

# Inflation Reduction Act Analysis: Key Findings on Workforce Demand.

—David Foster, Distinguished Associate  
July 26, 2023

POLICY PAPER

## Jobs, Emissions, and Economic Growth—What the Inflation Reduction Act Means for Working Families

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January 2023

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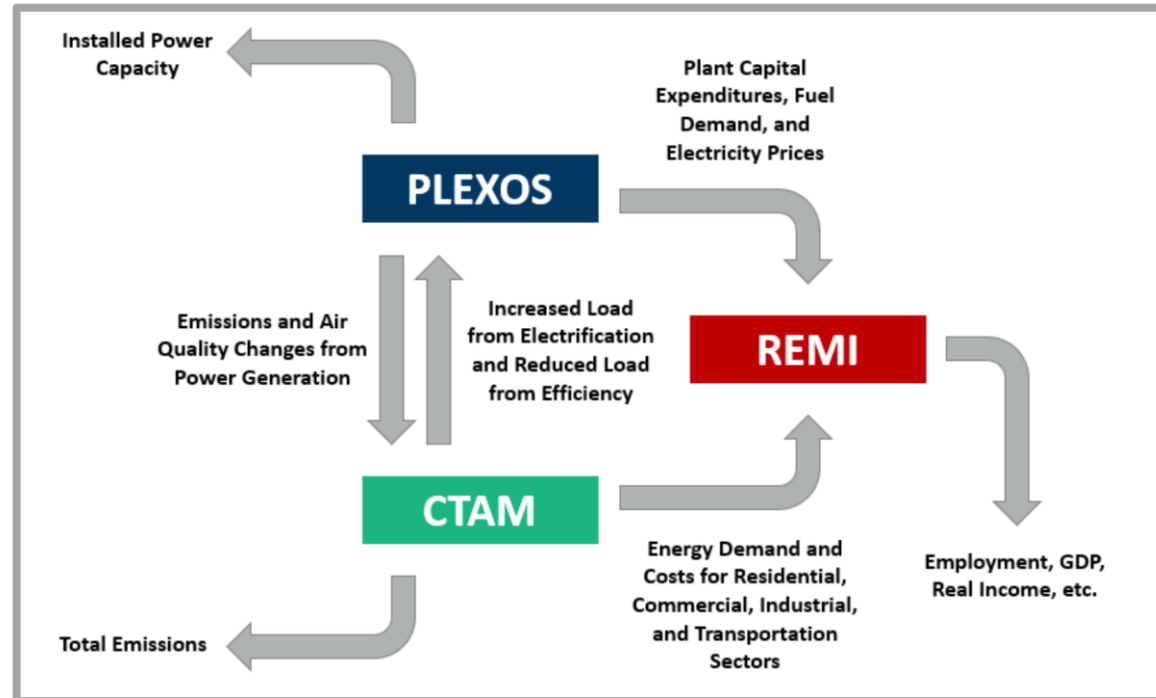


# Modeling Outline

*Goal: To Demonstrate How Multiple Decarbonization Scenarios Could Meet the Biden Administration's NDC Goal, While Also Exceeding High Quality Job Creation, GDP Growth, and Other Economic Factors Over the Base Case Scenario*

## Modeling System

- Plexos—electricity system modeling
- CTAM—other energy prices and emissions
- REMI—economic results





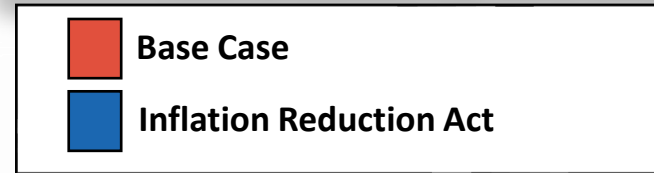
# Jobs Growth from the Inflation Reduction Act



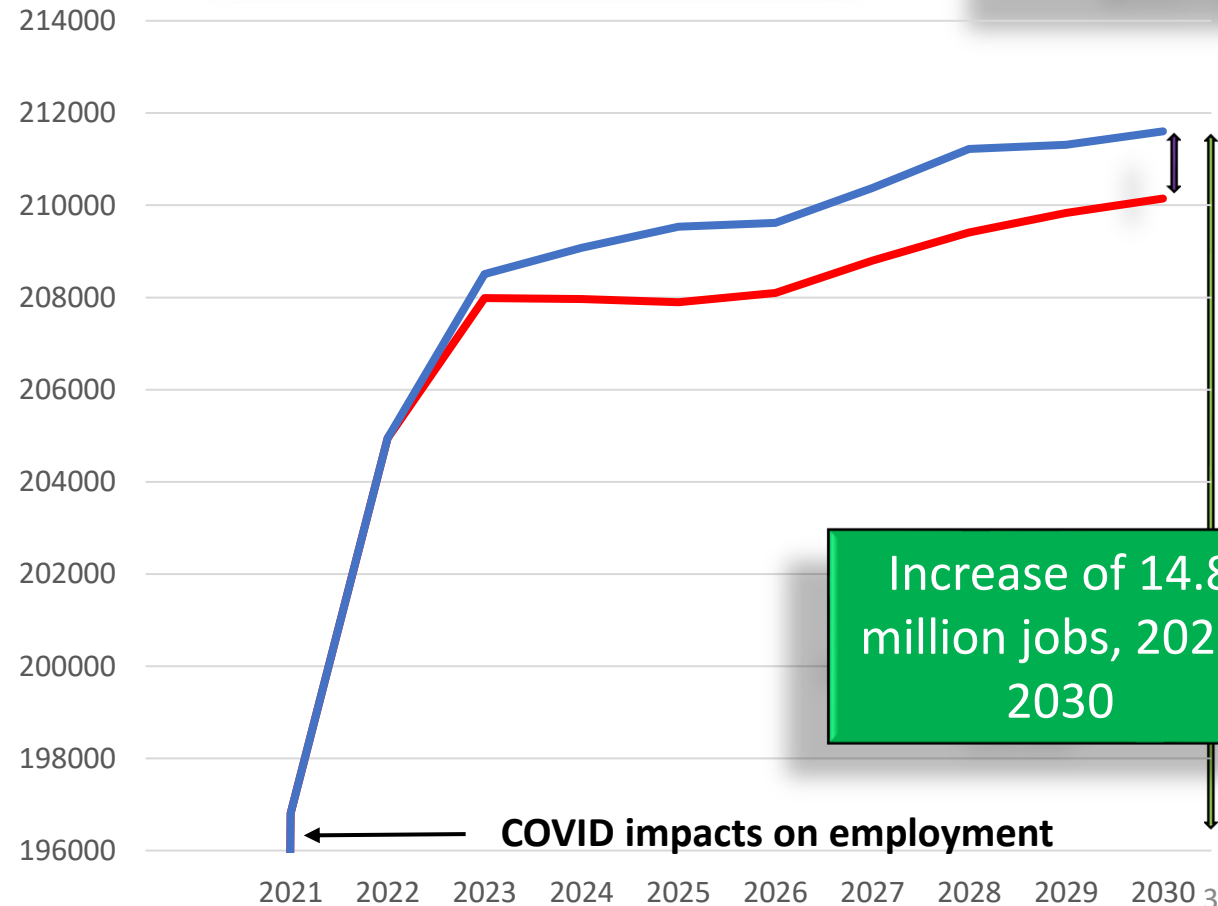
## U. S. Jobs Impacts

- IRA adds **1,457,000** more jobs than the Base Case Scenario (BCS).
- **1.16 million construction jobs** are added, **590,000** more than the BCS.
- **1.1 million new manufacturing jobs** are added between 2021-2030, **151,000** more than BCS.
- Nearly **190,000** more jobs in electric power sector, than in the BCS.
- Domestic content rules, sourcing requirements, and EV tax credits result in:
  - **1.1 million Motor Vehicle** manufacturing jobs, a net increase of **45,000**, including
  - **61,000** new MV battery manufacturing jobs.
- **161,000** more professional services jobs are added than in the BCS.

