

# Warehouses Use Tax for Energy Efficiency & Solar

By: Charles R. Goulding and Charles G. Goulding

Large warehouses are presented with tax-supported opportunities to power their properties with solar P.V. while also profiting from selling excess energy.

## Authors

- [Charles Goulding](#)

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At the end of January 2011, the Wall Street Journal announced the agreement to merge two of America's largest warehouse owners, namely ProLogis and AMB. This created the world's largest warehouse owner with total warehouse space exceeding 600 million square feet. This is a critical event for U.S energy policy since rooftop solar P.V. prices have plunged and large flat-roof warehouses are the best platforms for solar P.V. electricity generation. Both ProLogis and AMB have a major presence in the European warehouse market, including Germany and the Netherlands, where rooftop solar P.V. has a much wider market penetration than it does in the U.S. Many warehouse owners, particularly Wal-Mart supplies and other large consumer goods suppliers, must upgrade to solar P.V. supported warehouses in order to maintain preferred supplier status.<sup>1</sup> Although solar P.V. is eligible for large tax credit and depreciation benefits, ProLogis and AMB are both REITs (Real Estate Investment Trusts), which typically do not have large tax appetites at the REIT level. However, REITs can always utilize solar cash grants and in an expanding economy, tax equity investors, including business-motivated electric utilities, can utilize the large tax incentives related to warehouse P.V. installations. Before upgrading to solar P.V. most warehouses need to make investments to reduce energy costs and make roof improvements that are also eligible for substantial tax incentives.

## **The EPAct Section 179D Tax Opportunities**

### **EPAct 179D**

Pursuant to Energy Policy Act (EPAct) Section 179D, warehouses making qualifying energy-reducing investments in their new or existing locations can obtain immediate tax deductions of up to \$1.80 per square foot.

If the building project doesn't qualify for the maximum EPAct \$1.80 per square foot immediate tax deduction, there are tax deductions of up to \$0.60 per square foot for each of the three major building subsystems: lighting, HVAC (heating, ventilating, and air conditioning), and the building envelope. The building envelope is every item on the building's exterior perimeter that touches the outside world including roof, walls, insulation, doors, windows and foundation.

### **Alternative Energy Tax Credits and Grants**

There are multiple 30% or 10% tax credits available for a variety of alternative energy measures with varying credit termination dates. For example, the 30% solar tax credit expires January 1<sup>st</sup> 2017 and the 10% Combined Power tax credit also expires January 1<sup>st</sup> 2017. The 30% closed loop and open loop biomass credit expires January 1<sup>st</sup>, 2014.

All alternative measures that are eligible for the 30% and 10% tax credits are also eligible for equivalent cash grants for the three years starting January 1<sup>st</sup> 2009 and ending December 31<sup>st</sup> 2011.



Sq. Feet of Useable Roof Area <sup>1</sup>	Assumed Wattage Generation (at 10W/sq.ft.)	Installed Project Cost At \$4.00/Watt	Total Tax Credits at 30%
100 million	1,000 MW	\$4 billion	\$1.2 billion
200 million	2,000 MW	\$8 billion	\$2.4 billion
300 million	3,000 MW	\$12 billion	\$3.6 billion

<sup>1</sup>50%-70% of roof area is available for solar panel mounting.

### **Available Tax Credits for Large Scale Warehouse Solar P.V.**

A warehouse owner with 100 million square feet of useable roof area has the capacity to generate about 1,000MW of electricity. A small to average sized utility power plant generates about 100 MW, so large-scale warehouse owners have the potential to turn their properties into large scale utility providers.

### **Leading Example**

One leading example of the warehouse-to-utility conversion is Heller Industrial Parks, a national property owner with over 13 million square feet of warehouses in New Jersey.

In its first solar initiative, the firm completed 1.5 megawatts of solar for \$7.5 million.

In its second initiative scheduled for completion in May of 2011, the company intends to complete a 5-megawatt, \$25 million project in New Jersey. This translates to the power generation capacity of a small power plant.

The company also installed energy efficient lighting fixtures with day lighting sensors at the dock level enabling the lighting to be dimmed or shut off when there is sufficient natural daylight.

