Goal: The Cheapest Cleanest Power in the Nation
One Hairdryer for fifty hours is 50 kW-hr
Fifty Hairdryers for one hour is 50 kW-hr
One of them is going to cost you a lot more money!
Summer comprises the highest electricity use in New England, largely because of air conditioning. PV clearly helps “shave the peak” when the peak falls during daylight hours. Because greater amounts of PV will shift the timing of peak demand for grid electricity to later in the afternoon or evening, PV’s ability to reduce peak demand will diminish over time.

Source: ISO New England
**Spring and autumn** (shoulder seasons) generally have the lowest demand for electricity. Spring is also when PV's output is typically highest. With about 3 GW of BTM PV by 2019, more occasions are expected when demand falls so low that, to protect the system, the ISO must issue emergency requests for grid-connected power resources to reduce output (if possible to do so safely and economically) or shut down. It then becomes more challenging to meet rising demand later in the day because some resources can take many hours to start up again.
Winter has the second highest electricity use in New England. Load reductions from PV can be significant during midday hours on sunny winter days, which, as more PV is installed, will increase the need for power resources with the operational flexibility to quickly ramp their output up or down to match the steeper curves of changing demand. Importantly, PV doesn't reduce the winter peak at all due to the timing of sunset.

Source: ISO New England
**Pricing Options**

- **Real Time Pricing (RTP)**
  - Fluctuates hourly based on generation cost.

- **Time of Use Pricing (TOU)**
  - Fixed periods based on typical daily demand, critical event has no effect.

- **Critical Peak Pricing (CPP)**
  - Elevated pricing during critical times.

- **Critical Peak Rebate (CPR)**
  - Rebate available if consumer reduces consumption during critical times.
  - Size of rebate depends on amount of reduction.
New England’s **annual electricity use** is expected to decline by an average of -0.6% over the next decade, from 126,786 gigawatt-hours (GWh) in 2017 to 119,680 GWh in 2026.

**Peak demand under normal weather conditions** of about 90°F (the “50/50” forecast) is expected to fall slightly at an average rate of -0.07%, from 26,482 MW in 2017 to 26,310 MW in 2026.

**Peak demand under extreme summer weather** (the “90/10” forecast), such as an extended heat wave of about 94°F, pushes the expected peak demand up to 28,865 MW in 2017 to 29,021 MW in 2026—an average annual growth rate of 0.1%.
Misconceptions

Believability

Santa

Low Cost Renewable Energy
FIGURE 1 – ILLUSTRATIVE SALE-LEASEBACK STRUCTURE

Key steps:

1. Developer finds customer, signs contract for PPA or lease, and builds system
2. Tax Equity buys system and associated contract from Developer. As the owner of the system, Tax Equity is eligible to receive 100% of ITC and depreciation benefits
3. Developer leases the systems back from Tax Equity and makes lease payments per agreement with Tax Equity
4. Customer pays Developer monthly

Courtesy: Woodlawn Associates
Suggestions:

Package and sell REC’s

Aggregate renewable capacity

Real Time Pricing

Continue EE investment
Maine has about 390,000 homes

Energy efficiency measures reaching only about 10,000/year

Need to focus on most severe need in low income homes
Drive by Energy Audit
ENERGY DEMAND

Critical event e.g. heat wave

Typical daily demand

MEGAWATTS

1AM  5AM  NOON  5PM  MIDNIGHT
Maine Technology Asset Fund 2.0

Award: Challenge grants for infrastructure, equipment and technology upgrades for research development and commercialization

Timing: Rolling application, accepted anytime

Intent: Capital equipment or infrastructure projects that will lead to holding and gaining market share, increased revenues, expanded employment, and retention of jobs.
Listen

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