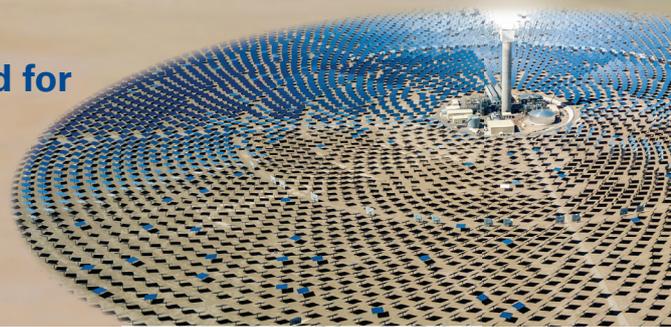


New drivers of the renewable energy transition

Part 1: The impact of increasing demand for renewables from corporate consumers

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A game changer is underway in the world's renewable energy sector.

Up until now, the renewable revolution has been led by energy developers and generating companies who were able to build renewable capacity with the help of government tariffs and subsidies. In many cases, the cost of this government support was passed on to consumers as part of the final electricity charge. There is broad consensus that renewables were vital for the global transition to a low or zero-carbon economy, and the consumer should help pay for this transition, with the investment in renewable generation being the first stage of that journey.

We are now seeing something completely different — consumers themselves are looking for ways to become 100 percent renewable in the energy they use and are considering the use of alternative technologies and solutions to address the low-carbon challenge. This is most obvious in the case of a growing number of global corporations who want to be part of, and indeed control, this transition. This trend is reshaping how energy markets will function in the future.

These corporate consumers readily support the renewable revolution, even though the adoption

of renewables will result in significant changes in how they procure their energy and, at least in the short term, the size of their energy bill. Indeed, in some cases, corporates have actually been more progressive than much of the energy adoption supported by government policy. Below we explore some of the factors driving this change, but it is clear that the changing attitudes of the corporate sector are now becoming an important driver to the low-carbon transition. For example, a total of 5.4GW of clean energy contracts were signed by 43 corporations in 43 different countries in 2017.¹

Over 60 percent of Fortune 100 companies have set clean energy targets as well as nearly half of the Fortune 500.² Major US corporations such as Walmart Inc. and General Motors Company have become some of the country's biggest buyers of renewable energy.³ Google, closely followed by Amazon, is now the world's largest purchaser of renewable energy,⁴ and an increasing number of corporate consumers around the world have joined initiatives such as RE100 to underscore their commitment to 100 percent renewable power.⁵

¹ Bloomberg New Energy Finance — Corporate Energy Market Outlook report, <https://about.bnef.com/new-energy-outlook/>

² Power Forward 3.0: How the largest US companies are capturing business value while addressing climate change, World Wildlife Fund, 25 April 2017, <https://www.worldwildlife.org/publications/power-forward-3-0-how-the-largest-us-companies-are-capturing-business-value-while-addressing-climate-change>

³ America's hungriest wind and solar power users: big companies, Reuters, 21 June 2017, <https://www.reuters.com/article/us-usa-companies-renewables-analysis/americas-hungriest-wind-and-solar-power-users-big-companies-idUSKBN19C0E0>

⁴ <https://environment.google/projects/announcement-100/>

⁵ <http://there100.org/>

We believe that as these corporate consumers demand more renewables, the low-carbon transition has become irreversible. Market estimates value the investment required in the sector at US\$1 trillion p.a. to achieve this goal.⁶ This new development is especially important at a time when support for tariffs and subsidies is in decline. In fact, we would argue that eventually the role of governments might be focused more on supporting energy-related regulations and removing any obstacles that involve planning and grid risks.

Change drivers for corporations

The main factors driving corporations to adopt renewables include the following:

Declining prices: New consumer demand for renewables is encouraged by a steady decline in the overall costs of wind and solar. Recent reports suggest that the cost of certain renewable technologies will be less than the cost of traditional fossil fuels as early as 2020.⁷ The US Department of Energy has provided data showing that the average power purchase agreement (PPA) price for wind has fallen by two-thirds since 2009.⁸ In 2017 alone, the price for high-efficiency solar panels fell by 37 percent.⁹

Investor pressure: The growing emphasis around 'responsible investment' is driven by the recognition that environmental, social and governance (ESG) factors play a key role in determining risk and return while also supporting the investors' fiduciary duty to their clients. Corporations without a clear vision and road map to a sustainable future will no longer be regarded as winners in the long run. A good example of this has been the growth of 'green' B2C retail companies and established utilities offering 100 percent renewable energy and green tariffs in the market to customers.

