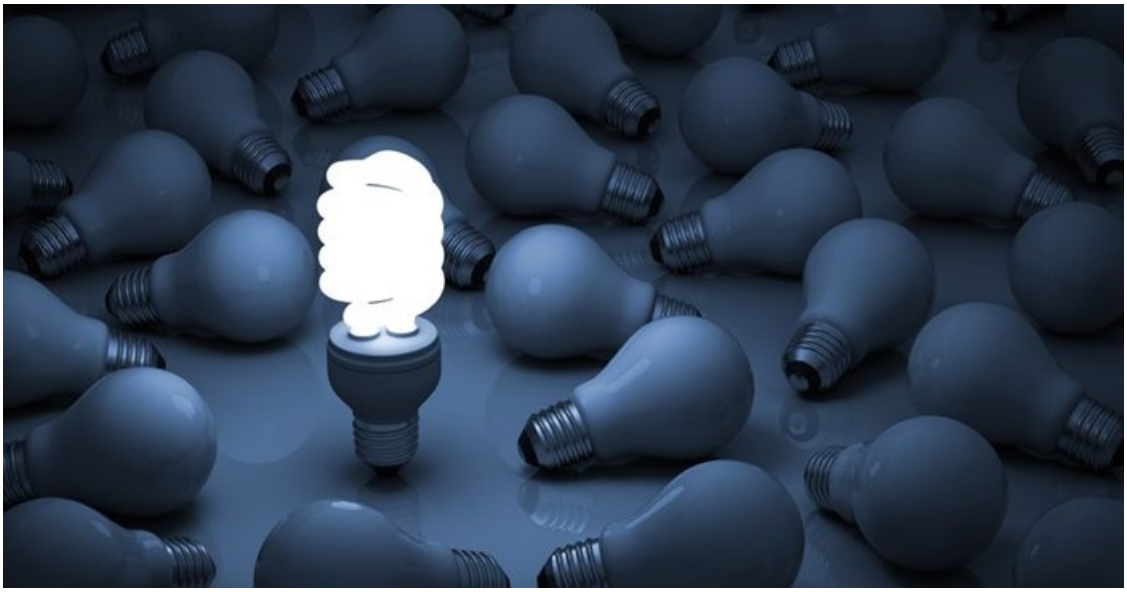
BIZCOMMUNITY

Introduction of smart grids will unlock the power of green energy

By Martin Vergunst

13 Oct 2015

South Africa remains heavily reliant on traditional sources of power generation - with green energy sources contributing just a fraction of the country's total power output.



However, with immense solar and wind resources at our disposal, SA is ideal for the adoption of renewable energy. From a power perspective, the past decade has been characterised by a utility that has struggled to keep up with rapidly escalating consumer demand, as millions of new households have started consuming power from the national grid. Developing new coal-fired or nuclear sources - which also causes irreparable damage to our environment - is simply not keeping pace with demand.

However, for green energy in South Africa to move from pipe-dream to reality, the most fundamental starting point is the introduction of smart grid and smart metering platforms. Smart grids have the capabilities to accurately measure and bill, and to connect household solar or wind generation that can feed power back to the grid.

At T-Systems, we advocate the concept of 'The Internet of Energy': a vision where the national grid becomes a central hub, where millions of households produce small amounts of green energy and trade it efficiently and instantaneously using smart grid technology.

Exchanging electricity

As power supply becomes decentralised, regions become micro-grids, exchanging electricity where it is needed. In fact, we use the analogy of the internet itself. In the early days of the internet, all individuals were simply passive consumers of online content and services. But over the past decade or so, we've have started producing increasing levels of content ourselves ('the social media revolution').

Now, we have the opportunity to stimulate the same trend in the Internet of Energy, and transform every household or office into a 'personal power plant' that generates its own green electricity. Imaging opening up an app on your cellphone, and transmitting stored energy to other users, just as easily as we share digital content by uploading it to the Internet.

We also believe South African consumers are increasingly ready to seriously adopt renewable energy - for a number of reasons:

- Environmental consciousness and concerns.
- Avoiding the massive annual price hikes we are currently enduring.
- The opportunity to start making money by selling power back to the utility.
- Avoiding load-shedding.
- For use in extremely remote areas where electricity is not available.

With the introduction of a smart grid ecosystem, the national power utility is able to benefit from a cost-effective and clean power supply, sourced from millions of households. This is a far better alternative to the multi-year, massive capex investments associated with traditional power plants.

In this way, the utility evolves from being a simple producer and distributor of electricity, to a broader energy service provider. While maintaining their core business of producing power, the utility can also guide consumers on their path to generating their own electricity, and manage the central grid over which all of the transactions take place.

Insufficient incentives

So, what needs to happen for this to become a reality? Currently, we find ourselves in a state where there are insufficient incentives to move to clean energy. Implementing solar technology within the household costs in the tens or the hundreds of thousands of rand - which is out of reach for most consumers.

So firstly, the costs of solar panels, batteries and the related equipment needs to drop, and the technology needs to continue improving (to better consume and store the power). Added to this, more incentive programmes need to be introduced, to help stimulate the trend towards clean energy. The possible introduction of a CO2 emissions tax at a household level may further inspire the migration to renewables.

When all of these dynamics converge, we will reach a tipping point: as more households embrace renewables, the economies of scale will start driving down prices even more rapidly. The Internet of Energy promises to redefine the way energy is produced, stored, distributed and consumed. It requires a coming-together of the energy and the IT sectors, to bring to life the exciting vision - where consumers start becoming producers and sellers of green energy.

ABOUT MARTIN VERGUNST

Martin Vergunst is Business Solutions Executive at T-Systems South Africa.
- Introduction of smart grids will unlock the power of green energy - 13 Oct 2015
- Advantages of load-limiting programmes - 2 Sep 2015

View my profile and articles...