



# Delivering a clean energy future through incentives

Ohio Energy Savings and Management Conference

**February 28, 2023**



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## Today's presenter

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### **Paul Naumoff**

Principal, Ernst & Young LLP  
EY Global Sustainability Tax Co-Leader

# Agenda

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## Global and US energy and climate developments

- ▶ Global activity/policy development
- ▶ Business and corporate policy drivers
- ▶ US legislative developments

## Business stakeholders driving a clean energy transition

## Overview of the Inflation Reduction Act (IRA), Infrastructure Investment for Jobs Act (IIJA), CHIPS and Science Act (CHIPS) and other major sustainability provisions

## Executing energy policy via business investment

# Objectives

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- ▶ Share the history and current global/US carrots and sticks to drive energy transition
- ▶ Identify the stakeholders where business and government meet
- ▶ Share one view of the corporate response to sustainability matters
- ▶ Details and implications of IIJA, IRA and CHIPS
- ▶ Takeaways for action

# Global and US energy and climate developments

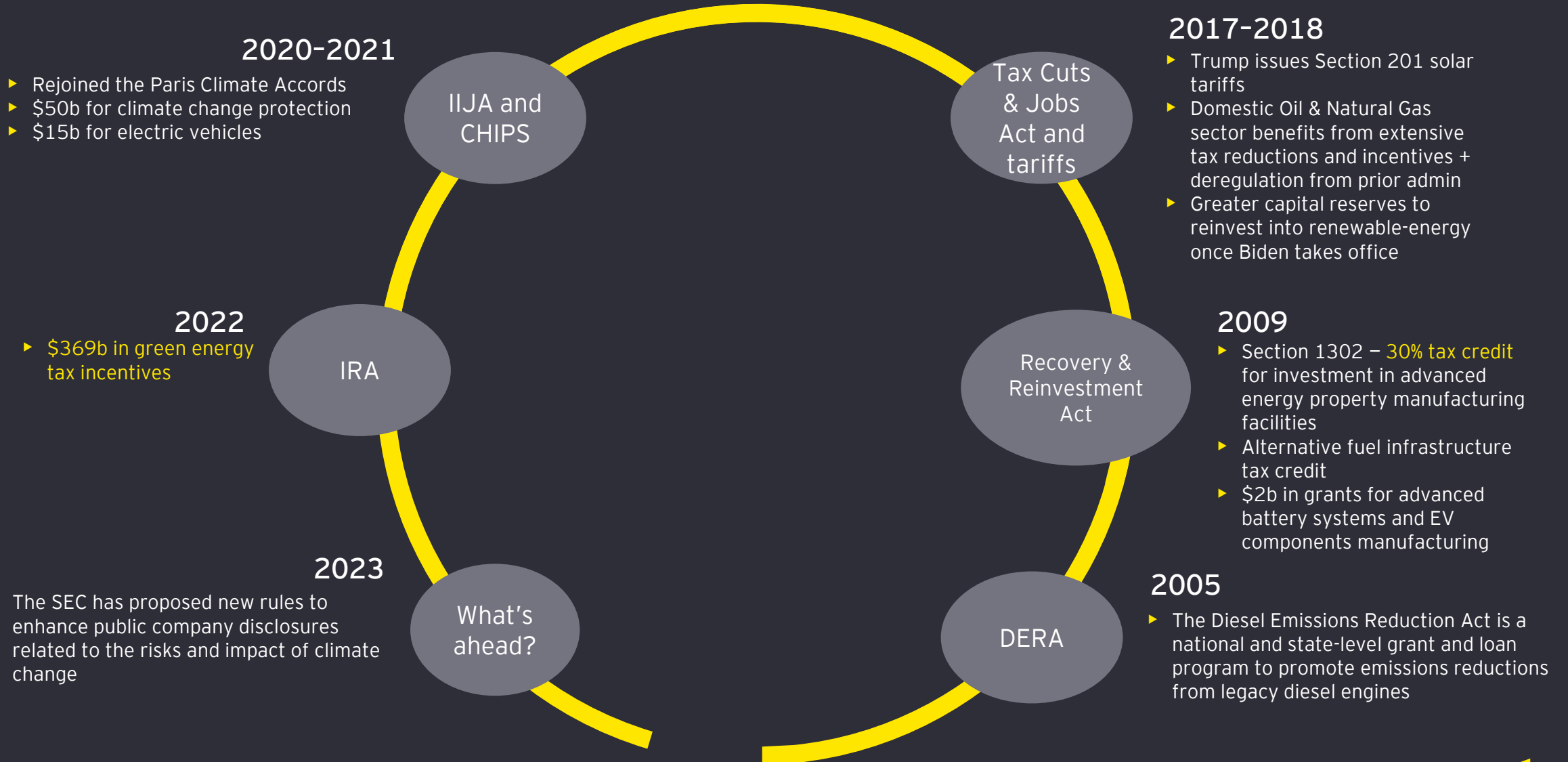


# Global forces continue to accelerate the need for sustainability action



- ▶ Increasing and unpredictable levels of change are impacting organizations from new regulations and investor scrutiny to rising consumer demands and talent attraction.
- ▶ Governments around the world are accelerating their **renewables programs** to help **reduce their reliance on imported energy**, as geopolitical tensions and economic uncertainty continue to make this a volatile and unpredictable time.
- ▶ The shift to Net-Zero economics has influenced investment strategies to address current and inevitable policy change and embeds hard learned lessons on supply chain and operational resiliency.

# US sustainability tax policy timeline





# Government action and societal demand drives focus on sustainability

## EU Green Deal (EGD)

- ▶ EGD is already underway
- ▶ Fit for 55 package of proposals released July 2021, including:
  - ▶ **CBAM**
  - ▶ Revised EU emissions trading scheme (2023)
  - ▶ Revised Energy Taxation Directive (2023)
- ▶ Will have a significant impact on businesses
- ▶ **Plastic packaging regulations**
- ▶ Supply chain accountability
- ▶ **Deforestation regulation position released – scope of forest protection is more expansive than expected and may affect industry**
- ▶ **Green Deal Industrial Program announced (2023)**

## US Political Environment

- ▶ **Proposed SEC climate risk disclosures**
- ▶ Executive actions (e.g., rejoining the Paris Agreement and new climate goals)
- ▶ Infrastructure Investment and Jobs Act
  - ▶ US\$50b for climate change protection
  - ▶ US\$15b for electric vehicles
- ▶ CHIPS Act
  - ▶ \$52.7b in semiconductor provisions
- ▶ **Inflation Reduction Act**
  - ▶ **US\$369b** in green energy tax incentives
- ▶ US business support (e.g., Larry Fink letter to CEOs)
- ▶ **Increasing budgetary pressures**

## Announcements in Asia-Pacific

- ▶ Mainland China
  - ▶ Largest emitter of CO<sub>2</sub>
  - ▶ Carbon neutral by 2060
  - ▶ CO<sub>2</sub> emissions peak before 2030
  - ▶ National ETS launched July 2021
  - ▶ Preferential corporate income tax treatment for environmental projects
- ▶ Japan
  - ▶ Third largest economy, fifth largest emitter of CO<sub>2</sub>
  - ▶ Carbon neutral by 2050
- ▶ South Korea
  - ▶ Fourth largest economy, ninth largest emitter of CO<sub>2</sub>
  - ▶ Possible introduction of carbon tax
  - ▶ Existing national ETS

## Global activity

- ▶ **COP27 – the Implementation COP**
- ▶ **National and corporate zero carbon pledges**
  - ▶ **Drive markets for Authorized and Voluntary Carbon Markets**
- ▶ **Mandatory reporting requirements**
- ▶ Global societal and economic elements drive new government climate policies
  - ▶ **Budgetary pressures**
  - ▶ Demand for sustainable investing
  - ▶ Declining price of renewable energy
  - ▶ Imperative for multinationals to deal with international climate programs (i.e., border adjustments)
- ▶ Shareholder/stakeholder activism on environmental issues

# Prioritizing sustainability

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Between the IIJA, IRA and CHIPS Act President Biden has allotted hundreds of billions of dollars toward sustainability and climate grant programs. This allocation represents the US government's priorities to increase American energy security and manufacturing and to decarbonize the economy.

## Infrastructure Investment and Jobs Act (IIJA)

- ▶ Over \$200 billion allocated toward sustainability-related programs
- ▶ \$50 billion for climate change protection
- ▶ \$15 billion for electric vehicles
- ▶ Over a dozen IIJA programs already opened to applicants
- ▶ Priorities include both public- and private-sector funding

## Inflation Reduction Act (IRA)

- ▶ \$369 billion in green energy tax incentives
- ▶ Over \$280 billion in sustainability tax credit budget provisions to be awarded through 2031
- ▶ Over \$65 billion in sustainability grant funding
- ▶ Prioritizes incentives for private-sector investment

## CHIPS Act

- ▶ \$52.7b in semiconductor provisions
- ▶ Aims to enhance the domestic US semiconductor industry by supporting manufacturing, technological research and workforce development
- ▶ The most significant investment in semiconductor infrastructure in US history with focus on accelerating zero-carbon industries

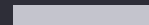
# There is broad applicability across multiple sectors and industries to fund significant new sustainability investments

	Advanced manufacturing and mobility	Consumer products and retail	Energy and resources	Government and public sector	Financial services	Health, sciences and wellness	Infrastructure	Real estate, hospitality and construction	Technology, media and entertainment, and telecommunications
<b>Legislation</b>									
IRA ( <i>Climate portion</i> )	Yellow	Grey	Yellow	Yellow	Grey	Grey	Yellow	Yellow	Grey
IIJA	Grey	White	Yellow	Yellow	White	White	Yellow	Yellow	Yellow
CHIPS	Yellow	White	Yellow	Yellow	White	Grey	Yellow	White	Yellow

Legislation has a significant, direct impact on this sector.



Legislation has a less significant or direct impact on the sector.



Legislation does not have a significant or direct impact on the sector.



# Business stakeholders driving a clean energy transition

This transitory period involves a variety of stakeholders

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## Value-led sustainability is everybody's business

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From policymakers to business leaders. From consumers to providers of capital. Each and every one of us has a role to play across the value chain.

By bringing everybody along for the journey and designing actionable strategies the enterprise can get behind, organizations can protect and create new sources of value – for business, society and the planet.



# Value-led sustainability journey

Organizations are on a sustainability journey that is purpose-led and realizes value across stakeholders – financial, customer, people and societal value. We help organizations take action with an enterprise-wide transformation approach to create and protect value.



**Reframe  
strategy**

**Accelerate  
transition**



**Govern and  
operate**

**Build  
trust**



# Tax Sustainability Journey: Are you sustainability-ready?

**Is your Tax function integrated into your sustainability strategy and are your goals aligned to help ensure successful delivery of your firm's sustainability targets?**

1

Do you have a system in place that will alert you to changes in policies and behavioral taxes that could potentially impact your value chain in all markets?

2

Are you confident on the treatment, compliance and reporting of behavioral taxes across your global supply chain?

3

Do you have a structured approach to securing all relevant incentives, R&D credits and other exemptions across your global value chain?

4

Do you have easy access to reliable data to support your sustainability reporting and ratings, and reflect the true tax contribution of your company in each of your markets?

5

Have you assessed the impact of trends in sustainability on your current and future global operating model, and do you fully understand the resulting tax implications?

6

Are you confident of the efficacy of your tax governance policies and related documentation across your global operations so that you can comfortably communicate this to your stakeholders and shareholders?

**Does your Tax function have the right capabilities and responsibilities to be able to answer "yes" to these questions to be able to deliver on your sustainability goals?**

# Elevating the role of Tax in sustainability

Tax leaders understand the financial profile of their businesses and they understand how tax as a value-led sustainability strategy is integral to the long-term value strategy of the company, through brand, reputation, innovation and R&D, and supply chain.





