

Policies for Renewable Energy Development

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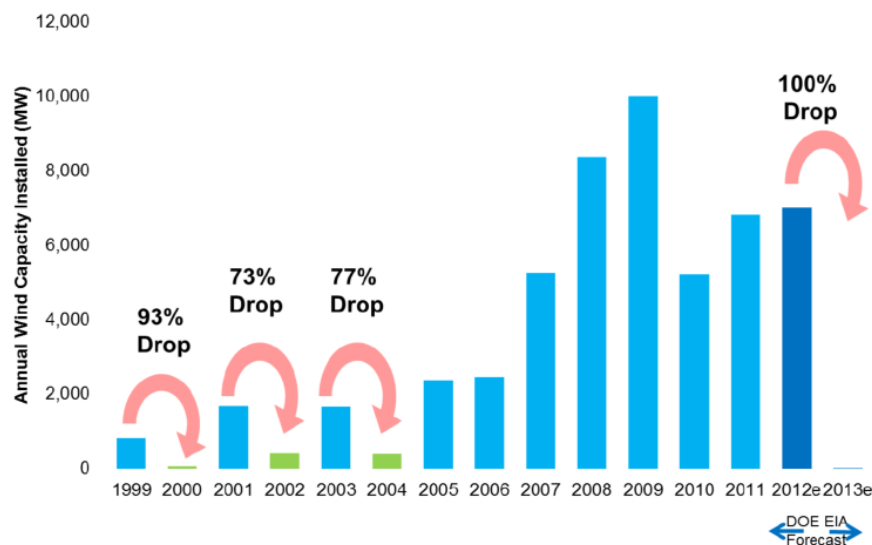
Although policies to encourage renewable energy in the United States (beyond hydro-electric power) were implemented as early as the 1980s, the major push for renewables began in the late 1990s, as concerns about climate change escalated and businesses, utilities and government saw the potential for economic development related to alternative energy. The current rise in renewables has been driven by a variety of policies at all levels of government.

Federal Policies

Wind Production Tax Credit (PTC)

- Federal Wind Production Tax Credit – 2.2¢/kWh credit (adjusted annually for inflation) that projects can earn during the first ten years of production. Targeted to utility-scale wind.
- The credit is usually extended for a set period of time. Because it is expensive and subject to political shifts, it has been allowed to expire in the past and is set to expire at the end of 2012 if legislation is not enacted to extend it. Expiration of the credit leads to a large drop in wind projects, as illustrated in Chart 1. (Source: American Wind Energy Association)
- Another problem with this approach is that the tax credit amount is a best guess of the amount of assistance needed to spur development and is not necessarily incentivizing the lowest-cost renewable energy production.

Chart 1



Solar investment tax credit

- 30% tax credit for the installed cost of a residential or commercial system through 2016
- Problems similar to wind PTC, but impact is not yet known because it is fairly new

Accelerated Depreciation and Bonus Depreciation

- Allows an owner of renewable energy equipment to deduct a larger share of the asset for tax purposes in the early years after the purchase
- Subject to political approval
- Owners with no tax liability may not find this useful

Rural Energy for America Grant and Loan Guarantee Program

- One example of a direct incentive at the Federal level.
- Businesses in rural communities (defined as 50,000 people or less) qualify for Rural Energy for American Program (REAP) funding:
 - Grant for up to 25% of total project costs or guaranteed loan for 75%; can do a combined grant/loan that covers up to 75% of project costs.
- Funds are tailored to small projects; also does not necessarily incentivize lowest-cost development

Iowa Incentives

Iowa Wind Energy Tax Credit Program (Iowa Code 476B)

- 1.0 ¢ per kWh (applies to energy sales and self-use)
- Limited to wind facilities 2 MW or larger (0.75 MW or larger for schools and hospitals)

Iowa Renewable Energy Tax Credit Program (Iowa Code 476C)

- 1.5 ¢ per kWh (applies to energy sales only)
- Targets smaller projects and specific ownership types

Renewable Energy Purchase or Generation Requirements

Iowa adopted the first renewable energy requirement in the U.S. in 1993. It is a purchase requirement for 105MW. However, wind capacity in Iowa is now greater than 4,000 MW. Beyond the requirement, Iowa utilities can get credit for their wind production using the Midwest Renewable Energy Tracking System (M-RETS) and sell the renewable attribute to utilities in other states to meet their renewable requirements. This provides an additional revenue stream.

Twenty-nine states plus Washington, DC and Puerto Rico have renewable energy requirements and 8 others have renewable energy goals. There is a continued push for a requirement at the federal level. This could be more efficient than the current state-level structure because it would allow states with the best renewable resources to produce the energy and sell credits in a national marketplace. However, not all states would support this approach because even states with less renewable potential are interested in the economic development opportunities that come with constructing their own renewable energy projects. Legislation to implement a national standard does not look likely at this point.

Federal Environmental Regulations

A major debate on limiting carbon emissions took place in the U.S. Congress in 2009 and 2010. Although a bill to create a cap and trade system passed the U.S. House, it did not get through the Senate. Around the same time, the Supreme Court ruled that the Federal Environmental Protection Agency (EPA) must rule on whether or not greenhouse gases endanger human life and health and, if so, to regulate them. The EPA found that GHGs are a danger and this spring, issued a rule regulating carbon emissions from power plants that are not yet under construction. This rule will likely mean new coal plants will not be built in the U.S. without carbon capture and storage technology. This will mean a shift to natural gas, but may also increase investments in alternative energy sources.

Additional EPA regulations on other air pollutants like mercury, particulate matter and others are becoming more strict, leading utilities to make investments in cleaner generation.

Integration Challenges

Integrating renewables into a traditional generation system can be challenging.

- Wind and solar generation are intermittent. This means that they must be backed up with reliable baseload generation and that other generators must cycle up and down depending on the availability of renewables. Geothermal, hydropower and biomass power do not necessarily have this issue.
- Related to the issue of intermittency, wind and solar cannot be dispatched at will, but are only available when the wind is blowing or the sun shining. There is currently no good way to store large amounts of electricity generated from renewables to be dispatched when needed.
- The ability to forecast wind speeds and solar generation is another barrier. It can be difficult to plan ahead without good information on how much renewable electricity will be available on any given day.
- Market operators need more detailed analysis and modeling to optimize the deployment of intermittent generation.
- The location of renewable potential, often far from load centers, means that the construction of large transmission lines is often necessary.