

# Renewables will fuel the 4th Industrial Revolution

 By [Nicci Botha](#)

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"The two great disruptions happening in the world economy are the rise of China and renewable energy (RE). This is going to change the way we will think about life," Michael Power, strategist at Investec Asset Management, told the Momentum Consult annual conference.



Michael Power, strategist: Investec Asset Management. Photo: Funds Society

Just as steam fuelled the first Industrial Revolution (IR), electricity – the second, and the combustion engine – the third, renewables will be the energy source of the fourth IR.

"Fast forward 30 years. Most of the water in the world and most of the energy in the world will be free," he said.

## Here comes the sun... and the wind

"The sun and the wind will change the lives of millions of people. Already, RE accounts for 70% of all investment in the energy space. This will happen regardless of what President Trump thinks.

"Physicists offer the best explanation of energy. How much oomph do I get out for how much oomph I put in? The greatest thing about renewable is that it's free. Free in the sense that once the capex is completed the fuel feedstock is free," Power

said.

He explained that the fourth IR will be led by China. "The Chinese are going hell-for-leather in the solar energy space."

When it comes to large-scale production, deserts (given their intense concentration of sunlight) will power large population concentrations such as cities, Power said. Already, China has harnessed the vast expanse of the Gobi Desert by building a 6,300 acre sun farm. The country also has the world's largest floating solar plant in Huainan. In addition, the top 10 photovoltaic (PV) module manufacturers in the solar panel are Chinese.

There have also been advances in technology that will further lower the cost of solar energy. Most PV cells are made from silicon, which has a tendency to become brittle and therefore needs frequent replacement. Some of the most promising research relates to a mineral group called perovskites, some of which have proven to be very good at absorbing light, and have been shown to have a power conversion efficiency of 22%, similar to regular solar cells.

Another primary challenge facing solar energy is storage, Power said, but great strides are being made battery development to solve the problem.

## **What is blowing in the world of wind**

Similar to solar, China is leading in the wind sector, producing about 100GW. "Where are the windiest places on earth? Sailors talk about the Roaring 40, Furious 50s and Screaming 60s, however there are not a lot of landmasses in this band in southern hemisphere. At the moment, most of the global wind generation takes place in the Europe. The UK is number one in offshore wind. Germany is number one in wind turbines. But I predict that in 10 years China will dominate. The point is the East is turning green," he said.

## **Water everywhere, not a drop to drink**

Going back to his statement of how free water is related to free energy, Power explained that sea water covers 66% of the earth. However, desalination is expensive because of the amount of energy needed for the process, and the cost associated with traditional energy production. "We're not short of water, just short of fresh water."

So, when it comes to water production, he said a typically dry country like Australia - with its central desert regions and "ridiculously long coastline" - will benefit from solar-powered desalination plants. "If you give me free energy I will give you free water," he said.

## **Green is gold**

"Green is gold in terms of its investment proposition. It's profoundly disruptive value creation will outstrip value destruction. But oil and coal will suffer as did horsepower with the arrival of the automobile," Power said.

"China will lead the new industrial revolution with its focused government, low cost equipment production companies and high research and development in the vanguard technologies.

"Tropical and subtropical emerging markets that are energy and water short could benefit even more than developed nations. And for developed nations, when the fourth IR explodes, renewables could jump start productivity growth," he ended.

## **ABOUT NICCI BOTHA**

Nicci Botha has been wordsmithing for more than 20 years, covering just about every subject under the sun and then some. She's strung together words on sustainable development, maritime matters, mining, marketing, medical, lifestyle... and that elixir of life - chocolate. Nicci has worked for local and international media houses including Primedia, Caxton, Lloyd's and Reuters. Her new passion is digital media.

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