

The dangers of subsidy-free renewable energy

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30 October 2018

Almost all European countries want to get rid of subsidies for renewable energy projects, but exposing producers to greater market risk may be both inefficient and counterproductive

There's a growing sense of alarm among clean energy investors. From the remarks and statements of various market commentators, it seems the broad consensus about how to finance renewables at the lowest possible cost is about to be undone. And it could prove very costly for us all.

Take, for example, [recent comments](#) by a leading energy market research firm: "the word revolution is befitting, not just because of the sheer scale... but also because it is a marked departure from the old paradigm, where renewable deployment was driven by government intervention. This revolution brings a new paradigm, where decarbonisation can be brought about by sheer market force."

While it's accurate to say renewables have become much cheaper over the last few years and no longer require outright subsidy, the idea of a pure market for electricity is a mix of ignorance and wilful fallacy. Pushing renewable energy to compete with fossil fuels in wholesale electricity market may, in fact, undo much of the progress made over the last decade in developing investment-ready climate policies.

Behind the removal of subsidies is a belief the mission is now complete

Before we get into our ongoing research, let's start with a quick review. The price-setting mechanism in large power markets is typically linked to the prevailing cost of coal or natural gas. While they were more expensive than wholesale power prices, renewables bypassed the system price by earning a fixed tariff from national governments. But now renewables can, with the right conditions, produce at below the marginal system price, doesn't that mean the question of incentives is solved?

In short: no.

A move towards greater levels of "merchant" price exposure for renewable power generators has the consequence of exposing investors to electricity price volatility. While that may make sense in the minds of economists, it's a nightmare for financiers. Coupled with the inherent volume uncertainty of intermittent generation, introducing output price risk will increase the required rate of financial return and alter the optimal project capital structure. The net effect is to significantly raise the [hurdle rate](#) demanded by investors – hardly the kind of thing to accelerate an energy transition.

Taken too literally, we see subsidy-free schemes having a detrimental impact on renewables by significantly increasing the cost of capital and threatening the move to a zero-carbon energy system. To provide the evidence, our current research is quantifying the exact relationship between price risk, required returns, and the optimal timing of renewables investments.

The current merchant renewables market

According to Bloomberg NEF, the market for merchant solar PV projects currently amounts to 676 MW in total, made up of 12 projects either commissioned or under contraction in Europe. Some of the projects are quite impressive in terms of their scale, including the 221 MW Solar4 project by WElink Energy in Portugal.

Portugal, Spain and Italy have been installing the largest portions of merchant PV, accounting for 303 MW, 176 MW and 174 MW respectively. The UK forms the smallest share, with almost half of that coming from the recently opened 10 MW unsubsidised Anesco solar park in Clayhill, Bedfordshire.

Similarly, there are a growing number of merchant wind projects in Europe. Among the biggest projects are offshore [wind farms planned](#) in Germany and the Netherlands by Ørsted and Vattenfall. A 650 MW onshore windfarm is also [expected to go online](#) by the end of 2019 at Markbygden in Sweden.

We are not the only ones seeing a looming crash in renewables investment if the current trend of pushing renewables towards merchant price risk continues

This "subsidy-free" trend is expected to spread quickly throughout Europe, but will these projects actually come to fruition. And if so, at what cost?

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What is driving subsidy removal?

Behind the removal of subsidies is a belief the mission is now complete. Renewables have managed to gain economies of scale and reduce costs; as the technologies have matured, they do not need public support. In the words of [one leading lawyer](#): “The change has come about because many governments believe that support is no longer necessary for the mature technologies which have seen significant cost reductions. They take the view that the sector is sufficiently advanced to enable the market to find its own solutions.”

But what these commentators miss is that fixed, government-backed tariffs for renewables had two distinct effects: feed-in tariffs, contracts for differences and the like not only brought down the cost of renewables, but also reduced the risk for investors. Herein lies an obvious but overlooked truth about renewables: while they cost a lot to set up, they run for next to nothing, the opposite of most fossil-fuel-fired power plants in the system. What then is the logic of having low-marginal-cost renewables “compete” with high-marginal-cost coal or natural gas generators?

In short: very little.

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The great success in commercialising renewable energy has been achieved by not just raising the income of clean power producers, but by stabilising their potential earnings. It's the latter that attracted mainstream lenders and delivered astoundingly low cost of capital for project developers in recent years.

Wholesale price competition increases investors' exposure to electricity price risk. While that may be an exciting prospect for some specialists on the equity investors, it does nothing to help risk-averse commercial banks who put in 70 to 80 per cent of a typical project's funding.

The implication is that, even if electricity prices shoot up in the coming years, the wrong market design for renewables could inadvertently constrain renewables investment at a time when renewables are further and further “in the money”.

While market-based solutions exist to reduce merchant price, the traditional method of contracting with utilities through long-term power purchase agreements (PPAs) has long proved problematic for renewable power generators. The recent hype around corporate PPAs (the kind of agreements [Facebook](#) and [Google](#) have made for their power needs in the US) will fail to deliver rapid transformation of the power sector. Outside of AAA-rated large tech companies, there are just too few high-credit quality counterparties willing to contract for 20 years or more.

The idea of a pure market for electricity is a mix of ignorance and wilful fallacy

We are not the only ones seeing a looming crash in renewables investment if the current trend of pushing renewables towards merchant price risk continues. Merchant risk will push renewables back into the domain of private equity firms – who may be willing to take that risk but at returns of 15 per cent or more. [In the words](#) of a former policy director of one wind energy group: “I fail to see how that flies, as once you load that cost of debt onto the project it gets really expensive... Someone needs to be there taking away that price risk. The best player as it stands is government.”

The aim of our research is to see if the evidence backs up these claims. By quantifying the risks and describing in numbers their impact on asset valuation, we aim to clarify the cost of uncertainty for investors and provide evidence to policymakers about the implications of a move towards merchant renewables.