

The G-2 U.S.–China Tax and Stimulus Focus on Solar and Electric Cars

By Charles Goulding, Raymond Kumar and Taylor Goulding

Charles Goulding, Raymond Kumar and Taylor Goulding discuss the major tax and stimulus initiatives involving solar and electric cars simultaneously being undertaken by the United States and China.

Leading commentators are increasingly focused on the importance of a developing informal G-2 relationship between the U.S and China. During the recent G-20 summit, President Obama agreed to meet later in the year with Chinese Premier Wen Jiabo. It is more than coincidental that both economic powerhouses are moving quickly on major tax and stimulus initiatives involving solar and electric cars. This article explains the major initiatives simultaneously being undertaken by both countries. Since the two countries' economies are intertwined, these large initiatives will undoubtedly compliment and conflict with one another.

China and U.S. Solar Programs

Overview

The two major solar categories are Solar P.V., used to generate electricity, and solar thermal, used to heat hot water. Due to capacity increases, the price of solar materials is falling drastically throughout the world.

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China Solar

On March 26, 2009, China announced major new stimulus legislation focused on a solar P.V. initiative that is very product specific.

Because China is the world's largest solar panel manufacturer, this program is designed to support the sale of its manufacturing products into the domestic Chinese economy. Solar panel installation is labor intensive and, thus, a good way to employ legions of new workers entering the Chinese economy. China has a long history of utilizing solar thermal so it is understandable why the stimulus focus is on Solar P.V.

Some of the specific details of the new Chinese program, according to SOLAR BUZZ,¹ along with our comments, are as follows:

A fixed subsidy will be granted for both urban BIPV applications and for photovoltaic building systems in rural and remote areas. Technical standards will apply to their installation. The installed capacity for individual projects should not be less than 50 kWp.

BIPV means "building integrated photovoltaics," which is solar incorporated into other building products, typically roofs.

PV systems must include at least 16% efficiency for monocrystalline silicon photovoltaic products, at least 14% efficiency for multicrystalline silicon photovoltaic products, and at least 6% efficiency for amorphous silicon photovoltaic products.

These are relatively low solar panel efficiency targets that will drive large project volume. Like the new U.S. stimulus initiatives, there is a major focus on government building efficiency levels as follows:

Priority will be given to panels used as architectural components and integrated with grid connected buildings, most notably for schools, hospitals, government agencies and other public buildings.

U.S. Solar

The U.S. solar program involves a combination of tax credits and grants for both purchasers and solar product manufactures. For purchasers, the incentive is either a 30-percent tax credit or a 30-percent grant for broad range of both solar P.V and solar thermal. For manufacturers, the grants are limited to specific initiatives approved by the Department of Energy.

Purchaser Incentives

Pursuant to the Emergency Economic Stabilization act of 2008,² the 30-percent commercial solar tax credit was extended for eight years through December 31st, 2016. This unprecedented eight-year extension gives property owners ample time to incorporate solar into long-term facilities plans. As the price of solar P.V. continues to decline, economic payback periods are steadily improving so facilities owners can do their analysis now and be ready to act once they reach an economic return that meets their criteria. Pursuant to the American Recovery and Reinvestment Act of 2009,³ solar purchasers can now obtain a nontaxable 30-percent solar grant that is economically equivalent to the 30-percent solar tax credit. The grant will benefit those companies in tax loss positions or who are unsure of their tax position.

Manufacturers Grants

On March 20, 2009, new Department of Energy head Steven Chu announced that Solyndra, a manufacturer of proprietary cylindrical thin film solar, received a \$535 million loan guarantee. The loan guarantee will help finance a new manufacturing plant for solar panels in California. This is the first guarantee under the Energy Policy Act of 2005.⁴ Solyndra applied for

this guarantee in 2006. Solyndra has announced that the proceeds will be used as follows:⁵

- (1) employment of approximately 3,000 at the manufacturing facility;
- (2) creation of over 1,000 jobs in the United States;
- (3) creation of hundreds of additional U.S. jobs from the installation of these panels; and
- (4) duplication in multiple other manufacturing facilities from the commercialization of this technology.

China and U.S. Electric Car Programs

Overview

Both China and the United States have recently announced major initiatives for electric car purchases. As this article is being written, both countries are evaluating tax credit programs to stimulate overall new auto purchases. Both countries have enacted incentives to encourage electric car purchases by government agencies.

China Electric Car Program

The Chinese government recently announced a program to convert China into one of the leading producers of hybrids and all electric vehicles within three years, with the goal of making it into the world leader in electric cars and buses.

Subsidies of up to \$8,800 are being offered to taxi fleets and local government authorities in 13 Chinese cities for each hybrid or electric car they purchase. The state electric grid has been ordered to set up electric charging stations in 13 Chinese cities for each hybrid or all electric cars they purchase.⁶ China is well situated for short-run electric car usage since the density of their huge cities makes for short commutes. Government R & D subsidies for electric cars are rapidly increasing. As this article is going to press, the Chinese were studying a new car purchase tax incentive program.