### Job Creation By IRA, 2021-2030



1.46 Million additional jobs with IRA



# Job Quality from the Inflation Reduction Act

Table 1. Key Sectors of Energy Job Growth, Weekly Earnings, and Unionization Rates, 2021-2030\*

Sector	2021 Jobs	2030 Base Case Jobs	2030 IRA Case Jobs	2021 Median Weekly Earnings	2021 Unionization Rate
Construction	10,724,000	11,293,000	11,883,000	\$1344	12.7
Manufacturing	13,315,000	14,326,000	14,477,000	\$1016	7.7
Electric Utility	409,000	383,000	571,000	\$1482**	19.7**
Prof. Services	25,360,000	27,942,000	28,103,000	\$1241	2.9
Private Sector	196,812,000	210,144,000	211,601,000	\$973***	6.1

\*<https://www.bls.gov/cps/cpsaat43.pdf>

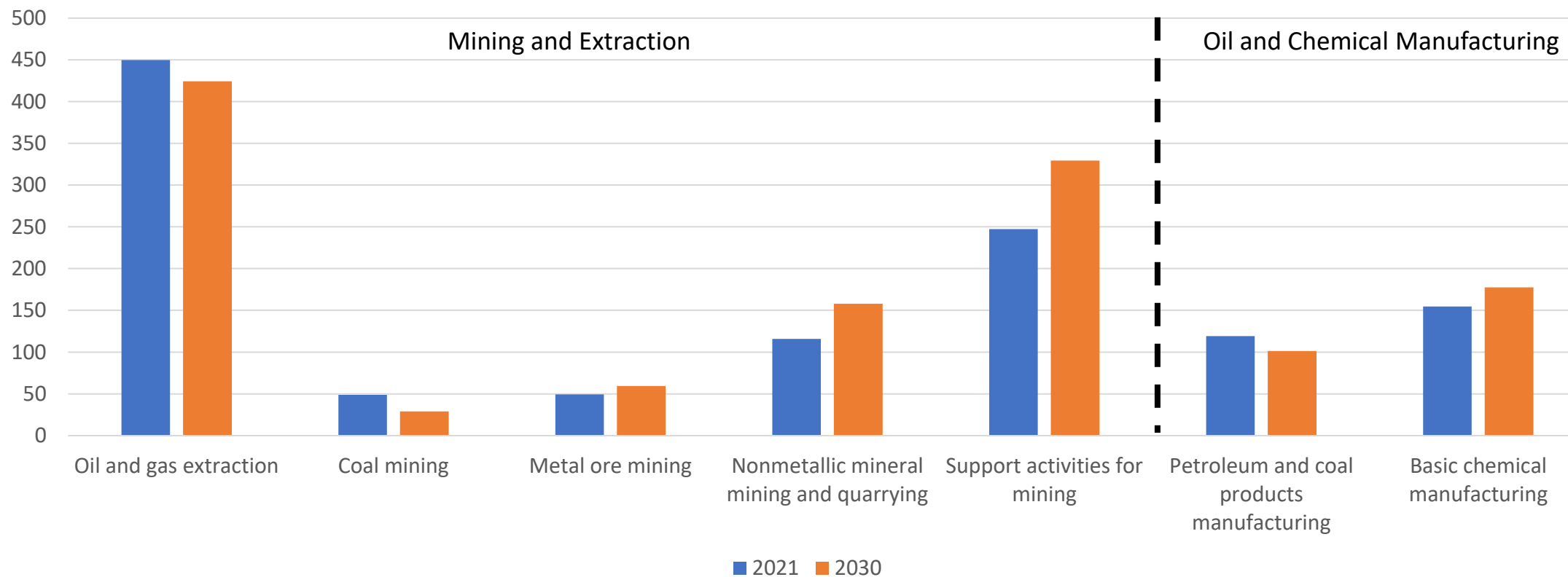
\*\*Includes all utility sector wages

\*\*\*Includes all employees, both union and non-union



# Energy Job Losses and Gains with Related Skills

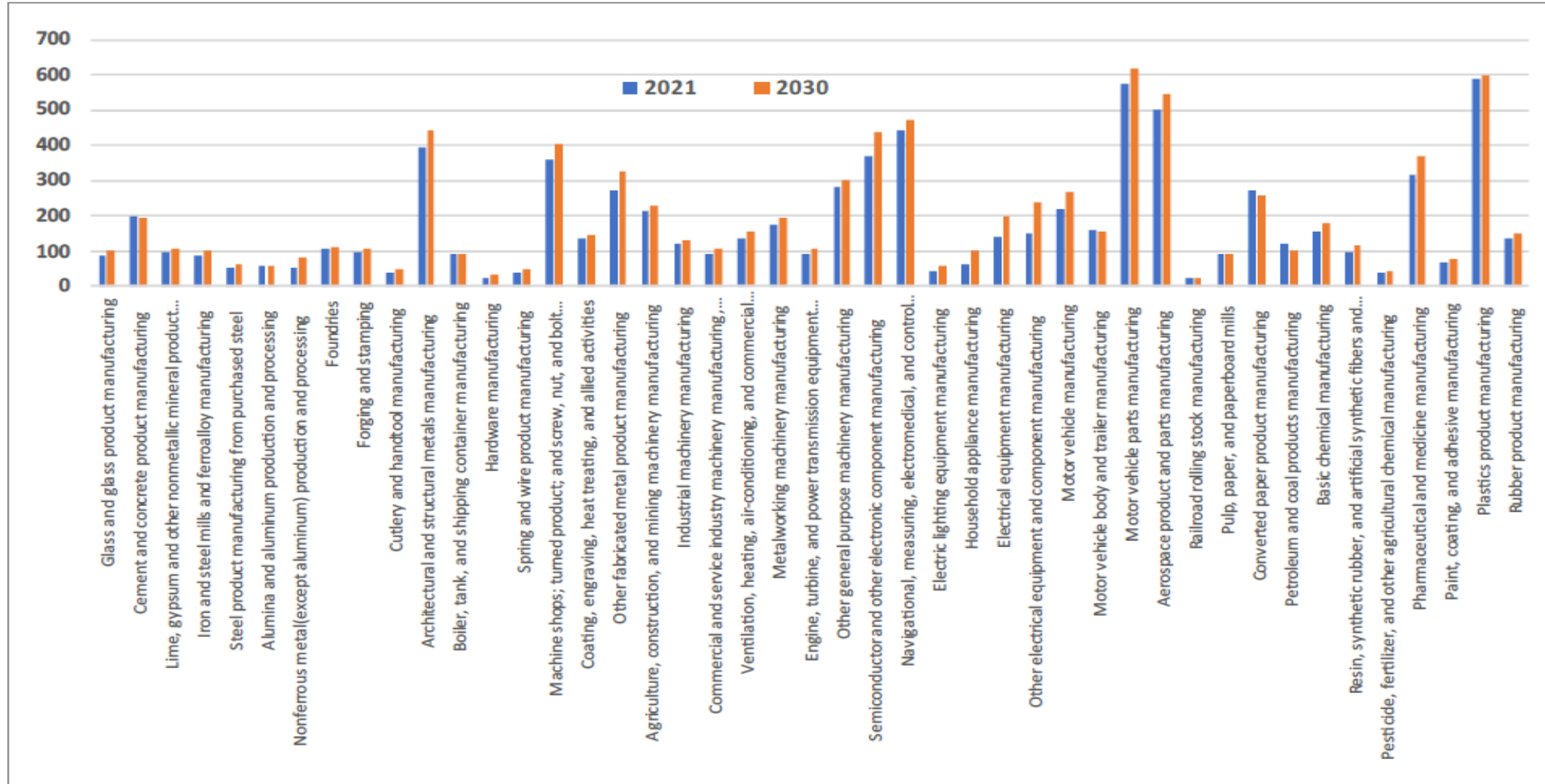
## IRA Job Losses/Gains in Related Industries, 2021-2030





