



Introducing Energy Storage Solutions

For Homes in Eversource and UI Territories

12/6/2022



Agenda



- Poll
- Energy Storage Overview
- Energy Storage Solutions
- Why Batteries?
- Benefits and Costs
- How to Get Started
- Questions



Poll

What brings you here today?

- Pairing my existing solar PV system with storage
- Adding a new solar system and storage
- Energy storage without solar
- Other reason

Poll

In the event of an outage, what electrical devices are most important to you?

- Refrigerator/freezer
- Heating/Cooling
- Medical devices
- Lighting
- Entertainment (TV, video games, computer)

What is Energy Storage?

Energy Storage comes in many forms

Purpose: to store energy generated now and use it later

Why was Energy Storage Solutions Created?


The Washington Post
Democracy Dies in Darkness

Climate & Environment Climate Solutions Global warming World impacts Global emissions Extreme heat

CAPITAL WEATHER GANG

Extreme heat pushes highs over 110 in Texas as power grid nears brink

The Electric Reliability Council of Texas projects record-high demand as temperatures skyrocket

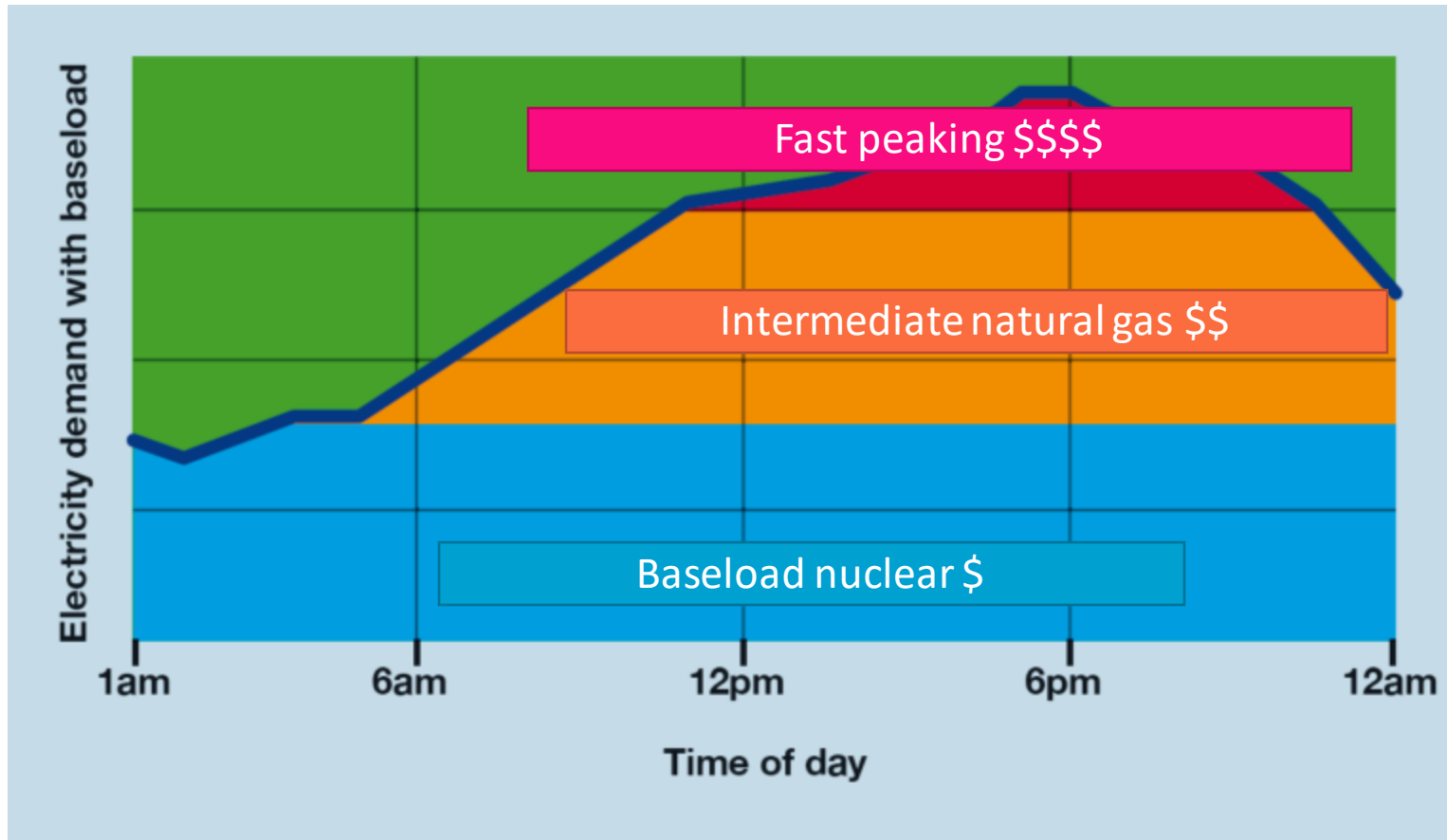
By  [Matthew Cappucci](#)