Overview of the IRA, IIJA,  
CHIPS and other major  
sustainability provisions



# IRA overview



# Redefining American leadership in confronting the climate crisis

## Why did the Biden administration pursue the IRA?

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### Revitalize American manufacturing

- ▶ Build American clean energy **supply chains** by incentivizing **domestic production and sourcing** in clean energy technologies like solar, wind, carbon capture and clean hydrogen
- ▶ Clean energy tax credits will be **increased by 10%** if the clean energy projects are established in communities that have previously relied upon the extraction, processing, transport or storage of coal, oil or natural gas

### Create clean energy jobs

- ▶ Incentivize **prevailing wages**
- ▶ Incentivize registered **apprenticeship** programs
- ▶ Incentivize the use of **American-made** equipment for clean energy production through the newly established domestic content thresholds

### Justice40 Initiative

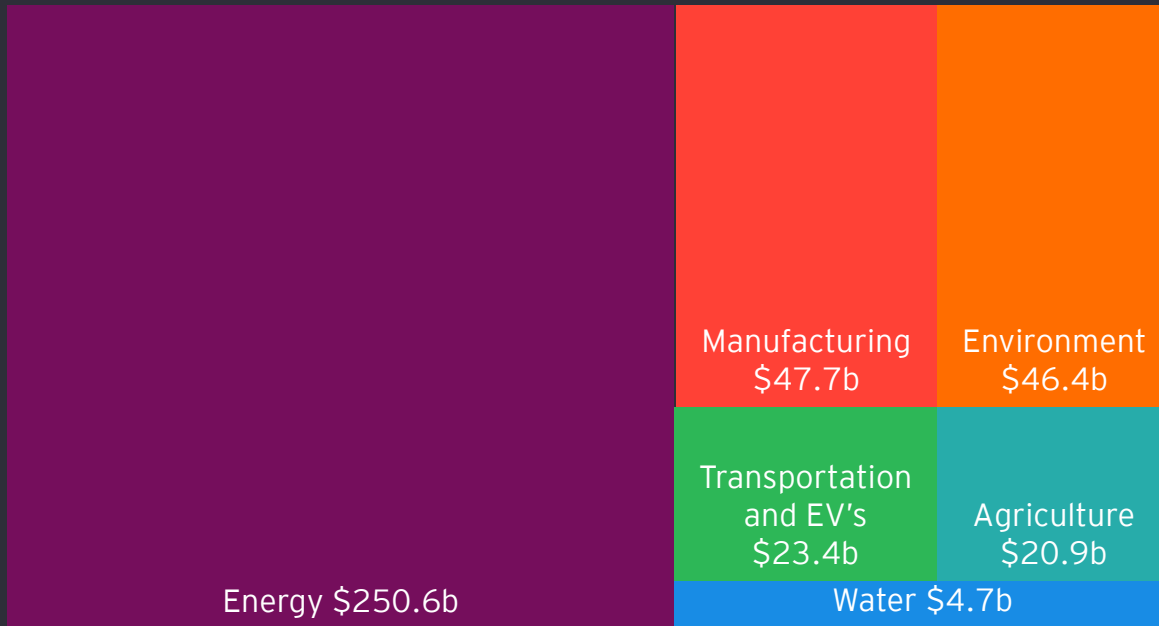
- ▶ Commits to delivering 40% of the overall benefits of climate, clean energy and related federal investments to communities that are marginalized, overburdened by pollution and underserved by infrastructure and other basic services
- ▶ The Climate & Economic Justice Screening Tool and Office of Clean Energy Demonstration's Geospatial Dashboard identify which jurisdictions qualify given the current guidance

# The IRA funding strategy



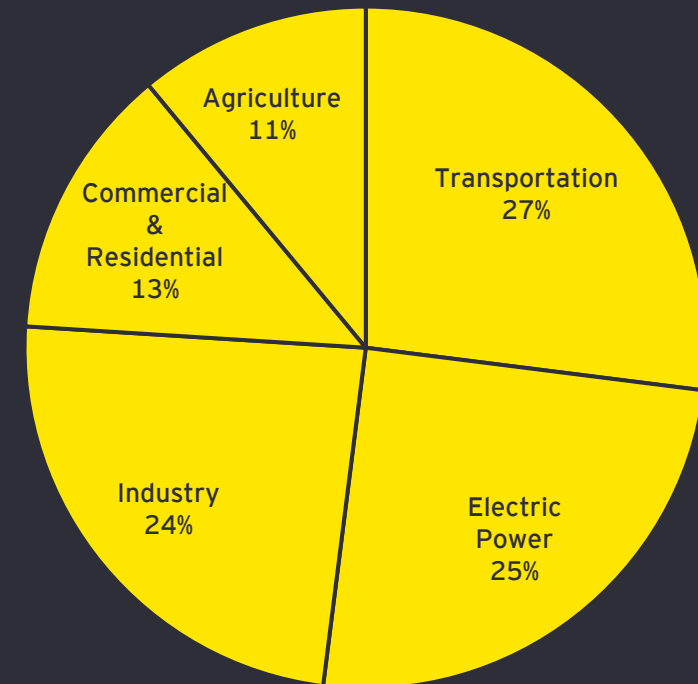
President Biden set forth a bold climate agenda and has since vigorously advanced policy actions to achieve his commitment to reduce US greenhouse gas emissions by 50%–52% below 2005 levels by 2030 (White House).

IRA funding – industry implications

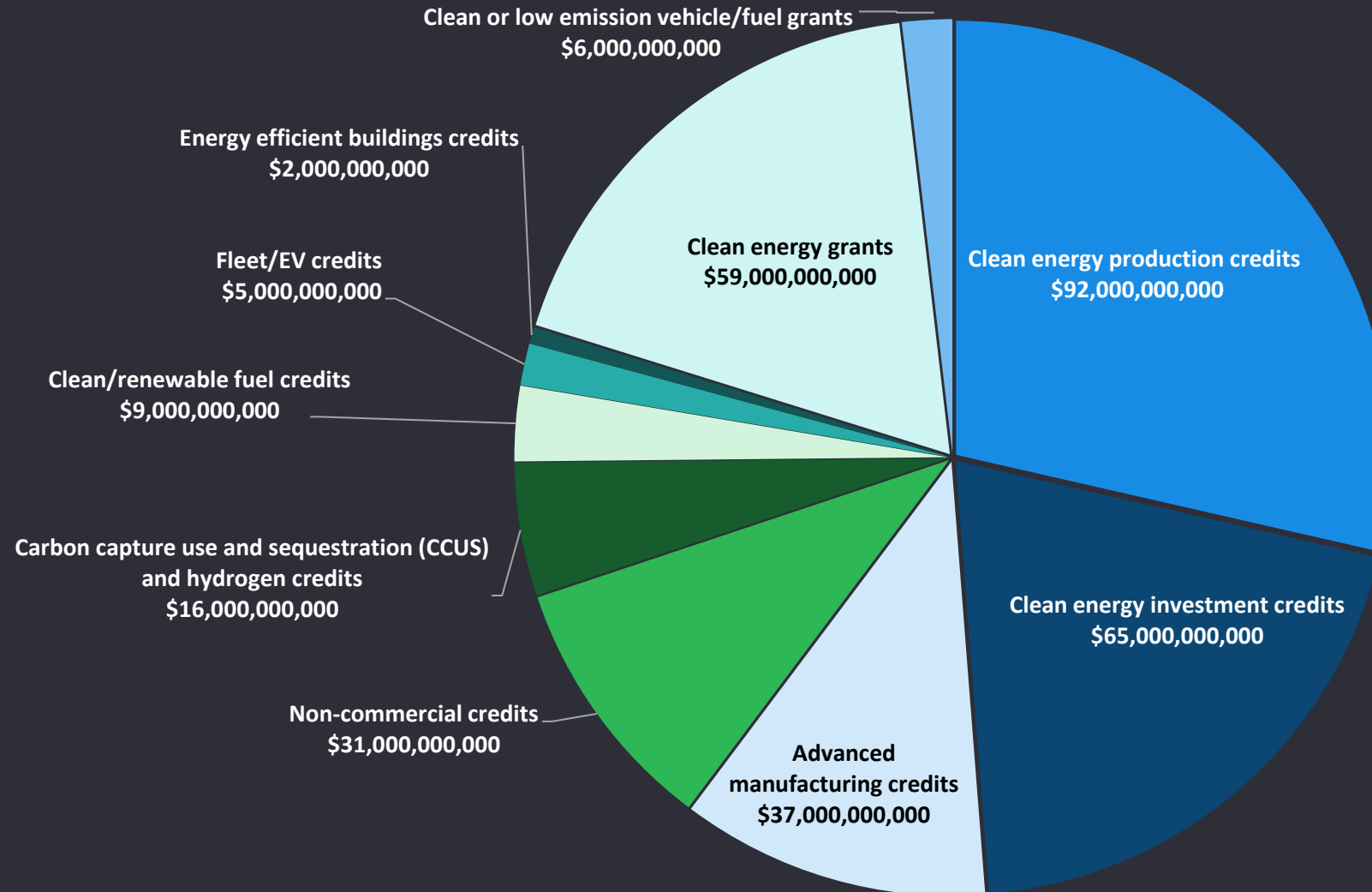


Total US greenhouse gas emissions by sector

(EPA, 2020)



# IRA expenditure breakdown



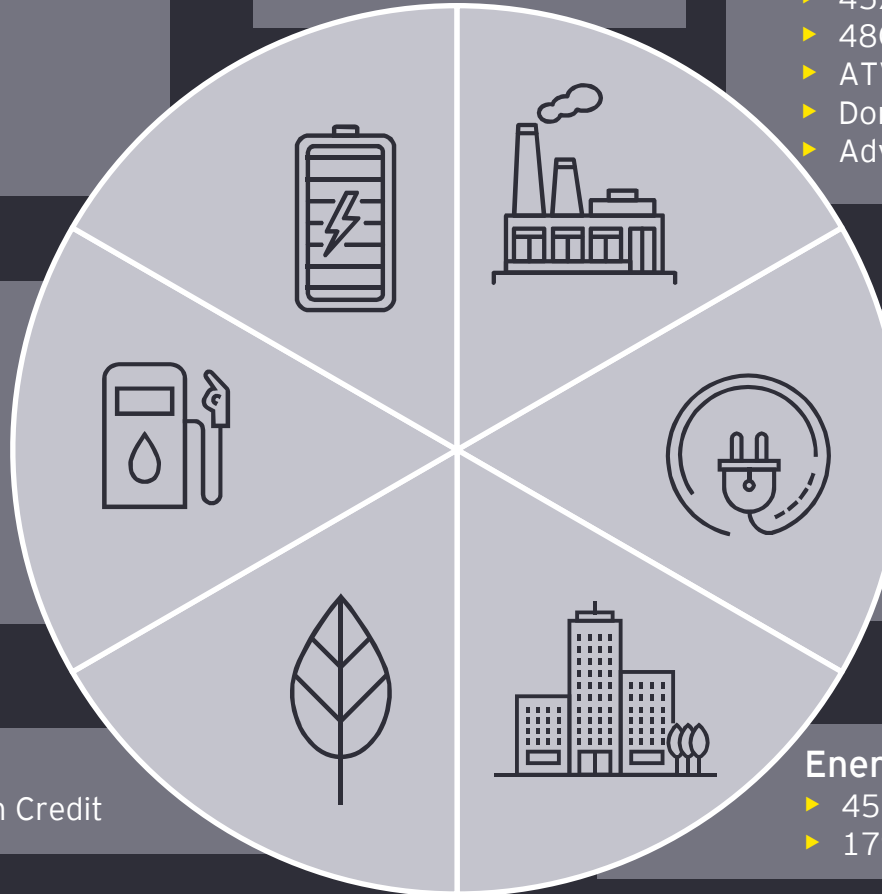
Source: Joint Committee on Taxation, [JCX-18-22](#), 2022.

