

New England's Forward Clean Energy Market

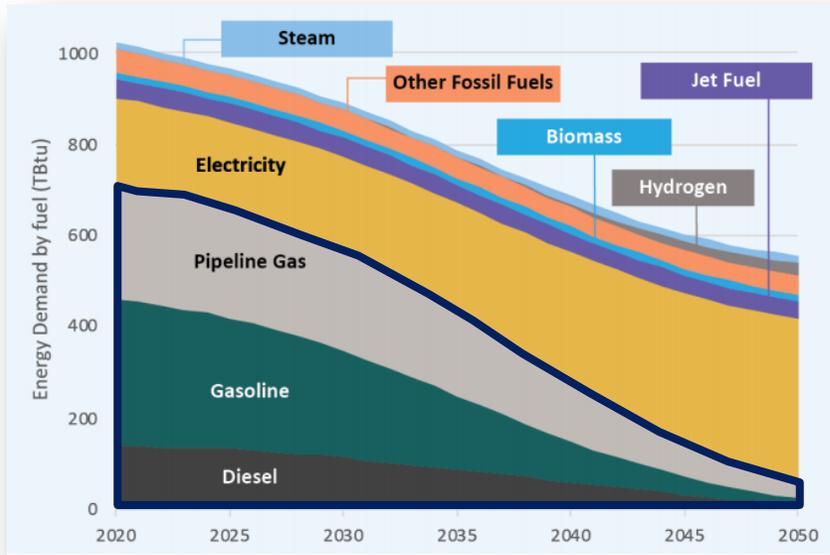
Building a New Foundation for a Net-Zero Economy

**Presented to PJM Clean Attribute Procurement Senior Task Force
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Massachusetts Policy Requirements for Evolving Energy Supply

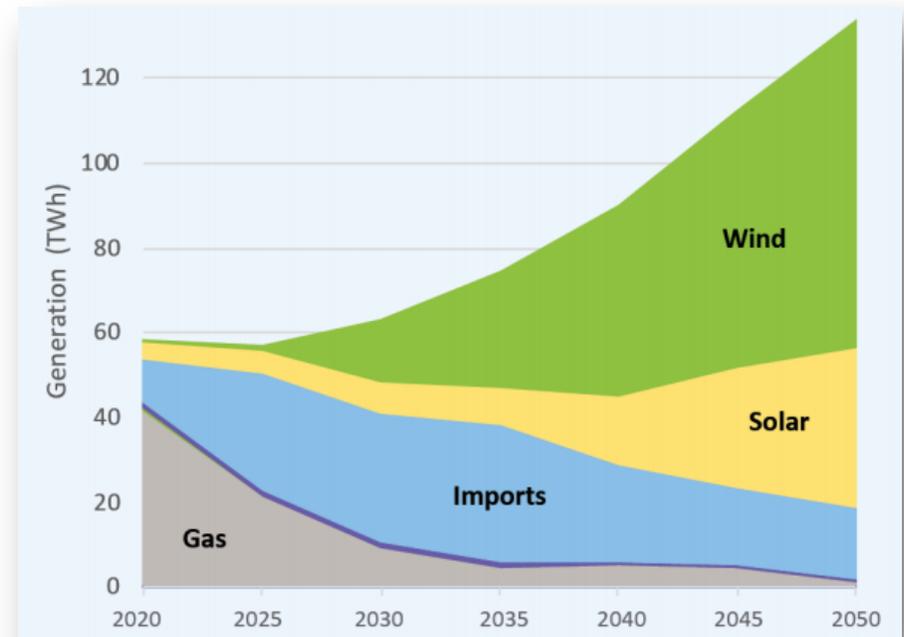


Massachusetts Employs Several Policy Tools to Drive Electricity Decarbonization, Including:

- Renewable electricity is currently supported through the Green Communities Act's **Renewable Energy Portfolio Standard (RPS)** that requires that retail energy suppliers annually increase the use of clean energy generation and the **Clean Energy Standard (CES)**
- Large-scale **renewable and clean energy procurements**, secured under 20-year contracts
- More clean electricity policies will likely be necessary to grow clean energy resources with electrification

Massachusetts' Commitment to Decarbonize:

- Currently, Massachusetts is dependent on **fossil fuels** for energy
- Under the Global Warming Solutions Act, the Commonwealth must meet a legally binding limit of **net-zero carbon emissions by 2050**
- This will require a significant increase in the amount of clean electricity we need to power the transportation and thermal sectors



Green Communities Act Procurements

Clean Energy Procurements

- Section 83 (2010) → *Cape Wind*
- Section 83A Multistate RFP (2014) → *Solar and On-shore Wind Projects*
- Section 83D (2016) → *NECEC Hydro project*
- Section 83C, Rounds 1-3 (2016, 2018, 2021) → *Offshore Wind Projects*

Under the Green Communities Act of 2008, the legislature ***facilitates the financing*** for the creation of clean energy generation facilities.

