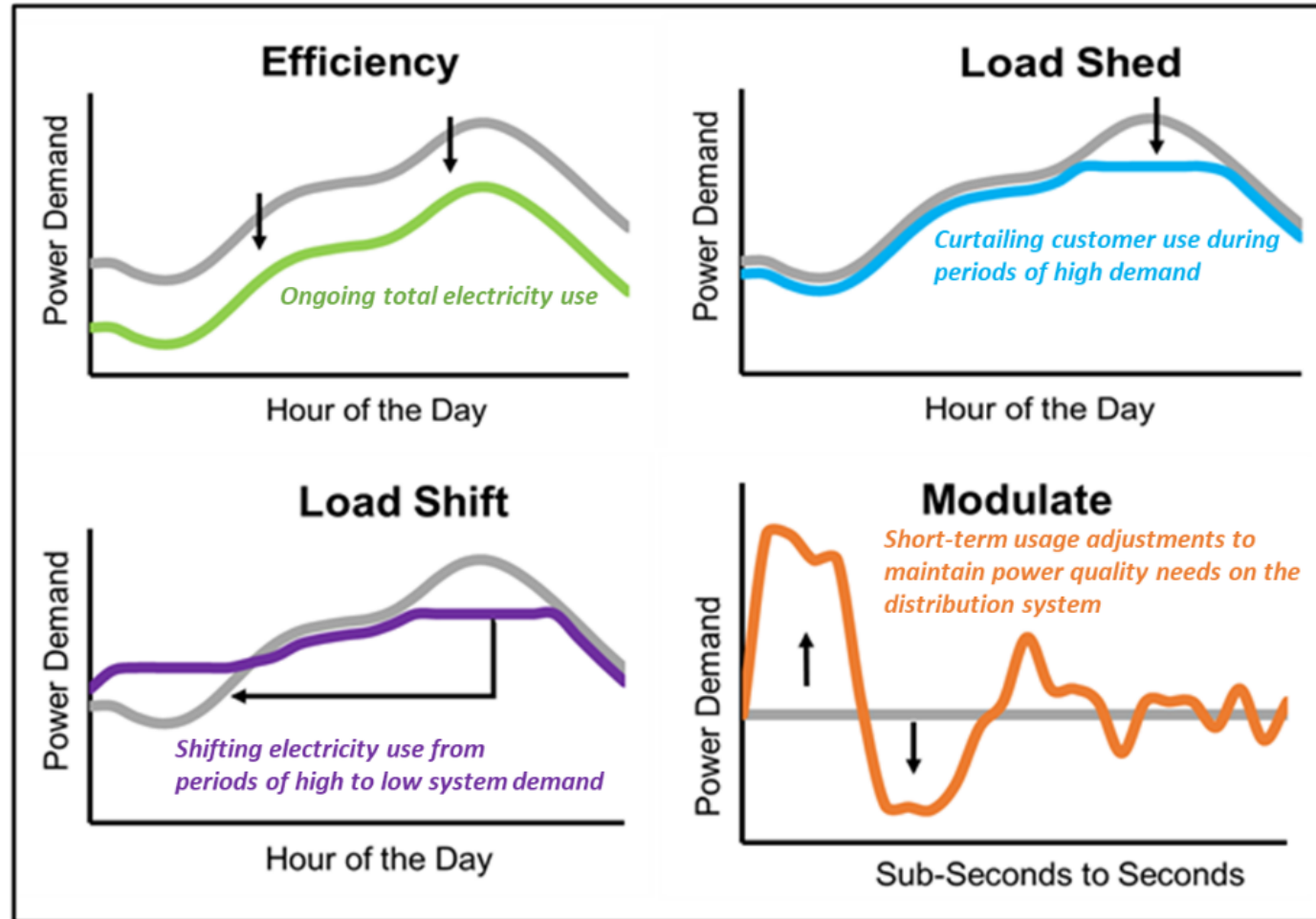
The Changing Nature of the System



Applications of Customer Response to Appeals for Electricity Conservation

