lighting design lab

The Inflation Reduction Act: One Year Later

Presented by
Jacob Goldman, Energy Tax Savers

October 19, 2023

Seattle City Light

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Webinar Procedures

- All attendees are on mute
- Submit questions in Questions tab at any time
- The webinar is being recorded
- Please take the after-class survey!

Click this arrow if you don't see the GoTo toolbar. It might be on your other screen, if you have 2 monitors!

A couple different ways it might look to ask questions

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Upcoming Events

Course	Day	Time
Electrification and Energy Management Systems	Thu Nov 09	10:00am-noon
Lighting Retrofits and Audits	November TK!	

More to come in November & December!
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Inflation Reduction Act (IRA)

JACOB GOLDMAN, VP, ENERGY TAX SAVERS, INC.

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- IRA enhanced Alternative Energy Credits(§48 ITC)
- §48E starts in 2025
- 5-yr MACRS and Bonus Depreciation
- Time Value of Money
- IRA Enhanced §179D
- Prevailing Wage & Apprenticeship

jacob.goldman@energytaxsavers.com

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Energy Tax Incentives in the IRA

SEC. 13101. EXTENSION AND MODIFICATION OF CREDIT FOR ELECTRICITY PRODUCED FROM CERTAIN RENEWABLE RESOURCES – Section 45	SEC. 13401. CLEAN VEHICLE CREDIT – Section 30D
SEC. 13102. EXTENSION AND MODIFICATION OF ENERGY CREDIT - Section 48	SEC. 13402. CREDIT FOR PREVIOUSLY-OWNED CLEAN VEHICLES – Section 25E
SEC. 13103. INCREASE IN ENERGY CREDIT FOR SOLAR AND WIND FACILITIES PLACED IN SERVICE IN CONNECTION WITH LOW-INCOME COMMUNITIES – Section 48	SEC. 13403. QUALIFIED COMMERCIAL CLEAN VEHICLES – Section 45W
SEC. 13104. EXTENSION AND MODIFICATION OF CREDIT FOR CARBON OXIDE SEQUESTRATION – Section 45Q	SEC. 13404. ALTERNATIVE FUEL REFUELING PROPERTY CREDIT – Section 30C
SEC. 13105. ZERO-EMISSION NUCLEAR POWER PRODUCTION CREDIT – Section 45U	SEC. 13501. EXTENSION OF THE ADVANCED ENERGY PROJECT CREDIT – Section 48C
SEC. 13201. EXTENSION OF INCENTIVES FOR BIODIESEL, RENEWABLE DIESEL AND ALTERNATIVE FUELS- Section 40A	SEC. 13502. ADVANCED MANUFACTURING PRODUCTION CREDIT – Section 45X
SEC. 13202. EXTENSION OF SECOND GENERATION BIOFUEL INCENTIVES – Section 40	SEC. 13701. CLEAN ELECTRICITY PRODUCTION CREDIT – Section 45Y
SEC. 13203. SUSTAINABLE AVIATION FUEL CREDIT – Section 40B	SEC. 13702. CLEAN ELECTRICITY INVESTMENT CREDIT – Section 48E
SEC. 13204. CLEAN HYDROGEN – Section 45V	SEC. 13703. COST RECOVERY FOR QUALIFIED FACILITIES, QUALIFIED PROPERTY, AND ENERGY STORAGE TECHNOLOGY - Section 168(e)(3)(B)
SEC. 13301. EXTENSION, INCREASE, AND MODIFICATIONS OF NONBUSINESS ENERGY PROPERTY CREDIT - Section 25C	SEC. 13704. CLEAN FUEL PRODUCTION CREDIT – Section 45Z
SEC. 13302. RESIDENTIAL CLEAN ENERGY CREDIT – Section 25D	SEC. 13801. ELECTIVE PAYMENT FOR ENERGY PROPERTY AND ELECTRICITY PRODUCED FROM CERTAIN RENEWABLE RESOURCES, ETC –
SEC. 13303. ENERGY EFFICIENT COMMERCIAL BUILDINGS DEDUCTION - Section 179D	SEC. 6417. ELECTIVE PAYMENT OF APPLICABLE CREDITS.
SEC. 13304. EXTENSION, INCREASE, AND MODIFICATIONS OF NEW ENERGY EFFICIENT HOME CREDIT – Section 45L	SEC. 6418. TRANSFER OF CERTAIN CREDITS.