# Applicability of IRA through a US operations footprint perspective

- ▶ Transferability
- ▶ Direct Pay
- ▶ Two-Tier Credit Structure
- ▶ Unique Compliance Provisions

## Fleet Decarbonization

- ▶ 30C – Alternative Refueling Infrastructure
- ▶ 30D – Clean Vehicle Credit
- ▶ 45W – Qualified Clean Commercial Vehicles
- ▶ Clean Heavy-Duty Vehicles Grant Program\*



## Advanced Manufacturing

- ▶ 45X – Advanced Manufacturing PTC
- ▶ 48C – Advanced Energy Project Credit
- ▶ ATVM loan program\*
- ▶ Domestic manufacturing conversion grants\*
- ▶ Advanced Industrial Facilities Deployment Program\*

## Renewable Fuels

- ▶ 40A – Biodiesel & Alternative Fuels Credit
- ▶ 40B – Sustainable Aviation Fuel Credit
- ▶ 45Z – Clean Fuel Production Credit
- ▶ Alternative Fuel & Low-Emission Aviation Technology Program\*
- ▶ Incentives for Biodiesel, Renewable Diesel, and Alternative Fuels\*

## Renewable/Clean Energy

- ▶ 45 – Clean Energy PTC
- ▶ 45U – Zero-Emission Nuclear Power PTC
- ▶ 45V – Clean Hydrogen PTC
- ▶ 45Y – Technology-neutral PTC
- ▶ 48 – Clean Energy ITC
- ▶ 48E – Clean Electricity Investment Credit

## Carbon Sequestration

- ▶ 45Q – Carbon Capture and Sequestration Credit

## Energy Efficient Buildings

- ▶ 45L – New Energy Efficient Home Credit
- ▶ 179D – Energy Efficiency Commercial Buildings

# Two-tiered credit structure

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- ▶ Retains the two-tiered credit amount structure from the Build Back Better Act (BBB) with a lower base credit and bonus credit rates up to **five times** the base credit rate
- ▶ The increased rate can be achieved when projects meet prevailing wage and apprenticeship requirements:
  - ▶ Prevailing wage: taxpayer needs to pay the prevailing wage for any laborers or mechanics employed by contractors and subcontractors
  - ▶ Apprenticeship: a minimum percentage of total labor hours is required to be performed by qualified apprentices (e.g., **10%** for projects where construction begins in **2022**)
  - ▶ IRA establishes certain options to rectify the failure to satisfy these requirements
- ▶ Additional **bonus credit opportunities** for Section 45 and Section 48 based on project location:
  - ▶ Energy Communities – Up to 10% additional credit
  - ▶ Only certain solar facilities located in low-income communities – up to 20% additional credit
- ▶ Notable applications of the base and bonus credit:
  - ▶ Alternative fuel vehicle (AFV) refueling property credit (Section 30C)
  - ▶ Advanced energy manufacturing tax credit (Section 48C)
  - ▶ Energy-efficient commercial buildings deduction (Section 179D)
  - ▶ Energy production tax credits (Section 45, 45U, 45Y)
  - ▶ Energy investment tax credits (Section 48, 48D)
  - ▶ Carbon oxide sequestration credit (Section 45Q)
  - ▶ Clean hydrogen (Section 45V)
  - ▶ Energy efficient home credit (Section 45L)

# Direct pay (Section 6417)

- ▶ Under the IRA, an “applicable entity” can make a direct pay election for certain credits, which would effectively treat tax credits as tax paid on a filed return
- ▶ “Applicable entities” include **tax-exempt entities**, state or local governments, the Tennessee Valley Authority, Indian tribal governments or an Alaska Native Corporation (subject to certain exceptions)
- ▶ Exceptions to the “applicable entity” limitation:
  - ▶ First **five years** of Section 45V credit
  - ▶ First **five years** of Section 45Q credit
  - ▶ **Five-year** period of Section 45X credit
- ▶ It is unclear what the review process will entail and how this will affect the timing of the refund

The provision would allow applicable entities to elect to be treated as having made a payment of tax equal to the value of the credit for which they would otherwise be eligible under:

Section 30C AFV Refueling Property Credit

Section 45 PTC

Section 45Q Credit for Carbon Capture and Sequestration

Section 45U Zero-Emission Nuclear Power Production Credit

Section 45V Hydrogen PTC

Section 45W Clean Commercial Vehicles

Section 45X Advanced Manufacturing Credit

Section 45Y/Section 48D

Section 45Z Clean Fuel Production Credit

Section 48C Qualifying Advanced Energy Credit

Section 48 ITC

Section 48E Clean Electricity ITC



# Transferability (Section 6418)

- ▶ Eligible taxpayers can make an irrevocable election to transfer all, or any portion, of certain credits to an unrelated transferee taxpayer
- ▶ Limitations:
  - ▶ Transfer must be a one-time transfer, paid in cash
  - ▶ Credit transfer must be elected no later than the due date of the tax return for the tax year for which the credit is determined
  - ▶ Cannot be included in the income of the recipient taxpayer or deductible by the paying taxpayer
- ▶ Applicable entities eligible for direct pay under Section 6417 would not be eligible to make a transfer election
- ▶ **Impact:** introduces more options for project developers and sponsors to monetize tax attributes, giving them alternatives to tax equity financing (it will need to be determined which opportunity yields a better benefit)

Section 6418 also includes a modified three-year carryback period for certain credits, including those under Sections 30C, 45, 45Q, 45X, 48C, 48

The following credits could be transferable

Section 30C AFV Refueling Property Credit

Section 45 PTC

Section 45Q Credit for Carbon Capture and Sequestration

Section 45U Zero-Emission Nuclear Power Production Credit

Section 45V Hydrogen PTC

Section 45X Advanced Manufacturing Credit

Section 45Y/Section 48D

Section 45Z Clean Fuel Production Credit

Section 48 ITC

Section 48C Qualifying Advanced Energy Credit

Section 48E Clean Electricity ITC

# IRA subsidy applies across industry/sector

Tax credit/incentive	Advanced manufacturing	Logistics	Consumer products and retail	Energy & resources	Government and public sector	Financial services	Health	Real estate and hospitality	Technology, media & entertainment and telecommunications
Section 179D – Energy Efficiency Commercial Buildings Deduction	X	X	X	X	X	X	X	X	X
Section 30C AFV Refueling Property Credit	X	X	X	X	X	X	X	X	X
Section 30D Clean Vehicle Credit	X	X	X	X	X	X	X	X	X
Section 45 PTC				X	X				
Section 45L New Energy Efficient Home Credit								X	
Section 45Q Credit for Carbon Capture and Sequestration	X			X					
Section 45U Zero-Emission Nuclear Power Production Credit	X			X					
Section 45V Clean Hydrogen PTC	X			X					
Section 45W Clean Commercial Vehicles	X	X	X	X	X	X	X	X	X
Section 45X Advanced Manufacturing Credit	X			X					
Section 45Y/48E Technology-neutral PTC/ITC	X		X	X	X		X	X	
Section 45Z Clean Fuel Production Credit	X			X					
Section 48 ITC	X	X	X	X	X			X	
Section 48C Advanced Energy Project	X			X			X	X	
Biodiesel, Renewable Diesel, and Alternative Fuels & Section 6426 Fuel Credits	X	X		X				X	

\* Please note that applicability is generalized and is not meant to be exhaustive

# Renewable Energy PTC (Section 45) and ITC (Section 48)



## Section 48 ITC

Extension and modification of the Section 48 energy credit:

- ▶ Extend the ITC for most projects that begin construction before January 1, 2025 (2035 for geothermal energy used for heating and cooling a structure)
- ▶ Allow taxpayers to claim a tax credit for the cost of qualified energy property:
  - ▶ Base credit of **6%** of the basis of qualified energy property (or **2%** for certain technologies)
  - ▶ Maximum bonus credit rate of **30%** of the basis of qualified energy property (or **10%** for certain technologies)
- ▶ Expand the credit to include three new technologies:
  - ▶ Stand-alone energy storage
  - ▶ Qualified biogas property
  - ▶ Microgrid controller
- ▶ Increase the credit rate available for:
  - ▶ Meeting domestic content requirements
  - ▶ Projects located in “energy communities”
  - ▶ Certain solar and wind facilities placed in service in low-income communities

## Section 45 PTC

Extension of the Section 45 tax credit for electricity produced from certain renewable sources at facilities that begin construction before January 1, 2025

- ▶ Energy producers to claim a PTC based on electricity produced from renewable energy resources:
  - ▶ Base credit of **0.3 cents/kilowatt hour (kWh)**
  - ▶ Bonus credit rate of **1.5 cents/kWh**
  - ▶ Increased credits available if domestic requirements are met
- ▶ Eliminates credit rate reduction for hydroelectric, marine and hydrokinetic energy property
- ▶ Limited reduction of credit is required where tax-exempt bonds are used to finance the facility
- ▶ Increased credit rate available for:
  - ▶ Meeting domestic content requirements
  - ▶ Projects located in “energy communities”
  - ▶ Certain solar and wind facilities placed in service in low-income communities

# Section 48 Investment Tax Credit (ITC)

## Credit overview



Extension of IRC Section 48 allows taxpayers to claim a federal income tax credit for projects that begin construction before **January 1, 2025** (2035 for geothermal energy used for heating and cooling a structure).

- ▶ Credit available for the cost of qualified energy property:
  - ▶ Base credit rate of **6%** of the basis of qualified energy property (or 2% for certain technologies)
  - ▶ Maximum bonus credit rate of **30%** of the basis of qualified energy property (or 10% for certain technologies)
- ▶ Increased credit rate available for:
  - ▶ Meeting domestic content requirements
  - ▶ Projects located in “energy communities”
  - ▶ Certain solar and wind facilities placed in service in low-income communities
- ▶ Credit expanded to include three new technologies:
  - ▶ Stand-alone energy storage
  - ▶ Qualified biogas property
  - ▶ Microgrid controller

### Qualified energy property includes:

- ▶ Qualified fuel cell property
- ▶ Qualified small wind energy property
- ▶ Waste energy recovery (WER) property
- ▶ Combined heat and power system (CHP) property
- ▶ Energy storage technology
- ▶ Qualified biogas property
- ▶ Microgrid controllers
- ▶ Ability to elect for 48 ITC in lieu of 45 PTC for certain technologies
- ▶ Clean Hydrogen production facilities

# Section 48 ITC

## Combined Heat and Power (CHP) and Waste Energy Recovery (WER) Property



1

### What

- ▶ IRC Section 48 provides a general business credit ranging for combined heat and power (CHP) property.
- ▶ Waste energy recovery, used for generation of electricity is eligible for a tax credit of up to 30% of eligible costs.

2

### Applicable tax years

- ▶ Available for property that starts construction before January 1, 2025 (subject to ability to amend prior years).
- ▶ Credit is generally taken in the year the property is placed in service.

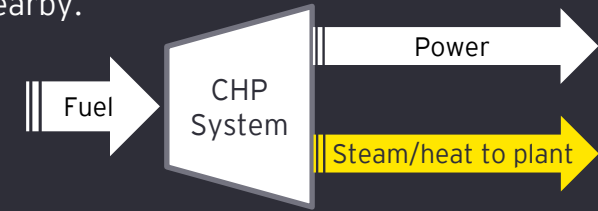
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### Eligibility

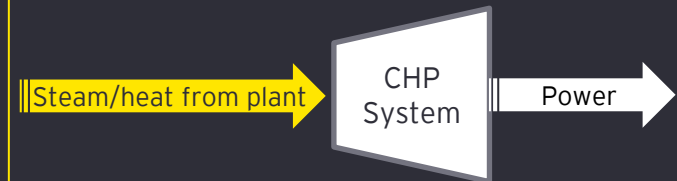
- ▶ Maximum system capacity is limited to 50 megawatts (MW) or 67,000 horsepower (HP):
- ▶ Capacity limit is per system; some sites can have multiple systems.
- ▶ Eligible property must meet various energy-efficiency technical criteria.
- ▶ New equipment must account for at least 80% of total project costs.

### Basic CHP/waste heat recovery technology

**Topping cycles:** Some CHP systems burn fuel to generate power, then transfer the leftover useful heat (exhaust) to another process nearby.



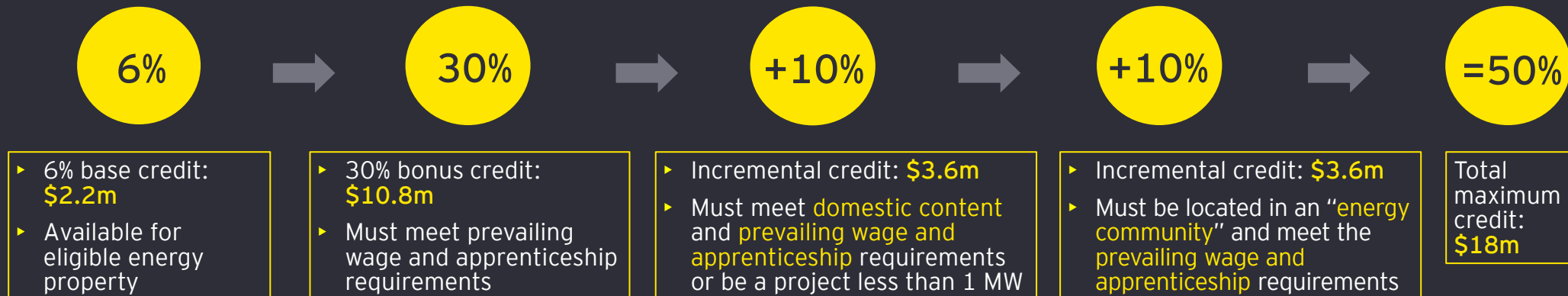
**Bottoming cycles:** Other CHP systems capture leftover heat from an existing process to generate power. These are often called "waste-heat recovery systems."



