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Advisian recently released a paper 'The New Energy Future: the global transition' (*www.advisian.com/newenergyfuture*). Co-author Paul Ebert discusses its findings.

Could you explain what you mean by the energy internet?

The paper talks about disruption coming into the energy industry, particularly electricity. Part of that is a decentralising future for electricity-generation technologies. In doing so, there's going to be a need to control and work with those decentralised technologies. That requires a much higher level of digitisation. The digital networks that will evolve around this, much like the internet has, will play a very important role in keeping those quite fragmented systems together, as an electricity system needs to be, and in applying the business models.

How do you see the future of the energy market? Will it be lots of small people or still bigger corporations supplying the bulk of the product?

I think we will see fragmentation of the market. We're going to see the rise of communities that choose to do much more of their own generation. That could be an industrial load that has solar PV across its warehousing or even a micro gas turbine. They will choose to do so because the value proposition is right. This is what people have called the democratisation of energy.

There are a couple of new retail entrants who are actually being very clever in the way they are managing the energy for customers, to the point where they'll put a device on your wall, you can see the cost of energy at any one time and you can choose to make cost-driven energy decisions. Or they take that over for you and guarantee to give you the best price depending on what the spot market's doing.

Has the cost of solar panels come down enough for solar to be a viable energy choice regardless of government incentives?

Right now, solar photovoltaics on rooftops is, depending on a few things, probably the lowest cost way of generating electricity at that point of load. The reason for that is you're essentially displacing a network tariff. And that's going to continue to drop.

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There is a lot of effort going into increasing the efficiency of panels without any degradation of cost.

The government incentives have to eventually disappear, so this thing has to stand on its own two legs. We're probably not quite there yet, but I don't think we're too far away from that.

How important is battery technology? Is it at the point where it's about to have a bit of a boom?

There's a lot of hype in the energy storage industry. The prices are definitely coming down. That's good because to do that there's a level of maturity required. The flip-side to that is the maturity in the energy storage area in terms of the utility product is still pretty low.

Personally, I think it's coming. We're already seeing people install batteries. It's not commercial to do so but they choose to do so. Ultimately, when it gets to the point where the combination of your solar and battery is a better value proposition than taking energy from the grid at certain times, you'll see much more wholesale use of batteries.

Where is the electric car market at?

At a macro level, the electric vehicle market in Australia is pretty small. There are people like Tony Seba from Stanford in the US, who are quite bullish. He's saying that the tipping point for electric vehicles is some time before 2020. I'm probably not that bullish.

I think the electric vehicle product has really improved, partly because of the hybrid product. It will ultimately come down to the cost. There's some perception issues which are starting to disappear around range. The electric vehicle industry has responded with larger batteries, more efficient batteries. ●