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Alternative Energy Credits-§48, ITC (2022-…)

Technology	Base Credit	5x Bonus Credit (2022)	Domestic Content (2023)	Energy Community (2023)	Low Income (2023)	Range
Solar Technologies (2022)	6%	30%	2%/10%	2%/10%	10%/20%	6%-70%
Small Wind (2022)	6%	30%	2%/10%	2%/10%	10%/20%	6%-70%
Ground Source Heat Pump (2022)	6%	30%	2%/10%	2%/10%	0%	6%-50%
Microturbine	2%	10%	2%/10%	2%/10%	0%	2%-30%
CHP (2022)	6%	30%	2%/10%	2%/10%	0%	6%-50%
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Interconnection Property (2023)	6%	30%	2%/10%	2%/10%	0%	6%-50%
Electrochromic Glass (2023)	6%	30%	2%/10%	2%/10%	0%	6%-50%

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Direct Pay

Elective Payment of Applicable Credits-§6417 (2023-…)(Prop. Reg. §1.6417)

- Some Gov't and Not-for-Profit can benefit from the credit
  - "(i) any organization exempt from the tax imposed by subtitle A,
  - "(ii) any State or political subdivision thereof, (**NOT FEDERAL PROJECTS**)
  - "(iii) the Tennessee Valley Authority,
  - "(iv) an Indian tribal government (as defined in § 30D(g)(9)),
  - "(v) any Alaska Native Corporation (as defined in section 3 of the Alaska Native Claims Settlement Act (43 U.S.C. 1602(m)), or
  - "(vi) any corporation operating on a cooperative basis which is engaged in furnishing electric energy to persons in rural areas.
- Pre-registration REQUIRED – Done after placed in service (Prop. Reg. §1.6417-5T)
- **3 Ways to avoid 10% Haircut** (§48(a)(13) → (§45(b)(10))
  1. <1MW or
  2. Meets Domestic Content or
  3. Start of Construction prior to 1/1/24
  - Otherwise, 90% (Some exceptions exist)
- **Up to a 15% haircut for projects paid for with Tax-Exempt Bonds** §48(a)(4) → §45(b)(3)

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Credit Transfer

- **Tax credit from commercial clients can be Transferred to other Commercial Clients-§6418 (2023-…)(Prop. Reg. §1.6418)**
  - If credit receiver does not have tax capacity, they can sell the credit to a taxpayer that does
  - This does **NOT** allow Gov't Buildings/Not-for-Profits to sell the credit
  - Pre-registration REQUIRED – Done after placed in service (Prop. Reg. §1.6418-5T)
  - Markets will be created

Atheva crux Basis

GREENPRINT CAPITAL BLUE PLANET CREDITS

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Alternative Energy Credits-Bonus

- **5 Times Bonus (6% x 5 = 30%) (2022-…)**
  - Project with a Net Output of less than 1 MW (284 Tons?) or
  - Meets the Prevailing Wage and Apprenticeship (P+A) Requirements (IRS Notice 2022-61) or
  - Projects that begin Construction prior to January 29, 2023
- **Domestic Content Bonus (Qualified Facility) (2023-…)** (IRS Notice 2023-38)
  - 100% of the cost of Structural steel and iron and
  - 40% of manufactured product (49 CFR § 661.5) is produced in USA
    - Calculated on the entire ITC Qualifying project
    - Calculated on **Manufacturer's Cost**(Will this be difficult?)
  - 2% Bonus (6% + 2% = 8%)
  - If project meets 5x Bonus requirements, 10% Bonus (30% + 10% = 40%)

