New Tax Incentives for Electricity Smart Meters and Smart Grid Investments

By Charles R. Goulding, Jacob Goldman and Taylor Goulding

Charles Goulding, Jacob Goldman and Taylor Goulding explain the energy and tax benefits of the new depreciation incentives for electricity-related Smart Meters and Smart Grid Investments.

President Bush signed the Emergency Economic Stabilization Act on October 3, 2008.[1] Energy tax provisions include new depreciation incentives for electricity-related Smart Meters and Smart Grid Investments. Qualifying taxpayers can now depreciate this equipment over 10 years instead of 20 years.[2]

This depreciation break is an important development for everyone since these investments are expected to save American businesses and consumers tremendous energy costs. It is estimated by Deutsche Bank that $18 billion will be invested in Smart Meters alone in the United States by 2010. Besides the companies that manufacture smart meters, many leading Internet and Software providers, including Google and IBM, are preparing major software/database/communication offerings to service this market.

The Smart Meter tax incentives include net metering investments, which are crucial to the development of wide spread solar, wind and other energy generating alternative investments. Net metering enables the alternative energy producer, meaning the solar and wind owner, to sell excess electricity back to the grid, which is necessary to economically justify many of these investments. The Emergency Economic Stabilization Act also extended the 30-percent commercial solar credit and the residential PV solar credit for eight years through 2016.

Smart Meters

Smart meters are two-way communication devices that enable both the electricity user and the utility to observe on a real-time basis the use and cost of electricity. As a general rule, electricity purchased during peak daytime hours is a lot more expensive to produce than electricity available in evening off hours. Without a real-time system, consumers lack the information necessary to make an informed decision regarding the economic benefits of an electricity consumption behavioral change.

Code Sec. 168(e)(3)(D) describes the Smart Meter categories eligible for faster MACRS depreciation over 10 years instead of 20 years as—

> Any time based meter and related communication equipment placed in service by a taxpayer who is a supplier of electric energy or provider of electric services, and which is capable of being used by the taxpayer as part of system that:
>
> (1) Measures and records electricity usage data on a time differentiated basis in at least 24 separate time segments per day;
> (2) Enables the exchange of information between the supplier of electric energy or provider of electric

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services and the user's Smart Meter in support of time based rates or other forms of demand response;

(3) Provides data to such suppler or provider so the supplier or provider can provide energy usage information to customers electronically; and

(4) Provides net metering.

Up until recently, the main driver for utilities to invest in developing Smart Meter technology was to reduce human meter reader expenses and improve billing practices. Without utility support, Smart Meters weren't widely available, so for the most part, only large sophisticated businesses that established special demand response programs invested in smart meters to capture the large savings available from managing electricity use.

Smart Meter Energy Cost Reduction Results

The documented energy cost reduction results from smart meters are very impressive. For example, a study of 2,500 residential customers in California found that:

- The average consumer reduced demand during the hottest summer hours by 13 percent at peak prices five times standard prices.
- Customers who also had smart thermostats reduced their electric load as much as 27 percent.
- Customers with more advanced gateway systems that adjust electricity use of multiple household appliances reduced their energy use by 43 percent.

These already large savings are poised to be leveraged even higher, since the sales of smart thermostats are growing rapidly and major appliance manufacturers including GE are testing lines of appliances that can wirelessly communicate with Smart Electric Meters. For example, the new GE refrigerators can delay the defrost cycle from high-cost daytime electricity pricing to a low-cost night-time defrost cycle. GE plans to introduce its Energy Management Enabled Appliances this year. The new "smart" appliances will include refrigerators, ranges, washers, dryers, microwave ovens and dishwashers.

Recently, many leading utilities have decided to convert their entire user base to Smart Meters. Interestingly, the Northeast, which has the highest overall electricity costs, has been slow to embrace the proven results from Smart Meters.

Some of the large first Smart Meter movers are listed in Chart 1.

Chart 1

State	Utility	Projected Number of Installers
California	Southern Edison PG & E	5,300,000 9,000,000
Delaware	Delmarva	300,000
Florida	Tallahase	220,000
Idaho	Idaho Power	450,000
Oregon	Portland General	850,000
Texas	Oncor Centerpoint	250,000 450,000
	Total Number of Installations:	16,620,000

Smart Grid

Code Sec. 168(i)(19) defines the Smart Grid technologies eligible for accelerated depreciation as:

> Any Smart Grid property used as part of a system for electric distribution grid communications, monitoring, and management placed in service by taxpayer who is a supplier of electric energy or provider of electric services. Smart grid property includes electronics and related equipment capable of:
>
> (1) sensing, collecting, and monitoring of or from data from all portions of a utilities electric distribution grid;
> (2) providing real-time, two-way communication to monitor to manage such grid; and
> (3) providing real-time analysis of an event prediction based upon collected data that can be used to improve electric distribution system reliability, quality and performance.

A New York Times article discusses Austin, Texas, as one of the first movers on a major Smart Grid project.[3] The article puts all of the smart metering concepts discussed previously in this article in context.