July 11, 2022 at 11:46 a.m. EDT



Temperatures reached record-highs on July 10 in Texas driving up a demand in power, straining the state's power grids. (Video: The Washington Post)

Why was Energy Storage Solutions Created?



What is Battery Energy Storage?



What *isn't* Battery Energy Storage?

Ineligible Technologies



Why Energy Storage for You?

1. **Resiliency**
2. **Produce and consume your own energy with solar PV**
3. **Reduce on-peak electricity charges***
4. **Get reimbursed for your capacity when you're not using it**

*If you are on a time-of-use rate

What Can Battery Storage Power?



*Assuming 1-2 battery units

Nice to Have

Battery Storage vs Generator - Benefits

Low upfront cost

Portable



Silent

No fuel or emissions

Store and use your solar PV energy

On standby

Incentives available



High output

Natural gas or propane

On standby



Battery Storage vs Generator - Drawbacks

Buying and transporting fuel

Loud

High emissions

Requires maintenance

Not on standby



Upfront cost

Professional installation

Interconnection and permitting

Not portable



Higher lifetime cost

Professional installation with fuel

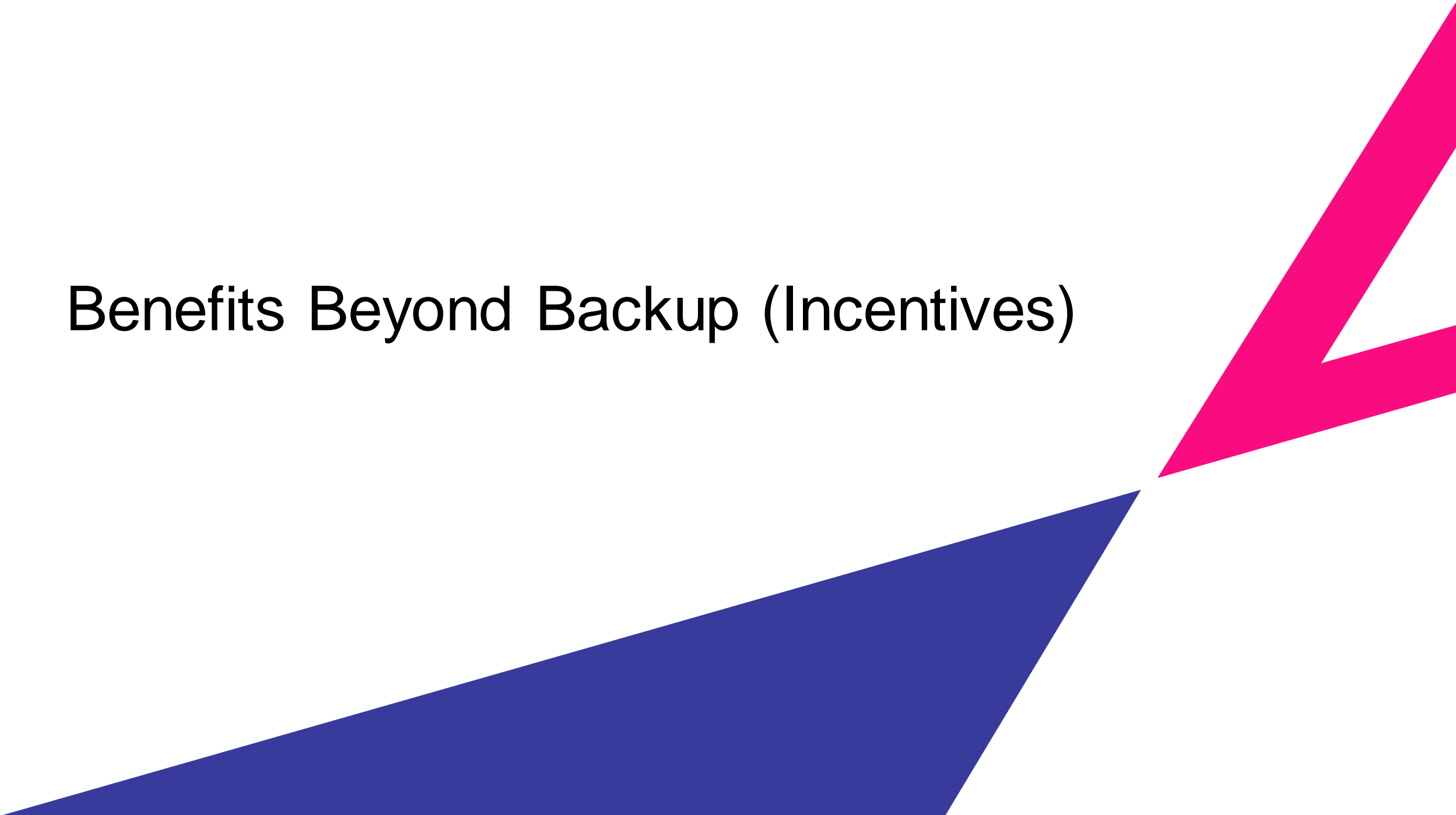
Permitting

Requires maintenance

Not portable



Benefits Beyond Backup (Incentives)



Residential Upfront Incentive Levels


Upfront Incentive Levels (Installed 2022-2024)

Capacity Block (MW)	Standard	Underserved	Low-Income	Weighted Average
<i>Participation Level</i>	60%	30%	10%	
10	\$200/kWh	\$300/kWh	\$400/kWh	
15	\$170/kWh	Proposal to continue Underserved and Low-Income rates through Step 3		\$196.55/kWh
25	\$130/kWh			

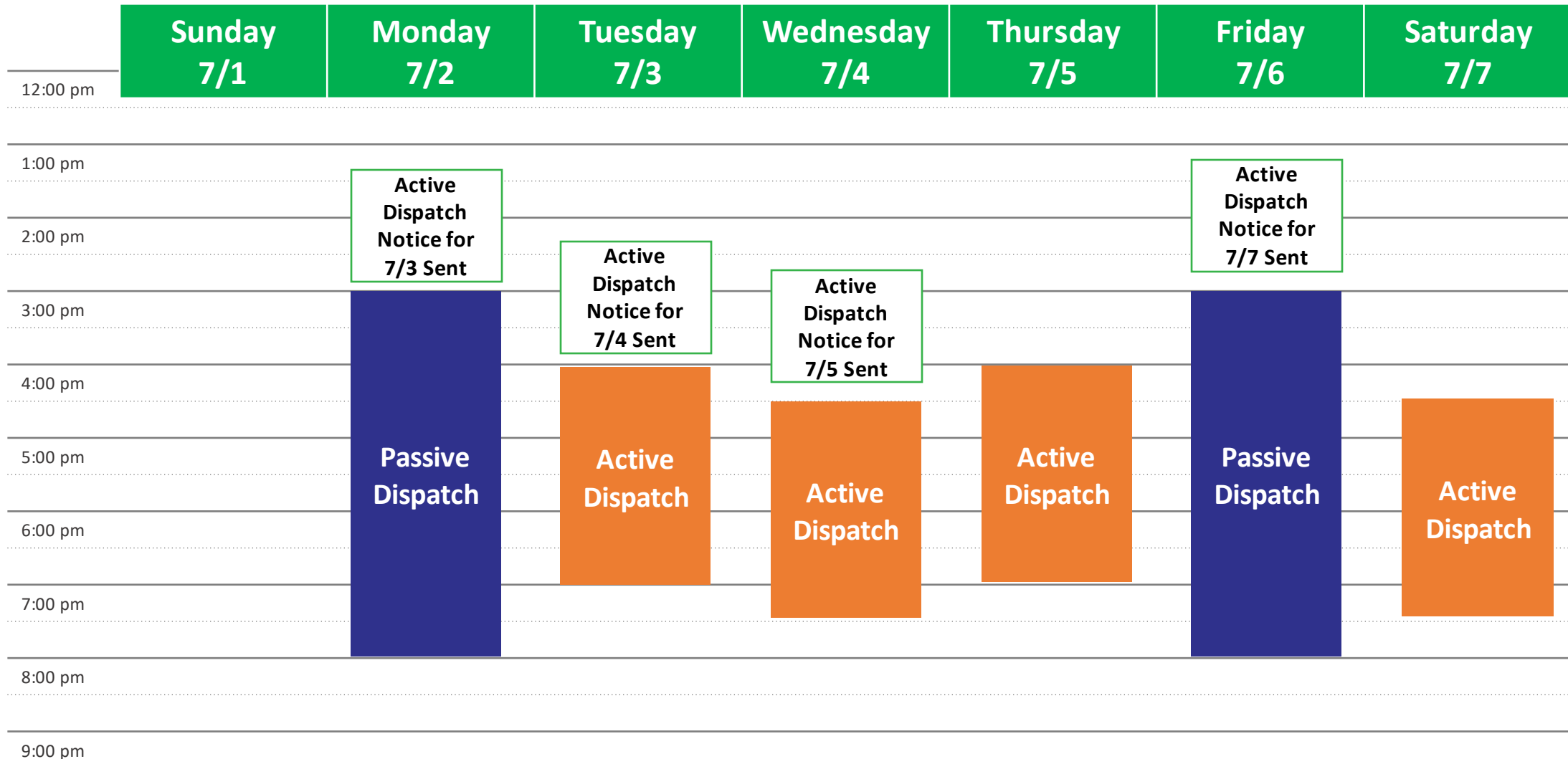
Performance Incentive Levels (Installed 2022-2024)