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Alternative Energy Credits-Bonus

- **Energy Community Bonus**(IRS Notice 2023-29)
  - Energy Community
    - Census Tract or adjoining tract with a Coal Mine closed since 2000 or
    - Census Tract or adjoining tract with Coal Fired plant closed since 2010 or
    - Brownfield Site (42 U.S.C. 9601(39)) (https://cimc.epa.gov/srds/cimc/FP=cimc.map:::71:P71_WELSEARCH:NULL|Cleanup|||||true|false|false|false|false|false|false|||sites|Y) or
    - Area with 0.17% direct employment related to Coal, Oil or NG and higher then avg unemployment(**Based on Start of Construction**) or
    - ~~Area with 25% tax revenue related to Coal, Oil or NG and higher then avg unemployment~~
  - 2% Bonus (6% + 2% = 8%)
  - If project meets 5x Bonus requirements, 10% Bonus (30% + 10% = 40% + 10% Domestic = 50%)
  - Official IRS Site: Will be completed in May, partially usable now. Updated every May:
  - https://arcgis.netl.doe.gov/portal/apps/experiencebuilder/experience/?id=a2ce47d4721a477a8701bd0e08495e1d

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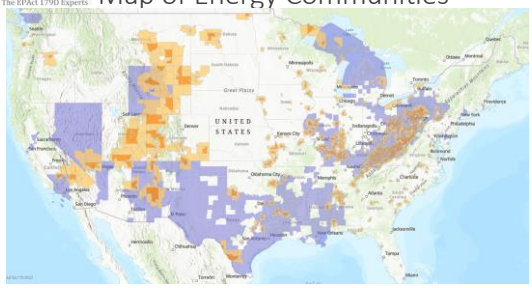
Map of Energy Communities



https://arcgis.netl.doe.gov/portal/apps/experiencebuilder/experience/?id=a2ce47d4721a477a8701bd0e08495e1d

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Alternative Energy Credits-Bonus

- **Low Income (2023 & 2024)(REG–110412–23)(IRS Notice 2023-17)**
  - Solar and Wind
    - Battery Backup if included with
  - Requires Pre-Application
  - 1.8 gigawatts of direct current allocated per year
  - 60 Day Application Window
  - Must be UNDER CONTRACT but **NOT** PLACED IN SERVICE

Category	Annual Allotment	Credit	Application Period
1: Located in a Low-Income Community	490 MW BtM 210MW FtM	10%	After 3rd Qtr
2: Located on Indian Land	200 MW	10%	After 3rd Qtr
3: Qualified Low-Income Residential Building Project	200 MW	20%	3rd Qtr
4: Qualified Low-Income Economic Benefit Project	700 MW	20%	3rd Qtr

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Low Income Bonus (REG–110412–23) (IRS Notice 2023-17)

- **1: Located in a Low-Income Community*(10% credit)**
  - Census Tract Poverty rate >20% or
  - Non-Metro – Census Tract Median Family income <80% of State
  - Metro – Census Tract Median Family income <80% of State or Metro Area
- **2: Located on Indian Land (10% credit)** (25 United States Code 3501(2))
- **3: Qualified Low-Income Residential Building Project (20% credit)**
  - Resi-Rental Participating in Affordable Housing program
    - Covered Housing (34 U.S.C. 12491(a)(3))
    - Ag Dept Housing Asst.(Title V of Housing Act of 1949)
    - Tribal Designated Housing (25 U.S.C. 4103(22))
  - Electricity allocated equitably among the occupants
- **4: Qualified Low-Income Economic Benefit Project (20% credit)**
  - Electricity Produced provided to Households with Income <200% of Poverty Line or
  - Electricity Produced provided to Households with Income <80% of Area Median Income