> The city of Austin, Texas today unveiled details of a smart-grid project, aimed at figuring out how to make the electricity grid work as homeowners begin to put huge numbers of solar panels on rooftops.
>
> "The goal of the Pecan Street Project is to provide one power plant's worth of clean, renewable energy, and to produce it within the city of Austin," said Brewster McCracken, the city's mayor pro tem, at a press conference during a clean-energy summit in the city.

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The "Pecan Street Project," named after the city's famed live-music boulevard, which used to be called Pecan Street but is now called Sixth Street, has backing from many corporate heavyweights, including Dell, GE Energy and Cisco Systems. The Environmental Defense Fund is also involved from the environmental side.

The article explains that "the project addresses the software challenges of 'distributed generation'—the idea that people will start generating power from their homes, reducing dependence on centralized power plants."

It anticipates other, future challenges to the grid, including "smart" appliances (refrigerators that turn off briefly at hours when the grid is stressed by high demand, for example), as well as plug-in hybrids, which will consume large amounts of power but can also store it in batteries.

Smart Grid Investments

Technologies that act to create a Smart Grid are the following:

- Storage devices that help balance intermittent generation with load. This means when the sun is shining and the wind is blowing, the excess electricity can be stored for future use.
- Technologies that regulate end-user demand that can be used to provide reserve capacity with load during normal system conditions. An example would be powering down a vacant house while all the occupants are working or in school.
- Technologies that control non-critical user load that can be used when abnormal systems demand conditions occur. This means that during the hottest days of the summer, noncritical electricity uses are curtailed so that the brown outs do not occur.
- Technologies for reducing peak load and overall energy consumption: This could include shifting cooling to periods of occupancy and adjusting thermostats based on temperature changes.

According to the Department of Energy (DOE) 2030 report, the U.S. will require an investment of $450 billion in electric infrastructure to meet projected electric load growth.

Obama on Smart Grids and Plug-In Hybrids

President Obama has emphasized that investing in America's Smart Grid is one of his infrastructure investment program objectives.

Obama Interview with MSNBC's Rachel Maddow

In October 2008, then-Senator Obama explained that he wants to focus on rebuilding the nation's infrastructure, including the construction of a "smart grid" to get wind power from places like North Dakota to metropolitan areas like Chicago.[4]

Demonstrating his grasp of state-of-the-art electric vehicle technology, he explained that if America is going to make greater use of renewable energy like wind power, it will need a "smart" power grid that will enable owners of plug-in hybrids to sell the power in their car's battery pack back to their local utility.

The sale of electricity back to a utility by electric car owners is called "vehicle-to-grid" (V2G). With the use of V2G, cars that are charged at off-peak times during the night can share any excess power stored in their batteries with the grid, in effect creating a vast, mobile energy storage system that can help stabilize power quality and shave peak loads during the afternoon.

Numerous utilities throughout the country have been investigating the feasibility of V2G technology, which could someday turn electric cars into capital assets for their owners.

Depreciation Tax Planning

These new tax depreciation incentives and the developing smart grid convergence of historic electric grid property and new software and Internet offerings are going to make depreciation tax planning crucial. Property that would

otherwise have class life of less than 10 years does not qualify as qualified smart meter or qualified smart grid system property. That means that property with a class life of less than 10 years that qualifies as three-year or five-year tax depreciation property can utilize those shorter more favorable tax depreciation periods. A hopefully unintended consequence of the new tax provisions sweeps 10-year life seven-year tax depreciation property into the 10-year tax depreciation period. This is a disincentive for energy efficiency. In an alternative, unenacted version of the Economic Stimulus bill (H.R. 1424), this property would have remained eligible for seven-year tax depreciation, which would appear to be the more logical result.

Conclusion

End user businesses and consumers in those utility jurisdictions that are installing Smart Meters should have a better infrastructure support environment to capture net metering electricity payments and the 30-percent solar tax credits available through December 31, 2016. Taxpayers in jurisdictions that do not have Smart Meter Utility should monitor developments in this area and may want to consider asking their local utility some probative questions. Google, IBM and other leading companies are developing standards and protocols that every utility can access. The new tax electricity Smart Meter and Smart Grid incentives are designed to encourage our utilities to make the proven investments needed to reduce our energy costs. As Chart 1 illustrates, over 16 million end users already have the benefits of this proven technology.

ENDNOTES

1 Emergency Economic Stabilization Act of 2008 (P.L. 110-343)

2 Code Sec. 168(e)(3)(D).

3 Kate Galbraith, *Deep in the Heart of Texas: A Smart Grid,* N.Y. TIMES, Dec. 3, 2008.

4 *Obama on Smart Grids and Plug-in Hybrids,* Matter Network—Clean Technology, Green News and Sustainable Business News, Dec. 22, 2008. Article located at *www.matternetwork.com/2008/10/obama-smart-grids-plug-hybrids.cfm.*