



CELT Fellow- Springfield Water & Sewer Commission

*Presented by,
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Fellowship Overview

Energy audits, tariffs, and consumption analysis

Renewable energy feasibility assessments

Grant preparation + compliance documentation

Climate & infrastructure risk research

Financial modeling for clean-energy projects

Electric & Gas Account Analysis

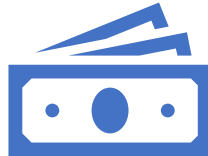


- Analyzed Eversource electric & gas accounts
- Identified anomalies in rates, demand charges, and usage
- Compared G1 vs G1-Demand tariff structures
- Estimated potential annual savings from correct rate alignment

Energy Consultants & Broker Analysis



Conducted a structured review of major energy consultants and brokers
Analyzed proposals and service materials from Beacon Integrated, CES, CPower, JK Muir, Siemens, and Tradition Energy.



Compared service models, pricing structures, and overall value offerings
Evaluated fixed vs. variable energy procurement, demand-response programs, and energy-efficiency support services.



Assessed strategic fit for SWSC's operational and long-term energy goals
Reviewed each firm's capabilities in municipal procurement, incentive management, compliance, and decarbonization planning.



Identified opportunities for cost savings and program alignment
Summarized strengths, limitations, and potential use cases to guide SWSC in selecting the best partners for future projects.

Energy Efficiency Projects

Colton HVAC

Reviewed plans for upgrading HVAC and building management system (BMS). Focused on improving temperature control, scheduling, and setback strategies. Expected results: lower electric and gas consumption, better comfort, and reduced maintenance issues.

01

West Parish Filters

Evaluated BMS/controls project for the filter building. Looked at opportunities to optimize pump runtimes, ventilation, and building conditioning. Goal: cut unnecessary runtime, reduce kWh use, and support utility incentive applications.

02

York Boilers

Assessed existing boiler systems and high-efficiency replacement options. Reviewed condensing boiler technology, turndown ratios, and potential fuel savings. Objective: modernize heating plants to reduce fuel costs and carbon emissions.

03

Overall Impact
Created a pipeline of HVAC, controls, and boiler upgrades that deliver multi-year cost savings and position SWSC for additional utility incentives and grants.

Grants, Fuel Analysis & Energy Reporting



DEP GAP Energy Grant (Application Prepared)

*Created full **energy baseline** for target facilities*
*Completed project **cost-benefit** analysis*
Drafted the complete grant narrative
*Ensured alignment with **DEP requirements** and eligibility criteria*



Heating Oil Analysis (FY26 Planning)

*Reviewed **supplier quotes** and pricing trends*
*Analyzed **historical gallon usage***
*Evaluated **alternative/cleaner fuel options***
*Built **FY26 cost projections** to support budgeting*
***Outcome:** Identified procurement savings + cleaner-fuel transition opportunities*



DOER Large Building Energy Reporting

Identified SWSC facilities requiring DOER reporting
*Mapped all **required data sources** and utility records*
*Created a **draft workflow** for future annual reporting*
*Completed a **gap analysis** for missing or incomplete metrics*

Solar Analysis & Site Evaluations

- *Analyzed satellite imagery to identify suitable areas within the SRWTF campus for ground-mounted solar installation.*
- *Selected an open field area with strong solar exposure and minimal shading as the primary candidate location.*
- *Evaluated tree canopy and shading impacts, ensuring panel rows were positioned for maximum sunlight.*
- *Reviewed interconnection distance and site infrastructure to confirm electrical feasibility.*
- *Developed a preliminary array layout to estimate production capacity, project feasibility, and next-step requirements.*



Figure 1 – Satellite Image of SRWTF



Figure 2 – Proposed Location and Array

Battery Storage Opportunities & DOER META Grant Support

Identified peak-shaving and demand-charge reduction opportunities using battery energy storage systems.

Reviewed how solar + storage pairing can improve project economics and grid resilience.

Evaluated available state and federal incentives, including Clean Peak Standard and ITC pathways.

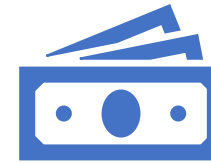
Outlined projects suitable for DOER META support, such as solar feasibility, BMS upgrades, and storage studies.

Prepared groundwork for technical assistance, ensuring future META applications align with DOER requirements.

Investment Tax Credit (ITC) Review

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- Assessed eligibility of solar, battery storage, and energy-efficiency upgrades under the federal ITC.
- Reviewed municipal pathways to access ITC benefits through direct pay or third-party ownership models.
- Evaluated potential impacts on project costs, payback period, and long-term savings.



IRS 179D Energy-Efficiency Deduction

Reviewed the IRS 179D tax deduction for energy-efficient building improvements.

