

Assessing the Jobs Impacts of Clean Energy: A Webinar for States

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**State and Local
Climate and Energy Program**



Clean Energy & Benefits

- Clean energy initiatives encourage energy efficiency, renewable energy or clean distributed generation.
- People typically quantify the costs of clean energy programs and investments ... Just don't forget the **benefits!**
 - Environmental and human health benefits
 - Electricity system & reliability benefits
 - **Economic benefits, including job creation**
- Quantifying these benefits can help policymakers:
 - Assess the *full* value of clean energy investments
 - Strengthen how benefits are incorporated in cost-benefit analyses
 - Show how clean energy programs can help achieve multiple goals
 - Build support for their clean energy initiatives
- This webinar focuses on how states are estimating the economic benefits of clean energy

How Does Clean Energy Affect the Economy?

Investments in clean energy result in costs and benefits that change the flow of goods, services and income throughout the economy

Examples of **Economic COSTS:**

- *Program Administrative costs*
 - E.g. paid for by surcharge on electricity bill or diverted from other program funds
- *Equipment Purchase, Operation & Maintenance Costs*
 - Consumers, companies, utilities
- *Decreased demand, revenue and jobs:*
 - Companies that provide fossil-based electricity, non-clean energy technologies and services
 - & their suppliers
 - Local establishments where workers spend their paychecks (groceries, eating out, entertainment)

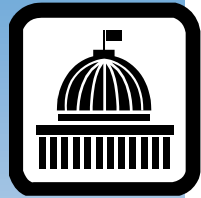
Examples of **Economic BENEFITS:**

- *Increased demand, revenue and jobs for:*
 - Companies that provide the clean energy equipment, technologies and services
 - & their suppliers
 - Local establishments where workers spend their paychecks (groceries, eating out, entertainment)
- *Lower energy/fuel costs for*
 - Consumers, companies, utilities
- *Deferred costs for new power plants*
- *Reduced health care costs and increased labor productivity* from better air quality and public health.
- *Enhanced property values* from improved environmental quality, water, etc



How do clean energy investments flow through the economy & support jobs? A (simplified?) illustration.

- Imagine a government launches a rebate program
 - A variety of jobs are supported along the way – see yellow



Consulting, Marketing, Auditing jobs

Rebates to businesses, consumers or industry

Labor (jobs)

Mortgage or rent

Entertainment

Goods & Services

Jobs

Energy cost savings

Steel

Raw Materials (e.g. Iron)

Jobs (Mining)

Capital Equipment

Steel

Labor

Energy

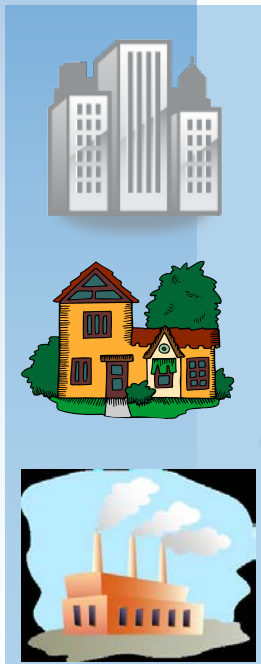
Labor

Energy

Fuels

Mining/Drilling Jobs

Capital Equipment



How Can States Estimate the Jobs Impacts of Clean Energy?

- States use a range approaches to estimate how the changes in the flow of money, goods and services are likely to affect jobs
 - **Basic Methods:**
 - Screening approaches to get a ballpark estimate
 - Apply others' simple estimates to one's own expectations regarding spending or energy savings
 - » Rules of thumb: For every dollar spent on X, Y jobs are created or for every kWh saved/generated, Z jobs are created
 - Simple calculators that build off of more sophisticated methods
 - **Sophisticated Methods:**
 - Can include static and dynamic modeling tools
 - Input-Output
 - Econometric
 - Computable General Equilibrium (CGE) Models
 - Hybrid Economic Models

How Do States Choose A Method?

States consider many factors, including:

- time constraints, cost, data requirements, internal staff expertise and overall flexibility and applicability.

| Type of Method | Advantages | Disadvantages | When To Use |
|--|---|--|--|
| <p>Basic Approaches:</p> <ul style="list-style-type: none"> - Rule-of-thumb estimates - Screening models | <ul style="list-style-type: none"> - (May be) Transparent - Requires minimal input data, time, technical expertise and labor. - Inexpensive, often free | <ul style="list-style-type: none"> - Overly simplified assumptions - Approximate results - May be inflexible | <p>When:</p> <ul style="list-style-type: none"> - time or resources are short - High-level, preliminary analyses are needed - A long list of options needs to be shortened |
| <p>Sophisticated Approaches:</p> <ul style="list-style-type: none"> - Input-Output - Econometric - Computable General Equilibrium (CGE) - Hybrid Economic Models | <ul style="list-style-type: none"> - More robust than basic - May be perceived as more credible - Detailed results - May model impacts over a long period of time - May account for dynamic interactions within the state/regional economy | <ul style="list-style-type: none"> - May be less transparent - May require extensive input data, time, technical expertise and staff. - May have high software licensing costs. - Require detailed assumptions that can significantly influence results. | <p>When:</p> <ul style="list-style-type: none"> - Policy options are well-defined - high degree of precision and analytic rigor is desired - sufficient time, data and financial resources are available. |

Things to Consider When Estimating Jobs Impacts

- **All** methods involve predictions, inherent uncertainties and numerous assumptions
 - Need to understand the specific strengths, limitations of the model or method you choose; make sure it's appropriate to your question.
- When planning an analysis, consider how and for how long the money flows through the economy as a result of the program
 - The government pays for a program with money from where? Where does the money come from and go? Households? Businesses?
 - How many people are you likely to reach through your program? 20%? 50%? And how long are the energy savings likely to last? 10 years?
 - Households, businesses and/or utilities are spending money on clean energy equipment that they are no longer spending on something else. What expenses are they cutting back? Where is it now going instead?
- Be very clear in assumptions (and sources) regarding costs **and** benefits, what results do and do not include.
 - Is your jobs estimate net or gross? Job Years or Jobs? Is it a rough estimate or a reasonably sophisticated one?
- Invite experts to provide input to the analysis & assumptions, review the final results.

For More On How States Can Assess the Jobs Impacts of Clean Energy

- EPA's *Assessing the Multiple Benefits of Clean Energy: A Resource for States*
<http://www.epa.gov/statelocalclimate/resources/benefits.html>
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