# Durable Manufacturing Jobs' Impacts by Sector

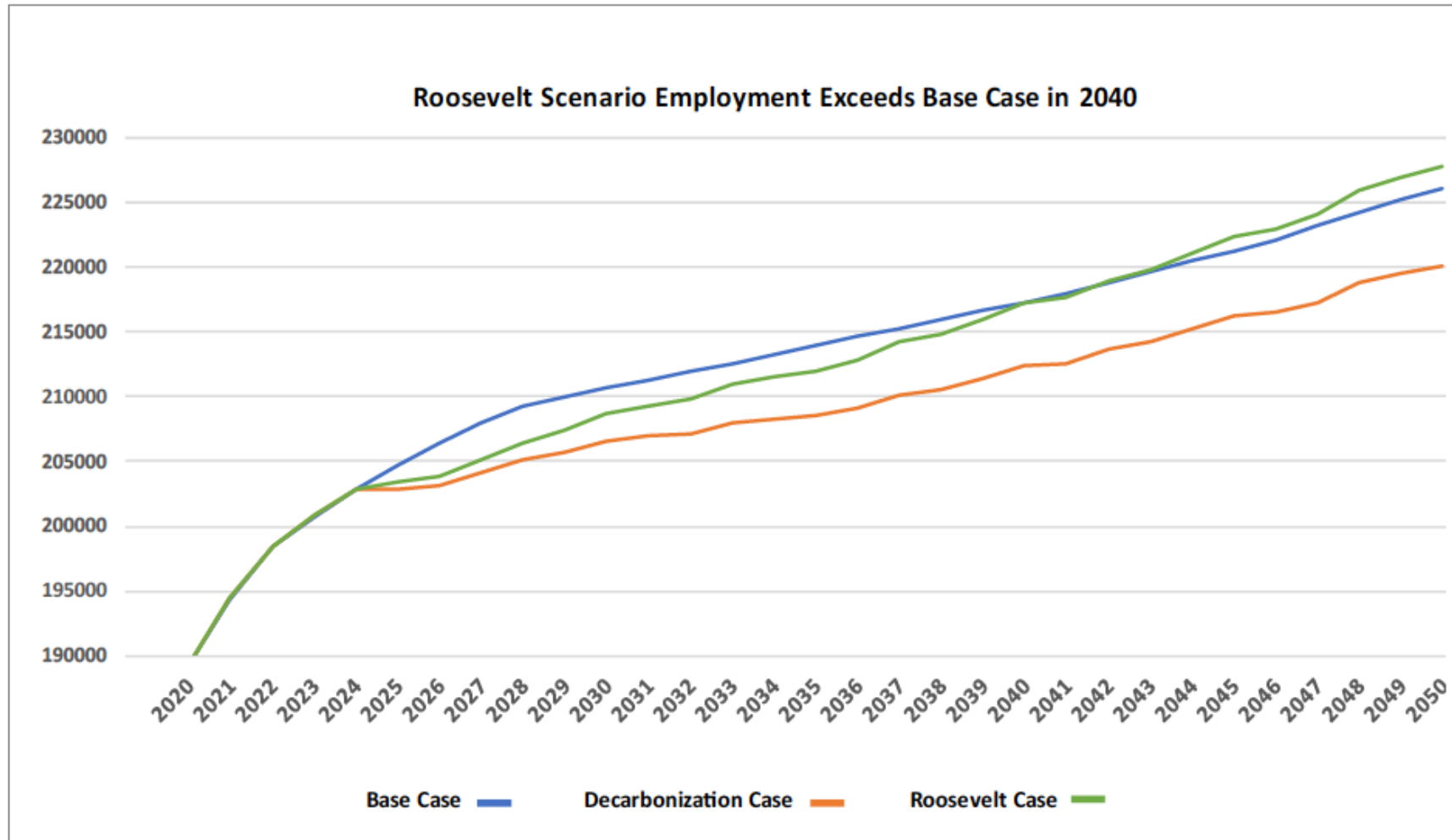
Figure 7. IRA Job Impacts on Select Durable Manufacturing, 2021-2030





# Reaching Net Zero by 2050, Employment Scenarios

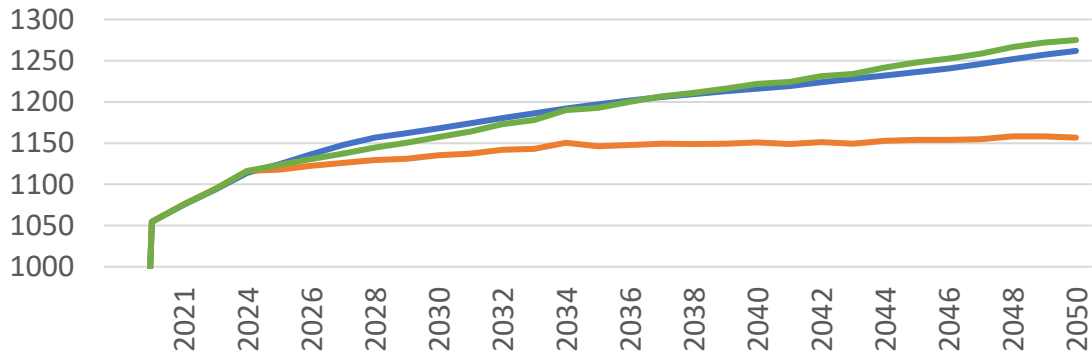
Figure 4. Job Growth, 2020-2050, MIT Roosevelt Project



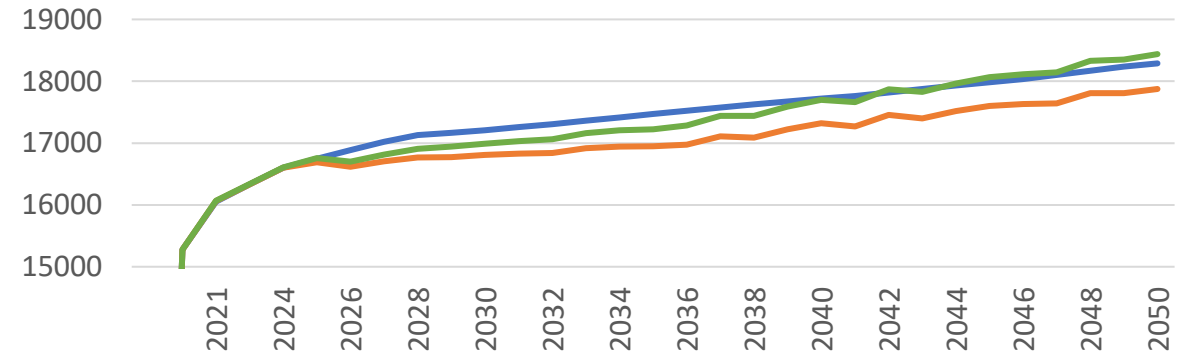
# Regional Variation in Reaching Net Zero by 2050

Figure 5. Job Growth, 2020-2050 in MIT Roosevelt Project Case Studies.