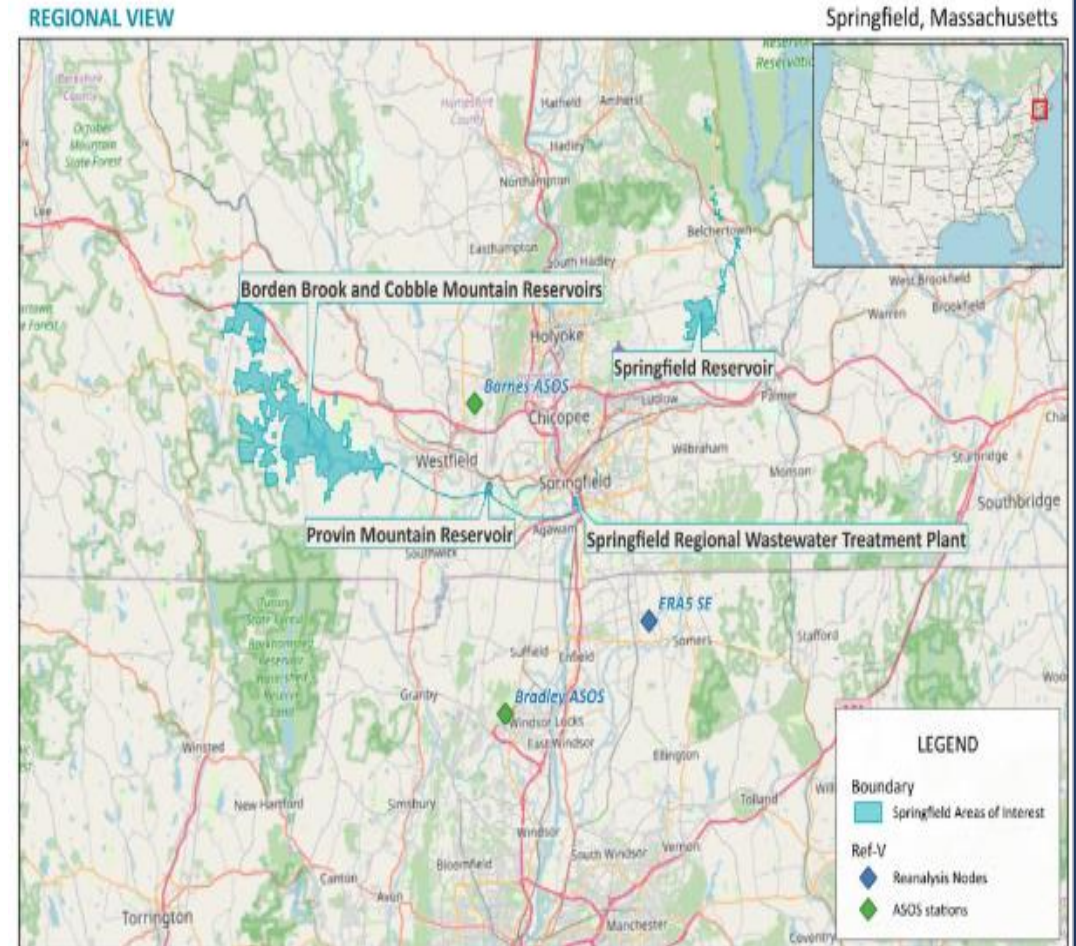
Identified qualifying upgrades (HVAC, lighting, building controls, envelope improvements).

Analyzed potential cost savings and how these incentives support SWSC's capital planning and sustainability projects.



Wastewater Heat Recovery & Wind Power

- Supported and reviewed feasibility studies for wastewater heat recovery to capture thermal energy from treatment processes.
- Evaluated potential grant pathways and alignment with state clean-energy programs for wastewater energy recovery systems.
- Participated in the wind resource assessment using site data, constraints, and preliminary modeling for turbine feasibility.
- Reviewed site limitations, permitting considerations, and environmental factors for potential wind tower placement.
- Helped compile insights, technical notes, and cost considerations to guide future decision-making and next steps.



Climate Resilience

- Participated in the 2025 Climatetech Summit at Greentown Labs, engaging with startups, utilities, and policy leaders focused on resilient infrastructure and climate adaptation.
- Learned how climate innovators and startups are using technology to solve real problems like flooding, energy reliability, emissions tracking, and infrastructure resilience.
- Gained insights on emerging tools—AI-driven flood prediction, sensor networks for real-time water monitoring, smart grid systems, and resilient materials.
- Heard from investors, and policy leaders about funding pathways and public-private partnerships that can support municipal climate projects.
- Understood how climate tech solutions can complement traditional infrastructure, creating hybrid gray + green systems for cities.
- Connected climate risks (like stormwater overload and extreme rainfall) with actionable solutions showcased by climate tech companies.



Reflection and Thank you

- Gained hands-on experience across energy analysis, climate resilience, and sustainability, expanding my skills beyond traditional business areas.
- Developed a deeper understanding of municipal operations, clean-energy planning, and real-world infrastructure challenges.
- Learned how data, technology, and policy intersect to support more resilient and efficient systems.
- Appreciated the opportunity to work on meaningful, high-impact projects that contribute to long-term community sustainability.
- Extremely grateful to Patrick, Amy, and Devon for their continuous support, guidance, and mentorship throughout the fellowship.
- Looking forward to exploring future opportunities in energy, climate, and sustainability, inspired by everything I learned during this experience





Questions?