Summer, Years 1-5	Winter, Years 1-5	Summer, Years 6-10	Winter, Years 6-10
\$200/kW	\$25/kW	\$115/kW	\$15/kW

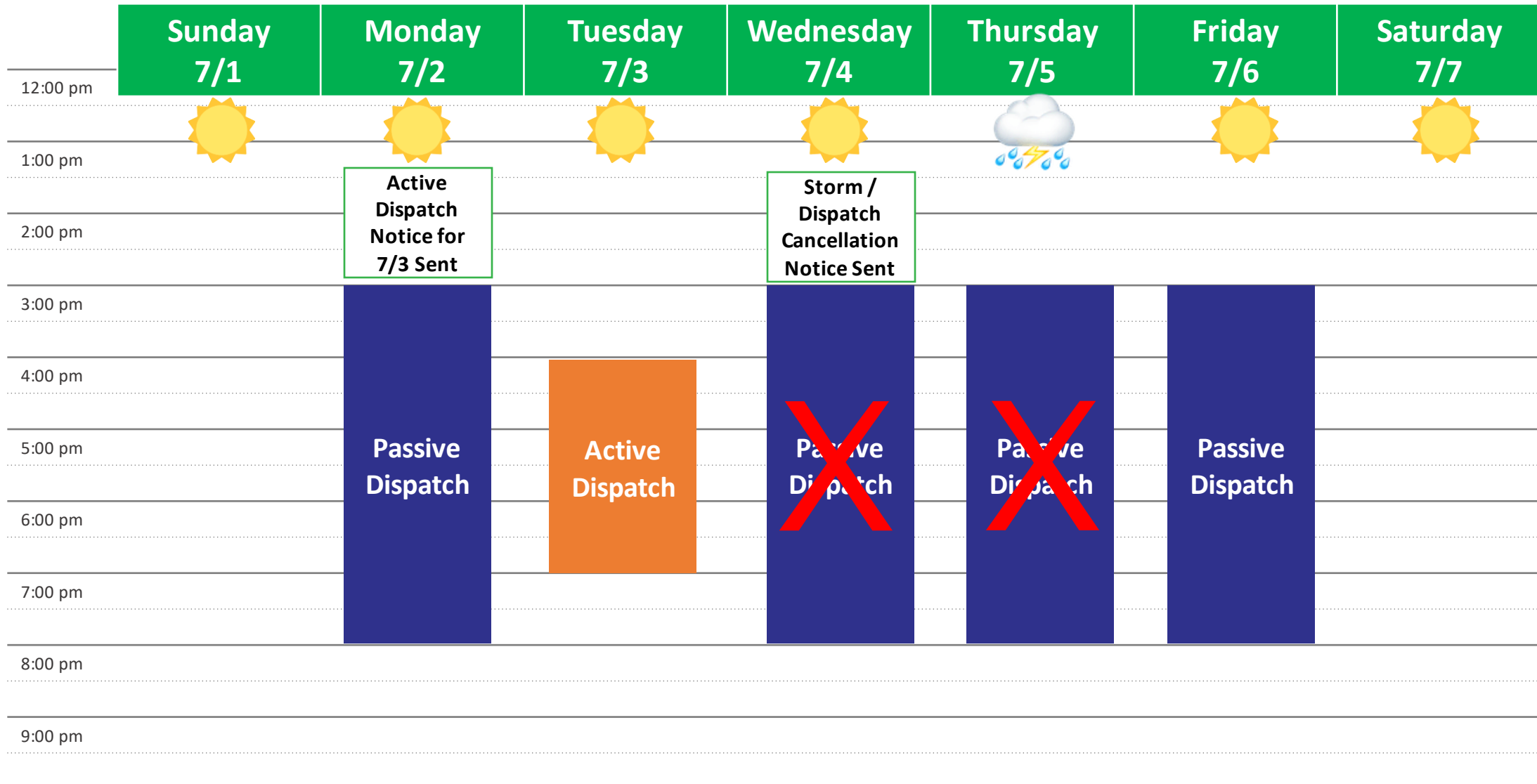
Passive Dispatch Only

	Sunday 7/1	Monday 7/2	Tuesday 7/3	Wednesday 7/4	Thursday 7/5	Friday 7/6	Saturday 7/7
12:00 pm							
1:00 pm							
2:00 pm							
3:00 pm		Passive Dispatch	Passive Dispatch	 Holiday	Passive Dispatch	Passive Dispatch	
4:00 pm							
5:00 pm							
6:00 pm							
7:00 pm							
8:00 pm							
9:00 pm							

Passive and Active Dispatch



Passive and Active Dispatch - Storms



Financial Example – Small Battery System

kW	kWh	Total BESS Cost	Affordable MFH
6	13	\$ 21,000.00	No

Estimate does not include ITC / solar, FCM, or demand management benefits.

Residential Battery System – 6 kW / 13 kWh			
	Standard Rate	Underserved	Low-Income
Upfront Incentive	\$ 2,600.00	\$ 3,900.00	\$ 5,200.00
Upfront Incentive Method	Rate * kWh	Rate * kWh	Rate * kWh
10 Year Nominal PBI Estimate	\$ 6,230.25	\$ 6,230.25	\$ 6,230.25
PBI Estimation Method	Average kW	Average kW	Average kW

Performance-Based Incentive	Maximum DoD	90%	PBI assumes all events are 3 hours