*https://www.arcgis.com/apps/mapviewer/index.html?webmap=d569d79af021465893797d9d59b6cfff

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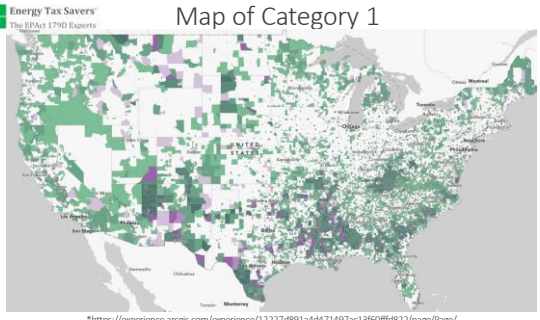
Map of Category 1



*https://experience.arcgis.com/experience/12227d891a4d471497ac13f60fffd822/page/Page/

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Alternative Energy Credits-§48, ITC (2022-…)

Technology	Base Credit	5x Bonus Credit (2022)	Domestic Content (2023)	Energy Community (2023)	Low Income (2023)	Range
Solar Technologies (2022)	6%	30%	2%/10%	2%/10%	10%/20%	6%-70%
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Clean Electricity ITC §48E (2025-…)

Technology	Base Credit	5x Bonus Credit (2022)	Domestic Content (2023)	Energy Community (2023)	Low Income (2023)	Range
Solar Technologies (2022)	6%	30%	2%/10%	2%/10%	10%/20%	6%-70%
Small Wind (2022)	6%	30%	2%/10%	2%/10%	10%/20%	6%-70%
~~Ground Source Heat Pump (2022)~~	Covered by §48 until 1/1/2035				0%	~~6%-50%~~
~~Microturbine~~	~~2%~~	~~10%~~	~~2%/10%~~	~~2%/10%~~	~~0%~~	~~2%-30%~~
~~CHP (2022)~~	~~6%~~	~~30%~~	~~2%/10%~~	~~2%/10%~~	~~0%~~	~~6%-50%~~
Microgrid Controller (2023)	6%	30%	2%/10%	2%/10%	0%	6%-50%
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Ground Source Heat Pump (6% Base Credit)

Typical Qualified Equipment(Upstream of Heat Pump)
- Bore Field
- Heat Pump

At least 75% energy used by equipment must be from ground source (Tax Interpretation (§1.48-9(c)(10)(iv))
- If not, equipment does not qualify as Ground Source Heat Pump Property
- This may include downstream (after heat pump) items:
  - Pipes
  - Ductwork
  - Heat Exchangers
  - Diffusers
- Items that do not use ground source energy do not qualify

Construction must begin before 1/1/35

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Thermal Energy Storage (6% Base Credit)

Property comprising a system

- Directly connected to a heating, ventilation, or air conditioning system
  - This may indicate it is property separate from the HVAC system (maybe only the tanks?)
- Removes heat from, or adds heat to, a storage medium for subsequent use
  - This may indicate chillers feeding a Thermal Storage Tank are eligible (maybe chillers and the tanks?)
- Provides energy for the heating or cooling of the interior of a residential or commercial building
  - NOT for Heating/Cooling things other then a building
- Excludes:
  - Swimming Pools
  - CHP
  - Buildings or its Structural Components
- Construction must begin before 1/1/25 for §48 then continues under §48E

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CHP (6% Base Credit)

CHP

- Uses the same energy source for the simultaneous or sequential generation of electrical power, mechanical shaft power, or both, in combination with the generation of steam or other forms of useful thermal energy (including heating and cooling applications)
- At least 20 percent of its total useful energy in the form of thermal energy which is not used to produce electrical or mechanical power (or combination thereof)
- At least 20 percent of its total useful energy in the form of electrical or mechanical power (or combination thereof)
- Energy efficiency percentage of which exceeds 60 percent
- Construction must begin before 1/1/25
- Reduced Credits for projects larger then 15MW or 20Khp or Combo
  - Multiplier to reduce credit 15MW/(Project Capacity)
- No Credit for projects larger then 50MW or 67Khp or Combo
- Does not include property used to transport the energy source to the facility or to distribute energy produced by the facility

