MERALCO SHINES THE LIGHT ON SOLAR ENERGY

Is Meralco entering the renewable energy (RE) space? The solar business? How will Meralco customers benefit from solar installations? What should customers be looking out for? Victoria Segovia (VS), an advocate of clean air and environment, talks to Alfredo S. Panlilio (ASP), Meralco Senior Vice President for Customer Retail Services & Corporate Communications, and Annie Reodica (AR), Meralco Program Manager for Renewables.

VS: What is Meralco's view on RE and solar?

ASP: Meralco is unequivocal in its support of the development of renewable energy – solar, wind, biomass, and others — and taps the sources of RE that provide good value to its customers. Since 2011, Meralco has been active, putting up a proof-of-concept installation for solar and wind in what is now known as the Meralco Powerlab. It has also been promoting electric vehicles (EV). Meralco's EV charging station within its compound has pods powered by wind and solar. Nearby is also a demonstration of a net metering installation, showing a two-way connection of a customer at secondary voltages and allowing export of solar power into the grid.

VS: Is Meralco going into solar?

ASP: Given the global developments on RE and especially solar, Meralco is itself interested and is exploring partnerships with local and global players. We think that the RE space will grow, and we want to be part of that growth.

VS: What is Meralco's approach?

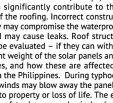
ASP: We are eager to get into solar, but with an electrical engineer's eye out for ensuring the continued safe and reliable operation of the distribution grid. We need to understand that the solar installation in a house or business can affect the stability and safety of the distribution grid and may place other nearby customers at risk. We also recognize that solar photovaltic (PV) installations that are synchronized with the grid are dependent upon quality power delivered by the distribution utility. That is why power companies around the world put in place procedures to ensure that everyone is safe and that electric service is not compromised or interrupted.

VS: So what is Meralco doing to enlighten its customers?

ASP: We want our customers to have the right information and enjoy not only lower power bills, but also to sleep well knowing that their home or business is electrically safe with properly designed and installed solar PV systems. With these in mind, Meralco's solar energy education and information program is all about being safe and smart.

VS: How do you ensure safety?

AR: Although there are solar PV installation standards mandated by the government, there are unfortunately no standards on the accreditation of solar contractors, and equipment standards are still being developed to date. It is Meralco's primary consideration to put safety above all else.



Improperly installed solar PV systems can lead to:

1. **Loss of life and property due to electrical fire and electrocution hazards,** which in turn may lead to potential legal and civil liability. Incorrect grounding, inadequate system protection, substandard materials & equipment and bad layout are possible causes of fire and electrocution.

2. **Loss of structural integrity.** Solar panels are attached to roofs via screws, clamps, railings– all of which significantly contribute to the overall weight of the roofing. Incorrect construction and assembly may compromise the waterproofing of a roof, and may cause leaks. Roof structures also need to be evaluated – if they can withstand the significant weight of the solar panels and support structures, and how these are affected by wind speeds in the Philippines. During typhoons, high-velocity winds may blow away the panels causing damage to property or loss of life. The escalating strength of typhoons and winds should be a consideration of any installation.

3. **Grid instability and network deterioration.** Solar PV systems, whether Net-Metered or for own-use, that are connected with the utility grid must comply with the Philippine Electrical Code, Net-Metering standards and Philippine Distribution Code to ensure compatibility with the electrical distribution network. If the installed system is incompatible, it becomes a public safety hazard that may cause electrical disruptions, system fluctuations and power outages not only to the home or building, but also to the surrounding community. It is important to let the utility and the city or municipal engineer know that you are installing solar panels within your premises to ensure the safety of both the public and the distribution system. For Net-Metering installations, it is a requirement to conduct a Distribution Impact Study (DIS), and where applicable, a Distribution Asset Study (DAS), to evaluate the impact of the proposed solar connection to the utility. Through these studies, the utility can determine if network upgrades are required to avoid degradation of the distribution system for the benefit of all customers.

