

Massachusetts K-12 Schools Embracing Sustainability

INFLATION REDUCTION ACT
OPPORTUNITIES FOR COMMUNITIES

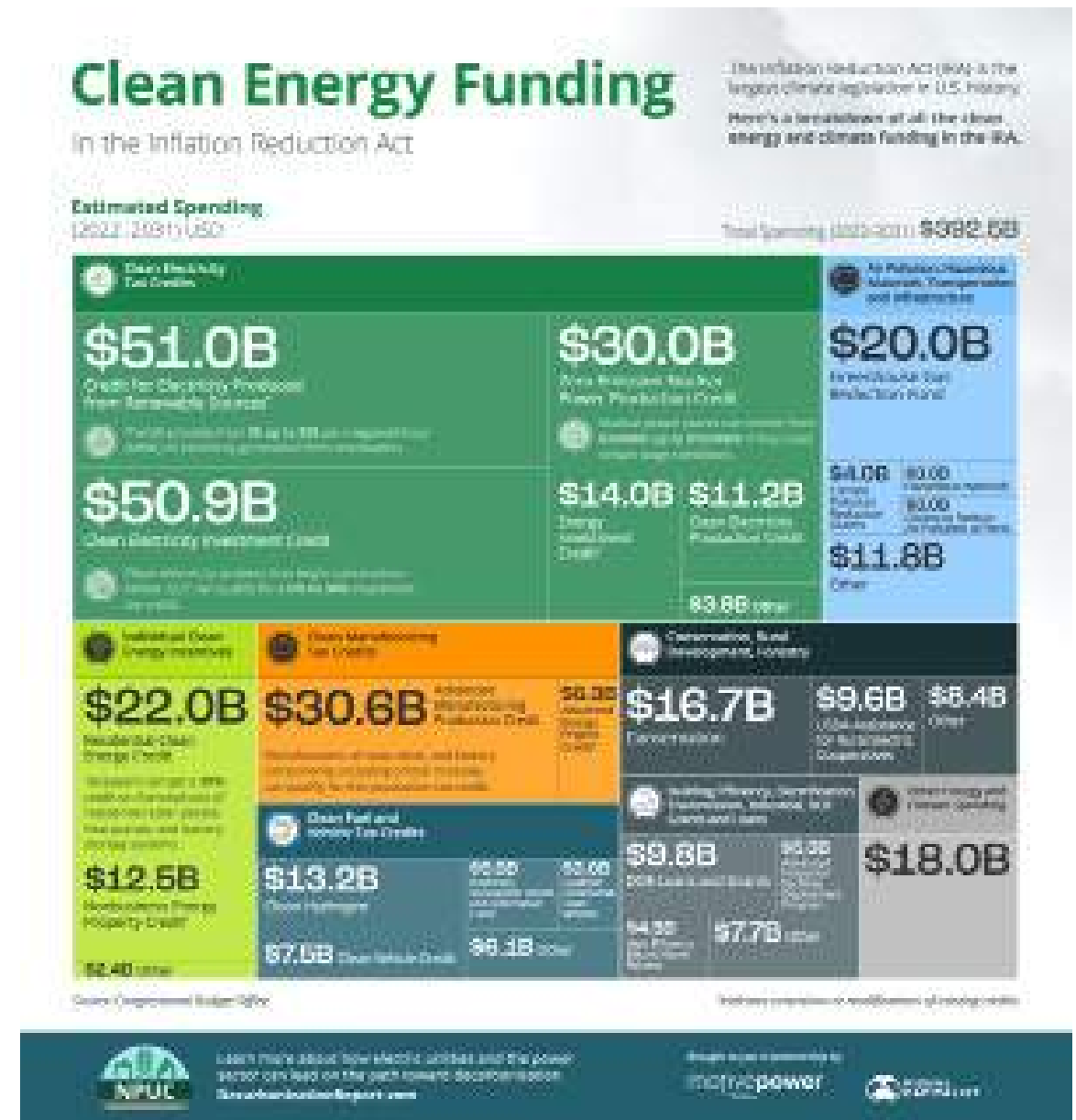
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Inflation Reduction Act (IRA)

Or...IR-Yay!

