Inflation Reduction Act Analysis: Key Findings on Workforce Demand.

—David Foster, Distinguished Associate

July 26, 2023
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
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.
## Table 1. Key Sectors of Energy Job Growth, Weekly Earnings, and Unionization Rates, 2021-2030*

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

*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

Mining and Extraction

- Oil and gas extraction
- Coal mining
- Metal ore mining
- Nonmetallic mineral mining and quarrying
- Support activities for mining

Oil and Chemical Manufacturing

- Petroleum and coal products manufacturing
- Basic chemical manufacturing

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

Base Case | Decarbonization | Roosevelt
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:**
  - 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

### 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 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)
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

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.
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.
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.
GHG Reductions from 2005 Levels

- IRA removes over 1,000 MMT of CO2 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.
$1.206 trillion

- **Energy ($74bn):** Includes $28.8bn for grid infrastructure and reliability, $27.8bn for fuel and technology infrastructure, $8.6bn for clean energy supply chains, $9bn 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)