



ASSOCIATED INDUSTRIES OF MASSACHUSETTS

SOLAR ENERGY SUBSIDIES: **A PRIMER**

The debate over solar-energy subsidies in Massachusetts has enormous cost implications for employers. But the debate is arcane, complex and littered with head-scratching jargon such as SRECs, net-metering and behind-the-meter installations.

It is also littered with misinformation intended to distort the financial facts of the issue.

Here is a plain-English series of questions and answers to help employers understand the issue.



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WHAT INCENTIVES ARE AVAILABLE IN MASSACHUSETTS TO DEFRAY SOLAR INSTALLATION COSTS?

There are three types of incentives:

- the federal investment tax credit (ITC), equal to 30 percent of the cost of solar installation;
- state solar renewable energy certificates (SRECs); and
- state net metering credits.

The incentives do not include savings from lowering your electric bill through the use of on-site solar, or any tax savings, such as depreciation, that may be applicable to your business. The ITC is scheduled to be reduced to 10 percent for commercial installations on December 31, 2016 although there are efforts to extend it. Net-metering credits are tax free in Massachusetts.

WHAT'S THE DIFFERENCE BETWEEN A NET-METERING CREDIT AND AN SREC? WHICH TYPES OF FACILITIES ARE ELIGIBLE TO RECEIVE THEM?

Net metering describes the process by which an electric customer uses the solar power produced at its facility to lower the use of electricity from the grid. If you produce more than you use, the surplus may be sold back to the utility for net-metering credit. Otherwise, your electric bill is just lowered by the amount you generate.

SRECs are different.

Massachusetts law requires that a certain portion of all power consumed within the commonwealth be generated by renewable resources. The amount is currently 10 percent and it increases 1 percentage point per year. The generating resources may be solar, wind, small hydro and few other generation methods classified as renewable under state law (the definition

can vary from state to state). A certain portion of the 10 percent renewable obligation must be met with solar energy.

Each renewable source essentially generates two components – the actual energy, which in the case of solar is typically used on-site (though it could be sent to the electric grid), and environmental attributes associated with the clean-energy production.

The state determines whether or not utilities or others are in compliance with the renewable obligation through the trading of the clean-energy attributes, known as Renewable Energy Certificates (RECs) or Solar Renewable Energy Certificates (SRECs) if they are generated by solar energy. One REC or SREC is generated every time a megawatt-hour (1,000 kilowatt hours) of energy is generated by the applicable renewable source. Utilities and others buy these RECs or SRECs to meet their obligation set by the state.

The power does not have to be sold with the RECs or SRECs. As long as it is consumed somewhere in the electric grid for New England, an REC or SREC is generated and may be sold.

Here's an example: A business customer generates one megawatt hour of solar electricity and thus one SREC. The company uses the power on site, but has no need for the SREC since the renewable compliance obligation is on the utility and suppliers of electricity. The company may then sell the SREC to someone who needs it to meet the renewable obligation, generating revenue for the company that produces the SREC in addition to lowering the cost of power.

HOW MUCH DO THESE INCENTIVES COST CONSUMERS?

The federal Investment Tax Credit is paid from general tax revenues. The Massachusetts SREC and net metering credit programs are paid by a surcharge on non-solar energy used by ratepayers.

The total tab to Massachusetts electric ratepayers for SREC and net metering will be about \$600 million in 2015. That cost is expected to nearly triple by 2025 as solar becomes more ubiquitous. Solar subsidies will thus become the largest single component of distribution charges faced by ratepayers, even more than the cost to maintain the electric grid itself.

According to studies done by the state Department of Energy Resources (DOER), generating renewable energy through solar currently costs about 39 cents per kilowatt hour (kWh). Non-solar renewables can be produced for an average of 4.5 cents per kWh. Almost half of every dollar spent for renewable power goes to subsidize solar, yet it only generates 7 percent of the clean energy.

WHAT DO THOSE COSTS MEAN FOR EMPLOYERS?

Massachusetts already has one of the highest prices for electricity in the continental United States (typically among the top three for residential, commercial and industrial ratepayers). Our rates are double those of North Carolina.

Companies that use large amounts of electricity to manufacture products or to provide 24/7 medical care end up paying hundreds of thousands of dollars each year to fund solar developments for someone else. These artificially inflated electricity costs have forced scores of manufacturers to leave Massachusetts – or to close – during the past two decades.

Solar subsidies also increase the cost of electricity to cities and towns, translating into higher taxes, higher education costs and higher medical costs.