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5Yrs MACRS & 100% Bonus Depreciation

Energy Property is 5 yr MACRS (§168(e)(3)(B)(vi)(I))

- Only reduce basis by 50% of the tax credit

80% Bonus Depreciation

- Placed in service in 2023
  - Phases down to 60% in 2024, 40% in 2025, 20% in 2026 and 0% after
  - Congress <u>may</u> increase back to 100%
- Tax Depreciation Schedules less than 20yrs
  - Examples
    - Energy property (Geothermal, Solar, Wind, etc.) §48
    - Outdoor Lighting not affixed to the building
    - Qualified improvement property (QIP) (§168(e)(6))
      - Nonstructural interior improvements to nonresidential real property pursuant to a lease
      - Building must be at least 3 years old
      - Original use must commence with taxpayer
      - Interior Lighting Replacements

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Time Value of Money ($39,000, 35% tax rate)

	Year										
	1	2	3	4	5	6	...	36	37	38	39
39yr Depreciation (Deduction)	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000		$1,000	$1,000	$1,000	$1,000
39yr After Tax (35%)	$350	$350	$350	$350	$350	$350		$350	$350	$350	$350
39yr NPV (4% discount rate)	**$6,854**										
39yr NPV (8% discount rate)	**$4,158**										
5yr Depreciation (Deduction)	$7,800	$12,480	$7,488	$4,493	$4,493	$2,246					
5yr After Tax (35%)	$2,730	$4,368	$2,621	$1,573	$1,573	$786					
5yr NPV (4% discount rate)	**$12,252**										
Immediate Deduction	$39,000										
Immediate After Tax (35%)	**$13,650**										

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EPAct 179D Overview

Tax Deduction for Lighting, HVAC, Building Envelope Projects

- Deduction level depends on building energy efficiency and project scope
- Both new construction and retrofit projects can qualify
- For commercial buildings, projects since 1/1/2006 are eligible

EPAct 179D for Design Firms

- Design firms include architects, engineers, ESCOs, design & build firms, systems designers
- Designers can take the deduction for tax exempt buildings
- Designers can take 179D deduction for projects completed in prior 3 years

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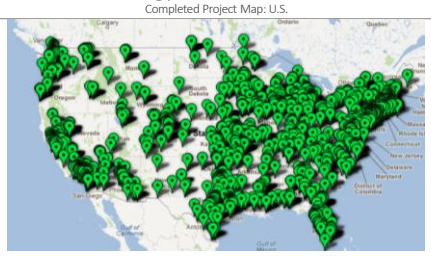
Energy Tax Savers, Inc

Completed Project Map: U.S.



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EPAct 179D Updates (Inflation Reduction Act of 2022)

Changes go into effect on 1/1/2023

Includes buildings owned by not-for-profits, instrumentalities, and Indian Tribal Governments
- Deduction can be taken by designers of these buildings

New deduction levels to replace current levels
- $2.50-$5.00 per square foot for projects meeting prevailing wage and apprenticeship labor requirements
- $0.50-$1.00 per square foot if prevailing wage requirements not met
- Overall building energy efficiency must be 25%-50% more efficient than standard to get the above levels (sliding scale)
- No more individual system deductions (lighting/HVAC/envelope) → entire building must qualify

Two Methods for Taking EPAct 179D Deduction
- Energy model the entire building (building energy usage compared to ASHRAE 90.1)
- RETROFITS: can elect 'energy use intensity' reduction study (building energy usage compared to prior state of building)

Deduction Reset
- Commercial buildings – every 3 years
- Government & Tax Exempt buildings – every 4 years