# Section 48 bonus credit opportunity example



- ▶ Section 48 ITC available for the cost of qualified energy property taken in the year the asset is *placed in service*
- ▶ **Facts:** A taxpayer constructs and places in service eligible energy property; total spend: **\$40m**
- ▶ **Assumptions:** 90% of costs are eligible (**\$36m**), construction begins by 2025
- ▶ **Total potential credit range: \$2.2m-\$18m**



- ▶ **Credit monetization:**
  - ▶ The ITC is transferrable (one-time, paid in cash), but the cash benefit may not be realized until up to **2-3+** years after the asset is placed in service, and there will be a discount on the value when it is transferred to an unrelated party
- ▶ **Considerations:**
  - ▶ Cannot be combined with credit under Section 48C or 45
  - ▶ Subject to a partial reduction where tax-exempt bond proceeds were used to provide financing for qualified assets

# Summary of 48 Investment Tax Credit (ITC) values over time



		Start of Construction			
		2023 to 2033	2034 (or 2 years after applicable year)	2035 (or 3 years after applicable year)	2036 (or 4 years after applicable year)
Base Rate if labor requirements aren't met	Base Credit without labor compliance	6%	4.5%	3%	0%
	Domestic Content Bonus without labor compliance	2%	1.5%	1%	0%
	Energy Community Bonus without labor compliance	2%	1.5%	1%	0%
Full Rate if labor requirements are met	Base Credit with labor compliance	30%	22.5%	15%	0%
	Domestic Content Bonus with labor compliance	10%	7.5%	5%	0%
	Energy Community Bonus with labor compliance	10%	7.5%	5%	0%
Low-Income Bonus (1.8 GW/yr Cap)	Qualified solar and wind facilities with a maximum net output of 5 MW in LMI communities or Indian Land. (1.8 GW/yr cap for other investment types)	10%	10%	10%	10%
	Qualified low-income residential building and economic benefit projects	20%	20%	20%	20%

"Labor requirement" entail certain prevailing wage and apprenticeship conditions being met.

# Section 45 Production Tax Credit (PTC)

## Credit Overview



Extension of IRC Section 45 allows taxpayers to claim a federal income tax credit for electricity produced from certain renewable resources at facilities that begin construction before **January 1, 2025**.

- ▶ Energy producers can claim a PTC based on electricity produced from renewable energy resources:
  - ▶ Base credit rate of **0.3 cents/kilowatt hour (kWh)**
  - ▶ Bonus credit rate of **2.6 cents/kWh**
- ▶ Increased credit rate available for:
  - ▶ Meeting domestic content requirements (10%)
    - ▶ Not less than 40% for all system types except for offshore wind, which is 20%
  - ▶ Projects located in “energy communities” (10%)
  - ▶ Certain solar and wind facilities placed in service in low-income communities (10%)
- ▶ Credit rate reduction eliminated for hydroelectric, marine and hydrokinetic energy property
- ▶ Limited reduction of credit is required where tax-exempt bonds are used to finance the facility

### Qualified energy resources include:

- ▶ Wind
- ▶ Biomass
- ▶ Geothermal energy
- ▶ Solar energy
- ▶ Small irrigation power
- ▶ Municipal solid waste and landfill gas
- ▶ Hydropower production
- ▶ Marine and hydrokinetic renewable energy



# Summary of 45 Production Tax Credit (PTC) Values Over Time



			2023 to 2033	2034 (or 2 years after applicable year)	2035 (or 3 years after applicable year)	2036 (or 4 years after applicable year)
PTC for 10 Years	Base Rate if labor requirements are not met	Base Credit without labor compliance	0.5¢	0.4¢	0.3¢	0.0¢
		Domestic Content Bonus without labor compliance	0.1¢	0.0¢	0.0¢	0.0¢
		Energy Community Bonus without labor compliance	0.1¢	0.0¢	0.1¢	0.0¢
	Full Rate if labor requirements are met	Base Credit with labor compliance	2.6¢	2.6¢	1.3¢	0.0¢
		Domestic Content Bonus with labor compliance	0.3¢	0.2¢	0.1¢	0.0¢
		Energy Community Bonus with labor compliance	0.3¢	0.2¢	0.1¢	0.0¢

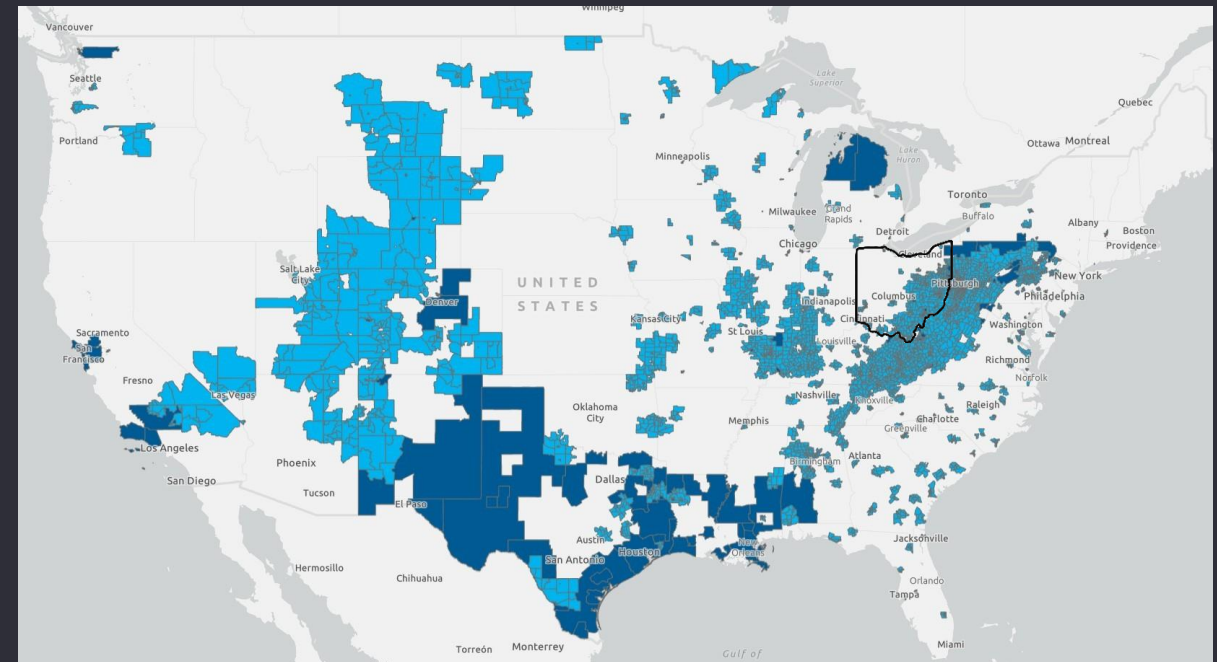
“Labor Requirement” entail certain prevailing wage and apprenticeship conditions being met

# Sections 45 and 48 Energy Community Program



## A 10% bonus credit may be obtained if a project meets one of the following qualifications

- ▶ A brownfield site
- ▶ An MSA or non-MSA area with:
  - ▶ 17% or greater direct employment
  - ▶ 25% or greater local tax revenues related to extraction, processing, transport or storage of coal, oil or natural gas
  - ▶ An unemployment rate at or above the national average rate for the previous year
  - ▶ A coal mine that has closed after December 31, 1999, or coal-fired electric generation unit has been retired after December 31, 2009 (including adjoining census tracts)



This is a preliminary map provided by the *American Clean Power Association*. The DOE will be releasing an official mapping tool.

# Section 48C: Advanced energy project tax credit for manufacturers

## Credit overview



The IRA allocated an additional **\$10 billion** in Section 48C credits, of which up to **\$6 billion** may be allocated to qualified investments not located within energy communities.

### Provides an ITC for projects that equip or expand manufacturing facilities that produce renewable energy equipment

- ▶ Eligible technologies/facilities include:
  - ▶ Renewable energy technologies
  - ▶ Carbon capture and sequestration
  - ▶ Energy storage systems and components (fuel cells, batteries)
  - ▶ Renewable fuel-refining or blending technologies
  - ▶ Electric and hybrid vehicles and components
  - ▶ Industrial recycling facilities
  - ▶ Energy conservation technologies
  - ▶ Grid modernization technologies
  - ▶ Processing, refining, or recycling of critical materials
- ▶ Projects that reequip a manufacturing facility with equipment designed to reduce greenhouse gas (GHG) emissions by at least 20% (requires installation of low/zero carbon process heat systems, carbon capture systems, industrial energy efficiency processes)

- ▶ Eligible taxpayers must apply for a credit allocation and be awarded an allocation prior to starting the project.
- ▶ Section 48C tax credit is subject to the two-tiered structure with a base credit amount equal to **6%** of qualifying investment and a bonus amount of **30%** if prevailing wage and apprenticeship requirements are met.
- ▶ Eligible taxpayers may choose to make an irrevocable election to **transfer** all, or any portion of, the Section 48C tax credit to an unrelated transferee taxpayer.
- ▶ **Eligible components produced at a facility that includes any property, the basis of which is taken into account for Section 48C, are not eligible for Section 45X.**

**IIJA includes a similar grant program for businesses with 500 or fewer employees**

# Section 48C Advanced Energy Project Tax Credit

## Qualifying advanced energy projects



Facility/Technology	Description
Carbon Capture and Sequestration	Projects that reequip, expand, or establish an industrial/manufacturing facility for the production/recycling of property designed to capture, remove, use or sequester carbon oxide emissions.
Critical Materials	Projects that reequip, expand, or establish an industrial facility for the processing, refining or recycling of critical materials.
Energy Conservation	Projects that reequip, expand or establish an industrial/manufacturing facility for the production/recycling of property designed to produce energy conservation technologies (including residential, commercial and industrial applications).
Energy Storage Systems	Projects that reequip, expand or establish an industrial/manufacturing facility for the production/recycling of fuel cells, microturbines or energy storage systems and components.
Greenhouse Gas Emission Reduction	Projects that reequip an industrial/manufacturing facility with equipment designed to reduce greenhouse gas emissions by at least 20% by installing (1) low- or zero-carbon process heat systems, (2) carbon capture, transport, utilization and storage systems, (3) energy efficiency and reduction in waste from industrial processes, or (4) any other industrial technology designed to reduce greenhouse gas emissions.
Grid Modernization	Projects that reequip, expand or establish an industrial/manufacturing facility for the production/recycling of electric grid modernization equipment or components.
Hybrid Vehicles	Projects that reequip, expand or establish an industrial/manufacturing facility for the production/recycling of hybrid vehicles with a gross vehicle weight rating of not less than 14,000 pounds, as well as technologies, components or materials for such vehicles.
Other Advanced Energy Property	Projects that reequip, expand or establish an industrial/manufacturing facility for the production/recycling of advanced energy property designed to reduce greenhouse gas emissions as may be determined by the Secretary.
Renewable Energy	Projects that reequip, expand or establish an industrial/manufacturing facility for the production/recycling of property designed to be used to produce energy from the sun, water, wind, geothermal deposits or other renewable resources.
Renewable Fuel-Refining/Blending	Projects that reequip, expand, or establish an industrial/manufacturing facility for the production/recycling of equipment designed to refine, electrolyze or blend any fuel, chemical or product that is renewable or low-carbon and low-emission.
Zero-Emission Vehicles	Projects that reequip, expand or establish an industrial/manufacturing facility for the production/recycling of light-, medium- or heavy-duty electric or fuel cell vehicles, as well as technologies, components or materials for such vehicles, and associated charging or refueling infrastructure.