MY SOLAR VENDOR TOLD ME THERE IS A “CAP” ON THE AMOUNT OF SOLAR ALLOWED IN MASSACHUSETTS AND THAT I SHOULD SUPPORT AN INCREASE IN THAT CAP. DOES THAT MEAN I CAN’T INSTALL SOLAR PANELS ON MY PROPERTY ONCE THE “CAP” IS REACHED?

Not at all. The “cap” does not limit solar installations in any way. It does change the way some facilities (depending on size and geographic location) are reimbursed by the utility for net metering credits.

COULD YOU EXPLAIN?

There are two general types of solar installations.

Some businesses add solar generation to reduce their electricity use. All output from the solar panels is used on site. These are called “behind the meter” installations. Most companies that add solar have an electric load much higher than the solar panels can provide. They therefore do not generate surplus net metering credits.

The second type, known as “solar farms” or “virtual net-meter” installations, are primarily built by developers to send power back to the utility, essentially acting as a power plant.

When the Massachusetts lawmakers enacted the solar legislation, they allowed facilities that generate surplus net-metering credits to be compensated for those credits at the full retail rate of electricity. So these facilities are producing electricity like a power plant while receiving reimbursements as if they were selling electricity like a utility.

The generous reimbursement prompted the Legislature to cap the program. Once the cap is reached, additional solar facilities that come on line do not receive the full retail rate of power, but rather a lower rate. They essentially are treated like any other power generator, including wind energy producers.

IS MY BUSINESS AFFECTED BY THE CAP?

There is a good chance that it is not.

Homeowners and most small businesses are exempt from the cap and therefore continue to receive the higher retail rate for net metering. And the cap is utility specific. While National Grid territory has reached its cap, Eversource territory has not.

Most AIM member employers who move to solar do so with “behind the meter” installations, which are not typically impacted by the cap because the facility is generally not selling electricity back to the grid. If the company occasionally sends power back to the grid during periods of low onsite energy usage, it may be impacted by the cap if it applies. Generally, however, this revenue impact is minimal.

Even after the cap has been reached, a company can still receive benefits under the Federal ITC and SREC program. In fact, in most cases, the ITC and SRECs are far more lucrative than net-metering revenues. And remember, net-metering benefits are tax free so you can still save, even if revenue is lowered.

SO IF I AM A BUSINESS AND JUST WANT TO PUT SOLAR ON MY ROOF TO LOWER MY BILLS, CAN I STILL DO IT?

Even though your installation is credited against the cap for accounting reasons, the presence or absence of a cap has no financial effect on your ability to lower electricity costs through the use of solar. You will continue to receive retail credit for the power you do not use as well as SRECs and the ITC as applicable.

WHY DO WE NEED TO CHANGE THE SOLAR PROGRAM? CAN'T WE JUST KEEP RAISING THE CAP UNTIL EVERYONE HAS SOLAR?

The cap has already been raised twice. But that only perpetuates an unfair and unsustainable system under which those without solar (currently 99 percent of ratepayers) pay enormous subsidies to those with solar (about 1 percent).

Massachusetts consumers are paying more for solar than they need to. Massachusetts alone has continued to broaden its solar subsidies at a time when the cost of installing solar power has decreased significantly. Other states, including Connecticut, have reformed their programs and consumers there are paying 50 percent less than we do to subsidize solar.

WHAT CHANGES ARE BEING PROPOSED?

Any effort by the commonwealth to support the development of solar energy must be done at a reasonable cost that does not disadvantage employers who already struggle to pay some of the highest electric rates in the nation.

The Legislature is currently considering two solar subsidy bills. Associated Industries of Massachusetts supports the House version.

H.3854 and S.2058 were both passed by their respective branches before Thanksgiving. A conference committee has been appointed to work out differences.

Both bills raise the solar subsidy caps to account for projects currently in the pipeline. Both significantly reform the program once the state reaches 1600 megawatts of installed solar capacity. There is no cap on solar installations after reform so the issue will not need to be revisited again.

Differences remain concerning the best course of action following attainment of the 1600 megawatt goal and the differences could mean millions of dollars in extra cost to ratepayers.

WON'T CHANGES TO THE SUBSIDY PROGRAM MEAN LESS SOLAR INSTALLATION AND FEWER JOBS?

No. In fact, the experience of other states has shown that a reasonable reimbursement and incentive program allows solar energy to grow.

H.3854 decreases the reimbursement for net-metering credits after the new cap has been reached, but

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subsequently provides state officials with the flexibility to adjust the SREC program or other initiatives to make up for the lower-net metering credits. If the ITC does go away in 2017 as currently expected, the new program will also take that into account. The Division of Energy Resources will undertake a transparent process to review the costs and benefits of solar with public comment.