	Participation	90%	
	Summer	Winter	Total
Year 1	\$ 702	\$ 88	\$ 790
Year 2	\$ 702	\$ 88	\$ 790
Year 3	\$ 702	\$ 88	\$ 790
Year 4	\$ 702	\$ 88	\$ 790
Year 5	\$ 702	\$ 88	\$ 790
Year 6	\$ 404	\$ 53	\$ 456
Year 7	\$ 404	\$ 53	\$ 456
Year 8	\$ 404	\$ 53	\$ 456
Year 9	\$ 404	\$ 53	\$ 456
Year 10	\$ 404	\$ 53	\$ 456

Estimated Total Nominal PBI	\$ 6,230
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*Estimate is for a **standalone** battery system purchase (not paired with PV). Federal ITC does not apply to standalone systems. Total cost is estimated. Assumes full participation of 100% of battery capacity in every event.

Financial Example – Medium Battery System

kW	kWh	Total BESS Cost	Affordable MFH
12	26	\$ 35,000.00	No

Estimate does not include ITC / solar, FCM, or demand management benefits.

Residential Battery System – 12 kW / 26 kWh			
	Standard Rate	Underserved	Low-Income
Upfront Incentive	\$ 5,200.00	\$ 7,500.00	\$ 7,500.00
Upfront Incentive Method	Rate * kWh	\$7,500 cap	\$7,500 cap
10 Year Nominal PBI Estimate	\$ 12,460.50	\$ 12,460.50	\$ 12,460.50
PBI Estimation Method	Average kW	Average kW	Average kW