# Section 48C advanced energy project tax credit for manufacturers

## Example of potential benefit



### Greenhouse gas emission reduction example

- ▶ Facts: company is a lithium producer and installs carbon capture, transport, utilization and storage systems to reduce emissions by 20%.
- ▶ Eligible costs: \$30 million
- ▶ Potential base credit: \$1.8 million
- ▶ Potential bonus credit: \$9 million

### Critical materials example (45X vs. 48C)

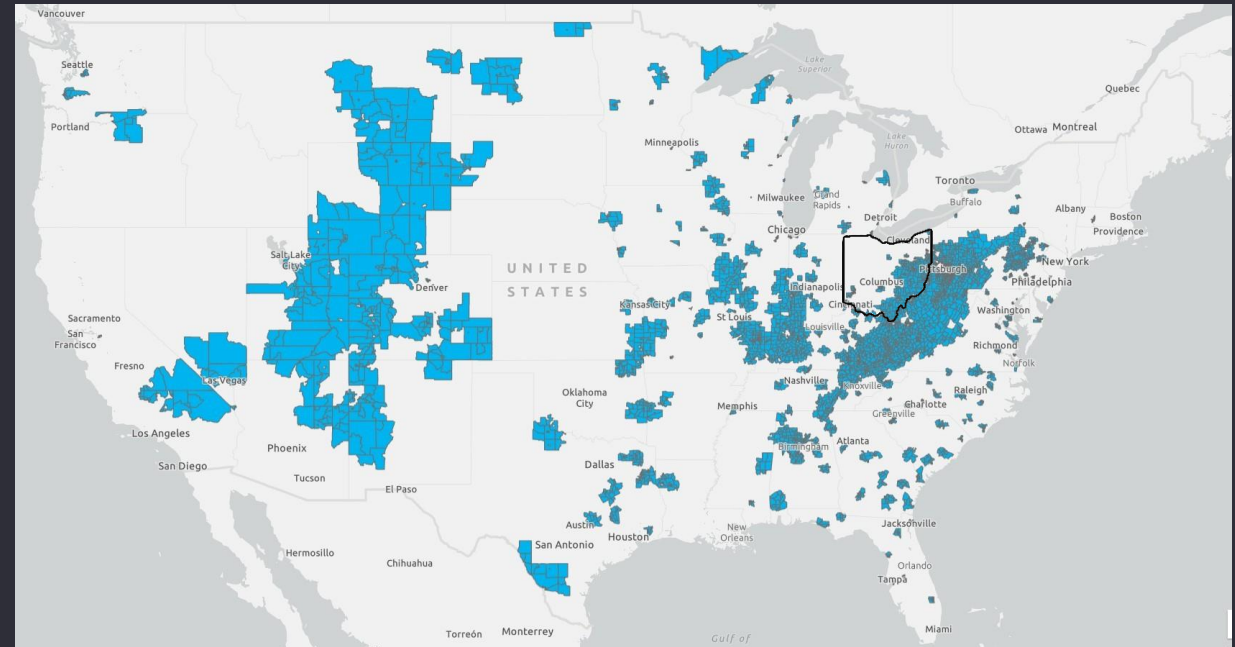
- ▶ Facts: company expands industrial facility to extract and refine 20,000 tons/year of lithium.
- ▶ Eligible costs: \$300 million
- ▶ Potential base credit: \$18 million
- ▶ Potential bonus credit: \$90 million
- ▶ Potential Section 45X PTC: \$140 million

# Section 48C(e) Energy Community Program



**\$4 billion will be allocated to energy communities in this program.**

- ▶ A coal mine that has closed after December 31, 1999, or coal-fired electric generation unit has been retired after December 31, 2009 (including adjoining census tracts)
- ▶ A project has not received a certification and allocation of 48C credits previously (prior 48C rounds)
- ▶ Census tracts that are directly adjacent to/adjoining an eligible census tract are also eligible



This is a preliminary map provided by the *American Clean Power Association*. The DOE will be releasing an official mapping tool.

# Section 45X advanced manufacturing PTC

## Credit overview



The IRA establishes a new advanced manufacturing production credit under IRC Section 45X.

- ▶ Production tax credit for the sale of each eligible component produced and sold by the taxpayer to an unrelated person during the taxable year after 12/31/2022 and prior to 12/31/2032
  - ▶ Only production in the US (or a possession of the US) will be taken into account
  - ▶ Credit rate varies depending upon the component/mineral produced
- ▶ Credit is eligible for direct pay for a five-year period under IRA 6417 and for transfer to an unrelated taxpayer under IRA 6418
- ▶ Eligible components produced at a facility that includes any property, the basis of which is taken into account for Section 48C, are **not** eligible for Section 45X

### Eligible components

- ▶ **Solar energy components** (photovoltaic cells, photovoltaic wafers, solar grade polysilicon, polymeric backsheets, torque tubes, structural fasteners, solar modules)
- ▶ **Wind energy components** (offshore wind vessels, blades, nacelles, towers and other wind components)
- ▶ **Inverters** (central, commercial, utility, residential, distributed wind and microinverters)
- ▶ **Battery components** (battery cells and modules)
- ▶ **Certain critical minerals**

# Section 45X Advanced Manufacturing Production Tax Credit (PTC)

## Calculating potential benefit



- ▶ Credit is based on the rates and calculations in the previous slide subject to the following phase-out:
  - ▶ 100% for eligible components sold prior to calendar year 2030
  - ▶ 75% for eligible components sold in 2030
  - ▶ 50% for eligible components sold in 2031
  - ▶ 25% for eligible components sold in 2032
  - ▶ No credit will be available for components sold after 2032
- ▶ Phase out does not apply to critical minerals

### Lithium Producer example

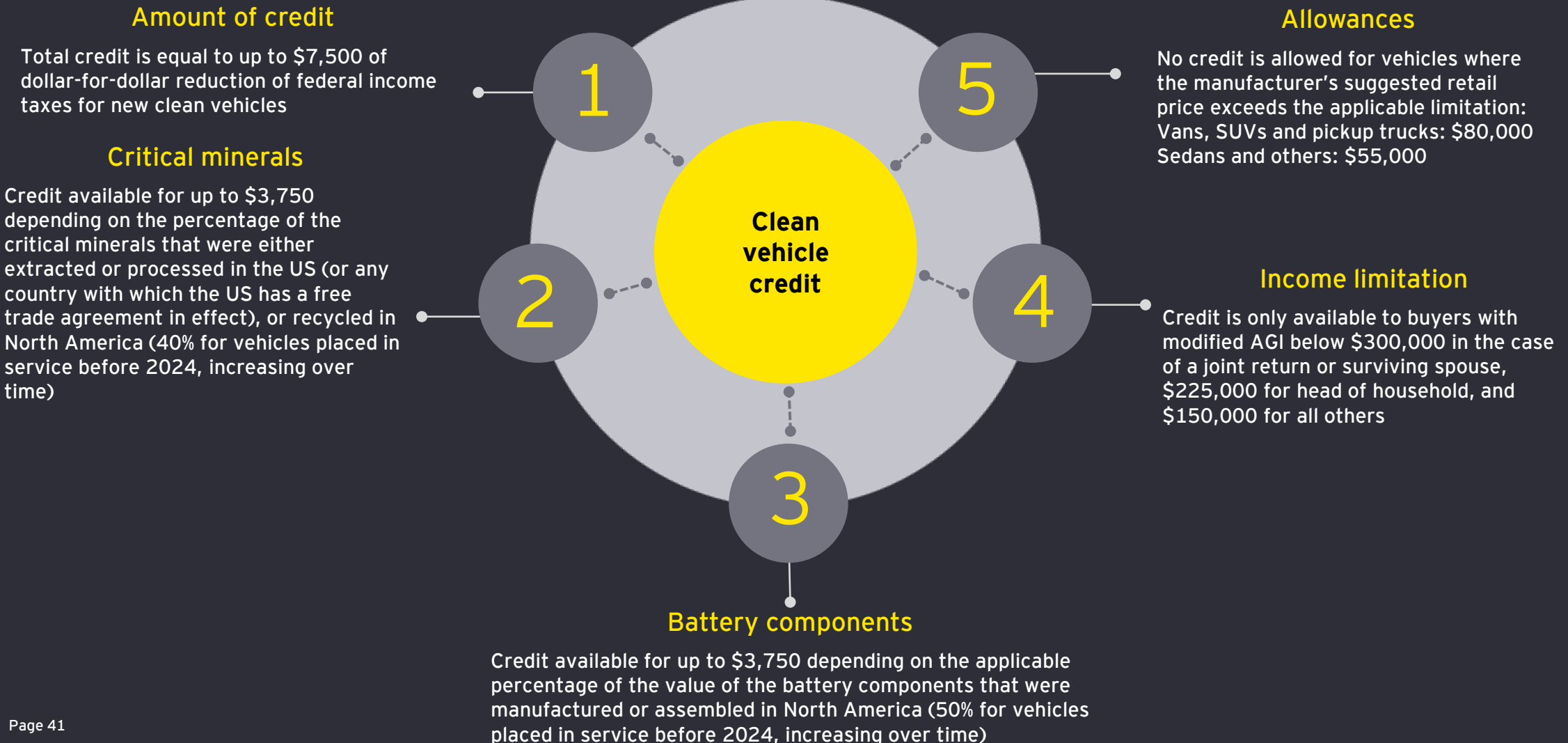
- ▶ Facts: Client is a qualified lithium producer. Client produces 25,000 tons/year at a cost of \$6,500/ton.
- ▶ Annual costs incurred: \$162.5m
- ▶ Potential credit/year at 10% of cost: \$16.25m
- ▶ 10-year PTC: \$162.5m

### Battery Cell Manufacturer example

- ▶ Facts: Client produces the cathode, anode and assembles 200,000 33kWh battery modules per year
- ▶ Cathode and anode cost/cell: \$3,800
- ▶ Cathode and anode annual credit: \$76m
- ▶ Battery cell annual credit: \$66m
- ▶ Total annual credit (through 2029): \$142m
- ▶ 10-year PTC: \$1.21b