The goal is balance. The net metering credit, SRECs and the ITC should together provide enough revenue for solar developers to have a reasonable payback.

I'VE HEARD H.3854 WILL IMPOSE A MINIMUM BILL. WHY SHOULD I PAY ANYTHING IF I PRODUCE ALL MY POWER FROM SOLAR?

A minimum bill would apply only to sources that generate enough net-metering credits to leave them paying an extremely low bill or no bill at all.

Even if you produce your own power you still rely on the electric grid and distribution lines when the sun isn't shining. Utilities must generate enough revenue to pay fixed costs of the grid – maintenance, repairs and upgrades. These fixed costs are currently distributed over all the users in the system.

Solar customers with a zero bill do not pay a share of these fixed costs. The utility's cost is spread over a smaller customer base, increasing bills for everyone else.

Say a utility has 10 customers each using the same amount of electricity. The cost to run the utility is \$100, so each customer pays \$10. The one customer who installs solar energy may pay nothing under the current system, even though the customer may use the electric grid at various times during the night or when the sun isn't shining. The \$100 dollar operating cost is now divided among nine instead of 10, resulting in a new cost per customer of \$11.11, an 11 percent increase. Multiply this scenario by thousands of customers

“leaving” the grid but still using it and it becomes clear why each customer needs to pay a small charge for the backup service provided.

The minimum bill is not punitive. It will be fully adjudicated through the Department of Public Utilities to ensure it is just, reasonable and fair.

AREN'T THE UTILITIES JUST TRY TO PROTECT THEIR PROFITS BY REDUCING THE COSTS OF SOLAR?

Electric utilities pay for the SREC and net metering programs – and some lost revenue – through higher rates to others. These utilities are made whole every year for the revenue they need to operate their distribution network – which is a fixed cost not reduced by customers using solar. Any and all costs of solar are added to your electricity bill.

WHY ARE SOLAR VENDORS RESISTING REFORM?

The legislation provides a review of the program and ensures that solar developers will be fully compensated for their services. Other states have shown that lower reimbursement will not harm the solar industry – in fact it will put it on a sustainable path forward.

Certainly, it will mean a different model for some solar developers, particularly those that build “solar farm” installations. However, jobs in the solar industry should not be supported at the expense of other jobs struggling under the cost of high electric rates.

I'VE HEARD THE “VALUE” OR “BENEFIT” OF SOLAR IS HIGHER THAN ITS COST. AREN'T WE THEN GETTING A GOOD DEAL?

It all depends on how you classify “value” or “benefit.”

Natural gas is cheap and reliable and studies have shown that investment in natural gas infrastructure will result in lower energy prices. But natural gas emits greenhouse gasses when burned.

Wind is carbon free but intermittent, so its power output is variable.

Solar offers the same benefits at a much higher cost than other renewable sources of energy and energy efficiency.

BUT IF WE PAY SOLAR ITS “VALUE” TO THE ELECTRIC GRID AND TO SOCIETY WON’T WE END UP AT LEAST EVEN?

The purported “value” solar may provide to the electric grid or society should not determine what the consumer pays. The price should reflect the cost of the product. No other source of energy, including renewables, is priced based on an illusory value to the system.

Think of it this way. A contractor charges you \$250,000 to build a house. That amount pays for his workers, materials and profit. The house is then listed for sale at \$750,000. Should you then send the contractor another \$500,000 dollars? After all, that is the “value” of his workmanship. Of course not.

Likewise, if you are manufacturing parts for the automotive industry, your price doesn’t increase just because the part is being installed in a Ferrari rather than a Chevrolet.

Any “value” that solar brings to the electric grid above and beyond costs should benefit the ratepayer who funded the investment in the first place.

The value of solar is further muddled by the fact that solar-energy requirements are a “carve-out” from the

state’s overall renewable obligation. Solar produces no incremental carbon reductions because any electricity not produced by solar must be replaced with non-solar renewables in order to meet the commonwealth’s goals.

OK, WHAT CAN I DO TO REDUCE MY ELECTRICITY COSTS?

Take advantage of energy efficiency programs offered by your utility. There are hundreds of millions of dollars available for rebates. The best place to start is your utility or masssave.org. Rebates may be available for new lighting, new heating or cooling systems or other equipment.

New technologies are becoming available every day that can reduce so called plug-load, the energy used through plugs. Start with high usage equipment then work your way down. And monitor new technology.

Second, look at on-site generation such as combined heat and power (CHP) where you can generate a significant portion of your own electricity.

Should solar or other renewable technology work for your facility, contact several solar installers to see if the solar program will help. Even if a new program is developed there will still be enormous rebates available.

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For more information on this and other topics important to Massachusetts employers, please follow us:



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