

RENEWABLE ENERGY TAX CREDITS

Clean, local energy pays dividends to Hawai'i's economy.

Recent economic analysis shows every dollar invested in photovoltaic tax credits yields a net fiscal benefit to the state, many times over.





Clean energy, healthy economic returns

Hawai'i's solar tax credit has been extremely effective at making Hawai'i a leader in both solar water heating and photovoltaic (PV) systems—creating local jobs, bringing about business growth, and providing much-needed, steady revenue to the state. These renewable energy projects help plug the leak of billions of dollars that leave the state every year to import oil. Hawai'i's dependence on oil leaves our lifestyles vulnerable and places our economic future at the mercy of the escalating cost of oil.

Incentivizing renewable systems, on the other hand, enables Hawai'i to reap the benefits of a truly effective model of economic diversification. The economic stimulus spurred by the renewable tax credit is proven and significant, reinforced with federal dollars that otherwise would not be injected into the state. Every dollar the state provides in a photovoltaic tax credit turns into \$44 that circulates into Hawai'i's economy. The returns continue to pay off for 30 years, making it an indispensable investment in Hawai'i's robust economic and clean energy future.



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A community benefit

The study's findings show that PV installations benefit everyone, not just those who install solar. According to the report, a single 118 kW commercial PV system yields the following benefits over its 30-year lifetime:



Distinct advantages

Even if the cost of oil remains stable for the next 30 years—an unlikely scenario that minimizes the economic benefit—the state would still enjoy a healthy **10.8% return** on its investment.

A point worth noting: Unlike other types of tax credits, renewable energy tax credits have several distinct advantages. First, they are not prone to speculative investments. PV tax credits are not claimed until after the system is installed and generating electricity.

Second, it's not a one-time, one-year payback. Since each installation will continue generating electricity year after year, the state will enjoy the resultant fiscal benefits for the lifetime of the system, long after the tax credit is initially issued.

Keeping Hawai'i's dollars at home

In 2002, a multi-agency energy task force asked noted economist Dr. Thomas Loudat to report to the state legislature on the impact of energy conservation income tax credits. Those tax credits include the state's 35% credit for the installation of new systems that generate electricity from photovoltaic panels. In April 2012, Blue Planet Foundation asked Dr. Loudat to update his analysis of how PV tax credits impact Hawai'i's economy.

The 2012 study's results illustrate that PV installations have a remarkable positive impact on the state's economy

and job market. That positive impact starts with the benefit of generating energy locally, rather sending money out of the state to pay for imported oil. Year after year, for as long as a PV system produces electricity, the state will continue to reap the benefits of keeping that money in the state.

Using the Hawai'i Department of Business, Economic Development and Tourism's Input Output Model, Dr. Loudat has calculated the impact of those extra dollars as they cycle through our island economy. For each dollar the state invests in a PV tax credit for a **118** kW commercial installation, the return is many times larger:



*oil savings used for local goods and services.

One 118 kW commercial Hawai'i PV system yields

\$2.1 Million local labor income

\$490,000 additional tax revenues



Protects against the rising cost of oil

As the most oil-dependent state in the country, Hawai'i is uniquely vulnerable to the rising cost of oil. PV installations protect against that risk. Indeed, the benefits of PV tax credits become even more attractive as oil prices rise. If the price of oil rises to \$200 per barrel:

- The state's rate of return will increase from 10.8% to 15.3%.
- The net fiscal benefit (the benefit to the state minus the cost of the credits) will increase from \$57 to \$89 per installed kW.
- The number of additional local jobs created over the 30-year life of an 118kW system will increase from 84 to 111.

Residential PV system benefits

For each dollar the state invests in a PV tax credit for a 5.7 kW residential installation, the returns are also considerable.



Residential PV installations offer advantages similar to those of commercial PV. A single, 5.7 kW residential PV system yields multiple benefits over its 30 year lifetime.





The economic analysis by Dr. Loudat is based on several inputs regarding the cost of energy and other variables:

PV installations are assumed to cost between \$3,750 (commercial) and \$5,500 (residential) per kW of installed capacity.

System life is estimated to be 30 years.

Maintenance costs are estimated to range between \$280 (commercial) and \$854 (residential) per kW of installed capacity in year 16.

The price per barrel of LFSO oil is estimated to be \$136 (the approximate current price) for the entire 30 years.

The statewide average price of electricity is also assumed to stay constant for the next thirty years, at 0.365 per kWh.

The power produced annually, per kW of installed capacity, is estimated at 1,613 kWh, leading to annual energy savings of \$585.

Residential installations are credited at the full 35%, without any cap on that amount.

Fiscal impacts to the state are based on the current tax structure.



Solar tax credits are effective in stimulating private investment, drawing federal dollars into our local economy, and putting people to work. Dr. Loudat's analysis clearly shows that Hawai'i's renewable energy tax credit yields net fiscal gains, producing additional tax revenues and other benefits that are far greater than the initial expenditure by the state. It's a smart investment in a better, cleaner tomorrow, a future we value beyond dollars and cents.



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