Result → Contract with distribution companies for energy and attributes (e.g. RECs)

☞ Attributes used for RPS/CES requirements

☞ Contribution to Global Warming Solutions Act and emissions requirements

Limitations of Current Model

- **Lack of Regional Coordination.** Agency and electric company coordination with other states is unmanageable.
- **Unpredictability.** The procurement process in Massachusetts and other states make it hard for developers to plan their businesses.
- **Lack of Scalability.** While scale has increased, the current process would be challenged to deliver the 1 GW per year that Massachusetts' decarbonization laws may require.
- **Ratepayer Risk.** 20-year contracts are inherently risky.
- **Long Procurement Process.** With distribution company contracts the total process can take nearly 2 years from RFP development to executed contracts approved by Department of Public Utilities.
- **Bulky Purchases.** The current structure has big projects coming online every few years that causes disruption in the RPS markets.
- **Inconsistent with Federal Markets.** Incentives and commitments introduced under state policy may be inconsistent with incentives embedded within federally-regulated competitive markets. This puts Massachusetts ratepayers at risk of overpaying to meet both reliability and policy requirements, unless New England states' policy requirements can be incorporated into and coordinated through wholesale markets.

There is widespread consensus that the current model of procurements is not sustainable with federal markets, ongoing federal actions, and **needs to be updated.**

Massachusetts' FCEM Proposal Builds On Several State and Stakeholder Efforts to Date

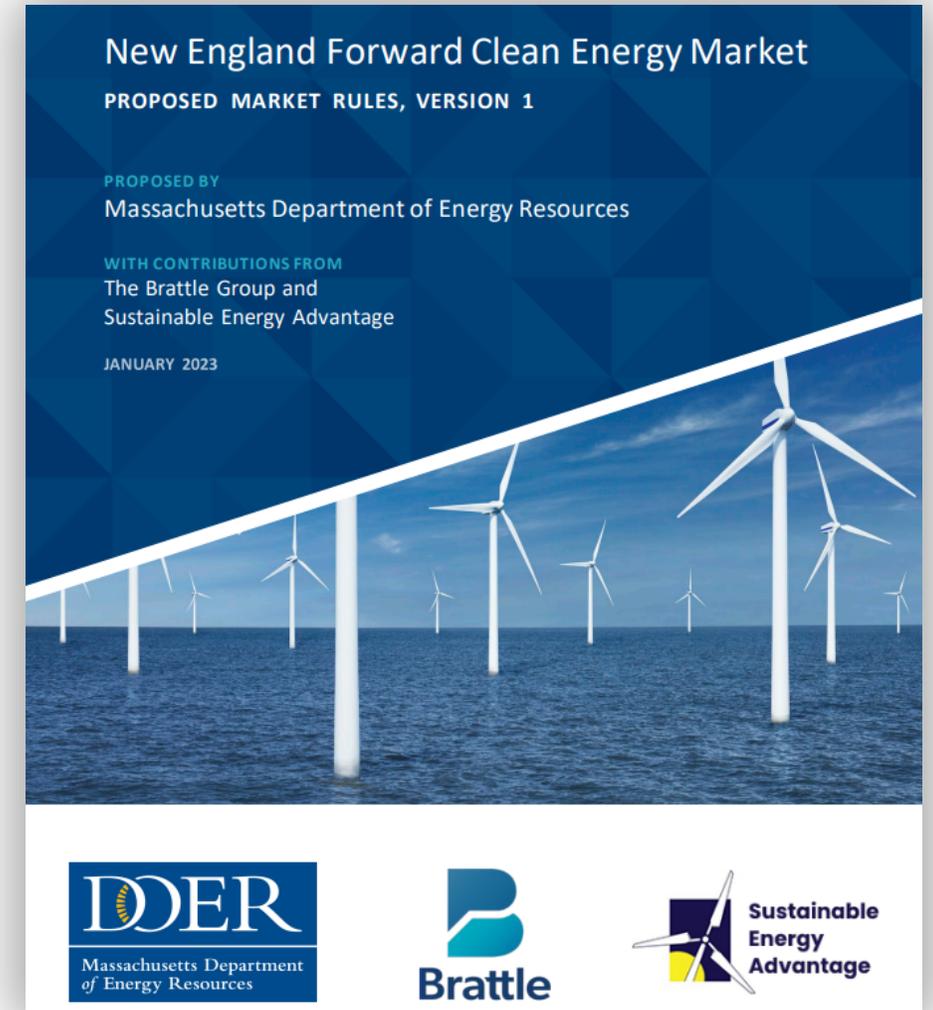
Several region-wide efforts to date have stimulated broad consensus among states and stakeholders of the need for foundational reforms to align wholesale markets with New England state policy needs. Key events:

- **State-requested stakeholder processes** in 2016-17 ([IMAPP](#)) and 2018-present ([Pathways](#)) to develop and evaluate a range of market design options for achieving state policies through regional markets, with efforts converging on an FCEM approach
- **New England states' visioning effort** that culminated in 2021 with a common vision for energy transition and joint [report to the governors](#), including a commitment “to a new, regionally-based market framework that delivers reliable electricity service to local homes and businesses, [and] account for and support States’ clean energy laws in an efficient and affordable manner.”
- **Ongoing multi-state collaboration** via New England States Committee on electricity (NESCOE) to assess the most robust FCEM design features, review [potential governance structures](#), and engage in detailed interviews/discussions as input to the current Massachusetts FCEM proposal
- **Massachusetts' 2022 Climate Act** ([Section 85](#)) requires assessment of, and authorizes participation within, a regional FCEM and related regional market structures to facilitate the development of clean energy resources
- **Massachusetts' new [FCEM proposal](#)** takes the next step to offer a detailed set of self-consistent market design rules, to be used as the basis for stakeholder feedback and continued iteration among all six New England states

FCEM Core Proposed Design Features

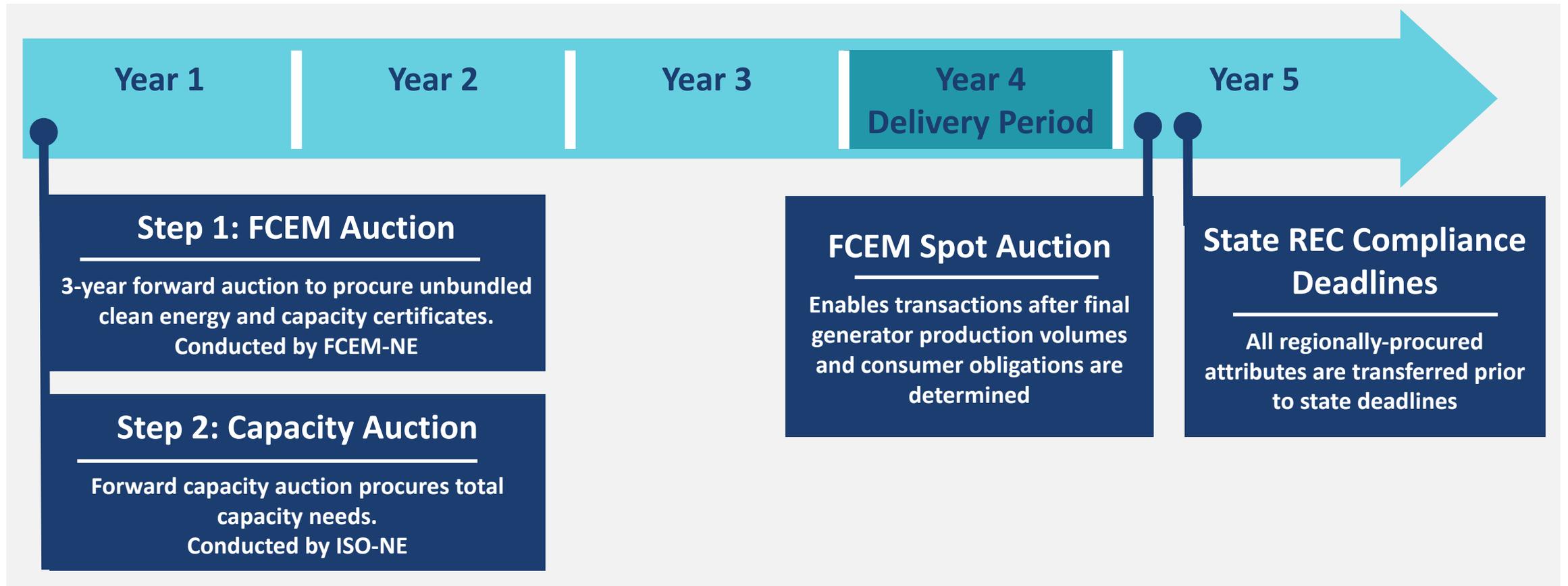
Basic framework is aligned with the design structures under consideration in the PJM CAPSTF. Key design features tailored to New England context:

- **Governance structure** under FERC jurisdiction, market administered by a new entity FCEM-NE with board comprised of state policymakers
- **Voluntary market** for states and other buyers to procure clean supply resources
- **3-Year forward market**
- **Products** are **unbundled clean energy and clean capacity certificates** (existing state-defined REC products, plus 4 new regionally-defined products)
- **15-year price lock-in for new resources** (declining to 7 years as the market gains maturity)
- **Delivery and performance obligations** to enable balancing of short-term shortages/surpluses and enforce fulfillment of forward commitments
- **Buyer-pays settlement model** (no settlements allocated to non-participants)
- **Implementation mechanics** for integrating with existing REC tracking systems, capacity market, state regulatory processes, and retail rates



See Full Proposal: [New England FCEM Design](#)

The FCEM will be conducted immediately prior to and coordinated with the ISO-NE capacity auction



Product Definition: Unbundled Certificates

Proposed products to be tracked by NEPOOL-GIS:

- State-defined attribute products (e.g. CT Class I, MA SREC I, etc.). States can opt in to listing products for sale within FCEM
- New regionally-defined products:
 - 1. NE-REC (MWh):** Region-wide renewable. Eligibility: limited set of broadly-accepted resources: solar, wind, small hydro), but not biomass, waste, or other
 - 2. NE-CEAC (MWh):** Region-wide clean (broader product definition enables nuclear, large hydro)
 - 3. GHG-CEAC (MWh):** Region-wide GHG product (i.e., “dynamic” CEAC). Product implementation may be staged in later years, pending may be implemented; note this product may take more time to roll out, but can be defined in the first instance
 - 4. Clean capacity (UCAP MW):** Bundled capacity and “clean capacity” attributes
- New products can be added in the future with requisite approval and updates to market design document

	Product	Eligible Resources
State	State-Defined Certificates <i>Units: MWh</i>	Determined by state laws or regulations.
Regionally-Defined Products	New England Renewable Energy Certificate <i>NE-REC</i> <i>Units: MWh</i>	Onshore wind, offshore wind, solar, run-of-river hydro <30 MW, tidal, wave. Distributed resources eligible if qualified and delivering into ISO-NE energy markets.
	Clean Energy Attribute Certificate <i>NE-CEAC</i> <i>Units: MWh</i>	Onshore wind, offshore wind, solar, hydroelectric, nuclear, tidal, wave. Distributed resources eligible if qualified and delivering into ISO-NE energy markets.
	GHG Marginal Abatement Certificate <i>NE-GHG</i> <i>Units: MWh_{GHG}</i>	Onshore Wind, offshore wind, solar, nuclear, hydroelectric, storage, and demand response. Storage resources eligible only for net GHG abatement from injecting at a time of higher marginal emissions than when the resource charged.
	Clean Capacity Certificate <i>NE-CCC</i> <i>Units: MW-month</i>	Onshore wind, offshore wind, solar, nuclear, hydroelectric, storage, and demand response. Clean capacity imports are eligible, as long as qualified under ISO-NE capacity qualification rules

Certificate Tracking and Compliance

3-Year Forward FCEM Auction

- **Resource Eligibility:** Certified by FCEM-NE & ISO-NE (regional products), or state agencies (state products)
- **Sellers:** Offer resources into FCEM auction and accept resulting delivery obligations
- **Buyers:** Place demand bids into FCEM auction and accept resulting payment obligations
- **FCEM-NE:** Conducts FCEM auction
- **Forward Obligations:** Buyer and seller obligations tracked in FCEM-NE accounts (database updating is coordinated with NEPOOL-GIS and ISO-NE)

Bilateral Transactions

- **FCEM-NE:** Supports bilateral transactions enabling sellers to reassign resources' delivery obligations and buyers' payment obligations within each product

