Unlocking Clean Energy with Surplus Interconnection Service

JERA AMERICAS

June 26, 2025

Canal Generating Overview

Location	Sandwich, MA
Capacity	1458 MW
Fuel	#6 Low Sulfur Fuel Oil / Natural Gas
Interconnection	SEMA (345kV)
Power Density	17.9 MW/acre
Average CO_2 Emissions (5 yr)	192,300 tonnes
Average Capacity Factor • units 1 and 2 • unit 3	 <2% <9%

- JERA Americas acquired Canal Generating in December 2022
- Units 1 and 2 (1125 MW) are oil-fueled steam units from 1968 and 1978 and provided intermediate generation until late 2000s when shale gas displaced oil units
- Unit 3 (333 MW) is a quick starting, flexible dual-fueled unit online since 2019
- Canal Generating provides key reliable grid support during critical periods (e.g., Winter Storm Elliot in 2022, East Coast heat wave earlier this week)

Challenges to Implementing SIS for "Decarbonizing the Peak"

1. **The future grid faces two major challenges.** Massachusetts must respond to rising electricity demand from widespread electrification and reliability issues caused by increasingly extreme weather. These pressures demand a more resilient, cleaner energy system.

2. **RFPs are central to Massachusetts' clean energy strategy.** To meet its goals of securing supply and achieving decarbonization, the state relies on policy-driven Requests for Proposals (RFPs). These RFPs help bridge the economic gap for zero-carbon solutions by guiding how clean energy projects are financed, interconnected, and integrated into the grid.

3. **Current RFP rules undermine Massachusetts' objectives.** By requiring zero-emission projects to build new CCIS infrastructure when existing infrastructure could be shared, current RFP rules add significant costs (at least to $250 per kW, or $138 million for 550 MW BESS, $200 million for an 800 MW Offshore wind) and burden ratepayers with initial capital and long term maintenance cost for duplicative assets.

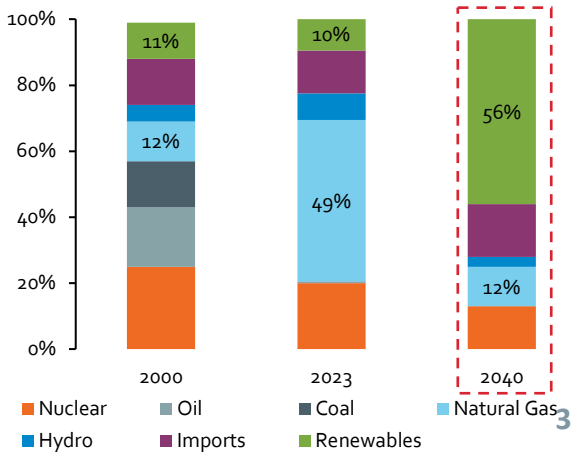
4. **These rules effectively block access to SIS.** Preventing an effective means to reduce costs, accelerate deployment of clean energy, and maintain grid reliability.

Current State of ISO- NE

"The **future grid faces energy adequacy challenges** on two fronts…Electrification of the transportation and heating sectors will drive demand higher and higher in the years ahead. Meanwhile, **extreme weather caused by climate change will increasingly affect the productivity of energy resources**"
- ISO-NE said in Utility Dive Article 03.2024

New England aims to grow renewables and storage from 10% to 56% of power generation by 2040, relying primarily on RFPs to drive decarbonization by displacing natural gas.