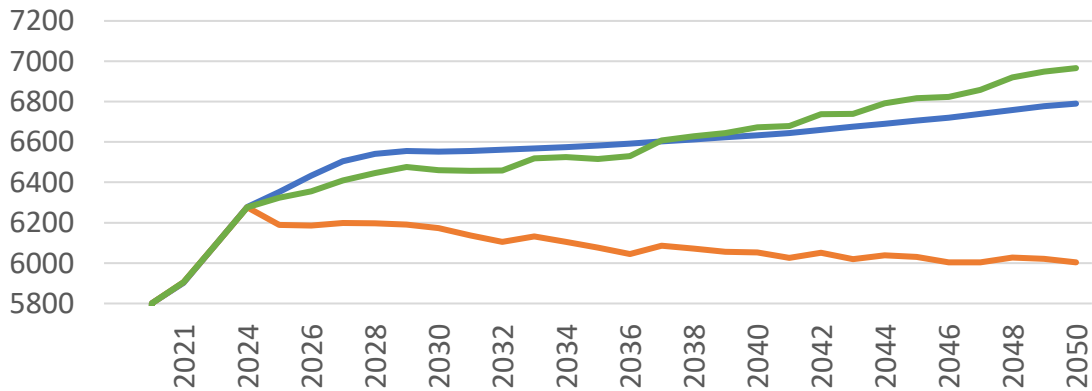
## New Mexico



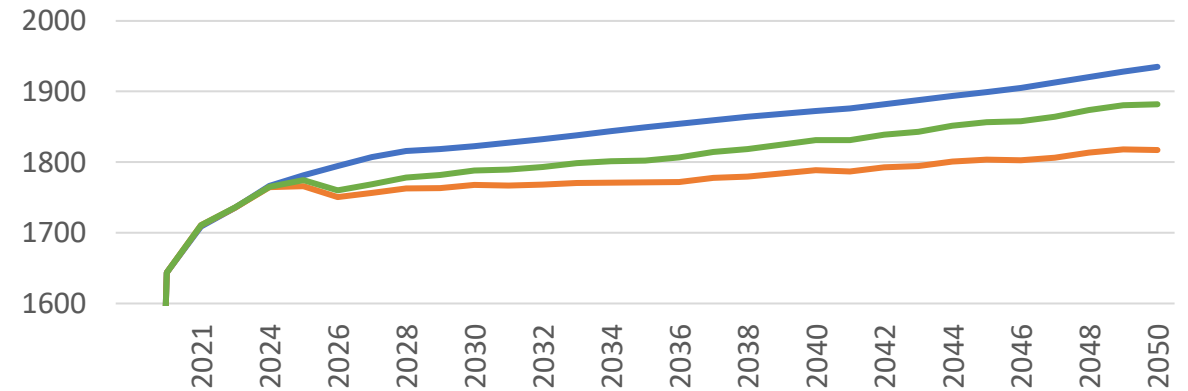
## Industrial Heartland—MI, IN, & OH



## Gulf Coast



## Southwestern Pennsylvania







# Key Takeaways from the IRA Jobs' Study

1. 1.5 million additional jobs are created by the IRA by 2030.
2. Targeted, coordinated investments that promote energy efficiency among end-users can offset the rate impacts of large-scale investments in new generation and transmission infrastructure.
3. Consumer energy savings provide additional stimulus to the overall economy.
4. Supportive policies for job quality, unionization, workforce training, and domestic production are essential to outperform Base Case Scenario and are a prerequisite to building long-lasting support.
5. Regional variations in impacts will remain and demand additional attention and investments to support the transition.

# Additional Considerations

1. Employer participation in workforce transition planning is essential for current employees in key sectors.
  1. Utilities
  2. Construction firms
  3. Oil & Gas Extraction and Mining Companies
2. Center for Energy Workforce Development is a multi-stakeholder example in the utility sector.
3. Cross agency collaboration such as the Energy and Advanced Manufacturing Workforce Initiative can coordinate resources.
4. Replicate the Battery Workforce Initiative in critical technologies.
5. Address the labor mobility barriers, particularly in rural, mining communities.

# Backup Slides



# Base Case Assumptions

- **Base Case:**
  - Based on Energy Information Administration's 2022 Annual Energy Outlook Base Case energy and economic assumptions.
  - No energy or tax policy changes
  - No national emissions' target
  - Includes Investment and Infrastructure Jobs' Act and other laws, enacted prior to 7-27-22\*
  - Includes existing state energy regulatory actions

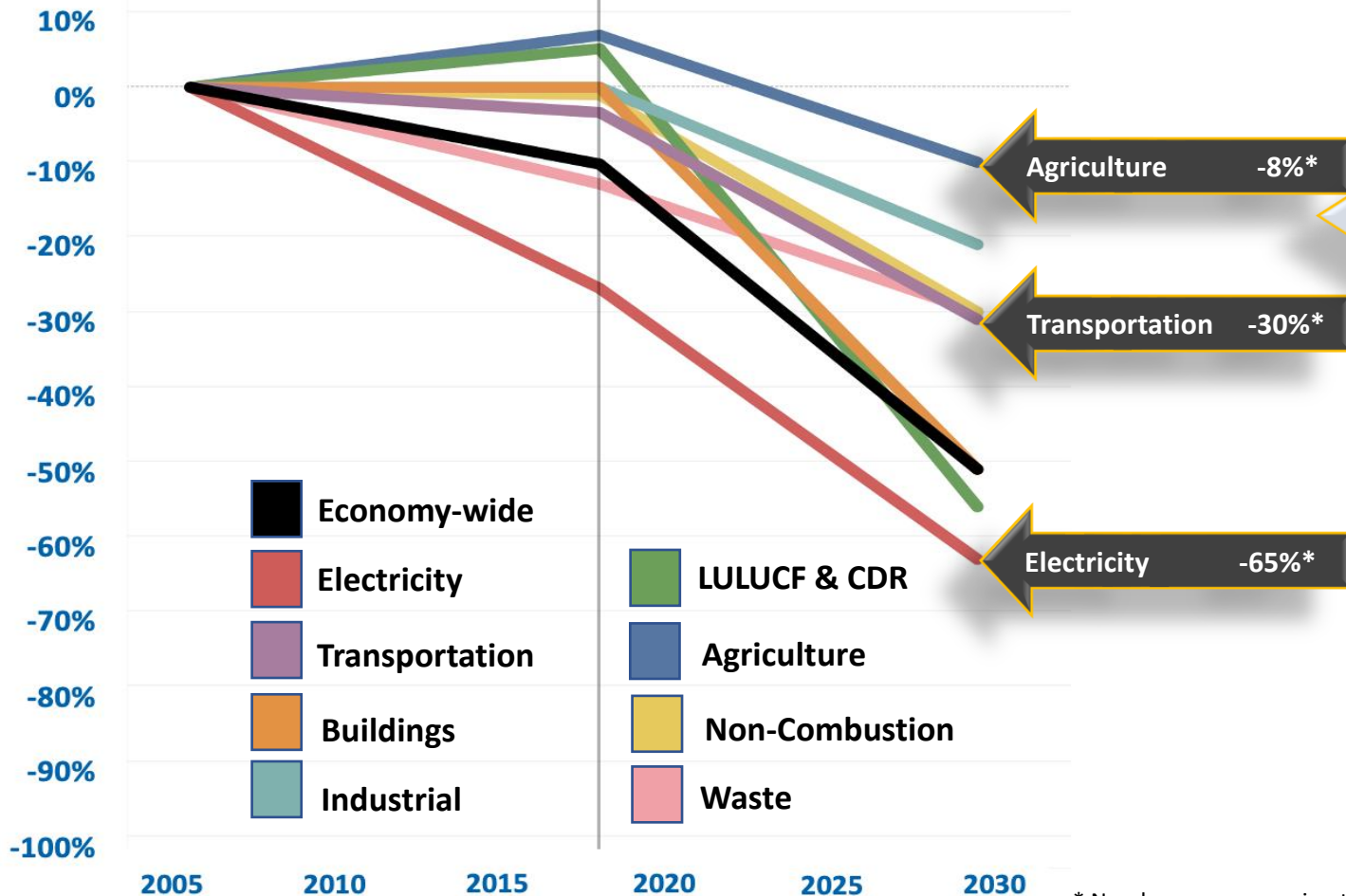
\*Does not include the CHIPS/Science Act



# Key Assumptions for Economywide IRA Emissions Reductions from 2005 Baseline By Sector

## Emissions Reductions from the 2005 Baseline Year

2018 GHG Emissions



### Key Assumptions in Sectoral Emissions Reductions

- **Power Generation:** 4.6% total load decline with 574 GW renewables deployment
- **Transportation:** 35% of light duty vehicle sales are BEV or PHEVs in 2030
- **Industry:** 100 Mt of carbon dioxide (cumulative) are captured by CCS and heavy fuel switching occurs to natural gas; 10% improved efficiency
- **Buildings:** Electrification of appliances, fuel-switching, heat pumps, and improved efficiency
- **CDR:** Technological solutions remove 100 Mt carbon dioxide (cumulative)
- **Agriculture:** Biogas capture, nutrient management, and alternative use of cattle feeds
- **Non-Combustion:** Prevent leakage of GHGs
- **Waste:** Biogas capture and reduction of food waste