4. **Electrocution of linemen and damage to appliances.** A solar installation should have an electronic shut off feature during brownouts. Without this, unregistered solar systems can cause a power surge that can electrocute linemen and field personnel working on the electrical lines in their area, as well as damage the electrical facilities and appliances of neighbors and residents of surrounding premises. Also, the installation of a disconnect switch with appropriate warning sign is a must for every solar installation. This is a requirement to ensure the safe operation and maintenance not only of the distribution system but of the solar installation as well.

VS: Does Meralco already have a list of accredited solar contractors?

AR: Meralco does not yet have a program to accredit solar contractors. What we have been doing at this point is to provide guidance on the proper installation and use of PV panels and systems, and how these will connect to Meralco. Our subsidiary Meralco Power Academy (MPA) regularly conducts a comprehensive Solar PV Bootcamp to train business owners and installers on global standards for designing and installing solar PV systems. This is our way to promote and ensure a reliable, safe, efficient and long term operation of the solar PV system for the benefit of the customers and the public.

VS: How does a customer know the right size of Solar PV Systems for his home or business?

AR: A customer should know his energy requirements so that the right-sized solar PV System installation can be determined. We advise our customers to install the right amount of panels suited to their power requirements which can run their appliances and equipment safely and efficiently.

Depending on his roof space, a customer may want to have a bigger capacity so that he can export to the electricity grid. For now, the Energy Regulatory Commission (ERC) has provided the Net-Metering policy that allows a solar installation of up to 100

kilowatt capacity to export to a distribution utility (DU) like Meralco. This exported energy is priced according to the blended generation cost for the month (in May and June 2015, it was P4.81 and P4.46/kWh, respectively). The bigger the solar capacity, the higher the cost of the entire installation. A customer needs to work with a solar provider on the cost-benefit trade off and decide accordingly.

VS: How long before a customer recovers his investment?

AR: There are many claims on the financial benefits of having a solar PV installation. We recommend that a customer makes careful calculations, have a healthy skepticism, and maybe seek third party opinion.

Today we see customer bill reductions that range from 5% to 15%, and these are dependent on a number of factors. A customer should ask the supplier for the kWh output of the solar PV system, expected performance over varying conditions, how this output is sustained over time or the rate of degradation over the life of the solar panel, and warranties. Financial payback is also affected by the performance of the solar PV system, equipment efficiency/deterioration, expected maintenance or parts replacement, and the customer's corresponding kWh rate. One must also consider the inverter which has shorter warranty periods and needs to be replaced ahead of the panels. Solar suppliers must provide customers with these data along with computations, assumptions, expected return on investment and payback period for the entire PV system.

VS: What is the Net-Metering (NM) system and how does one get it?

AR: The meters of most distribution utilities are unidirectional, as they are meant to measure the flow of power supplied by the utility to the customer. If there is excess power coming from a solar PV installation in a house or business, it will be exported to the grid, and the meter will read that as consumption. Without an NM system, this export will add to the kWh reading of the meter, thereby negating the supposed savings generated from the solar installation.

In accordance with the Energy Regulatory Commission's Net-Metering Interconnection Standards, the NM system that Meralco installs is

2-way and is able to distinguish between power consumed from the grid and excess power that your solar installation exports back to the grid. The application process for NM starts with the submission of the appropriate documents with Meralco and the payment of the appropriate fees for the DIS/DAS studies. After the applicable technical assessment, design and evaluation, and following an inspection and certification by the city or municipal engineer, Meralco installs the NM system. This ensures that you get the proper credit for the solar energy exported to the grid.

VS: How has Meralco's experience been with Net-Metering, and what can its customers expect from the power company?

AR: Meralco is proud to say that we have energized the country's very first Net-Metering participant in November 2013. To date, Meralco has interconnected more than 100 customers already via Net-Metering with an aggregate capacity of close to 1,000 kWp, and we assure everyone that we will continue to enhance our processes to benefit NM and to support the government's drive for a sustainable energy future by accommodating more renewables into the distribution network.

ASP: Meralco's efforts to support solar energy is driven by Manny V. Pangilinan's vision to provide for a bright future for the Philippines, embracing innovation and change. Inspired by a visit to Silicon Valley and discussions with high tech companies, he believes that Meralco should stay ahead of the curve on solar and renewable energy, and on point with customers abreast with technology.

Meralco can help you learn more about Solar technology.

Visit www.meralco.com.ph/solar for more details.