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Increased 179D Deduction Levels Effective 1/1/2023

Building Square Footage	Minimum Deduction Level ($2.50 Per Square Foot)	Maximum Deduction Level ($5.00 Per Square Foot)
50,000	$ 125,000	$ 250,000
100,000	$ 250,000	$ 500,000
250,000	$ 625,000	$ 1,250,000
500,000	$ 1,250,000	$ 2,500,000
1,000,000	$ 2,500,000	$ 5,000,000

*For projects meeting prevailing wage and apprenticeship standards

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EPAct 179D Deduction for Designers of Tax-Exempt Entities

Government Buildings:
- Federal
  - Offices, military bases, courthouses, post office, labs
- State
  - Offices, transportation facilities, state universities, courthouses
- County, City, Town, Village etc.
  - Offices, K-12 public schools, town halls, police, fire, libraries, municipal parking garages

Not-for-Profits
- Hospitals, religious institutions, private schools and universities, etc.

Tribal Government
- Police/Fire, Community Centers, Casinos, etc.

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EPAct 179D Deduction for Commercial Buildings

- **EPAct 179D is tax deduction in-lieu of depreciation**
  - Must have depreciable tax basis in building's lighting/HVAC/envelope to utilize
- **Commercial Building Projects Completed 1/1/2006-Present Eligible**
  - Commercial building owners can take prior-year missed deductions without amending
- **Commercial New Construction and All Residential (>3 stories) can benefit**
- **Most Commercial Nonresidential Building Retrofits Don't Need 179D**
  - TCJA of 2017 allows for immediate tax deduction/write-off of building improvements
  - Combination of Qualified Improvement property (QIP), Bonus, Repair Regs & section 179
  - Residential buildings (ie., apartment buildings) do not get these TCJA benefits
  - New construction commercial buildings do not get the TCJA benefits

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Methods to Qualify for EPAct 179D in 2023 and Beyond

- **Whole Building Energy Simulation Model**
  - Model must be done using IRS approved software
  - Must look at lighting, HVAC and building envelope specs combined
  - Overall building energy usage must be at least 25% more efficient than ASHRAE standard (50% more efficient to get maximum deduction)
- **RETROFIT Alternative Method**
  - Retrofits can alternatively qualify via Energy Use Intensity (EUI) study
  - EUI study using Portfolio Manager – comparison of pre and post project energy usage
  - No energy simulation model and no comparison to ASHRAE standard required
  - 25%+ improvement from prior state of building required to start qualifying
  - EUI method results in delayed tax deduction
- **No More Individual Systems Deductions Allowed**
  - Historically – Lighting, HVAC, Envelope were able to qualify individually or altogether
  - In 2023, individual systems can no longer qualify on its own

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How to Monetize the Benefit

Two things need to occur for a company to monetize an EPAct 179D benefit:

1. Building project in an eligible year (2006 - present) related to lighting, HVAC, and/or envelope, such as:
   - Lighting installation
   - HVAC installation
   - Roof installation
   - Window installation
   - Lighting or HVAC controls installation
2. The building needs to meet the energy efficiency targets
   - ASHRAE 2001 standard for 2006-2015 completed projects
   - ASHRAE 2007 standard for 2016-2026 completed projects
   - ASHRAE 2019 for most projects completed 2027+
   - For RETROFITS Only 25-50% EUI reduction

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What Tends to Qualify on the HVAC Side?