- Plan ahead - language will need to be in the bid documents to be certain to meet the requirements!
- Apply through IRS for tax credits
- Credits are for certain technologies
- Represents a great sustainable and financial opportunity



Inflation Reduction Act (IRA)

Expansion of tax credit that existed prior to 2022

- Projects started prior to January 29, 2023 & completed in 2023 are grandfathered in for bonus percentages
- Some technologies will not be supported after 2024 - e.g. electrochromic glass, combined-heat and power
- Prefile for direct payment prior to filing taxes through IRS portal: https://www.whitehouse.gov/cleanenergy/directpay/?utm_source=www.cleanenergy.gov
- Don't prefile until you are ready - the project needs to be put into service.



(Credit: Jade Chung-Lee/Shutterstock/TurboTax/H&R Block/TaxSlayer/IRS/Pixlr)



https://www.whitehouse.gov/cleanenergy/directpay/?utm_source=www.cleanenergy.gov

Inflation Reduction Act (IRA)

What is covered? Sections 48, 48E, & 179

- “**Project**” - the system component - not the whole building project.
- 48 and 48E are similar but some supported technologies drop after 2024
 - Microturbines
 - CHP
 - Biogas
 - **Electrochromic Glass**
- Bristol Plymouth Regional Technical School - purchase in 2024; can be installed later



<https://www.sageglass.com/smart-windows/sageglass-classic>

Inflation Reduction Act (IRA)

Technologies that matter most for MA school projects

- Ground-source heat pumps (through 2035) - includes:
 - Well field
 - All HVAC components connected to the geothermal system including BMS, ductwork, air diffusers, etc.
- HVAC components **not** included:
 - Air source heat pumps (incl. VRF)
 - All-electric components of HVAC system
- Domestic hot water produced by heat pumps tied to ground-source system might be.



Inflation Reduction Act (IRA)

Technologies that matter most for MA school projects

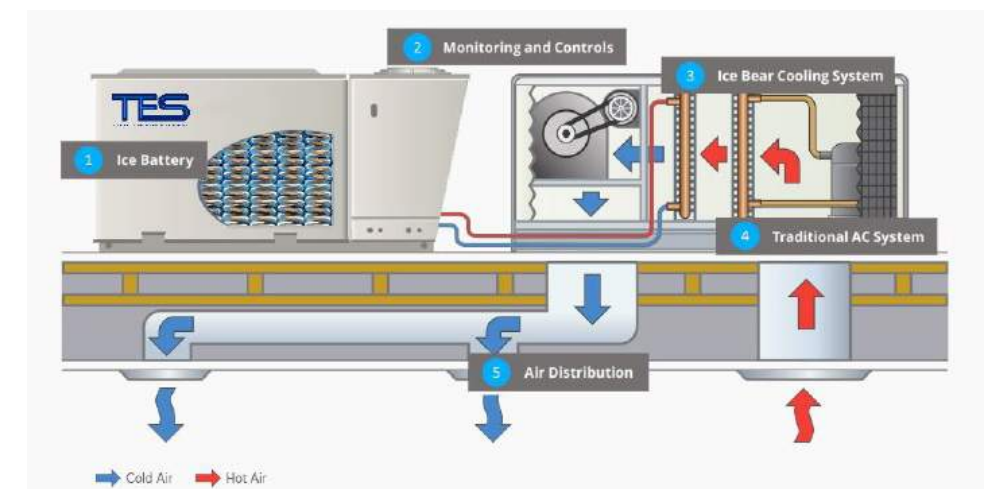
- Photovoltaics (Solar electric systems)
 - PV panels, inverters, etc.
 - Structure supporting them (canopies) - steel including rebar in concrete needs to be 100% made in the United States to be included in the tax credit.
- EV Charging Stations (Alternative Fuel Refueling Property Credit, Section 30C)
 - Must be in non-urban area, or
 - Must be in a low-income community if located in an urban area



Inflation Reduction Act (IRA)

Technologies that also matter for MA school projects

- Standalone energy storage systems (batteries)
- Thermal energy storage - tied to heating and cooling a building
- Small wind turbines
- Fuel cells (double-check this will continue past 2024)



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Potential value of tax credits (theoretical)

- Base percentage: 6%
- Potentially 3 adders: 14%
 - Domestic content: 2%
 - Energy community: 2%
 - Low income: 10%
- **Potential Maximum without bonus: 20%**
 - Need base bonus to boost adders
- 5 times bonus: 30%
 - Begin construction prior to January 29, 2023; or,
 - Projects with nameplate capacity of less than 1 MW AC
 - Meet prevailing wage & apprenticeship requirements
- Potentially 3 adders: 40% (w/ bonus boost)
 - Domestic content: 10%
 - Energy community: 10%
 - Low income: 20%
- **Potential Maximum with bonus: 70%**