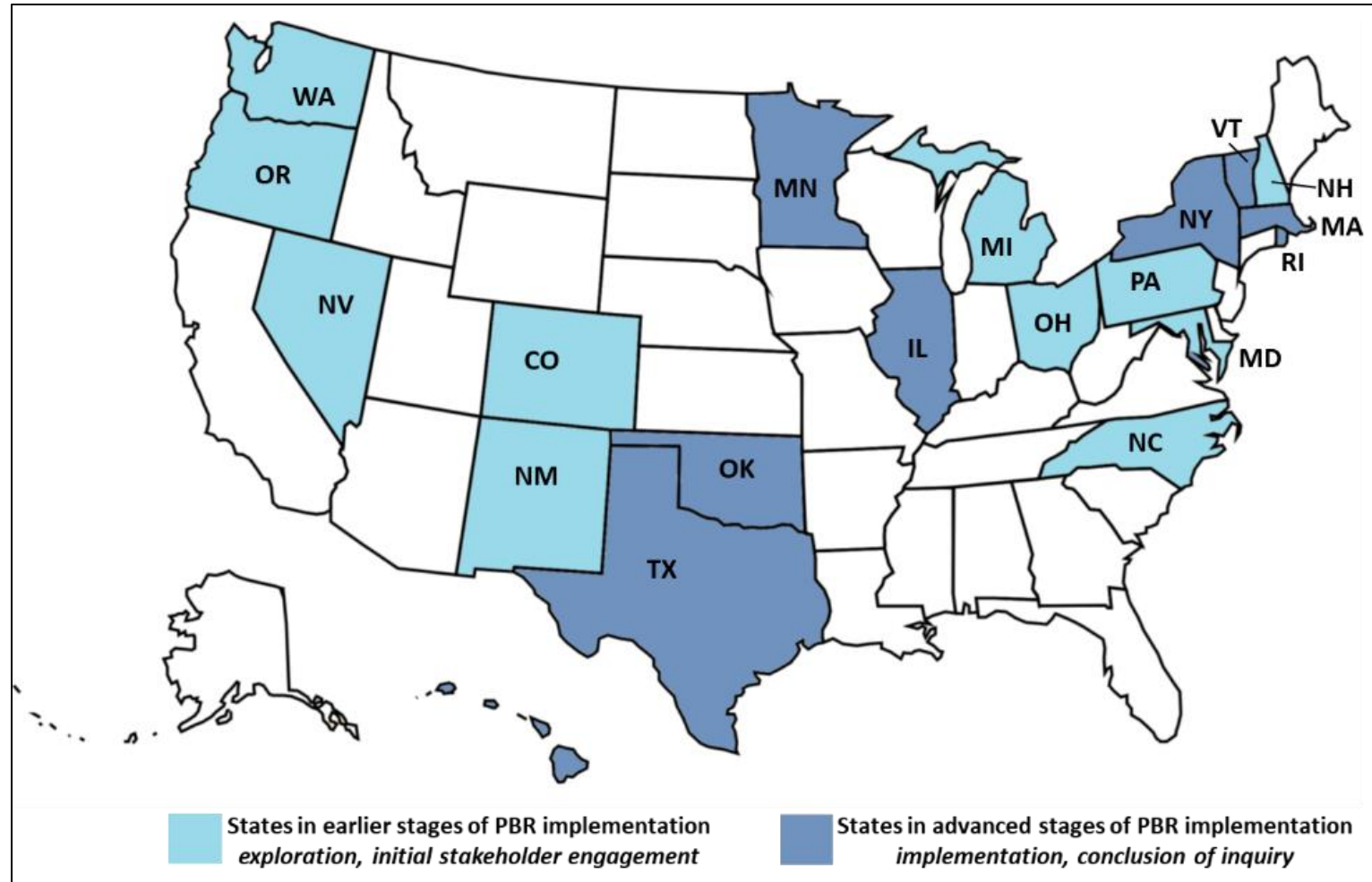


Optimized Energy Management through Demand Flexibility



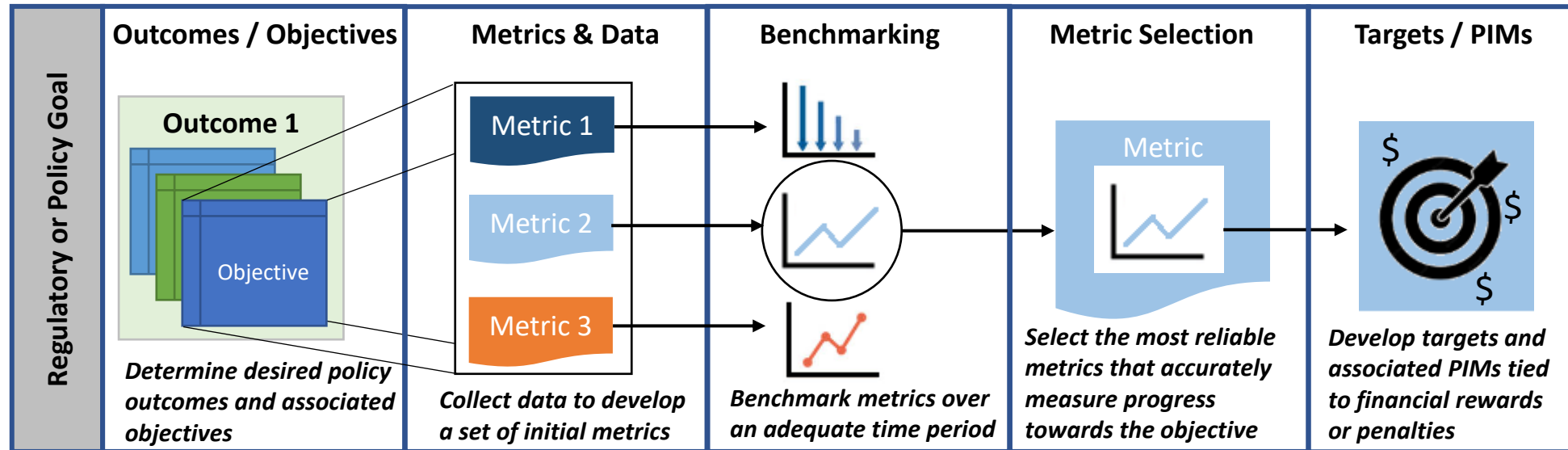
Source: NASEO; modified and updated by NARUC staff

