

# Hydroelectric Power Program

Hydro LIHI Program  
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SULLIVAN &  
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# CURRENT EVENTS CREATE CURRENT OPPORTUNITIES

The current clean and renewable energy development opportunities in Massachusetts (and the region) are affected by the following:

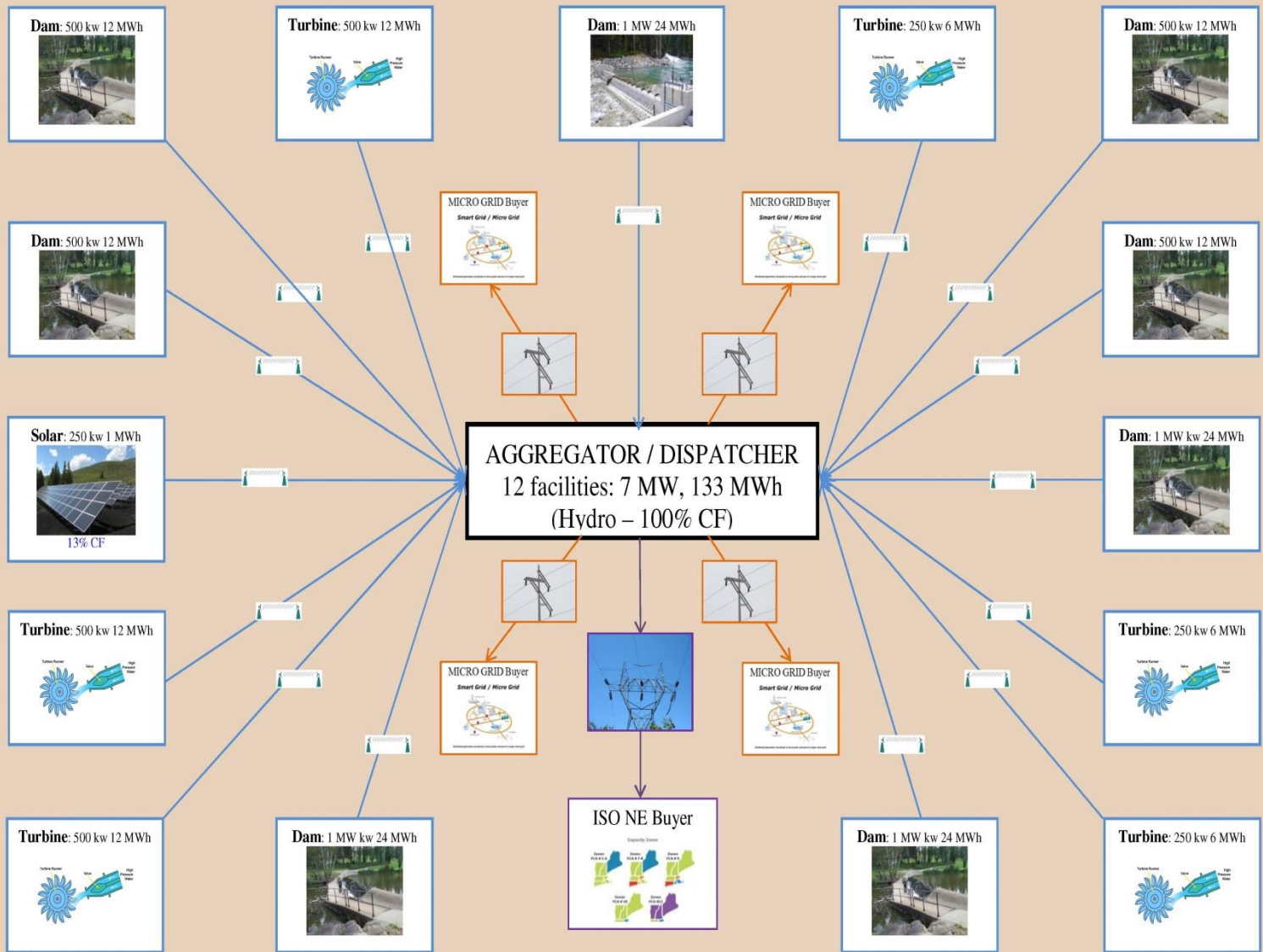
- New Hampshire denied Northern Pass a permit, thereby jeopardizing Massachusetts' ability to meet the Global Warming Solution Act's mandate with 1,090 MW of hydroelectric power from Canada.
- Small hydro is a small business opportunity that should appeal to the current federal administration, including FERC's Neil Chatterjee.
- Smarter grids accommodate smaller distributed energy sources
- The cost of storage and solar is coming down fast.
- New Englanders oppose heating and electrical generation by fossil fuels.
- The perception that Massachusetts needs pipelines to meet peak demand is erroneous.