Power Generation by Source in New England



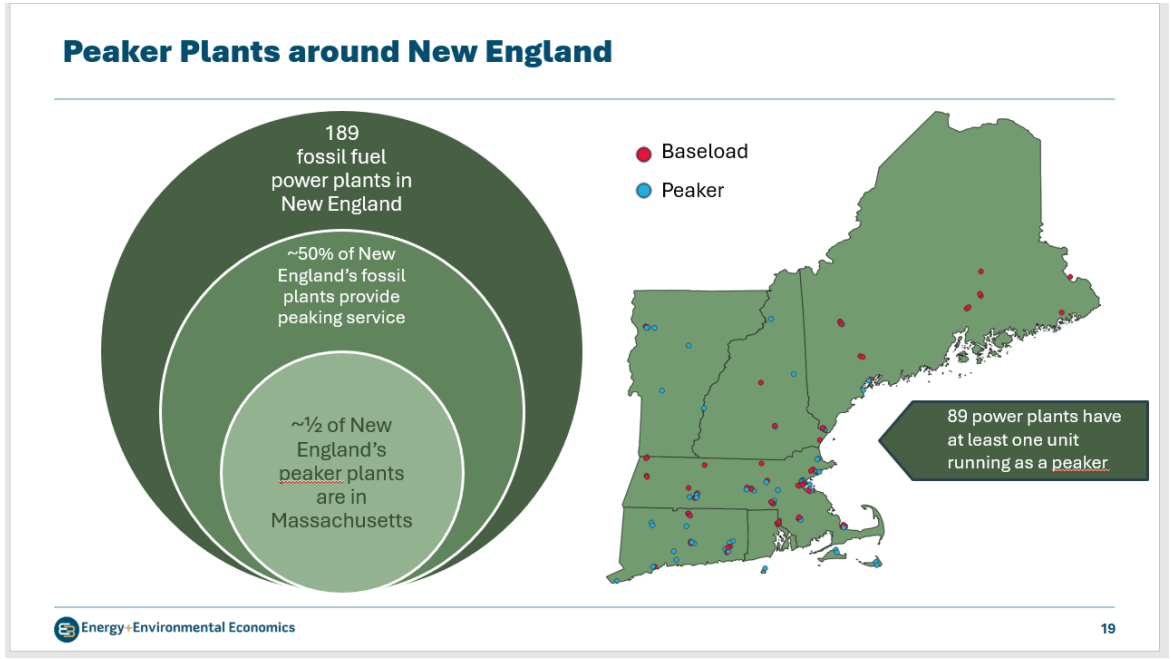
The Capacity Capability Interconnection Standard (CCIS) checks whether a new power plant can reliably deliver electricity to a region without needing to adjust other nearby power sources. Projects that want to sell capacity in the Forward Capacity Market must pass this test and fix any issues to qualify.

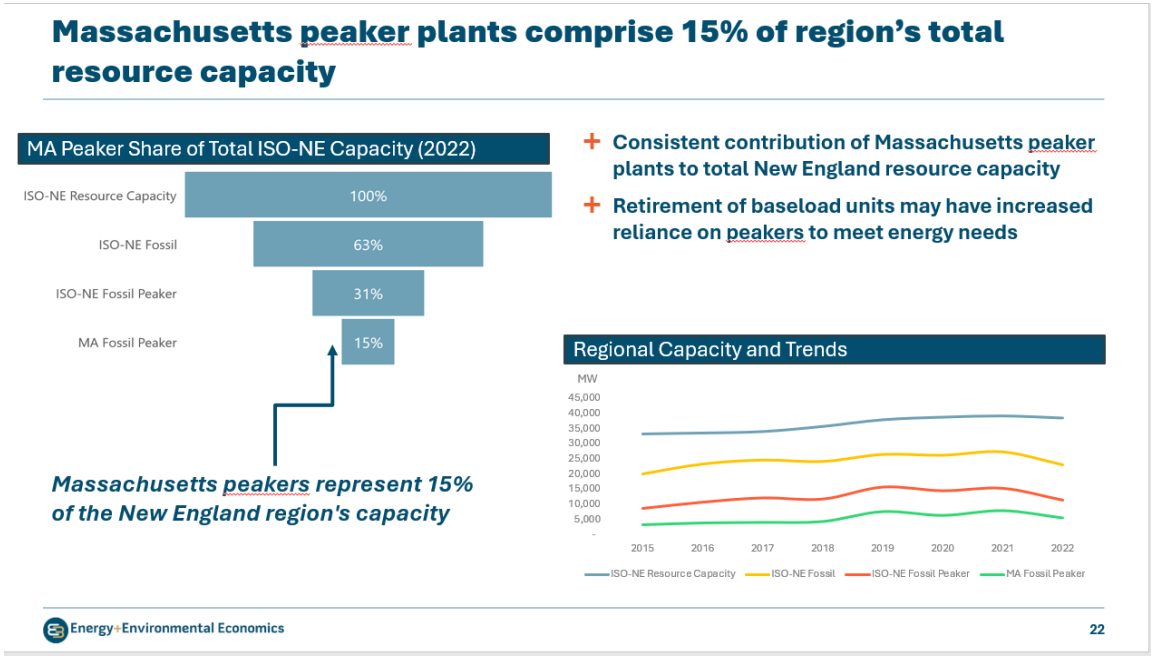
*All estimates are provided for discussion purposes only; they should not be interpreted as a binding commitment.