# Fleet Decarbonization – Section 30D: Clean Vehicle Credit for Individuals & Businesses

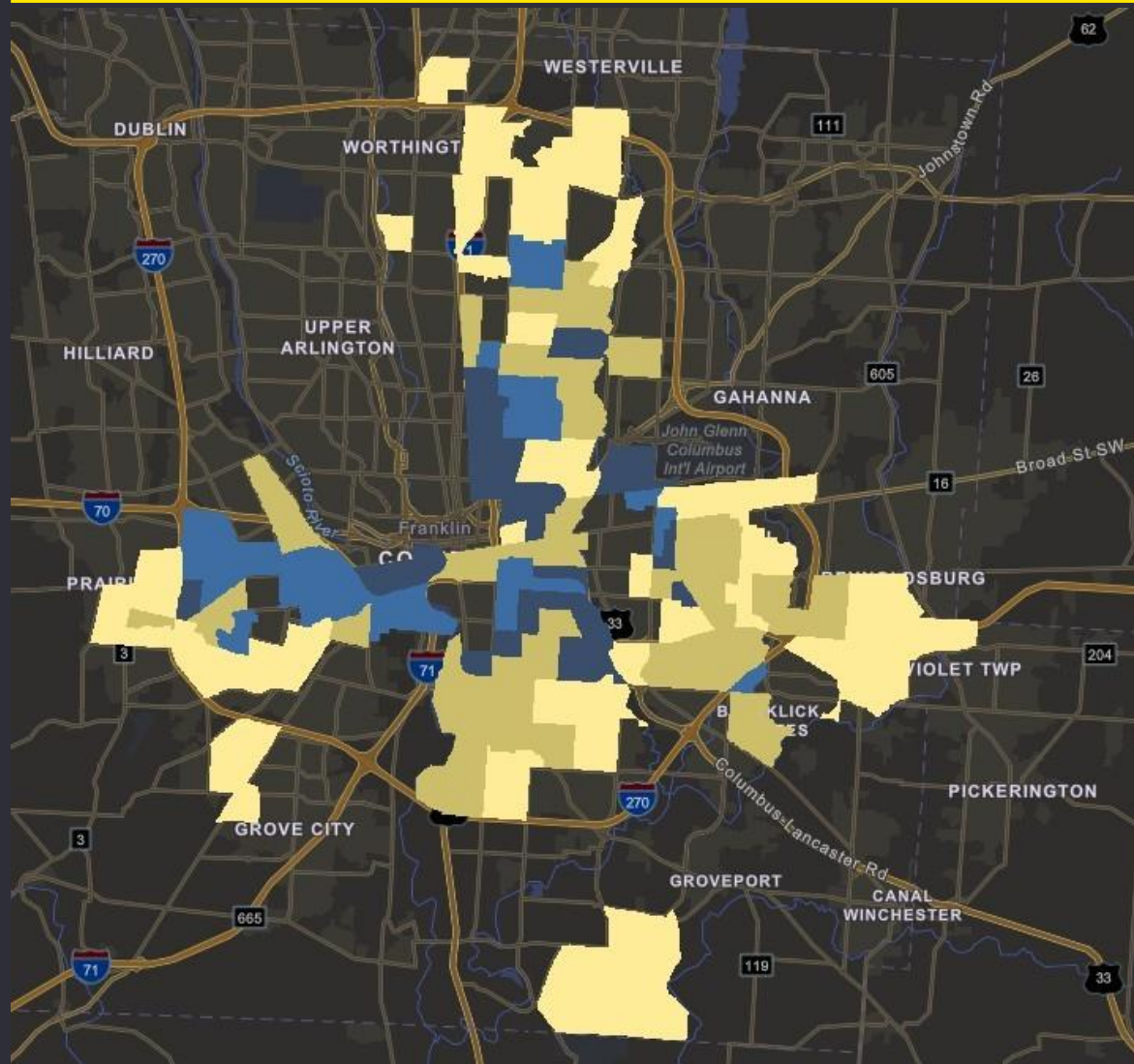


# Section 30C Alternative Fuel Vehicle Refueling Property Credit Overview



- ▶ Credit was reinstated for property placed in service after December 31, 2021
  - ▶ 30% of the qualified cost of eligible refueling infrastructure up to \$30,000 per location
- ▶ IRA modifications are effective for property placed in service after December 31, 2022
- ▶ Eligible property includes:
  - ▶ electric vehicle charging stations,
  - ▶ clean-burning fuels, including CNG, LNG and ethanol
  - ▶ hydrogen fuel cell recharging stations,
  - ▶ bidirectional charging infrastructure
- ▶ A maximum credit of **\$100,000** at **30%** if prevailing wage and apprenticeship requirements are met; otherwise limited to a **6%** base credit
  - ▶ IRA removes the per location cap and adds a **per item cap of \$100,000**
- ▶ Property must be installed in a low-income census tract or a non-urban area
  - ▶ A Low-Income Community (LIC)
    - ▶ Census tract with a poverty rate of at least 20 percent or a median family income 80 percent or less than the area it is benchmarked against
  - ▶ Non-urban areas
    - ▶ “Urban area” means a census tract designated as such in the most recent decennial census
- ▶ Eligible property not meeting the location requirements may be eligible for a per item credit of up to \$1,000
- ▶ Basis of the property must be reduced by the amount of the credit allowed under 30C
- ▶ Tax-exempt entities are eligible for direct pay

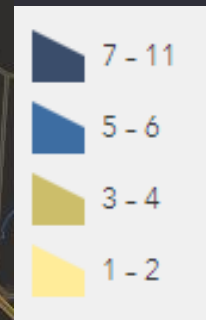
# Council on Environmental Quality - Justice40 Census Tracts



Includes investments that can benefit disadvantaged communities across one or more of the following areas:

- ▶ Climate change
- ▶ Clean energy and energy efficiency
- ▶ Clean transit, affordable and sustainable housing
- ▶ Training and workforce development
- ▶ Remediation and reduction of legacy pollution
- ▶ Critical clean water and wastewater infrastructure development

Total number of exceeded criteria



Source: DOE Office of Clean Energy Demonstration

# National Electric Vehicle Infrastructure (NEVI) Formula

## Non-IRA Program

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### ▶ Amount

- ▶ \$4.15 billion in funding will be apportioned among the states (including the District of Columbia and Puerto Rico) between FY2022-26 on a formula basis
  - ▶ Funding may cover up to 80% of eligible project costs

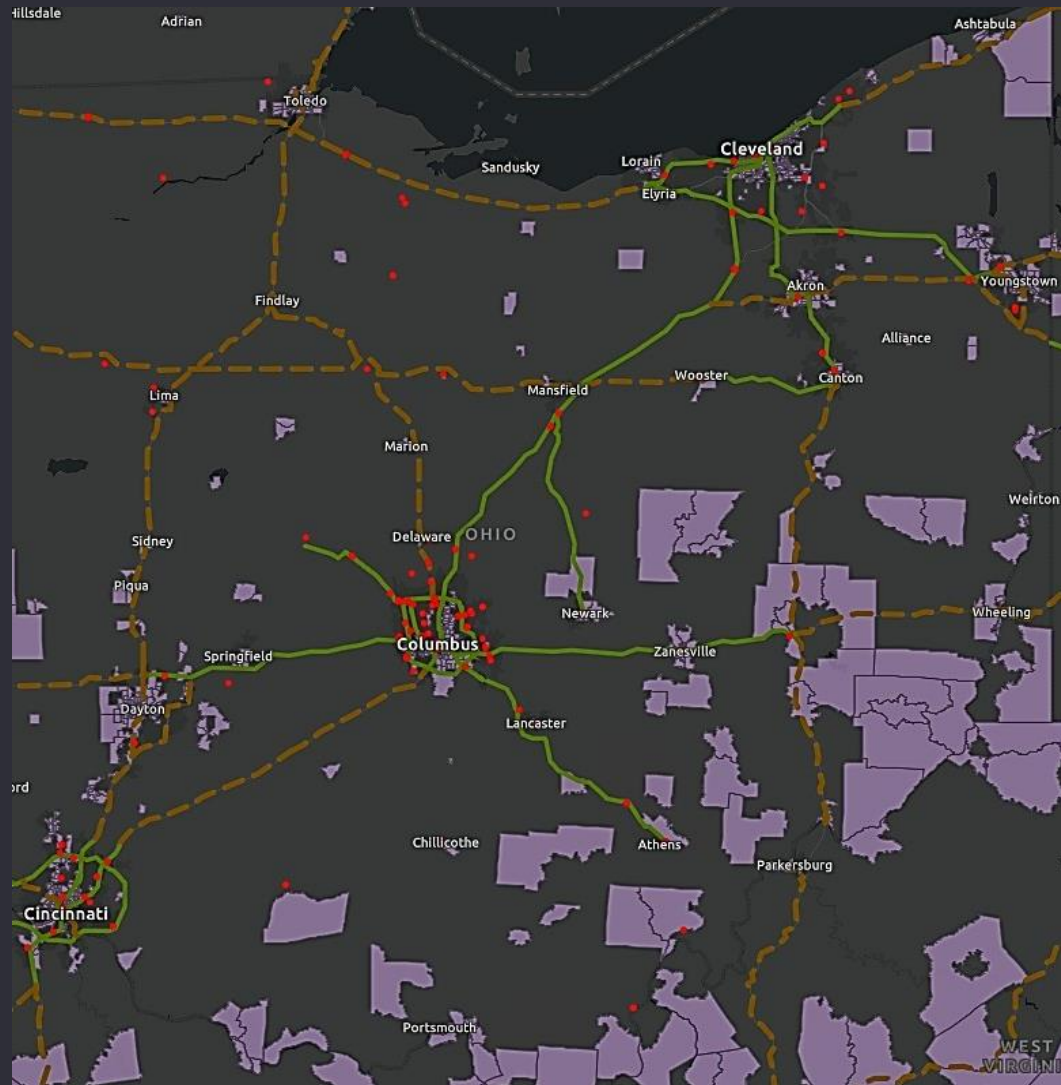
State	2022	2023	2024	2025	2026	Total
Ohio	\$20.7	\$29.8	\$29.8	\$29.8	\$29.8	\$140.1

- ▶ Source: DOT (FHA); data is represented in the millions.

### ▶ Requirements

- ▶ Charging infrastructure must include at least four 150kW Direct Current (DC) Fast Chargers with combined charging system ports capable of simultaneously DC charging four EVs
- ▶ EV charging infrastructure must have minimum station power capability at or above 600kW and support at least 150kW per port simultaneously across four ports for charging
- ▶ EV charging infrastructure must be located along a designated Alternative Fuel Corridor
  - ▶ 50 miles between eligible stations
  - ▶ At least 1 mile from highway/interstate exits or intersections




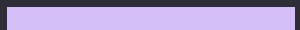
# Electric Vehicle Charging Justice40 Map



## Steps to Capture

- ▶ Most states will set up solicitations through their relevant agencies to contract the installation, operation and/or maintenance of EV charging infrastructure funded by the NEVI Formula program

## Legend

	Public EV charging station (non-Tesla DC Fast)
	Sufficient number of charging stations already exist
	Insufficient number of charging stations currently exist
	DOE/DOT interim guidance provided

Source: EV Charging Justice40 Map

# IRA clean energy and sustainability grant programs

## Clean heavy-duty vehicles

- ▶ The Act provides \$600 million for grants, rebates, and contracts to cover the costs for:
  - ▶ Incremental costs of replacing an eligible vehicle that is not a zero-emission vehicle with a zero-emission vehicle
  - ▶ Purchasing, installing, operating and maintaining infrastructure needed to charge, fuel, or maintain zero-emission vehicles
  - ▶ Workplace development and training to support the maintenance, charging, fueling and operation of zero-emission vehicles
  - ▶ Planning and technical activities to support the adoption and deployment of zero-emission vehicles
- ▶ Provides an additional \$400 million available for recipients that replace eligible vehicles to serve one or more communities located in air quality areas designated as nonattainment for an air pollutant
- ▶ Funding to remain available until September 30, 2031

## ATVM loan program

- ▶ Provides \$3 billion to DOE to be used to cover costs of providing direct loans for reequipping, expanding or establishing a manufacturing facility in the US to produce, or for engineering integration of, advanced technology vehicles
- ▶ Advanced vehicle technologies must emit low- or zero-exhaust emissions of greenhouse gases
- ▶ Funding to remain available until September 30, 2028

## Grants to reduce air pollution at ports

- ▶ \$2.25 billion is available for grants and rebates to eligible applicants on a competitive basis for:
  - ▶ Purchase or installation of zero-emission port equipment or technology for use at, or to directly serve, one or more ports
  - ▶ Planning or permitting in connection with the purchase or installation of such zero-emission port equipment or technology
  - ▶ Development of qualified climate action plans
- ▶ Provides an additional \$750 million for projects located at ports in air quality areas designated as nonattainment for an air pollutant
- ▶ Funding to remain available until September 30, 2027

## Domestic manufacturing conversion grants

- ▶ Provides \$2 billion to DOE to provide grants for domestic production of efficient hybrid, plug-in electric hybrid, plug-in electric drive and hydrogen fuel cell electric vehicles
- ▶ Funding to remain available until September 30, 2031

