Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

MassDEP FirstLight Water Quality Certification

FREQUENTLY ASKED QUESTIONS

Introduction

Several years ago, FirstLight Power (FirstLight) filed an application with the Federal Energy Regulatory Commission (FERC) to relicense the Connecticut River hydroelectric facilities in Turners Falls and Montague and the pumped storage facility in Northfield.

As a part of the federal relicense application filed with FERC, FirstLight must also apply for a state 401 Water Quality Certification (WQC) from the Massachusetts Department of Environmental Protection (MassDEP). FirstLight is required to file its WQC application with MassDEP within 60 days of FERC issuing a Ready for Environmental Analysis (REA) notice.

More information on the public involvement timeline and the re-licensing process is available at MassDEP's webpage for this matter: https://www.mass.gov/info-details/401-wqc-for-the-firstlight-hydroelectric-re-licensing-project

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Overview of WQC Process

- **What is the status of the FERC relicensing process?**
    - On February 22, 2024, FERC issued the REA.
    - On April 22, 2024, FirstLight filed its WQC application with MassDEP, triggering the one-year period for MassDEP to issue the WQC.
    - FERC is responsible for determining whether to relicense the operations, and its environmental review will be ongoing during the state's WQC process.
    - A primer on hydropower was created by FERC and can be found on their website: https://www.ferc.gov/sites/default/files/2020-05/hydropower-primer.pdf

- **What is MassDEP's role in this federal relicensing matter?**
    - MassDEP will determine whether FirstLight's proposed relicensing will provide the water quality and quantity to support a variety of uses, including aquatic life and recreation.
    - MassDEP's role is separate from FERC's role.
    - MassDEP will have one year from when FirstLight files a complete WQC application to issue a WQC.
        - The WQC issuance deadline is April 22, 2025.
    - To issue the WQC, MassDEP is obligated to determine whether there is reasonable assurance that the proposed relicensed operations will be conducted in a manner which will not violate Massachusetts Surface Water Quality Standards (314 CMR 4.00.)
    - This determination is based on whether the proposed project will provide the water quality and quantity that supports existing and designated uses.
    - MassDEP may establish requirements, known as conditions, that it deems necessary to issue the WQC (which FERC generally incorporates into its renewed federal license) if the conditions are supported by the surface water quality standards law and sufficient evidence (e.g., how and when river flows are regulated below the dam).

Overview of Water Quality Standards

- **What are the existing and designated uses for the part of the Connecticut River affected by FirstLight?**
    - As a Class B Warm Water, the designated uses for the Connecticut River are:
        - habitat for fish, other aquatic life, and wildlife;
        - contact recreation, including both primary (e.g., wading and swimming) and secondary (e.g., fishing (including consumption) and boating;
        - irrigation and other agricultural uses;
        - compatible industrial cooling and process use; and
        - consistently good aesthetic value. 310 CMR 4.00

- Surface waters are protected by the antidegradation provisions specified in 314 CMR 4.04(1), which require that "in all cases existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected."
    - Surface waters include all waters other than groundwaters within Massachusetts including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters and vernal pools.
- Existing uses are the designated uses and other uses that have been attained in a waterbody on or after November 28, 1975. 310 CMR 4.00

- **What information will MassDEP use to make the WQC determination?**

    - MassDEP's WQC will be based on scientifically sound evidence and consideration of related public input concerning how FirstLight's proposed project will affect the existing and designated uses of the Connecticut River.
    - It is important to remember that sometimes the uses of the river have conflicting water quality needs that MassDEP must consider.
    - MassDEP must protect the most sensitive use if there is a conflict.
        - For example, some uses may be improved by increased river flows that could be detrimental to other more sensitive uses.

Opportunities for Public Involvement

- **How will the public be able to provide input for the WQC?**

    - There will be several opportunities for public participation during the year-long WQC process:
        - On May 29, 2024, there will be two virtual public hearings, at 1:30 pm and 7:00 pm, occurring during the thirty-five-day written comment period. Individuals can comment on FirstLight's WQC application orally at the public hearings and/or in writing during the written comment period.
        - About midway through the one-year WQC process there will be a hybrid public information session (combined in-person and virtual access) with an update on the status of the certification proceeding and an opportunity for discussion and a question and answer session; and
        - MassDEP will hold two more virtual public hearings on the DRAFT WQC. Individuals can comment on MassDEP's DRAFT WQC orally at the public hearings and/or in writing during the written comment period.