# A HYPOTHETICAL SOLUTION

A hypothetical distributed hybrid hydro/solar/storage energy system lets us discuss:

- (1) the state and FERC barriers to implementation and
- (2) its ability to contribute to a **base peak** energy source.

We can call it an “**Underutilized Hydro Resource and Base Peak Energy Aggregation Development Proposal**”



# PERTINENT DRIVING FACTORS

- Capturing and using energy from a hydro facility 24-7 and from a solar facility during the day that exceeds daily current needs
- Using that energy when cost effective behind the meter, including for accessible micro grids
- Using existing (and lobbying for new) FERC, ISO NE and state regulations to be able to discharge battery stored hydro- and solar-sourced power into the ISO NE grid and to reduce the upfront and soft costs
- Aggregating the stored excess energy from multiple hydro- and solar-battery augmented sources
- Selling and dispatching that stored excess energy to ISO NE at satisfy peak demand and price
- Improving aggregator and dispatcher access to purchasers or users

# PURCHASERS AND USERS

## 1. Landowner:

- Off-grid and behind the meter consumption
- Supplemented by grid supplied power: either to an aggregated facility tied to the grid or to a separate off grid facility as regulations require

## 2. Micro-grid

- for behind the meter use at peak power demand
- need distribution network
- possibly at an industrial site

## 3. ISO NE

- Need aggregator, dispatcher and bidding protocol
- Need grid able to accept energy aggregated from multiple entry points
- Minimum bid needs to be lowered and permitted at peak demand

# New England's potential non-powered dam (NPD) capacity (2012)

1.11 Terawatt hours per year 243 MW per:

An Assessment of Energy Potential at Non-Powered Dams in the United States Prepared for the U.S. Department of Energy Wind and Water Power Program OAK RIDGE NATIONAL LABORATORY April 2012

[https://www1.eere.energy.gov/water/pdfs/npd\\_report.pdf](https://www1.eere.energy.gov/water/pdfs/npd_report.pdf)

# MASSACHUSETTS HYDROELECTRIC (not Hydrokinetic) POWER

Large Hydro: 30 or more MW

Small Hydro: 100 kW to 30 MW

Micro Hydro: less than 100 kw

## Hydropower - Eligibility

- Facilities must be qualified for the [Massachusetts Renewable Energy Portfolio Standard](#) (MA RPS), or demonstrate a high likelihood of qualifying. The Massachusetts Department of Energy Resources (DOER) grants MA RPS qualification for Class I (new facilities) and Class II (existing facilities). See [MA RPS qualification applications](#).
- The applicant's facility must be licensed by the Federal Energy Regulatory Commission (FERC), have an order from FERC indicating that it is non-jurisdictional to FERC, or have a determination from FERC that it is a "qualifying conduit hydropower facility."



# CURRENT LAW AND PENDING MASS BILLS

## Current legislation

- applies to a “new facility or increased capacity or efficiency at each such existing facility” up to 30 MW capacity.
- provides that “energy from existing facilities up to 7.5 megawatts shall be considered renewable energy ” (and excludes pumped storage and a new dam or water diversion structure constructed later than January 1, 1998”

## Pending bills

- [H.1757](#) **An Act relative to renewable energy certificates.** <sup>ii</sup> Similar provisions are in [S.1851](#), [An Act relative to renewable energy portfolio standards](#).
- [H.2697](#) **An Act relative to small hydro** amends c. 164, Section 139A to require the DPU to require the electric distribution companies to amend the net metering tariff to create a program for small hydroelectric power net metering facilities in the commonwealth.