CONCORD MUNICIPAL LIGHT PLANT

Article 21. Light Plant Solar Expansion – Middle School

Mr. Foulds moves that the Town take affirmative action on Article 21 as printed in the handout pertaining to the Article.

CONCORD MUNICIPAL LIGHT PLANT

A Concord Light Project

- Concord Light ratepayers are funding this solar and storage project so this borrowing will affect electricity rates, not property taxes.

CONCORD MUNICIPAL LIGHT PLANT

In-Town Solar Goals

- It has long been a goal of the Town to increase the amount of electricity procured from renewable sources locally.
  "*Continue to pursue renewable energy source opportunities. There is continued interest in additional solar farms as secondary or complementary uses, including over parking areas and other passive infrastructure.*" Envision Concord, Bridge to 2030
- Goal is 20 MW by 2030, this project will bring us to 8.4 MW (42%)

CONCORD MUNICIPAL LIGHT PLANT

CMS Net-Zero Goal

- The new middle school has been designed to be ~80% more efficient than the existing Sanborn building lowering the need for renewable generation.
- This project will produce more than the new CMS building is expected to consume making the site a net producer.

CONCORD MUNICIPAL LIGHT PLANT

Quantifiable Costs and Benefits

- The project produces benefits
  - Non-carbon emitting electricity production
  - Peak cost mitigation
  - Energy arbitrage from the battery
  - Progress toward town's solar goals
- Costs include capital and annual maintenance
- The Summary Financials below subtract the benefits from the costs to derive a net present value of the annual resulting cash flow

CONCORD MUNICIPAL LIGHT PLANT

A Concord Light Project

- It is estimated that the monthly bill impact to CMLP residential customers will be between $0.86 and $1.69 in year 1 then decrease to a net savings by 2031.

12 Month Average 2022	750 kWh	1,000 kWh	Non-GHG
Eversource	$238.16	$315.21	20%
Concord Light	$160.39	$215.66	94%
Savings per month	$77.77 (32%)	$99.55 (32%)	Source: MMWEC

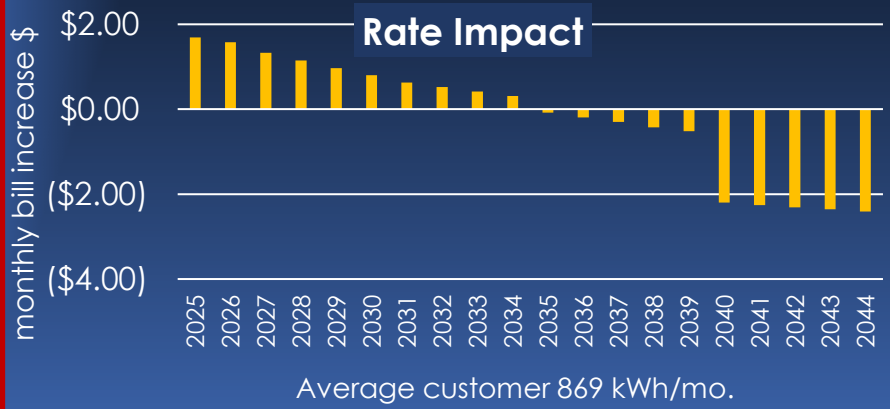
Summary Financials

Article 21: Light Plant

CONCORD MUNICIPAL LIGHT PLANT

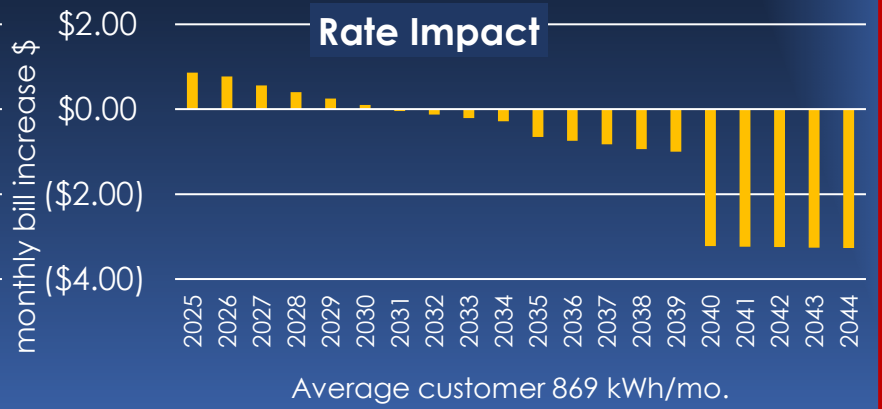
Without IRA Credit

X 1,000	Capital Cost	20-year NPV
Solar	4,614	(2,375)
Battery	3,339	2,040
Total	7,553	(335)