- **How will the public be informed of the above public participation opportunities?**

    - On April 29, 2024, FirstLight published public notice in several newspapers that the virtual public hearings on the WQC application will occur on May 29, 2024 and the written comment period will occur from April 29, 2024 until June 3, 2024 (35 days).

- The public notice, which has been uploaded to MassDEP's FirstLight webpage, includes information about how to register for the public hearings and how to submit written comments.
- Specific dates for the above public information session and the second public hearing on the DRAFT WQC cannot be provided at this time because they are dependent upon other factors.
- MassDEP will continue to maintain and update a webpage with information about this project and will provide email notifications of updates for those who sign up on the webpage.
- Additional public notices will be provided for the public information session and the other public hearings and written comment periods.

- **Will there be other notices of the above public forums to enhance public participation in the WQC proceedings?**

  - Yes, MassDEP and FirstLight will be implementing a Public Involvement Plan to facilitate communication with the public, including environmental justice communities.
  - As part of the Plan, FirstLight and MassDEP will send copies of the public notices to the chief municipal officials and the conservation commission for municipalities that may be affected by the WQC.
  - FirstLight or MassDEP will request that those municipalities publish the notices in the local town or city hall and on the website of the community or communities that may be affected.
  - Notice may also be published in other local venues, such as libraries, grocery stores, and houses of worship.

- **What else will occur during the year-long process to inform MassDEP's WQC decision?**

  - Throughout the year, MassDEP will be analyzing and considering the WQC application and supporting materials, public comments, and scientific literature to reach a scientifically and factually sound decision.
  - MassDEP may also request additional information from FirstLight.

Overview of Energy Related Issues

- **I would like to provide input on the energy related aspects of the hydroelectric facilities in Turners Falls and Montague and the pumped storage facility in Northfield. Is that something MassDEP can consider as part of its analysis during the state 401 Water Quality Certification (WQC) proceeding?**

  - No, as discussed above, MassDEP is required by law to confine its review during the certification process to determining whether there is reasonable assurance that the proposed relicensed operations will be conducted in a manner which will not violate Massachusetts Surface Water Quality Standards (314 CMR 4.00.) This determination

is based on whether the proposed project will provide the water quality and quantity that supports existing and designated uses.
    - Energy-related public input may be provided to FERC at the FERC websites listed on the MassDEP FirstLight webpage: https://www.mass.gov/info-details/401-wqc-for-the-firstlight-hydroelectric-re-licensing-project
    - A primer on hydropower was created by FERC and can be found on their website: https://www.ferc.gov/sites/default/files/2020-05/hydropower-primer.pdf

- **What Massachusetts agencies regulate electrical energy generation and distribution in Massachusetts?**

    - The Massachusetts Department of Public Utilities (the "Department" or "DPU") is responsible for oversight of distribution-level investor-owned electric power, natural gas, and water utilities in the Commonwealth. More information on the DPU can be found here: https://www.mass.gov/orgs/department-of-public-utilities
    - The Massachusetts Department of Energy Resources (DOER) is responsible for ensuring the adequacy, security, diversity, and cost-effectiveness of the Commonwealth's energy supply to create a clean, affordable, equitable and resilient energy future for all residents, businesses, communities, and institutions. More information about DOER can be found here: https://www.mass.gov/orgs/massachusetts-department-of-energy-resources

- **I have heard that the Northfield pumped storage facility is very inefficient and should not be a part of Massachusetts' energy portfolio. Is this true?**

    - This subject matter is outside of MassDEP's legally authorized regulatory review in this WQC matter, as discussed above. In the interest, however, of providing more information to the public MassDEP has consulted with DOER on some of the issues of interest to the public. Those issues are discussed below.

