

Job and Climate Impacts from Energy Efficiency Investments

Key Takeaways

Several proposed energy efficiency investments could achieve:

- 660,000 added job-years through 2023, and 1.3 million added job-years over the lifetime of the investments and savings
- 910 million tons of reduced carbon dioxide emissions
- \$120 billion in energy bill savings

Energy efficiency investments can create jobs now and reduce greenhouse gas emissions for years to come, while also saving money for consumers and businesses and improving public health. This is especially true for low-income families and communities of color, who have been most affected by the current pandemic and economic recession. Efficiency investments can put people back to work throughout the economy, including the hundreds of thousands of efficiency workers who lost their jobs in the current crisis. The investments are also a down payment on achieving the potential of efficiency to cut U.S. greenhouse gas emissions in half.

We analyzed the likely energy saved and carbon emissions avoided from several proposed energy efficiency investments; we also used our DEEPER input-output economic model to estimate the net added jobs from both the investments and the energy savings. The proposed investments are in homes and commercial buildings, electric vehicles, transportation infrastructure, manufacturing plants, small businesses, states, and cities. They are designed for both short-term economic and long-term environmental benefits, and they promote social equity through increased investment in affordable housing. They can be implemented quickly, often using existing federal programs. They generally employ local construction workers and use equipment and components manufactured domestically. And because of the energy savings and other benefits, the federal investments can leverage private funds to increase the impacts.

Results

We estimate that, collectively, the proposed investments would result in 660,000 more people working for a year (job-years) through 2023 and 1.3 million added job-years over the lifetime of the investments and savings. As shown in Figure 1, the proposed programs would add about 200,000 jobs each year during the largest investments from 2021 to 2025, and then about 60,000 per year through 2030.

Over time, the investments would result in more than 900 million metric tons (MMT) of reduced carbon dioxide emissions, equivalent to the emissions of almost 200 million cars and light trucks for a year; they would produce \$120 billion in energy bill savings (present value), as well as other financial benefits. The

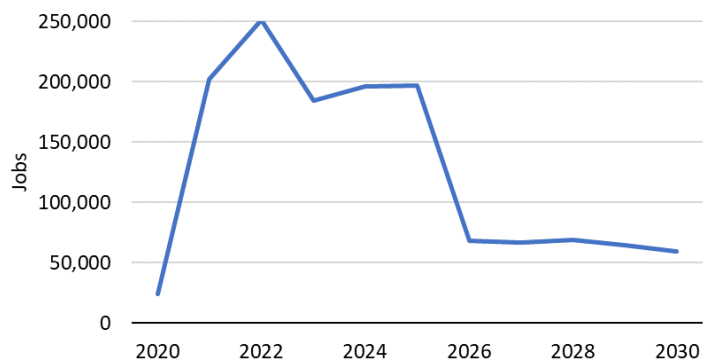


Figure 1. Net added jobs by year (job-years)

investments would also help develop long-term markets for advanced green technologies and practices, bringing further economic and environmental benefits we did not quantify.

Table 1 shows the impacts by proposed investment. The tax incentives for efficiency improvements to commercial buildings and existing homes and for electric vehicles show the largest estimated impacts, as well as the largest investments. These incentives can achieve rapid market impacts because they are tax breaks available to all, rather than limited grant programs, and because they build on current policies. Other proposals with large impacts include retrofitting affordable apartments and offering rebates for other home retrofits. Low-income home improvements also bring health benefits, and industrial measures bring process benefits that can exceed their energy savings; those investments and support for electric vehicles may have the most transformational long-term market impacts.

The largest benefits per federal dollar are for investments that leverage significant private dollars, including the subsidized loans for industry and the commercial buildings tax deduction. Other proposals would provide important savings for low-income families and small businesses that cannot afford to invest right now.

Pumping money into the economy in job-intensive sectors such as construction creates jobs, regardless of the kind of investment. Energy efficiency investments do that and more. They also create long-term jobs and economic growth through energy savings that typically pay back more than the initial investment. The energy savings reduce greenhouse gas emissions and air pollution, help consumers and businesses financially, and can benefit the health as well as finances of overburdened households. Efficiency investments are effective as stimulus, as the foundation for a green economy, and as assistance for American consumers and businesses.

Table 1. Net cumulative impacts from the proposed investments

	Federal investment (PV \$billion)	Jobs created 2020 - 2023 (thousand job-years)	Total jobs created (thousand job-years)	CO ₂ emissions avoided (MMT)	Energy cost savings (PV \$billion)
Buildings					
LI weatherization	4.0	30	14	12	1.7
LMI multifamily	6.5	70	98	54	8.9
HOPE4HOMES	4.7	42	85	58	9.6
Building incentives	20.2	235	567	340	53.3
Transportation					
EV incentives	31.0	40	219	138	18.8
Transport CO ₂ progs.	6.3	89	161	52	7.7
Industrial programs					
	1.1	43	66	186	13.5
Cross-cutting					
State energy program	2.7	27	49	32	4.5
Local block grants	2.4	27	31	19	3.4
Small business progs.	5.6	60	44	40	6.2
Total	83.5	662	1,333	906	123.3

Overlap between two programs has been removed from the totals. See the full white paper (forthcoming) for leveraged private and state investments and for benefits other than energy savings that are not shown here but that affect the cost-effectiveness of the proposals.

Proposals

The proposals we analyzed include:

Buildings

- *Weatherization Assistance Program*: Fund local community agencies to provide home energy upgrades for low-income families.
- *HOPE4HOMES*: Implement new U.S. Department of Energy (DOE) and state rebate programs for home energy upgrades and also contractor training.
- *Multifamily programs*: Fund energy upgrades to low- and moderate-income multifamily housing.
- *Building tax incentives*: Improve existing tax incentives for home improvements, new homes, and new and improved commercial buildings.

Transportation

- *Electric vehicle tax credits*: Expand tax credits for electric passenger vehicles and electric chargers and add a new credit for electric trucks.
- *Transportation carbon reduction programs*: Implement proposed transportation bill programs to fund investments to reduce fuel use and emissions.

Industry

- *Energy audits for large plants*: Help the largest industrial plants reduce their energy use and greenhouse gas emissions through assessments and technical assistance.
- *Industrial energy managers*: Provide matching funds for industrial plants to hire energy managers who help to implement strategic energy management plans.
- *Loans for small and medium-sized manufacturers*: Underwrite bonds to provide low-interest loans to small and medium-sized industrial companies.
- *Domestic supply chains*: Implement a new DOE program to support agile and resilient domestic manufacturing capacity for supply chains.

Cross-cutting

- *State Energy Program*: Fund state energy offices to implement a wide range of energy efficiency, renewable energy, and energy resilience measures.
- *Energy Efficiency Conservation Block Grants*: Fund local governments to implement energy efficiency and renewable energy measures.
- *Small Business Energy Efficiency Grants*: Provide new federal funding for utility and state programs that help small businesses improve energy efficiency.

Methodology

For each proposal, we modeled federal and leveraged investments, national energy savings by fuel, and resulting monetary and emissions savings. These are projections for what we believe is a likely scenario for implementation, not maximum potential impacts, and they are the net change compared to a baseline scenario in which the proposals are not enacted. Assuming the measures are enacted in early fall 2020, the investments start in 2020 or 2021 and typically are spread over a few years. We modeled the savings and the financing costs (including for federal investments) for up to 30 years. Using our DEEPER input-output model, we estimated how many jobs would be created and lost due to the investment of government and consumer funds into the efficiency measures (and the loss of other uses of those funds) and due to the consequent consumer energy bill savings (and losses to utilities and fuel providers).