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More likely tax credit value

- **5 times bonus: 30%**
 - Meet prevailing wage & apprenticeship requirements
 - Massachusetts does well regarding prevailing wage.
 - Apprenticeship has to be “registered apprenticeship” programs.
- **Likely 1 adder - Domestic Content: 10% (w/ bonus)**
 - 40% of the value of material from manufacturer
 - Clarifying with IRS - SOV rather than manufacturers’ revealing pricing information to each contractor
 - Structural steel (e.g. PV canopies) has to be 100% US made steel - includes rebar.
- **Other adders:**
 - Energy community: 10% - small area near Springfield and along Northshore coast (former Salem coal plant)
 - Low income: 10%/20% - solar, wind, and batteries (only w/ wind or PV)
 - 20% for residential or economic benefit project

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More likely tax credit value

- **Maximum with bonus: 40%**
- But there could be less: No more than a 15% reduction if funded with tax exempt bonds
- IRS considers grants - which will include MSBA grants when calculating amount that can be used for the tax credit. If portion funded by municipality is large enough, the grant likely won't be an issue.
- **Conservative maximum with bonus & with reductions: 34%**

Inflation Reduction Act (IRA)

Elementary school example with ground-source heat pumps

- **Conservative maximum with bonus & with reductions: 34%**
 - HVAC system value (all-in): \$4,837,169
((\$5,037,169 - \$200,000 unrelated items))
 - Site related work for well field: \$1,291,047
 - Electrical power to HVAC equip: \$ 84,000
((\$92,000 - \$8,000 unrelated items))
 - Total ground-source heat pump system cost: \$6,212,216
 - **Total tax credit: \$2,112,153**



Inflation Reduction Act (IRA)

Elementary school example with PV

- Can be Investment Tax Credit (ITC) or Production Tax Credit - file once (ITC) or annually (PTC)
- **Conservative ITC: 25.5%**
 - Includes prevailing wage/apprenticeship bonus
 - Not enough domestic content for adder
 - Roof-mounted PV system \$877,007
 - **Total tax credit:** **\$223,637**
- PTC makes more sense for entities utilizing depreciation. DOE example ITC = \$340k vs PTC = \$474k over 10 years.



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
ITC	ITC	\$300,000									
	Bonus depreciation	\$340,000									
	5-year MACRS	\$102,000	\$163,200	\$97,920	\$58,752	\$58,752	\$29,376				
	Net impact of depreciation deductions	\$92,820	\$34,272	\$20,563	\$12,338	\$12,338	\$6,169				
	Total Tax Benefits	\$392,820	\$34,272	\$20,563	\$12,338	\$12,338	\$6,169	\$0	\$0	\$0	\$0
PTC	Electricity generation (kWh) ^a	876,000	871,620	867,262	862,926	858,611	854,318	850,046	845,796	841,567	837,359
	PTC ^b	\$24,090	\$24,569	\$25,057	\$25,555	\$26,063	\$26,581	\$27,109	\$27,648	\$28,198	\$28,758
	Bonus depreciation	\$400,000									
	5-year MACRS	\$120,000	\$192,000	\$115,200	\$69,120	\$69,120	\$34,560				
	Net impact of depreciation deductions	\$109,200	\$40,320	\$24,192	\$14,515	\$14,515	\$7,258				
Total Tax Benefits	\$133,290	\$64,889	\$49,249	\$40,070	\$40,578	\$33,839	\$27,109	\$27,648	\$28,198	\$28,758	

^a Assumes PV system performance degrades 0.5% per year.

^b Assumes the PTC increases at an inflation rate of 2.5% per year.

Inflation Reduction Act (IRA)

Elementary school example with MA Save Rebates

- Construction incentive - low EUI target @ \$2/sf:
 - $80,149 \times 2 = \$160,298$
- Heat pump adder @ \$4,500/ton
 - $196 \times 4,500 = \$882,000$
- Post occupancy incentive @ \$1.50/sf:
 - $80,149 \times 1.5 = \$120,223$
- **Potential combined total: \$3,498,311**
 - Potential rebates: \$1,162,521
 - Potential IRA tax credits ground-source heat pumps and PV: \$2,335,790



Q & A

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