1. **Ground Source Heat Pumps**
2. High Efficiency Air Source Heat Pumps
3. **Thermal Storage**
4. High Efficiency VRF units in Rental Apartments/Dorms/Hotels
5. Centralized HVAC in Rental Apartments/Dorms/Hotels
6. Energy Recovery Ventilation
7. Demand Control Ventilation
8. VFD's on all major Motors and Compressors
9. Chillers in buildings < 150,000 sq ft
10. Direct fired heaters in non AC Industrial Spaces
11. Industrial Space >25,000sq ft with Constant Volume Package unit
12. VAV (variable air volume devices) in buildings <25,000 sq ft
13. Chilled Beam
14. Magnetic Bearing Chillers
15. Gas fired chillers combined with electric chillers to peak shave
16. Coolorado in dry climates
17. **Combined Heat and Power**

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Data Required for 2023 Projects

- **Whole Building Energy Simulation Modeling Method**
  - Any COMcheck documents, if available
  - Building plans (architectural, electrical, mechanical, plumbing) – even if outdated
  - Listing of building's current lighting (lamp counts and watts), if not shown on plans
  - Listing of building's mechanical equipment (make, model #), if not shown on plans
  - Description of building envelope, if not shown on plans
    - Window to wall ratio and what type of windows
    - U-value of windows and R-value of walls and roof
- **RETROFIT Alternative Method**
  - Energy bills for the 24 months pre-project
  - Energy bills for the 12 months post completion
  - Energy bills for the construction period

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Where 179D Works

- Government & Tax-Exempt Buildings(New Construction & Retrofit)
  - Designer gets the 179D benefit
- Residential (>3 stories) (New Construction & Retrofit)
- Commercial New Construction Only

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Prevailing Wage Requirement For Larger 179D Deduction Level ($2.50-5.00)

- **Prevailing wages can be found at www.sam.gov**
- **Wage Determination for Unlisted Categories, IRAprevailingwage@dol.gov**
  - the type of facility,
  - facility location,
  - proposed labor classifications,
  - proposed prevailing wage rates,
  - job descriptions and duties, and
  - any rationale for the proposed classifications
- **Records required (Taxpayer's employees, contractors and subcontractors)**
  - identifying the applicable wage determination,
  - the laborers and mechanics who performed construction work on the facility,
  - the classifications of work they performed,
  - Apprentice/Journeyworker
  - Hours worked in each classification,
  - And the wage rates paid for the work and fringe benefits.

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Apprenticeship Requirement For Larger 179D Deduction Level ($2.50-5.00)

Projects Started:	Apprentices make up:
Before 1/29/2023	Exempt from Requirement
In 2023 1/29/23 and later	12.5% of Total Labor Hours
After 12/31/2023	15% of Total Labor Hours

- If a project has 4 or more workers, at least 1 is required to be an Apprentice
- Apprentice-to-Journeyworker ratio must be met DAILY
- Apprentice must be part of a registered apprenticeship program (3131(e)(3)(B))
- Good Faith Effort Exception
  - The taxpayer requests qualified apprentices from a registered apprenticeship program in accordance with usual and customary business practices for registered apprenticeship programs in a particular industry.
  - The taxpayer must maintain sufficient books and records establishing the taxpayer's request of qualified apprentices from a registered apprenticeship program and the program's denial of such request or non-response to such request
  - Must try every 120 days

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About Energy Tax Savers?

First EPAct 179D service provider (founded 2005)

Completed more EPAct projects than any other firm (16,000+)

Diverse background of firm professionals
- Attorney, CPA, MBA, LEED AP, Enrolled Agent, Big4 Accounting Experience

Advisors to DOE, NEMA and NRDC for EPAct 179D extension and standards

Over 150 published articles in various publications
- *Corporate Business Taxation Monthly, Building Operating Management, IMARK Magazine, Retrofit Magazine, Parking Professional*

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The EPAct 179D Experts

Energy Tax Savers, Inc.

Jacob Goldman, LEED AP
Vice President
Energy Tax Savers

33 Queens Street, Suite 300
Syosset, NY 11791
Phone: 516.364.2630
Fax: 631.240.5165

jacob.goldman@energytaxsavers.com

AEE Recorded Webinar
https://www.youtube.com/watch?v=lXrQh20ks8M

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  - Advanced rooftop controls
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- Project Development Incentive – new!

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