Heller-related press releases indicate that the company has used solar P.V. as a competitive weapon to buck "the trend of vacant industrial complexes throughout New Jersey".<sup>2</sup> Heller's CEO Jeff Milanik stated "we began this process several years ago with the goal of offering our customers in New Jersey better more efficient space for their businesses. It is a very competitive business that we are in, and we are focusing on ways to improve our buildings".

### **The AMB/ProLogis EPAct 179D Opportunity**

Both of the large warehouse REITs have accomplished an ongoing warehouse solar P.V. initiative. AMB has recently entered into a transaction with Southern California Edison (SCE), the large utility, to lease some of its large warehouse roofs. Aaron G. Brinkly, the Director of Sustainably program for AMB, has stated that the direct investment by the utility works better for them because the utility can fully utilize the tax benefits as compared to their REIT structure. ABM owns 22 million square feet of warehouses in the Los Angeles area alone.

ProLogis has also entered into a similar transaction with Southern California Edison in Fontana, California. The utility has announced that they expect to lease 100 to 125 more rooftop areas totaling 1.5 square miles of roof space during the next five years. It should be noted that the five-year plan correlates to the five remaining years of solar tax credits available from 2012 through 2016. The Fontana project covers almost 600,000 square feet and produces 2 megawatts of electricity. When describing the Fontana project, Julie Schmit of USA today, writes: "The program in which the utility owns the solar is the largest of the kind in the nation, not surprising since California is the number 1 solar market. But utilities in other states, including North Carolina, New Mexico, and Arizona have similar plans to rent roofs for their own mini-solar plants to." ProLogis is also installing energy efficient lighting before the solar P.V. installation.

### **Seven New Solar Power Plants for Southern California Electric (SCE)**

Seven new solar power projects are now online for Southern California Electric (SCE). These plants are capable of providing energy for an average of 8,125 homes. The newest solar photovoltaic installations are located in Ontario and Redlands, California. Collectively, they have a generating capacity of 12.5 million watts (AC). Constructions of these power plants are meant to speed up California's consumption of solar generation while diminishing the cost of photovoltaic panels for everyone.

ProLogis leased 1.8 million square feet of warehouse roof space to the four Ontario solar station installations. The 32,950 solar photovoltaic panels in Ontario are capable of generating 5.5 million watts (AC) of power. The three installations in Redlands were also spread over ProLogis warehouse roofs. Redlands contained 34,600 solar panels spread over 1.5 million square feet of ProLogis

warehouse roofs. This will produce 7 million watts (AC) of power.

By offering long-term power purchase agreements to independent producers willing to build neighborhood plants, SCE has expanded its solar photovoltaic program. As of now, the utility has presented 29 contracts, which will produce about 43 million watts (AC) of new solar photovoltaic power for SCE customers.

Mayor Pete Aguilar of Redlands has stated that SCE's solar project has supported their goals of job creation and the building of a greener tomorrow by adding to their energy resources power plants that are silent, emission-free, and use a renewable fuel source.

### **Solar PV: EPAct 179D Tax Enhanced Warehouse Pre-Planning**

#### **Lighting & EPAct 179D**

Building lighting comprises of a large portion of warehouse energy use. Most warehouses that have not had a lighting upgrade to energy efficient lighting in the last 7 or 8 years utilize prior generation metal halide or T-12 fluorescent lighting. It is also important to realize that effective January 1, 2009 most probe-start metal halide lighting may no longer be manufactured or imported into the United States and effective July 1, 2010 most T-12 lighting may no longer be manufactured or imported into the United States. This means that warehouses that still have this lighting technology will soon be subject to large price increases for replacement lamps and bulbs.

This prior generation T-12 and metal halide lighting is very energy inefficient compared to today's T-8 and T-5 lighting, and a lighting retrofit can easily reduce lighting electricity costs by 40 to 60 percent. In addition to large energy cost reductions from the base building lighting, most warehouses undergoing lighting retrofits install sensors that completely shut off the lighting in portions of the warehouse that are not in use. Previously, many warehouse owners and lighting specifiers were reluctant to install sensors because they reduced fluorescent lamp useful life. Today, improved technology sensors are available with warranties not to reduce lamp useful life.