Peaking Plants Across New England Are Ideal Candidates for SIS

- **89 fossil power plants in New England operate at least one peaking unit.** These units run only during high-demand periods, meaning their interconnection capacity sits unused most of the time.
- **This underused infrastructure is a strategic asset**. The existing grid connections at many of these sites can be shared with clean energy projects through SIS, avoiding the need for costly new infrastructure.
- **SIS enables lower-cost clean energy deployment.** By co-locating clean energy like battery storage or offshore wind at peaker sites, developers can reduce capital costs and accelerate project timelines.
- **This opportunity extends far beyond Canal or JERA**. The same approach can be applied to many of 89 peaking plants in the region, for a wide variety of clean energy technologies, unlocking a scalable, cost-effective pathway for clean energy growth.
- **SIS turns idle capacity into climate progress.** Instead of letting interconnection rights sit idle, SIS allows clean energy to flow through existing infrastructure maximizing value and minimizing waste.

Below slides are from: *Office of Energy Transformation: Decarbonizing the Peak Focus Area Work Group Meeting 1 November 2014*

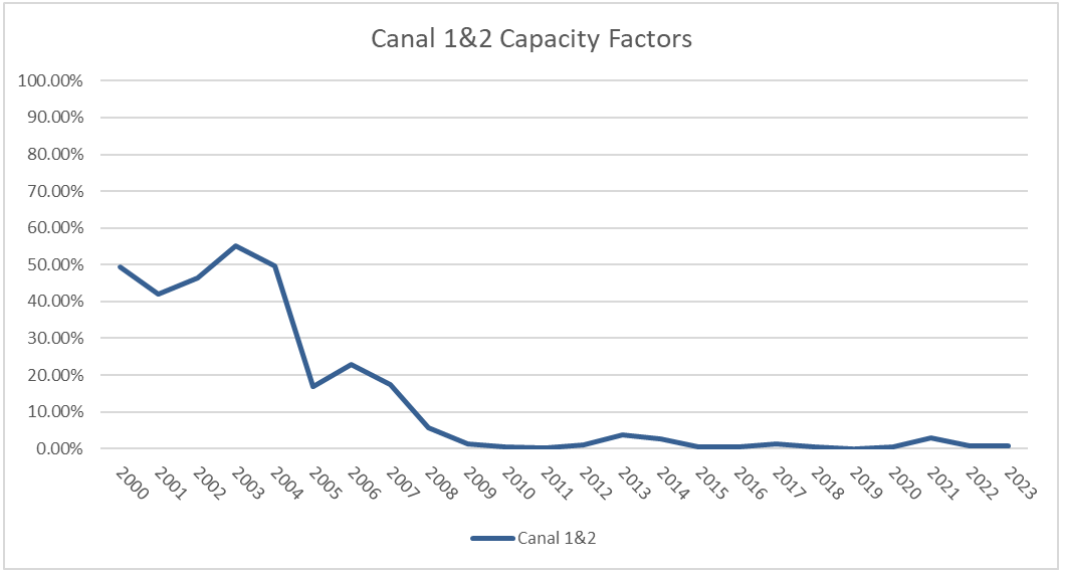


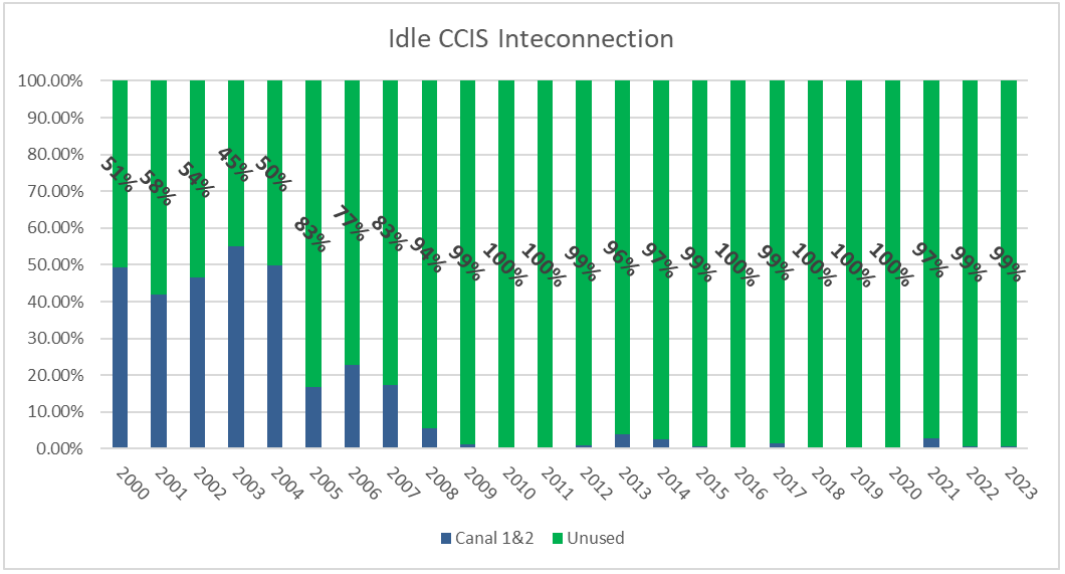


How SIS Would Work at Canal

Leveraging Canal's underutilized infrastructure

- **Canal Units are important contributors during peak-demand periods:** Once central to regional generation, Canal 1 and 2 now operate primarily as peakers, contributing very little energy annually.