- **How does the Northfield pumped storage facility generate electricity?**

    - The pumped storage facility in Northfield generates electricity by pumping water from the river to the upgradient Northfield reservoir where it is stored and then released back down to the same location through turbines to generate electricity. It is sometimes referred to as a "giant water battery" because the reservoir water is generally stored and then released later to generate electricity. Sometimes it is released to provide needed electricity when other supplies, like wind or solar power, have intermittent decreases in energy production.

- **I have heard that the Northfield pumped storage facility consumes more energy in pumping water uphill for storage in the reservoir than it generates when the reservoir water is released back downhill through turbines to the river. Is this true?**

    - All energy systems, regardless of the underlying technology, will lose some energy due to thermodynamics in the process of storing energy from the grid and then

dispatching that stored energy back to the grid. The value of utility-scale energy storage technologies (like the Northfield pumped storage facility) to the electric grid lies in their ability to be dispatchable, meaning that both their charging and discharging can be controlled. As the Commonwealth meets its 2050 decarbonization mandate and the grid integrates more intermittent renewable generation sources over time (like sun and wind), dispatchability becomes increasingly important to maintain safe and reliable electric service while maximizing the potential of the renewables.

- **How does the Northfield pumped storage facility fit within Massachusetts' energy portfolio and plans for the future?**

    - Energy storage is a key component to the Commonwealth's clean energy future, as detailed in the Massachusetts 2050 Clean Energy and Climate Plan (CECP). CECP. Clean Energy and Climate Plan for 2050 (mass.gov) or https://www.mass.gov/doc/2050-clean-energy-and-climate-plan/download
    - The Northfield pumped storage facility is an integral part of Massachusetts' clean energy portfolio because it is easily controlled and operational when needed during times of high demand, such as when other clean energy sources are not operational due to sun or wind limitations or there is high consumer demand. Second, the facility is also able to store and then generate a substantial amount of electricity for a long period of time from renewable sources, allowing more renewable energy to be dispatched to the grid.

- **How does the Northfield pumped storage facility compare to other means of electricity storage and production when consumer demand is high or other renewables are not functioning optimally because of the weather?**

    - The Northfield pumping station is unique in the Commonwealth because it has large power and energy capacities relative to other deployed energy storage resources. Northfield has a power/energy rating of 1,168 MW/8,760 MWh, which equates to a 7.5 hour duration resource at maximum discharge. To put the size of the Northfield facility in perspective, the total capacity of all energy storage systems deployed in the Commonwealth is 2,078MW/13,533 MWh, meaning that Northfield alone represents 56% of power capacity and 65% of energy capacity, respectively, for energy storage systems.
    - The vast majority of new energy storage deployments today are based off of lithium-ion battery technology. The largest Massachusetts lithium-ion deployment is owned and operated by Eversource in Provincetown, and is rated at 25 MW/75 MWh, equating to a 3 hour resource. The average lithium-ion battery duration deployed today is 2 hours; however, that average duration is increasing toward 4 hours with newer deployments. All the above power and energy capacities for lithium-ion deployments are substantially smaller than Northfield's.

- **What is the source of energy used to pump water up to the Northfield reservoir?**

    - The energy used to pump water up to the Northfield reservoir is primarily provided by the electrical grid and the energy sources available at a particular time on the grid. Depending on a variety of factors, the grid electricity could be from renewable resources such as wind and solar and/or fossil fuels such as natural gas generators that make energy for consumption. The source of energy used to pump water at the Northfield reservoir will therefore depend on the mix of energy on the grid at the time of pumping.
    - Continued innovation will increase options for longer duration energy storage technologies with decreased environmental impacts, but presently it is not possible to predict with accuracy what those technologies will be and when they will be able to achieve commercial deployment and operation. In the meantime, the Northfield pumped storage facility will continue to play an important role for the Commonwealth's energy portfolio.

- **Will FirstLight's fossil fuel consumption to pump water to the Northfield reservoir diminish over time?**

    - Northfield's consumption of electricity is based on the energy mix, and it is expected that fossil fuels will decline dramatically as the supply of electricity to the grid from other renewable sources increases. It is possible that the Northfield pumped storage facility could use electricity that is sourced from predominately from renewable energy in the future.

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