U.S. Electric Car Program

Section 30D of the American Recovery and Investment Act⁷ provides for a minimum tax credit of \$2,500 per qualifying electric vehicle for both taxpayers and dealerships selling to tax-exempt agencies. The maximum credit can range from \$7,500 to \$15,000 depending on gross vehicle weight in combination with kilowatt battery capacity in excess

of four kilowatt hours. Automobile dealers will only be able to take the tax-exempt/government purchaser credit if they make full disclosure to the tax-exempt agency. This provision is clearly intended to result in an economic transfer resulting in a lower price to the tax exempt agency.

U.S. Clunker Tax Credit Proposal

The United States is currently considering what is commonly called a “clunker trade” tax credit proposal. With a clunker program, taxpayers would receive a tax credit for trading in a car that is older than a particular model year. One current proposal is to offer a \$5,000 credit for trading in a car older than the 2001 model year. The authors question the value of that program since the average American drives about 15,000 miles a year and cars more than seven-years-old may already have 100,000 miles on them. A meaningful program would allow later model trade-ins to accelerate the purchase by the millions of Americans who have deferred purchase in the last two years compared to their normal replacement cycle.

DOE Green Car Loan Program

As of January 15, 2009, the DOE had received 70 applications for loans announced under its Advanced Auto loan program,⁸ which aims to help companies seeking to build the next generation of cleaner vehicles. This program authorizes up to \$25 billion in loans and was created under Section 136 of the Energy Independence and Security Act of 2007.⁹ The DOE has stated that eligibility will be based on locating manufacturing facilities and doing integration work in the United States. The DOE has also said that it will consider whether the recipient has reasonable costs associated with building or retooling a manufacturing facility. Some of the disclosed applicants include electric car start-ups Tesla Motors, Integrity Automotive and ZAP and battery makers Ener 1 and A123 Systems. Ener 1 applied for \$480 million in loans and A123, which plans to build a manufacturing plant in Michigan, applied for \$1.84 billion in loans.

Complimenting and Competing Solar

The United States presents a major solar P.V. market opportunity and U.S incentives should support an emerging U.S. market while also continuing to support the Chinese manufacturing sector bolstered by new Chinese domestic market demand. Panel installation is labor intensive, and both countries need to improve internal job creation. The United States has more suitable P.V. roof space than any other country, and U.S. buyers will favor U.S. manufacturers as suppliers if the technology and quality is better, and the pricing is competitive. Also, U.S purchasers are much more comfortable with warranty promises from U.S.-based manufacturers subject to the U.S. legal jurisdiction.

Electric Automobiles

The current major barrier to the widespread introduction of electric cars is low-cost long-distance battery technology. With the anticipated new electric car volumes from both countries, the required battery investment technology is beginning to occur. A new Chinese electric car manufacturing center means the U.S. manufacturers may not be able to leverage their large electric car and battery technology investments over as many potential purchasers as they may have anticipated.

Conclusion

The new large-government-sponsored investments by the economic G-2 in solar and electric cars are going to have a major global economic impact. It is too soon to predict outcomes, but when the two largest economic players in the world do essentially the same thing, the end result will be accelerated. Within the politics of the United States, the grant allocation manufacturing process will be interesting since California is both our country's largest potential solar market and the leading center for automotive design.

ENDNOTES

¹ *Beijing, China: Ministry of Finance Introduces PV Subsidy Program*, SOLAR BUZZ, Mar. 23, 2009, available at www.solarbuzz.com/news/NewsASGO78.htm.

² Emergency Economic Stabilization Act of 2008 (P.L. 110-343).

³ American Recovery and Reinvestment Act

of 2009 (P.L. 111-5).

⁴ Energy Policy Act of 2005 (P.L. 109-58).

⁵ Keith Bradsher, *China Vies to Be World's Leader in Electric Cars*, NEW YORK TIMES, Apr. 1, 2009, available at www.nytimes.com/2009/04/02/business/global/02electric.html.

⁶ Brad Johnson, *DOE Grants \$535M Loan Guarantee for Solar Power*, HILL HEAT, Mar. 20, 2009, available at www.hillheat.com/articles/2009/03/20/doe-grants-535-million-loan-guarantee-for-solar-power.

⁷ American Recovery and Reinvestment Act of 2009 (P.L. 111-5), Act Sec. 30D.

⁸ Katie Fehrenbacher, *More than 70 Applications for the DOE's Green Car Loan Program*, SALON.COM—THE GIGAOM NETWORK,

Jan. 15, 2009, available at [www.salon.com/tech/giga_om/clean_tech/2009/01/15/more_than_70_applications_for_the_does_](http://www.salon.com/tech/giga_om/clean_tech/2009/01/15/more_than_70_applications_for_the_does_green_car_loan_program/)

[green_car_loan_program/](http://www.salon.com/tech/giga_om/clean_tech/2009/01/15/more_than_70_applications_for_the_does_green_car_loan_program/).
⁹ Energy Independence and Security Act of 2007 (P.L. 110-6), Act Sec. 136.

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