Delivery Period

- **ISO-NE:** Provides resource and system operational data
- **NEPOOL-GIS:** Issues certificates to resource owners on a monthly basis. For FCEM participants, certificate volumes are transferred to FCEM-NE toward fulfillment of outstanding FCEM obligations (excess volumes can be held in either the NEPOOL-GIS or FCEM-NE account, deficit volumes tracked for final compliance processes)
- **Buyers:** Receive procured certificates in equal monthly installments in delivery year. Buyer may allocate certificates to state-specific FCEM sub-accounts for state compliance
- **ISO-NE:** Charges buyers monthly for delivered certificates; pays sellers monthly for fulfilled FCEM obligations

Retirement & Compliance

- **FCEM-NE:** Conducts spot auction
- **Seller Residual FCEM Positions:** Excess certificate volumes held in account may be sold bilaterally, sold via FCEM spot auction, or banked. Deficits must be resolved prior to or within spot auction
- **Buyers:** May buy/sell certificates in spot auction to manage positions relative to state/private targets
- **Attribute Retirement:** Certificates are applied toward state compliance or voluntary goals via dedicated FCEM-NE sub-accounts. Retirements allowed any time prior to compliance deadline (retirement is non-reversible)
- **Unretired Certificates:** Certificates that remain unsold, unretired, or unbanked will be frozen and tracked in the residual system mix
- **ISO-NE:** Implements spot auction settlements and penalties

Economic development & other state policy goals

The current model of long-term contracting includes pursuit of other state goals like economic development, environmental justice, and diversity, equity, and inclusion in the contracting process

- For instance, Section 83C offshore wind RFP requires projects to demonstrate these additional benefits
- While these goals are important, energy procurements are an imperfect mechanism for pursuing them:
 - Cost of commitments is spread over 20 year contracts and funded by all ratepayers
 - PPAs do not include enforcement mechanisms for these commitments
 - Utilities are not experts in evaluating these types of commitments
- Neighboring states are increasingly pursuing clean energy economic development initiatives outside of procurement processes

Switching to an FCEM model would separate pursuit of these state goals from the financing of clean energy

- State would set targets for procuring clean energy in a dedicated competitive market
- State could pursue economic development, environmental justice, and DEI goals through other processes, including:
 - Environmental permitting and reviews
 - Economic development incentive programs
 - Workforce development grants and partnerships
 - Supplier Diversity Office certifications and support to industry
- This would improve transparency and competition on the cost of economic development initiatives, improve the equitable allocation of costs, and better target initiatives

New England states need flexibility on whether, how, and when to participate in the FCEM

Low/No
Participation

Proposal anticipates that states' determinations and timeframes for FCEM participation will vary widely ranging from non-participation to substantial reliance, including:

- No participation
- Join FCEM-NE governing body and participate in shaping rules
- Utilize pricing transparency revealed via FCEM to inform state contracting, policy, and prudency review processes
- Enable in-state load serving entities and consumers to engage in voluntary FCEM purchases
- Opt-in to listing state-defined REC products via FCEM
- Enable FCEM regionally-defined products to qualify to serve state RPS/other mandates
- Authorize state agencies or utilities to procure a (small) portion of mandated clean energy via the FCEM
- Mandate procurement of large volumes of clean energy or capacity via the FCEM

Substantial
Reliance

What the New England FCEM will fix

Limitations with current procurement model	How the FCEM improves it
1 Lack of Regional Coordination. Multiple Electric company coordination with other states is unmanageable.	Regionally integrated – MA, CT, RI, others all can submit their desired clean energy targets. Regional entity combines all and procures together.
2 Unpredictability. The procurement process in MA and other states are hard for developers to plan their businesses.	Predictable schedule – 3 year forward market, run annually.
3 Lack of Scalability. While scale has increased the current process would be challenged to deliver the 1GW per year that our decarbonization laws may require.	Scalable – Procure as much offshore wind or other clean energy as you want.
4 Ratepayer Risk. 20 year contracts are inherently risky.	Lower risk than 20 years contracts – as costs go down, we reap the benefits closer to real time.
5 Long Procurement Process. With distribution company contracts the total process can take nearly 2 years from RFP development to executed contracts approved by DPU.	Eliminates need for individual distribution company contracts with projects; procurement can be achieved faster
6 Bulky Purchases. The current structure as big projects coming online every few years that causes disruption in the RPS markets.	Purchases are smoothed out annually and in line with increasing state targets
7 Inconsistent with Federal Markets. Policy requirements not reflected in wholesale market incentives, introducing risk of excess cost to customers.	Regional coordination and incentives alignment can support policy and reliability needs most cost-effectively.