With IRA ~~+ ARPA~~ Credits

X 1,000	Capital Cost	20-year NPV
Solar	3,604	(1,364)
Battery	2,668	2,644
Total	6,272	1,280



CONCORD MUNICIPAL LIGHT PLANT

Assumptions

Solar (1.28 MW / 1,554 MWh)

- **CAPEX $4,614,450**
- **Rooftop 503 kW, $2.50/watt, $1,258,425**
- **Canopy 773 kW, $3.50/watt, $2,706,025**
- **Engineering & other fees $650,000**
- **15-year loan; 3.4% borrow rate**
- **One inverter replacement in year 10**
- **O&M escalation: 2.5%**
- **Electricity market price escalation: 1.5%**
- **Discount rate for net present value: 3.4%**

CONCORD MUNICIPAL LIGHT PLANT

Assumptions (con't)

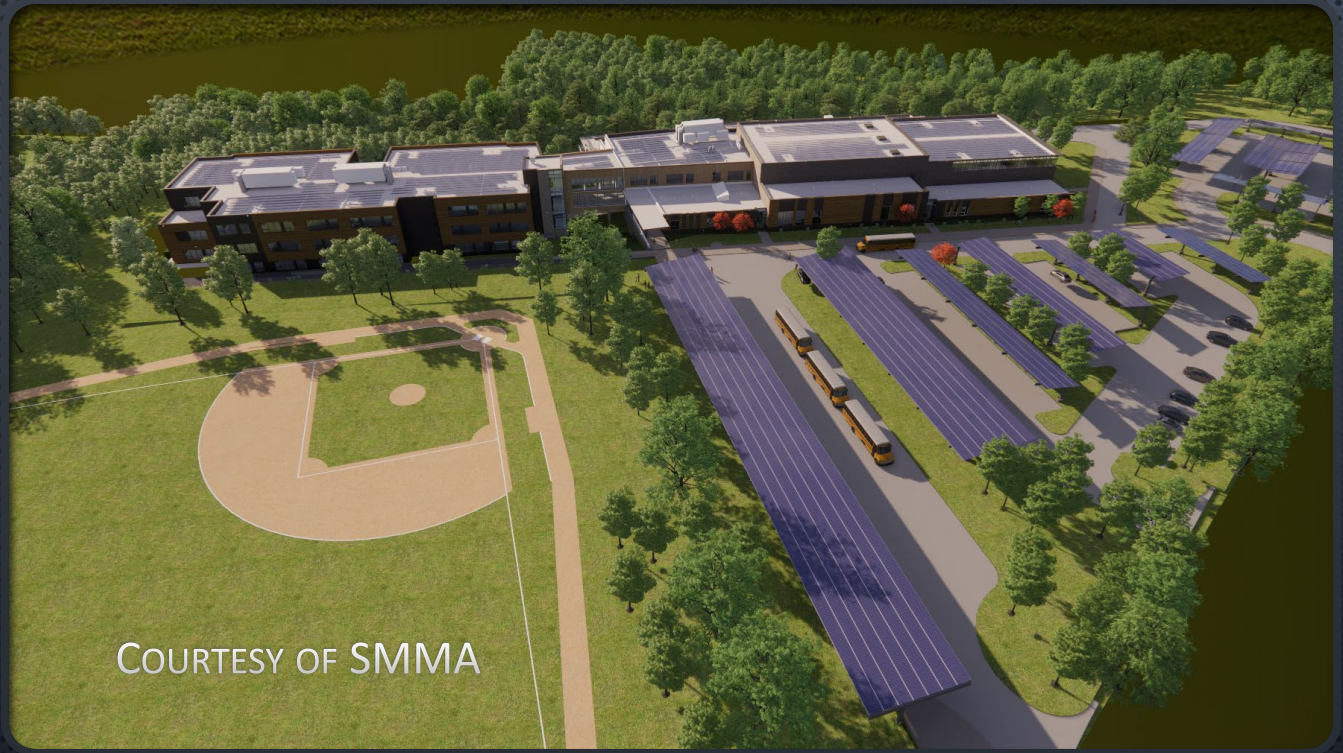
Battery (2 MW / 4 MWh)

- CAPEX $3,338,800
- Energy Storage System $2,628,800
- Engineering & other fees $710,000
- 15-year loan; 3.4% borrow rate
- One inverter replacement in year 10
- O&M escalation 2.5%
- Electricity market price escalation: 1.5%
- Transmission peak reduction forecast accuracy: 83% (10 out of 12 months)
- Capacity peak reduction forecast accuracy: 90%
- Discount rate for net present value: 5%

VISUAL RENDERING

Article 21: Light Plant

CONCORD MUNICIPAL LIGHT PLANT



VISUAL RENDERING

Article 21: Light Plant

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COURTESY OF SMMA

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