- **Canal has nearly 1,200 MWs of CCIS Interconnection Rights:** Canal 1 & 2 hold 1125 MW of CCIS rights, which could be shared with a new clean energy facility using SIS and NRIS rights*.
- **Idle Capacity Available for Clean Energy Use:** From 2020 to 2024, the Canal site's average capacity factor for units 1 and 2 is <2%. This demonstrates a clear opportunity for clean energy resources to utilize existing infrastructure that would otherwise go unused.
- **CCIS Equivalent Deliverability Through SIS:** A clean energy facility connecting via SIS to an existing CCIS interconnection can achieve the same practical deliverability as a project with its own CCIS rights.
- **Reduced Project Costs:** External estimates from before recent electricity system inflation suggest SIS saves approximately $100/kw in project costs as compared to traditional interconnection. Our most recent internal estimates suggest that project savings are, at a minimum, $250/kw.
- **Accelerated Interconnection Timeline:** Projects utilizing SIS can reduce interconnection timelines from up to four years to as little as one year, enabling clean energy resources to reach commercial operation significantly faster.





Source: EIA-923; EIA-906; EIA-920

*NRIS (Network Resource Interconnection Service) is a type of interconnection service that allows a project to be treated as a network resource, meaning it can deliver energy reliably and be considered for capacity markets.