\* Numbers are approximate



# Inflation Reduction Act Modeling Scenario

## Inflation Reduction Act Modeling Assumptions based on 8/3/22 CBO Cost Estimates; 8/5/22 Modifications not expected to make material changes in Modeling Results

- **IRA Revenue Assumptions: \$774 Billion (increased \$6B to \$780 B from 8/5/22 modifications)**
  - **15% Corporate Minimum Tax--\$313B (reduced \$55B to \$258 B in 8/5/22 modification)**
  - **Prescription Drug Pricing--\$305B**
  - **IRS Tax Enforcement--\$124B (Net of \$203B revenue less \$79B increased IRS cost)**
  - **Carried Interest Loophole \$15B (eliminated by 8/5/22 modification)**
  - **Excise Tax on Stock Buybacks (\$74B added in 8/5/22/modifications)**
  - **Methane, Superfund, and other Fees--\$19B**
- **IRA Spending Assumptions: \$470B (no change resulting from 8/5/22 modifications)**
  - **ACA Extension--\$64B**
  - **Climate, Energy, and other Spending--\$406B**
- **Deficit Reduction Assumption--\$304B (increased by \$6B to \$310B resulting from 8/5/22 modifications)**



# Modeling Assumptions: Key Social and Economic Policies

## **Policies Enacted in Bipartisan Infrastructure bill (IIJA)**

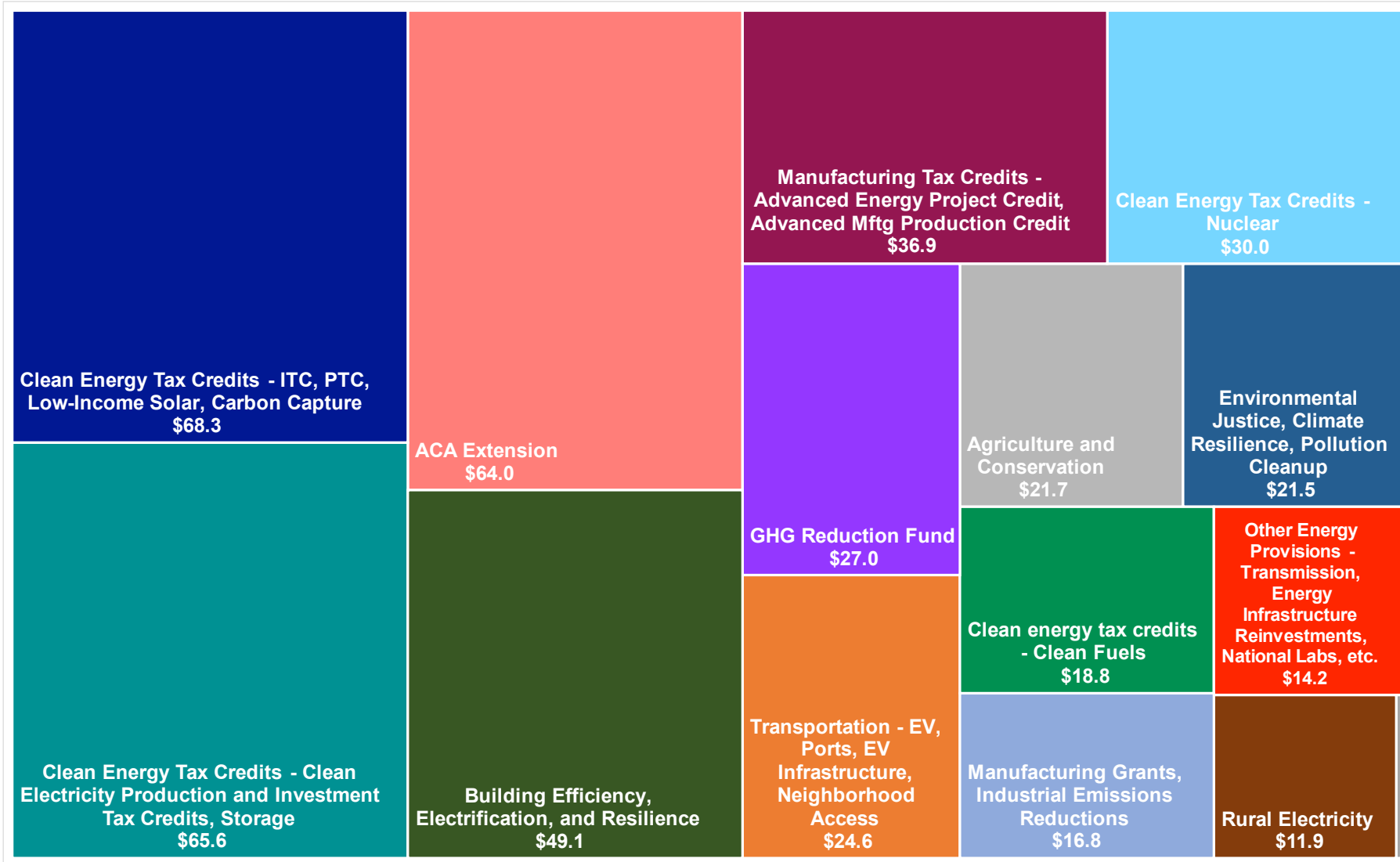
- Davis-Bacon prevailing wage requirements for infrastructure/construction spending
- Buy American provisions on infrastructure and social policy spending

## **Policies supported by the Inflation Reduction Act**

- Tax credit increases for renewable electricity projects meeting the following standards:
  - Davis-Bacon prevailing wages
  - Apprenticeship ratios
  - Targeting low-income and Justice40 communities
- EV tax credit increases for:
  - Domestic content in USMCA countries
  - Rising domestic content for battery assembly and minerals processing
- Job training programs



