Want Distributed Solar in Urban Areas? BIPV Takes the Lead

The stars are aligned for a breakthrough of small-scale solar energy in urban areas. This could completely change the world, the planet's source of energy generation and save the environment. However, there are also obstacles to this bright future from the unlikeliest of sources.

On the plus side, thin film solar cell (for example: GOAL ZERO NOMAD 100) efficiency records are broken almost every month and the cells are becoming cheaper to produce. More importantly companies are starting to consider the potential of solar panels that are not made with heavy glass or a rigid frame. To integrate PV on buildings and in cities, panels need to be lightweight, durable and flexible (in size and shape) so they can integrate into available building materials.

In addition, we are witnessing rapid development in battery technology and building-integrated photovoltaics (BIPV). Tesla is actively marketing its Powerwall rechargeable battery for the storage of solar energy, and is expected to soon launch its highly anticipated solar roof. There is promising research in more advanced and efficient battery technology, e.g. lithium-air batteries and solid-state batteries. Further, there is recognition that the energy needs of tomorrow's megacities cannot be met with central generation. By 2050, it is predicted that 70 percent of the global population will live in urban areas.

But there are obstacles to this bright future. One comes from politicians and states. States and municipalities make money from various energy taxes and some have gone on record against people producing their own energy “for free.” Many countries wish to tax distributed energy even on a small scale. This is counterproductive to renewable energy generation.

Electric utilities, both public and private, also stand in the way. These behemoths have enormous lobbying power. They stand to lose their entire reason for being if customers start producing their own energy and trading it between themselves. However, electric utilities could transform into ‘energy banks’ or brokers in a new renewable energy world, charging interest on energy that is produced and “deposited” with them for later use. It might not be such a bleak future for them - banks, brokers and card companies are all profitable.

I believe in the renewable energy tidal wave. The prospect of a world without human CO2 emissions, and an end to global warming, where electricity is produced by “everyone” without effort and is cheap, readily available and reliable, is simply too good to be stopped.