Performance-Based Incentive	Maximum DoD	90%	<i>PBI assumes all events are 3 hours</i>
	Participation	90%	
	Summer	Winter	Total
Year 1	\$ 1,404	\$ 176	\$ 1,580
Year 2	\$ 1,404	\$ 176	\$ 1,580
Year 3	\$ 1,404	\$ 176	\$ 1,580
Year 4	\$ 1,404	\$ 176	\$ 1,580
Year 5	\$ 1,404	\$ 176	\$ 1,580
Year 6	\$ 807	\$ 105	\$ 913
Year 7	\$ 807	\$ 105	\$ 913
Year 8	\$ 807	\$ 105	\$ 913
Year 9	\$ 807	\$ 105	\$ 913
Year 10	\$ 807	\$ 105	\$ 913

Estimated Total Nominal PBI	\$ 12,461
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*Estimate is for a **standalone** battery system purchase (not paired with PV). Federal ITC does not apply to standalone systems. Total cost is estimated. Assumes full participation of 100% of battery capacity in every event.

Get Started



How to Participate

- www.energystorageCT.com
- Find a Contractor or talk to your solar contractor
- Do your research – think about essential devices
- Get a HES Audit



Eligible Residential Technologies

https://energystoragect.com/submitted_ess_system_status_list/

- Generac PWRcell
- SunPower SunVault
- Enphase Encharge
- Electriq Power
- KOHLER
- EndurEnergy Systems
- HomeGrid Battery + Sol-Ark Inverter

Questions?



Appendix



Energy Storage Solutions Resources

- www.ctgreenbank.com/energy-storage-solutions/
- www.uinet.com/EnergyStorageSolutions
- www.eversource.com/
- www.energizeCT.com

Interested home & business owners should complete the Energy Storage Solutions interest forms to stay in the loop

Homeowners interested in learning more should complete the form below.

Name (Required)

First Last

Address (Required)

Street Address

Address Line 2

City State

ZIP Code

Program Design

- Customer Classes:
 - Residential customer classes: Standard, Underserved, and Low-Income Households
 - Commercial/industrial customer classes: Small, Medium, Large
- Systems installed through this program will receive two incentives:

Program Element	Design Item	Summer	Winter
Upfront Incentive (Passive Dispatch)	Events per Season	All non-holiday weekdays (~60)	N/A
	Months	June, July & August	N/A
	Event Duration	5 Hours	N/A
	Anticipated Dispatch Window	3 PM to 8 PM	N/A
Performance-Based Incentive (Active Dispatch)	Events per Season	30 to 60	1 to 5
	Months	June through September	November through March
	Event Duration	1 - 3 hours	1 - 3 hours
	Anticipated Dispatch Window	Noon to 9 PM (All Days)	Noon to 9 PM (All Days)

What Can Battery Storage Power?

Device	Load (W)	Service from Battery
Refrigerator	400	33 hours 45 minutes
Central air conditioning	3300	4 hours 5 minutes
Central heating/Gas furnace blower fan	600	22 hours 30 minutes
Clothes washer	700	19 hours 17 minutes
Desktop computer with monitor	200	67 hours 30 minutes
EV - Level 1 Charging	1400	9 hours 39 minutes
Fans	100	135 hours 0 minutes
Chest Freezer	500	27 hours 0 minutes
Electric water heater	4500	3 hours 0 minutes
Internet	10	1350 hours 0 minutes
Laptop	100	135 hours 0 minutes
Incandescent Light Bulb	100	135 hours 0 minutes
Standard LED Light	10	1350 hours 0 minutes
Microwave	1300	10 hours 23 minutes

*Assuming one 5 kW, 13.5 kWh battery system. Source: Guidehouse, 2021

What Can Battery Storage Power?

Device	Load (W)	Service from Battery
Window AC	1400	9 hours 39 minutes
Cell phone charger	10	1350 hours 0 minutes
Electric Oven	1800	7 hours 30 minutes
Electric Stove	1800	7 hours 30 minutes
Sump pump	700	19 hours 17 minutes
TV, LCD	100	135 hours 0 minutes
Cable box	100	135 hours 0 minutes
Video game console	100	135 hours 0 minutes
Water pump	700	19 hours 17 minutes
Clothes dryer	3600	3 hours 45 minutes
Ductless minisplit	600	22 hours 30 minutes
Ground source heat pump	2900	4 hours 39 minutes
Heat pump water heater	4500	3 hours 0 minutes
Well pump	700	19 hours 17 minutes

*Assuming one 5 kW, 13.5 kWh battery system. Source: Guidehouse, 2021