# Details of \$470B of ACA, Climate, Energy, and Infrastructure Provisions

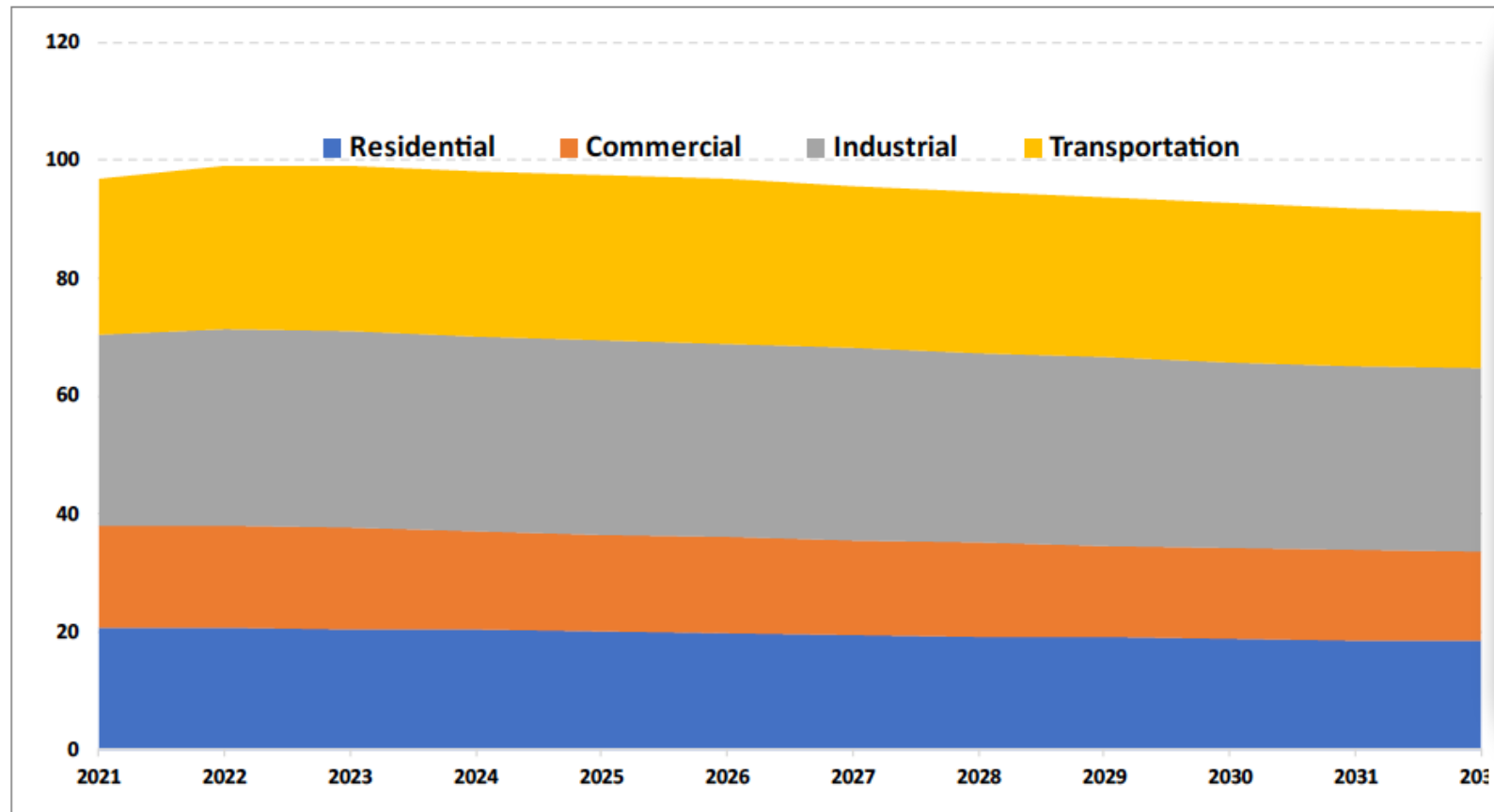


- ACA, climate, energy, and infrastructure provisions total roughly \$470 billion.
- Total energy tax credits: \$258 billion.
- Energy efficiency, housing and resilience spending: \$49 billion.
- Transportation: \$25 billion.
- Manufacturing and industry: \$54 billion.



# Overall Energy Demand Declines Under IRA

Figure 9. IRA Case Energy Demand by Sector, 2021-2032, Residential, Commercial, Industrial, and Transportation (Quads)



## Energy Demand Declines and Lowers Costs

- Industrial energy costs are \$30B less under the IRA, than under BAU.
- Transportation energy costs are \$25B less than BAU.



# Gross Domestic Product from the Inflation Reduction Act



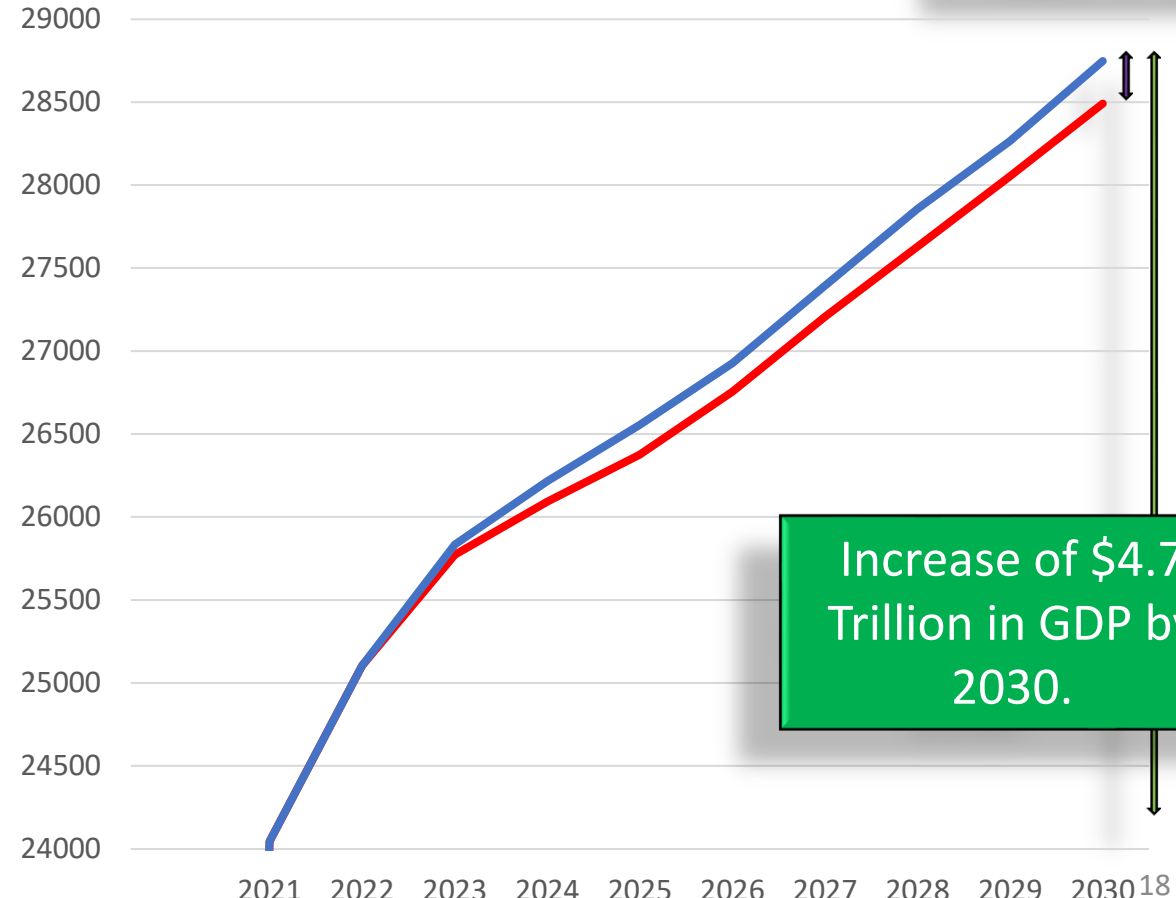
GDP Growth (2022 B\$) from IRA, 2021-2030

<span style="color: red;">■</span>	Base Case
<span style="color: blue;">■</span>	Inflation Reduction Act

GDP increases by \$250B more than Base in 2030.

## GDP Impact of IRA

- IRA increases GDP every year over Base Case.
- GDP increases to \$28.7 Trillion in 2030, \$250B more than Base Case.
- Electric power sector GDP grows by \$180B from 2021-2030 in the IRA Case.
- Construction sector GDP grows to \$1.19T, an increase of \$164B under IRA.



Increase of \$4.7 Trillion in GDP by 2030.