Customer and employee pressure: Today's customers want to feel good about the companies they do business with.¹⁰ The same applies to employees, especially millennials.¹¹ Companies that support green energy can attract and keep better employees and also grow their customer base, thereby creating more value for their shareholders.¹²

Changes to information reporting standards: Corporate accounting is undergoing its own revolution. Under 'true value accounting' principles, corporations are being asked to identify and quantify the financial impact of climate-related risks in their organization and to outline the potential threats and opportunities to their own stakeholders through appropriate financial disclosure. At present, this is a voluntary requirement, but in time these recommendations will become obligatory as we have seen with non-financial disclosures. At a minimum, this will become best practice, particularly given the sentiments of the investment community. Assessment of the risk will take into account multiple factors including governance, strategy, risk management and the appropriateness of metrics and targets. These new reporting standards will have a material impact on future investment plans, lending and underwriting.

Industry peer pressure: The impact of peer pressure within an industry to support renewables cannot be underestimated. We are well aware of the requirement for greenness from the software sector and in particular the desire to be associated with additional green power. However, this is also true of other sectors such as the pharmaceutical and large industrial sectors.¹³ Underpinning this will be the need for significant investment in data analytics to help manage and interpret the impact of climate change as well as supporting potential solutions.

⁶ International Energy Agency, World Energy Outlook Special Briefing for COP21, 2015 and reproduced in the Final report recommendations for the task force on climate-related financial disclosures, June 2017, https://www.iea.org/media/news/WEO_INDC_Paper_Final_WEB.PDF

⁷ <https://www.forbes.com/sites/dominicdudley/2018/01/13/renewable-energy-cost-effective-fossil-fuels-2020/>

⁸ DOE reports find wind energy is more affordable than ever, DOE, 9 August 2017, <https://www.awea.org/DOEWindTechnologyReports2016>

⁹ The cost of high-efficiency solar panels fell 37 percent in 2017, Inhabitat, <https://inhabitat.com/in-2017-price-for-high-efficiency-solar-panels-fell-37/>

¹⁰ 5 reasons why sustainability and social issues attract customers, Entrepreneur, <https://www.entrepreneur.com/article/287301>

¹¹ Millennials want to work for employers committed to values and ethics, Guardian, 5 May 2015, <https://www.theguardian.com/sustainable-business/2015/may/05/millennials-employment-employers-values-ethics-jobs>

¹² Sustainable corporations perform better financially, report finds, Guardian, 23 September 2014, <https://www.theguardian.com/sustainable-business/2014/sep/23/business-companies-profit-cdp-report-climate-change-sustainability>

¹³ Why corporates will accelerate transition to renewables, Energy Ireland, <http://www.energyireland.ie/why-corporates-will-accelerate-transition-to-renewables/>

Other: Many corporations are focused on signing up to standards such as the UN Principles for Responsible Investment and the UN's Sustainable Development Goals. Transitioning to 100 percent renewables is an ideal way of helping these agendas.

Different delivery methods

As many countries transition off subsidy regimes and adopt more competitive auction-based approaches for renewables, energy providers have developed two methods for delivering power to their corporate consumers:

- Synthetic PPAs where the power is delivered via the existing power grid but at a price negotiated with each corporation.
- Direct-wire solutions where a renewable solution is provided on-site, resulting in much lower transmission costs. These solutions can include rooftop or ground-mounted solar installations, small wind turbines, and solutions involving biomass, combined heat and power (CHP) systems, or batteries.

Other solutions are being developed to the extent that some corporates are moving to an environment where they potentially can become fully self-sufficient for their future energy needs. Those that have been successful to date have established in-house capability but are also open to innovative solutions to safeguard future energy requirements. In turn, greater transparency over future costs and security over energy needs provides a level of control over these corporates management of climate change risks.

Green premiums

Corporations are not necessarily experts in renewable energy, but they often have to engage with multiple renewable providers or contractors to develop a solution

that fits their needs. The most pressing issue is usually determining a price that works for both the generator and the corporate consumer. Simply put, green energy costs more in many countries, and corporations must be willing to pay a 'green premium' for renewables. However, as the number of direct-wire solutions based on renewables is steadily increasing (resulting in much lower transmission costs) and the cost of wind and solar continues to decline, the price differential is starting to narrow, and in some countries, renewable power can now compete cost-effectively.

Looking beyond

For utilities, the trend toward renewables and more distributed energy solutions is definitely a cause for concern. It will be interesting to see how utilities respond to this development. They might well become part of highly complex energy platforms in the future that include multiple energy sources, producers, distributors and consumers.

At KPMG, we are seeing greater levels of corporate interest in transitioning to low-carbon solutions such as renewables, and we expect this trend to accelerate. Imagine the implications when retail consumers start to make similar demands and this will happen too. However, we should not underestimate the practical difficulties of transitioning to 100 percent renewables, but at least now, we have ample evidence to prove that it can be done.

In any case, the renewable revolution is well underway, and with the support of corporate consumers, there is now no going back.

What's next

This is the first in a series of articles discussing the *New drivers of the renewable energy transition*. Stay tuned for additional publications from KPMG's Global Energy Institute (GEI) on the role of green finance, the impact of hydrogen on the sector and the opportunities and challenges of sustainable energy innovation.



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