Status of Performance-Based Ratemaking in the U.S. (June 2019)



Source: ENERKNOL; modified and updated by NARUC staff

Performance-Based Regulatory Framework



Source: NARUC

Performance-Based Regulatory Frameworks for Demand Flexibility

Hawaii (PUC) & Hawaiian Electric: Customer Engagement

Metric and Description	Target	Reporting Frequency
Program Participation # and % of customers participating in qualifying DR and DER programs	30% of customers	Quarterly
Green Button Connect My Data # and % of customers that have enabled information sharing	Equal to the % of all customers delivering at least 2 benefits: 2021: 2.5-5% 2022: 10-15% 2023: 20-30 %	Quarterly
TOU Participation # and % of customers participating in time varying tariffs, by customer class	Equal to the % of all customers delivering at least 2 benefits: 2021: 2.5-5% 2022: 10-15% 2023: 20-30 %	Quarterly

Performance-Based Regulatory Framework

Hawaii (PUC) & Hawaiian Electric: DER Asset Effectiveness

Metric and Description	Target	Reporting Frequency
Grid Services Capability % and total MW of DER systems capable of providing grid services	No target yet; dependent on initial performance	Biannual
Grid Services Enrollment % and total MW of capable DER systems enrolled in grid services programs	No target yet; dependent on initial performance	Biannual
Grid Services Utilization % and total MW of DER systems enrolled in grid services programs that are being utilized to provide grid services	No target yet; dependent on initial performance	Biannual
Curtailement Total MW and MWh of curtailment from DERs, including partial curtailment or power reductions	No target yet; dependent on initial performance	Biannual

Performance-Based Regulatory Framework

Hawaii (PUC) & Hawaiian Electric: Interconnection Experience

Metric and Description	Target	Reporting Frequency
Total DER Interconnection Time Company's respective average (mean) total number of calendar days to interconnect DER systems <100 kW in size, in a calendar year	2021: 115 days 2022: 100 days 2023: 85 days	Annual
Independent Power Producer (IPP) Interconnection For each IPP project with a Power Purchase Agreement (PPA) approved by the Commission	No target yet; dependent on initial performance	Annual
Interconnection Cost Overrun % of times the actual cost of interconnection has exceeded the estimated cost of interconnection for utility-scale IPP projects with a PPA approved by the PUC	No target yet; dependent on initial performance	Annual

Regulatory Tips for Implementing Demand Flexibility within a PBR Framework

- Clear alignment with policy objective
- Transparent stakeholder process with consideration for customer class impacts, as well as the utility's size, structure, business model, resource mix, and existing demand-side programs
- Metrics supported by accessible, consistent data accessibility
- Costs/benefit analysis of utility's target achievement (including clearly defined customer costs impacts)
- Inclusion of a neutral range with no financial penalties or rewards, allowing for some inherent uncertainty and impacts outside of a utility's control
- Assessment of utility progress over longer time periods or averaging multiple years towards target achievement
- Feedback loop with allowance for target modification to incorporate ongoing industry and regulatory evolution

Related Activities and Resources

Resource	Link
NARUC Performance-Based Regulation State Working Group	https://www.naruc.org/cpi-1/electricity-system-transition/performance-based-regulation/
LBNL-EMP State Indicators of Demand Flexibility and Energy Efficiency	https://emp.lbl.gov/projects/time-value-efficiency
DOE Grid-interactive Efficient Buildings	https://www.energy.gov/eere/buildings/articles/meet-does-newest-connected-communities-grid-interactive-efficient-buildings
NASEO-GEB <i>Roadmapping: A Tool for States to Advance Load Flexibility and Grid-Interactive Efficient Buildings</i> (May 2021)	https://naseo.org/data/sites/1/documents/publications/NASEO-GEB-Roadmapping-Final.pdf