# Inflation Impacts from the Inflation Reduction Act

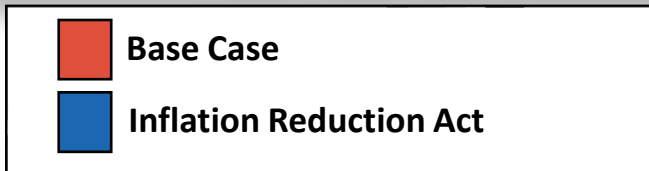


## Inflation under IRA

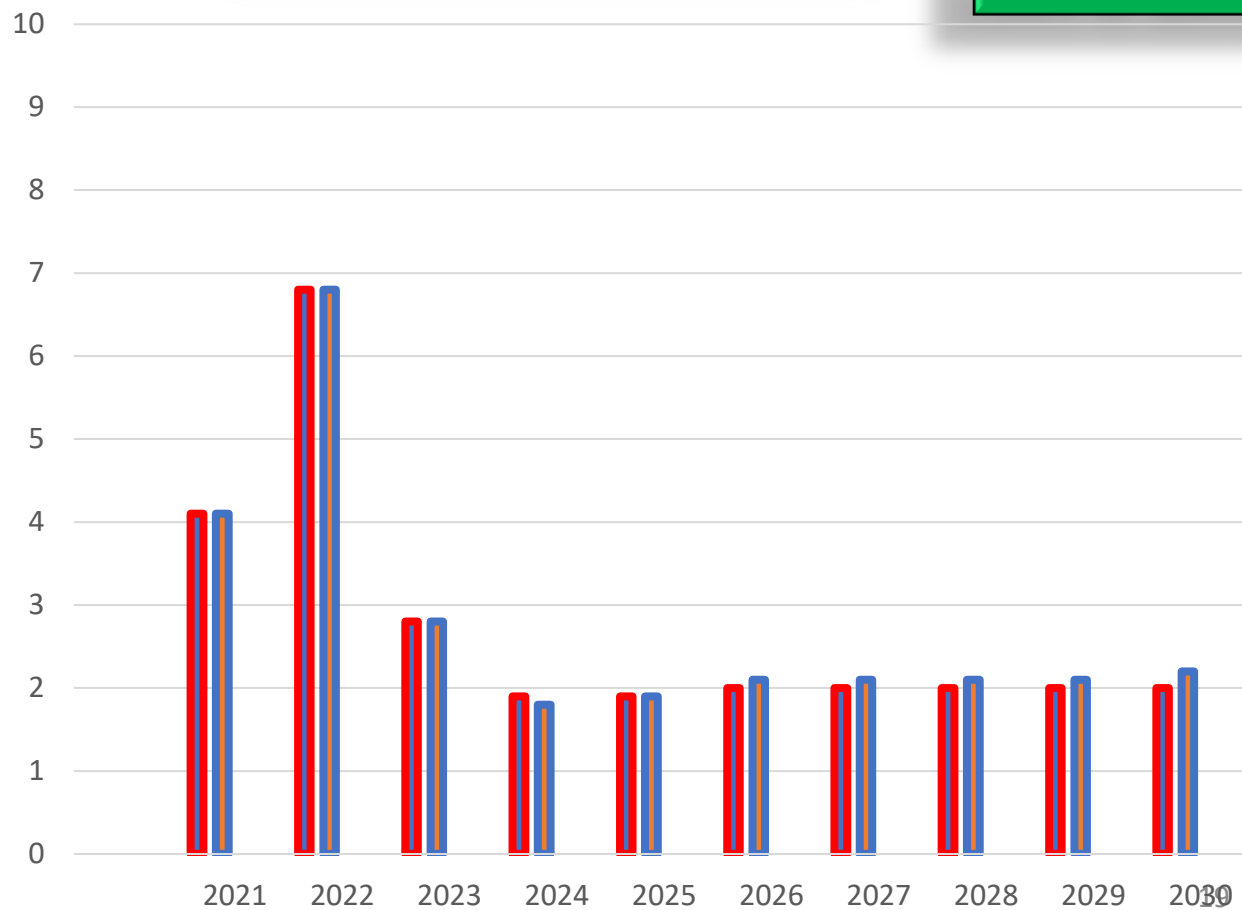
- **The Federal deficit is reduced by \$304B.**
- **Inflation rates are driven by Federal Reserve monetary policy and assumes that the Fed will continue to raise rates to 3.5% by mid-2023, declining to 2.5% in 2024.**
- **Inflation is measured using the PCE-Price Index, used by the Federal Reserve.\***
- **Inflation rates drop** rapidly from current levels, with lowered inflation in 2024 helping stabilize the annual rate this decade at about 2%, the Fed’s target for a healthy economy.

\* PCE-PI Modeling, based on June-June calendar year, actual figures through June, 2022. The estimate for 2023 (July 2022-June 2023) is based on an earlier projection and may need to be revised as actual data are reported over the coming months. The projected decline in later years should not be affected..

PCE Price Index, 2021-2030



Inflation rates decline in both cases to about 2%.





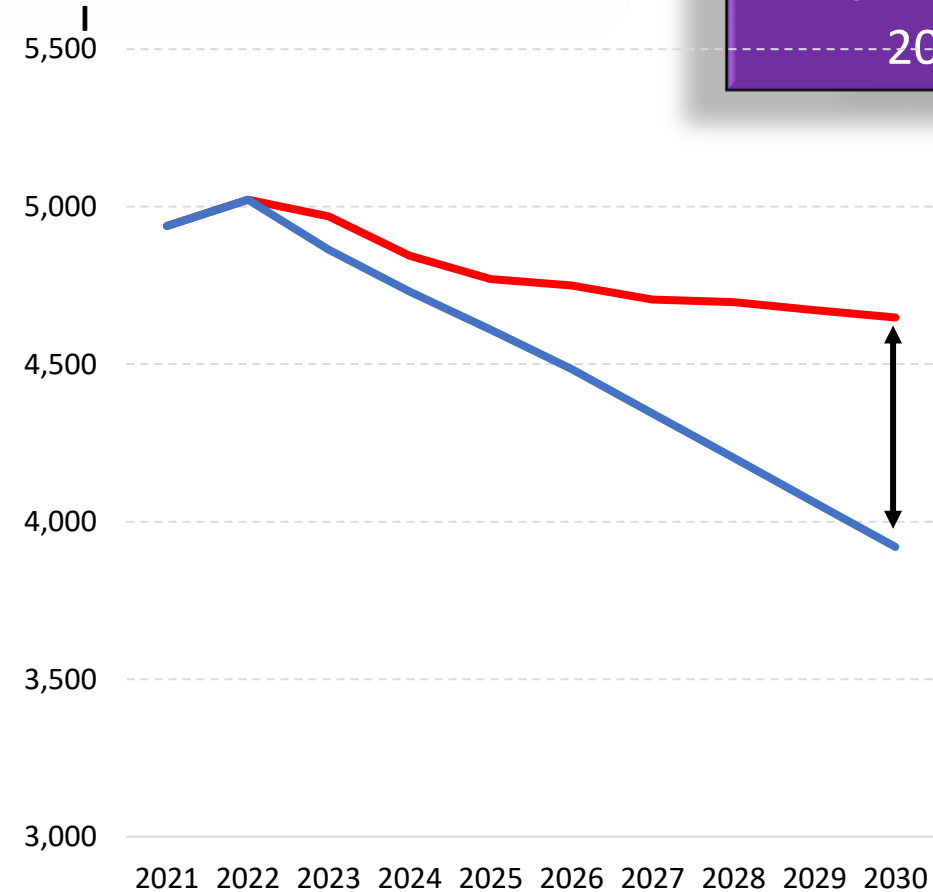
# GHG Reductions from the Inflation Reduction Act



GHG Reductions (MMT CO<sub>2</sub>), 2021-2030

<span style="color: red;">■</span>	Base Case
<span style="color: blue;">■</span>	Inflation Reduction Act

IRA reaches 37% GHG reductions from 2005 in 2030.