How SIS Would Work at Canal

Dispatch Economics Favor Clean Energy First

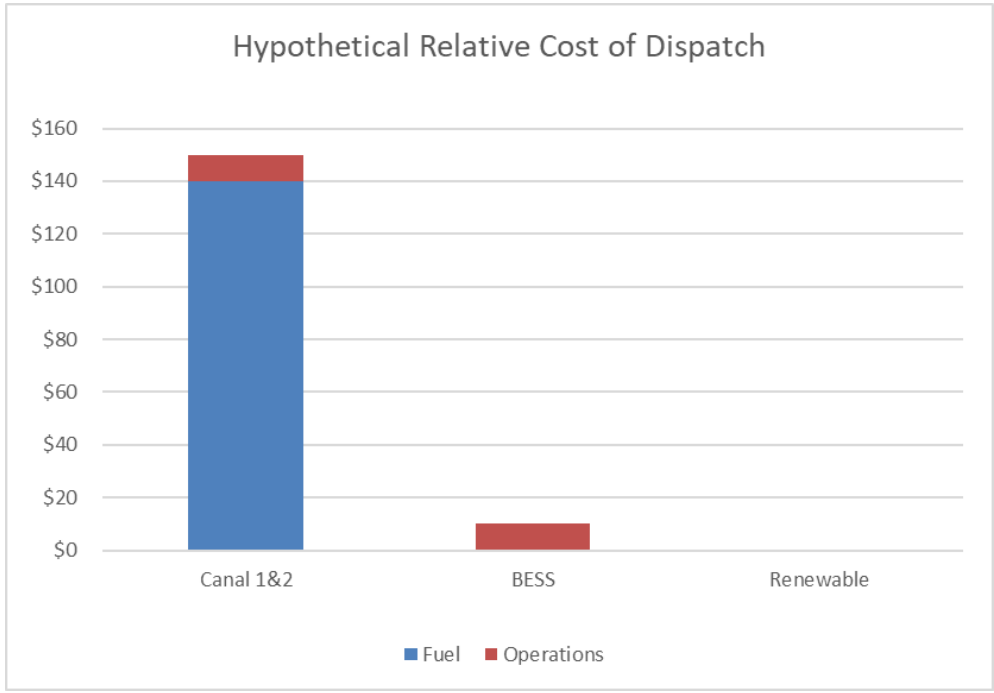
- **ISO-NE Dispatches Based on Cost, Not Interconnection Type:** Dispatch priority is determined by economics, not infrastructure ownership. Whether a resource connects via SIS or holds its own CCIS rights, ISO-NE dispatches the lowest-cost resource first.
- **Clean Energy Resources Are Consistently Lowest-Cost:** Renewable would typically offers at $0* per megawatt-hour, battery storage, with an operations cost, around $10*, and Canal 1&2 units with fuel and operations cost at $150*. As a result, clean energy resources are dispatched nearly 100 percent of the time when available.
- **SIS-Based Resources Achieve Equivalent Deliverability:** A clean energy facility using SIS at a low-capacity thermal site like Canal can achieve the same practical deliverability as a project with its own CCIS rights. The existing infrastructure is already certified as deliverable by ISO-NE.
- **Thermal Units Serve as Backup, Not Primary:** Canal 1 and 2 would only be dispatched during outages or periods of low clean energy output. This reinforces their role as firm backup capacity, not primary generation.
- **SIS Preserves Market Fairness and Reliability:** SIS does not alter dispatch decisions or compromise system reliability. It allows clean energy projects to compete fairly in RFPs without requiring costly infrastructure upgrades.
- **Idle Infrastructure Strengthens the Case for SIS:** When clean energy is available, fossil units sit idle. This underscores the efficiency of allowing SIS-based clean energy to leverage an existing interconnection.

Battery & Energy Storage

- Develop co-located/SIS/new BESS at Canal 1 and 2
- BESS can support future renewable intermittency
- Timeline: est. 24-36 month

Offshore Wind

- 1200 MW of offshore wind to interconnect at Canal 1 and 2
- Reduces cost risk of network upgrades
- Timeline: est. 2030s



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Policies to Accelerate Clean Energy Procurements

1. **Update overly-stringent RFP requirements to allow SIS as an eligible interconnection option**
   - **Current RFP requirements** prevent projects from using existing, underutilized infrastructure, driving up costs and limiting viable clean energy options.
   - **The requirement doesn't match procurement or legislative goals.** For example, the first round Section 83E solicitation is only procuring "Environmental Attributes," as per legislation, not capacity. Requiring a capacity-level interconnection is unnecessary and adds cost and complexity.
   - **SIS still meets all reliability and deliverability standards.** Projects using SIS would rely on existing CCIS infrastructure under a valid interconnection agreement, ensuring reliable delivery without duplicating assets.
   - **Inclusion of SIS expands competition.** Modernizing RFP language to allow SIS doesn't force the State to select SIS-based projects. It simply lets them compete, giving decision-makers the flexibility to choose the best overall option based on cost, reliability, and system efficiency.
2. **Pass legislation requiring DOER to allow SIS for solicitations not procuring capacity**
   - With the new Energy Affordability bill, Massachusetts has an opportunity to reduce clean energy project costs and accelerate deployment by requiring DOER to allow SIS in clean energy procurements

Questions?

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