# IIJA overview



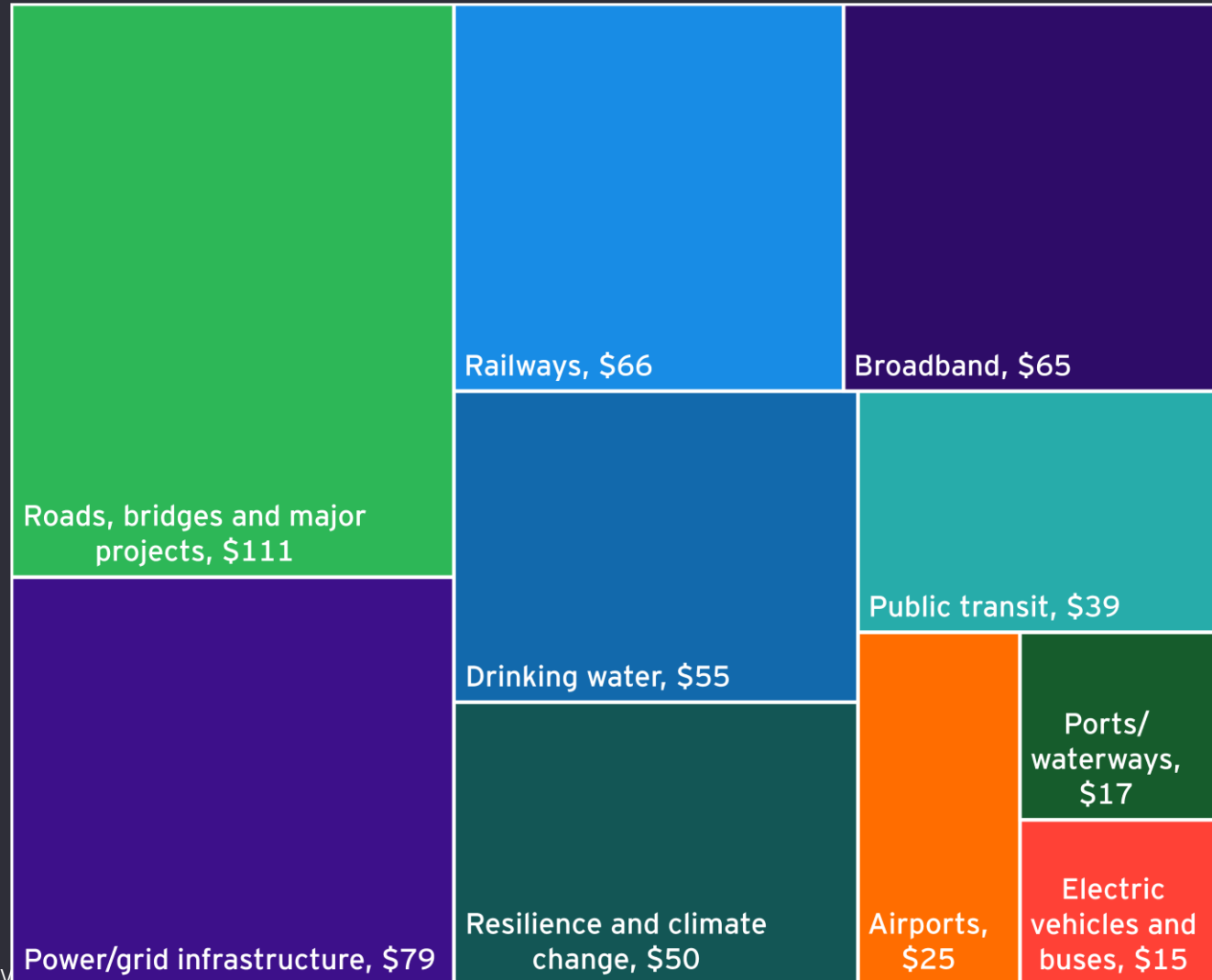
# IIJA funding overview

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- ▶ The **Infrastructure Investment and Jobs Act** (IIJA), aka Bipartisan Infrastructure Law (BIL), was signed into law by President Biden on November 15, 2021
- ▶ The law authorizes **\$1.2 trillion** for transportation and infrastructure spending with \$550 billion of that figure going toward “new” investments and programs
- ▶ IIJA funding will be distributed primarily through formula and competitive grant programs, which will provide critical investment opportunities for public and private American entities
- ▶ Sustainability is a central pillar of the IIJA
  - ▶ From **FY22 through FY26**, the IIJA will invest in reducing emissions and combatting climate change in key sectors, such as:
    - ▶ Clean energy and power (renewable energy, utilities)
    - ▶ Water (transport, reuse, rural accessibility)
    - ▶ Public transportation (buses, ferried, rail)
    - ▶ Aviation (infrastructure, terminal, shuttle buses)
    - ▶ Manufacturing (batteries, industry)
    - ▶ Resilience (Brownfields, mine lands)
- ▶ IIJA funding will be distributed to **public and private** American entities



# IIJA funding breakdown



## IIJA categories

- ▶ Total “new investment” program funding (**\$550b**)
- ▶ Roads, bridges and major projects (\$111b)
- ▶ Power/grid infrastructure (\$79b)
- ▶ Railways (\$66b)
- ▶ Broadband (\$65b)
- ▶ Drinking water (\$55b)
- ▶ Resilience and climate change (\$50b)
- ▶ Public transit (\$39b)
- ▶ Airports (\$25b)
- ▶ Ports/waterways (\$17b)
- ▶ Electric vehicles and buses (\$15b)

# Sustainability-focused IIJA programs

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## Battery

- ▶ Electric drive vehicle battery recycling and second-life applications
- ▶ Battery manufacturing, processing and recycling grants
- ▶ Critical mineral research and recycling programs

## Carbon capture

- ▶ Carbon capture demonstration and large-scale pilot programs
- ▶ Carbon dioxide transportation, infrastructure, finance and innovation program
- ▶ Four regional clean direct air capture hubs infrastructure
- ▶ Carbon storage validation and testing infrastructure
- ▶ Direct air capture prize competitions
- ▶ Carbon capture front-end engineering and design program infrastructure

## Emissions reduction and efficiency

- ▶ Industrial Emission Demonstration Projects
- ▶ Reduction of truck emissions at port facilities
- ▶ Advanced energy manufacturing and recycling grants
- ▶ Industrial research and assessment grants
- ▶ Weatherization assistance program
- ▶ Brownfields projects
- ▶ Port Infrastructure Development Program grants
- ▶ Building codes implementation for efficiency and resilience
- ▶ Energy efficiency revolving loan fund capitalization grant program
- ▶ Pollution prevention grants
- ▶ Energy Efficiency and Conservation Block Grant Program

- ▶ Grants for energy efficiency and renewable energy improvements at public school facilities
- ▶ State Energy Program
- ▶ Tribal climate resilience programs

## Grid infrastructure

- ▶ Deployment of technologies to enhance grid flexibility
- ▶ Preventing outages and enhancing the resilience of the electric grid grants
- ▶ Energy storage grant programs

## Hydrogen

- ▶ Clean hydrogen grants

## Public transit

- ▶ Low- or no-emission bus grants
- ▶ Clean School Bus Program
- ▶ Electric or low-emitting ferry program

## Renewable energy

- ▶ Clean energy demonstration program on current and former mine land
- ▶ Renewable energy grant programs building codes implementation for efficiency and resilience

## Water

- ▶ Hydroelectric incentives
- ▶ Water recycling grant program
- ▶ Hydropower and marine energy programs
- ▶ Western water infrastructure programs

# IIJA sample grant program timeline<sup>1</sup>

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## Q1 2023

- ▶ Low- or no-emission bus grants
- ▶ Weatherization assistance program
- ▶ Port Infrastructure Development Program grants
- ▶ Pollution prevention grants

## Q2 2023

- ▶ Battery manufacturing, processing and recycling grants
- ▶ Carbon storage validation and testing infrastructure
- ▶ Hydroelectric incentives
- ▶ Carbon capture front-end engineering and design program infrastructure
- ▶ Electric or low-emitting ferry program

## Q3 2023

- ▶ Industrial Efficiency and Decarbonization grants
- ▶ Electric drive vehicle battery recycling and second-life applications
- ▶ Clean School Bus Program
- ▶ Four regional clean direct air capture hubs infrastructure
- ▶ Clean hydrogen grants
- ▶ Advanced energy manufacturing and recycling grants
- ▶ Grants for energy efficiency and renewable energy improvements at public school facilities
- ▶ Energy storage grant programs
- ▶ Brownfields projects
- ▶ State Energy Program

- ▶ Renewable energy grant programs
- ▶ Energy Efficiency and Conservation Block Grant Program
- ▶ Tribal climate resilience programs
- ▶ Hydropower and marine energy programs
- ▶ Advanced Vehicle Technologies

## Q4 2023

- ▶ Carbon capture demonstration and large-scale pilot programs
- ▶ Carbon dioxide transportation, infrastructure, finance and innovation program
- ▶ Deployment of technologies to enhance grid flexibility
- ▶ Preventing outages and enhancing the resilience of the electric grid grants
- ▶ Industrial research and assessment grants
- ▶ Direct air capture prize competitions
- ▶ Building codes implementation for efficiency and resilience
- ▶ Critical mineral research and recycling programs

## TBD

- ▶ Clean energy demonstration program on current and former mine land
- ▶ Reduction of truck emissions at port facilities
- ▶ Energy efficiency revolving loan fund capitalization grant program
- ▶ Water recycling grant program

<sup>1</sup> This represents a list of select provisions; it is not meant to be a comprehensive list.

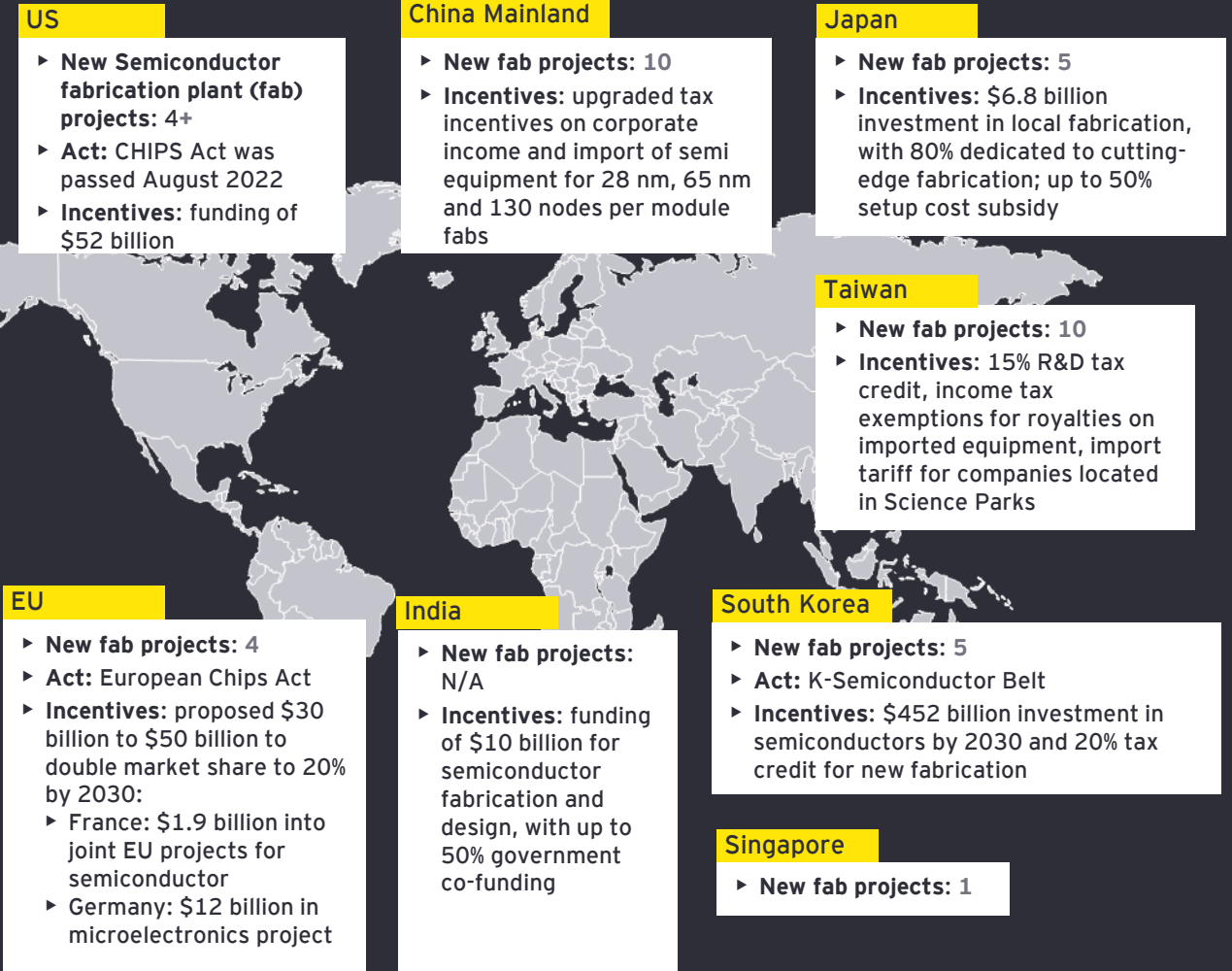
# CHIPS and Science Act

# The Global Drive for Semiconductor Production

## Government-led investment plans

Jurisdiction	Act	Amount of incentive	Time frame for investments
US	<b>CHIPS and Science Act of 2022</b> <ul style="list-style-type: none"> <li>Promoting domestic and foreign manufacturers to open advanced manufacturing fabs</li> </ul>	\$52.7 billion	Next five years (through 2026)
Korea	<b>K-Belt Chip Plan:</b> <ul style="list-style-type: none"> <li>Build geographic clusters and double workforce for chip leadership</li> </ul>	\$55 billion-\$65 billion	Next 10 years
China Mainland	<b>14th Five-Year Plan:</b> <ul style="list-style-type: none"> <li>Achieve 70% chip self-sufficiency by 2025</li> </ul>	\$150 billion	Next 10 years
EU	<b>Digital Compass Plan:</b> <ul style="list-style-type: none"> <li>Produce 20% of global sub 5 nano meter output in the EU (by value)</li> </ul>	\$20 billion-\$35 billion	Next 10 years
Japan	<b>National Project:</b> <ul style="list-style-type: none"> <li>Promote domestic manufacturing of semiconductors</li> </ul>	\$1.8 billion	By 2025
India	<b>Self-reliant India Plan:</b> <ul style="list-style-type: none"> <li>\$1 billion cash grant to each company establishing fab in India</li> </ul>	\$1 billion per company	-

## Investment plans by region



Sources: Semiconductor Industry Association (SIA); EE Times; news articles; EY analysis.