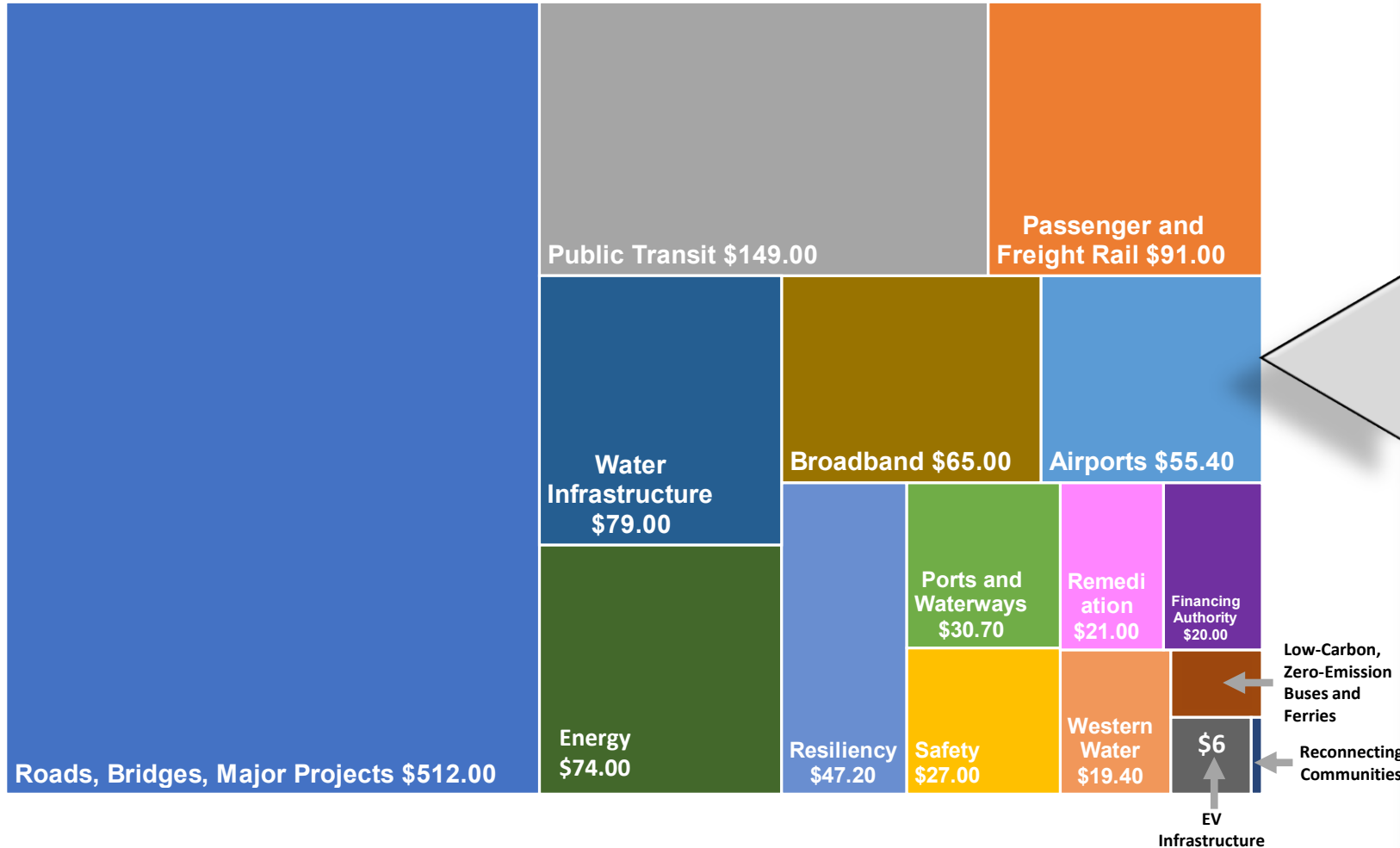


## GHG Reductions from 2005 Levels

- IRA removes over 1,000 MMT of CO<sub>2</sub> equivalents by 2030, a 37% reduction from 2005.
- IRA more than triples the amount of GHG reduction between 2021 and 2030, from 291MMT to 1019MMT.



# Modeling Assumptions: Infrastructure Investment and Jobs Act

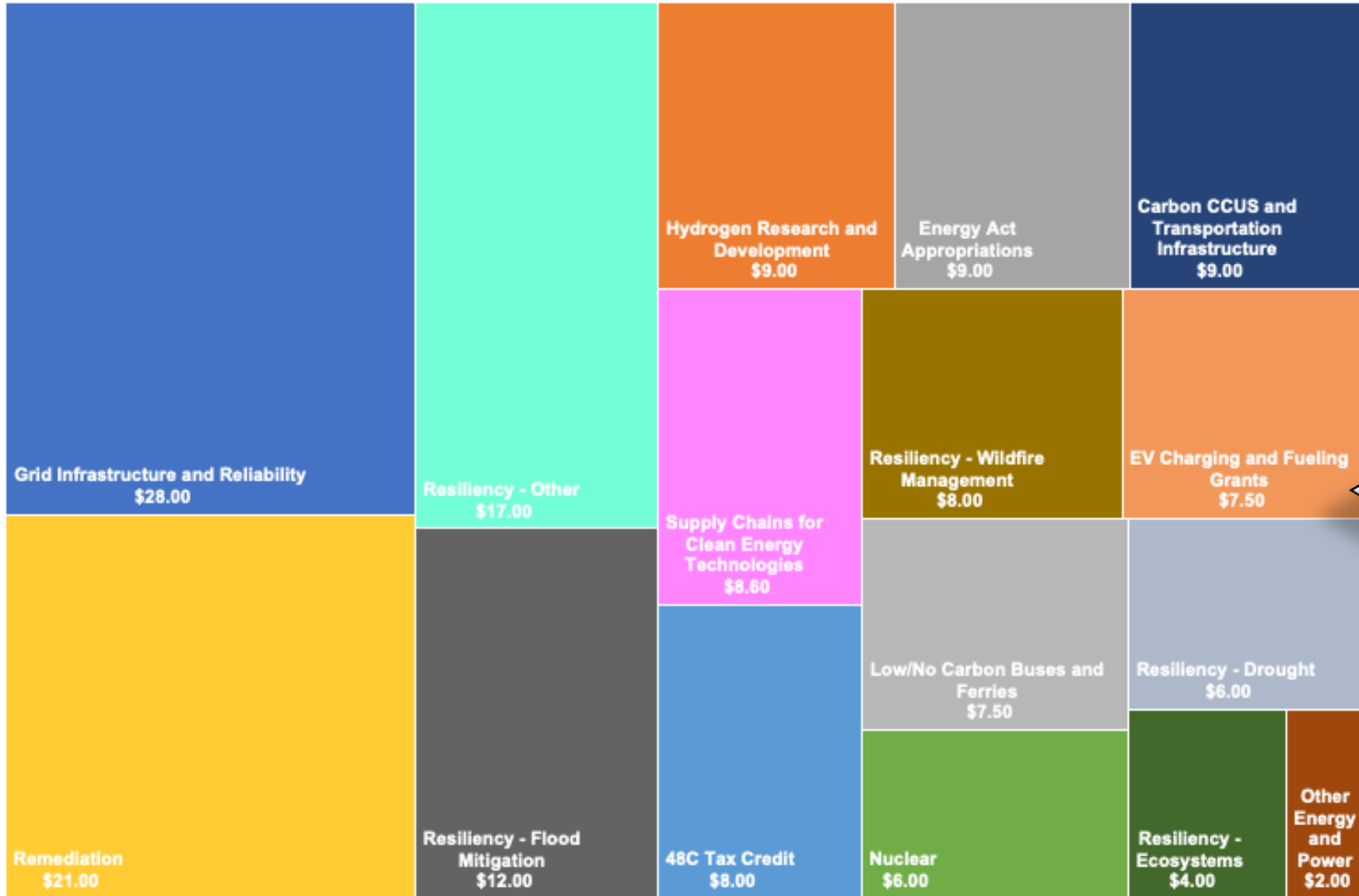


## \$1.206 trillion

- **Energy (\$74bn):** Includes \$28.8b for grid infrastructure and reliability, \$27.8b for fuel and technology infrastructure, \$8.6b for clean energy supply chains, \$9b for clean energy technology
- **Roads, bridges, transit, and water:** State allocation based on White House estimates of historical formula funding
- **Broadband, resiliency, ports, remediation:** Allocated based on need, such as population unserved by internet, expected annual losses from natural hazards, etc.
- Mix of capital expenditures, operations and maintenance, federal gov. spending, and state and local spending



# Infrastructure Investment and Jobs Act: Detailed Energy and Climate Provisions



Energy and Climate provisions of Infrastructure Investment and Jobs Act (IIJA) total roughly \$163 billion (estimates as of November 2021)