#### **Heating & EPAct 179D**

New and improved commercial heating systems can provide energy cost savings of eight percent or more over the ASHRAE 2001 building code standards. There are multiple heater technologies suitable for the warehouse market, including direct fired gas heaters, unit heaters, and infrared (radiant) heaters<sup>3</sup>. If feasible, the warehouse heater should be mounted on an exterior wall to optimize the roof top solar P.V. space.

An example illustrating the maximum utilization of the \$1.20 EPAct tax deduction for a 100,000 square foot warehouse with an energy efficient heater is as follows:

<b>100,000 sq ft Warehouse</b>			
<b>\$1.20 per sq ft EPAct Tax Deduction</b>			
	<b>Lighting</b>	<b>Heater</b>	<b>Total</b>
Project Cost	\$ 135,000	\$ 35,000	\$ 170,000
Utility Rebate	\$ (35,000)	\$(15,000)	\$( 50,000)
Net Investment	\$ 100,000	\$ 20,000	\$ 120,000

With this example, the \$120,000 (100,000 sq ft x \$1.20) entire investment EPAct tax deduction will be achieved as long as the combined lighting heater project reduces total energy cost by 33 1/3 % as compared to ASHRAE 2001.

#### **Building Envelope & 179D**

If a warehouse requires re-roofing, the owner should strive to achieve the maximum \$1.80 per square foot EPAct tax deduction. Moreover, when re-roofing, this is the ideal time to consider adding more insulation. If the building already had an energy efficient design and roof, the owner may want to consider upgrading to more energy efficient truck bay doors and windows.

<b>100,000 sq ft Warehouse</b>				
<b>\$1.80 per sq ft EPAct Tax Deduction</b>				
	<b>Lighting</b>	<b>Heater</b>	<b>Roof</b>	<b>Total</b>
Project Cost	\$ 135,000	\$ 35,000	\$ 80,000	\$ 250,000
Utility Rebate	\$ (35,000)	\$( 15,000)	\$( 20,000)	\$( 70,000)
Net Investment	\$ 100,000	\$ 20,000	\$ 60,000	\$ 180,000

With this example the maximum \$180,000 EPartax deduction (100,000 sq ft x \$1.80) will be available as long as the combined lighting, heater and roof project reduces total energy cost by at least 50% as compared to ASHRAE 2001.

As presented above, all major warehouse owners installed energy efficient lighting before installing the solar P.V. Doing so enables them to reduce the tenants' operating costs and provide excess electricity above the tenants' need that can be sold back into the grid.

### **Conclusion**

Moving forward, large warehouse owners are clearly going to convert a tremendous number of warehouse roofs to solar P.V. electricity generators. The larger REIT warehouse owners without tax capacity are best suited for utility investor programs. The mid-size and smaller non-REIT warehouse owners have the same energy cost savings and opportunities and should have the added advantage of being able to retain and utilize all of the large tax opportunities.

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**Charles R. Goulding**, Attorney/CPA, is the President of [Energy Tax Savers, Inc., The EPartax 179D Experts](#) an interdisciplinary tax and engineering firm that specializes in the energy efficient aspects of buildings.

**Charles G. Goulding** is an Analyst with [Energy Tax Savers, Inc., The EPartax 179D Experts](#).

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### **Citations**

<sup>1</sup> See, Charles Goulding, Jacob Goldman and Christopher Winslow, *The EPartax and Alternative Energy Tax Aspects of Wal-Mart's Supplier Sustainability Program*, Corp. Bus. Tax'n. Monthly, To Be Published.

<sup>2</sup> "Heller Industrial Park Inks More Than 4 Million SF of Leases in 2010." *Heller Industrial Parks, Inc.*, N.p., 28 NOV 2010. Web. 4 Feb 2011. <<http://www.hellerpark.com/pressroom.cfm>>.

<sup>3</sup> See Charles Goulding, Jacob Goldman and Raymond Kumar, *Large EPartax Energy Tax Deduction Opportunities for Commercial Heaters*, Corp. Bus. Tax'n Monthly, January 2010, at 11.

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