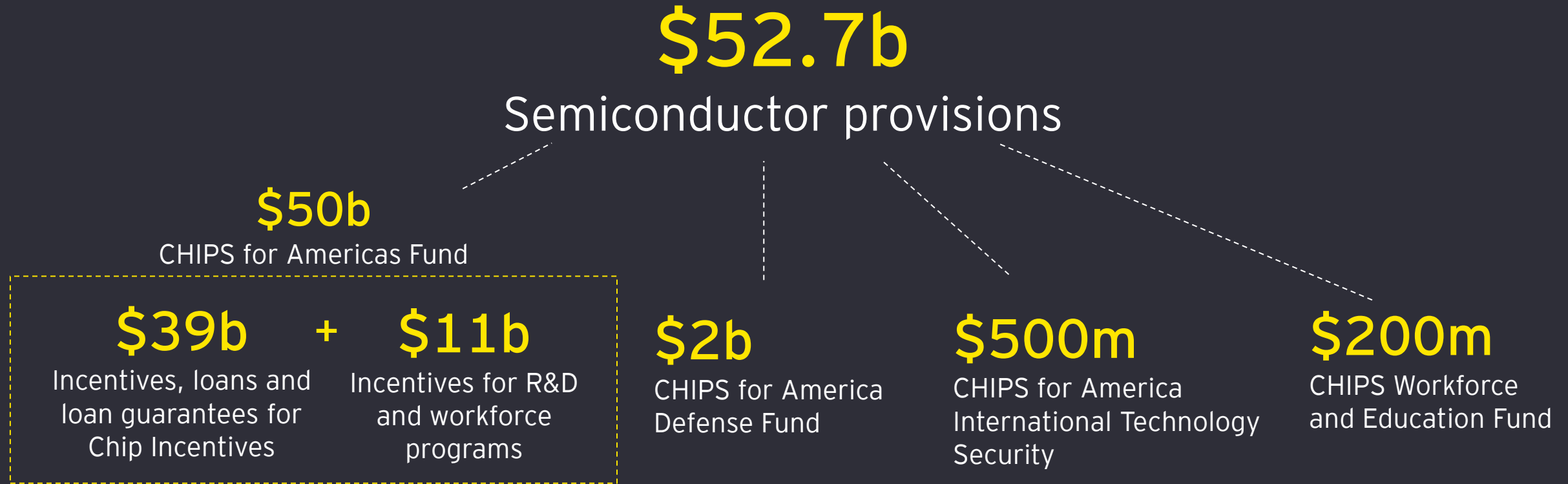
# Advanced Manufacturing Investment Credit

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Credit equal to 25% of qualified investment in advanced manufacturing facility (AMF)

- ▶ Basis of qualified property placed in service during the taxable year:
  - ▶ Tangible property
  - ▶ Depreciation allowable
  - ▶ Constructed, reconstructed or erected by the taxpayer or acquired by the taxpayer (original use requirement)
  - ▶ Integral to the operation of the AMF
- ▶ Advanced Manufacturing Facility is generally defined as a facility where the primary purpose is to **manufacture semiconductors or semiconductor manufacturing equipment**:
  - ▶ Property for performing research with respect to semiconductors or semiconductor manufacturing equipment excluded in final legislation

# What is the CHIPS Incentive Program?



Budgeted over a five-year period

Note: Does not include AMIC (Advanced Manufacturing Investment Credit — 48D)

# Executing energy policy via business investment





## 48C Advanced Manufacturing is applicable to manufacturing of traditional products while emitting less greenhouse gas emissions

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- ▶ Greenhouse Gas Emission Reduction
- ▶ Projects which re-equip an **industrial/manufacturing facility with equipment designed to reduce greenhouse gas emissions by at least 20%** by installing (1) low- or zero-carbon process heat systems, (2) carbon capture, transport, utilization and storage systems, (3) energy efficiency and reduction in waste from industrial processes, or (4) any other industrial technology designed to reduce greenhouse gas emissions.
- ▶ Expansion of 48C tax credits via IIJA (\$8 billion expansion)
  - ▶ Renewable energy generation, storage and distribution assets, which reduce emissions and generate jobs
  - ▶ Investors generally have less out-of-pocket cash outlay to construct these projects, making them more financially feasible

# IRA provisions require new analysis and decision making as to how to realize IRA energy and climate subsidies

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- ▶ Claim tax credit on return
- ▶ Direct pay
- ▶ Transfer credits
- ▶ Direct pay/transfer combo
- ▶ Tax equity

In light of new monetization structures, we have seen improved ROI for projects that previously use complex lease or financed arrangements, so it is important to evaluate current agreement structures to help assess whether you are maximizing the benefits for each project. Key considerations:

- ▶ Who is the “tax owner” of the asset (i.e., is the agreement a lease or finance arrangement)?
- ▶ Are benefits being passed through via reduced payments?
- ▶ Is there a mechanism to help assess that prevailing wage and apprenticeship requirements are met?
- ▶ Are non-federal incentives (often called, collectively, “environmental attributes”) being captured for the projects and passed through if the customer is not the tax owner?

# Closely examine energy projects as special IRA provisions may drive benefits up to 70% of project cost

	Description	Rate	Reference
Base	Base credit amount with no enhancement or bonuses	6%	48(a)(2)(i)
Enhanced (prevailing wage and apprenticeship)	<ul style="list-style-type: none"> <li>▶ Prevailing wage: taxpayer needs to pay the prevailing wage (i.e., Davis Bacon Act wages) for any laborers or mechanics employed by contractors and subcontractors*</li> <li>▶ Apprenticeship: a minimum percentage of total labor hours is required to be performed by qualified apprentices (e.g., 10% for projects where construction begins in 2022)*</li> </ul> <p>*Certain exceptions apply including an exception for projects that begin construction before 1/31/2023 and for projects that are less than 1 MW</p>	5 x base credit	48(a)(9)(A)(i)
Domestic content bonus w/o wage and apprenticeship	Any steel and iron, as well as 40% of the manufactured products that are components of the qualified facility are produced or manufactured in the US	2%	48(a)(12)(A)
Domestic content bonus w/ wage and apprenticeship	Any steel and iron, as well as 40% of the manufactured products that are components of the qualified facility are produced or manufactured in the US	10%	48(a)(12)(A)
Energy community bonus w/o wage and apprenticeship	Project is in an energy community as defined in Section 45(b)(11)(B)	2%	48(a)(14)(A)
Energy community bonus w/wage and apprenticeship	Project is in an energy community as defined in Section 45(b)(11)(B)	10%	48(a)(14)(A)
Max credit w/prevailing wage and apprenticeship	Max credit amount for projects in which prevailing wage and apprenticeship are not met	50%	
Max credit w/o prevailing wage and apprenticeship	Max credit amount for projects in which prevailing wage and apprenticeship are met	10%	
	Additional Bonus Credit Opportunities for Wind and Solar	Rate	Reference
Projects located in a low-income community or on Tribal land	Projects must have a maximum net output of less than 5 MW and be: (i) located in a 45D(e) census tract (NMTC census tract) or (ii) located on Indian land as defined in Section 2601(2).	10%	48(e)(1)(A)(i)
Low-income residential building or low-income economic benefit projects	Projects must be: (i) installed on certain qualified residential rental buildings and the financial benefits of the electricity produced must be allocated equitably among occupants; or (ii) provide at least 50% of the financial benefits of the electricity produced to households with income of less than 200% of the poverty line or less than 80% of area median gross income.	20%	48(e)(1)(A)(ii)

\*Bonus credits do not apply to all project types.

# Energy transition innovation funding

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- ▶ The Inflation Reduction Act provides \$27 billion to EPA for expenditure until September 30, 2024 to administer the Greenhouse Gas Reduction Fund within the following programs:
  - ▶ Climate pollution reduction grants
  - ▶ Transportation programs
  - ▶ Methane emissions reduction program
  - ▶ Funding to address air pollution
  - ▶ Low-emissions electricity program and GHG corporate reporting
- ▶ Funding breakdown
  - ▶ \$7 billion for competitive grants to enable low-income and disadvantaged communities to deploy or benefit from zero-emission technologies, including distributed technologies on residential rooftops
  - ▶ \$12 billion for competitive grants to eligible entities to provide financial and technical assistance to projects that reduce or avoid greenhouse gas emissions
  - ▶ \$8 billion for competitive grants to eligible entities to provide financial and technical assistance to projects that reduce or avoid greenhouse gas emissions in low-income and disadvantaged communities

# Have a plan to utilize incentives

A myriad of business activities can trigger the ability to negotiate, apply for or automatically utilize government incentives. Proactive monitoring of such activities is important for a business to maintain its ability to identify and pursue all meaningful incentive opportunities, which can lead to increased return on investment.

## Capital Expenditures



- ▶ **Greenfield investment**
- ▶ Brownfield investment
- ▶ **Facility expansion**
- ▶ Facility modernization
- ▶ Remodeling
- ▶ Machinery/equipment replacement
- ▶ Retooling
- ▶ **New production lines**
- ▶ Supply chain optimization
- ▶ Mergers and acquisitions
- ▶ Joint ventures

## Employment



- ▶ **Job creation**
- ▶ **Job retention**
- ▶ Job reduction
- ▶ Indirect employment
- ▶ Compensation and benefits
- ▶ Training
- ▶ Upskilling
- ▶ Footprint optimization
- ▶ Mergers and acquisitions
- ▶ Joint ventures

## Innovation



- ▶ Research and development (R&D)
- ▶ **Experimentation**
- ▶ **New product development**
- ▶ Product performance or functionality enhancement
- ▶ Machinery/equipment development
- ▶ Production upgrades
- ▶ Software development

## Sustainability



- ▶ Green energy investments
- ▶ **Energy efficient equipment**
- ▶ **Pollution control equipment**
- ▶ **Fleet decarbonization**
- ▶ Green buildings and development
- ▶ Renewable energy generation
- ▶ Carbon footprint reduction/carbon credits



Thank you for joining

# Appendix

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## EY | Building a better working world

EY exists to build a better working world, helping to create long-term value for clients, people and society and build trust in the capital markets.

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# Paul Naumoff



## Paul Naumoff

*Principal Sustainability Tax Services, Global Co-Leader and Global Location Investment, Credits & Incentives*

+1 614 309 6870

paul.naumoff@ey.com

Paul is a Tax Principal, and Global Sustainability Tax Services, Co-Leader. He also has 26 years of tax advisory, location advisory and federal, state and local credits and incentives experience. In Paul 's leadership role, he brings together a diverse set of skills and global EY professionals to assist clients in navigating and responding to a broad set of tax, incentives, supply chain, talent, and capital deployment challenges associated with business priorities arising from enhanced focus on Sustainability tax (environmental, social and governance) matters.

- As EY's Global Co- Leader of Sustainability Tax, Paul leads project teams assisting clients achieve their Sustainability and ESG goals and tax departments focused on strategy, tax policy, financial and operational impacts, tax compliance and non-tax reporting matters, incentives and funding, decarbonizing supply chains and employee and talent matters associated with corporate environmental, social and governance initiatives.
- Paul has worked extensively with environmental incentives globally and domestically related to energy efficiency, renewable energy, advanced manufacturing, fleet decarbonization, green buildings, innovation and conservation projects.
- Paul previously served as EY's Americas Leader for Global Location Investment, Credits and Incentives Services. Paul has had direct responsibility on more than 250 economic development, location advisory, credits & incentives projects in more than 30 U.S. states serving both private and public sector clients. Experience includes site selection/location analysis, grants, subsidies, credits & incentives, tax and cost modelling and economic impact analysis and technology supported incentives compliance. Paul's teams have helped clients secure more than \$20B of incentives and tax credits.
- Paul previously served as National Director of EY's Tax Credits Investment Advisory Services which focuses on Advanced Manufacturing Tax Credits, New Markets Tax Credits, Opportunity Zones, Renewable Energy Credits and incentives, Low Income Housing Tax Credits and Federal Grants.
- Paul has a B.S. Finance from Miami University. He obtained his J.D. from Capital University Law School. Paul is an elected member the New Albany Plain Local School District Board of Education. Paul serves on the Board of Directors of Lifecare Alliance and is founder of New Albany Charity Run, Inc. (narun.org) which operates Thanks for Giving events serving those in need in Central Ohio.