

Changing Business Models for European Renewable Energy



Presentation at BNEF - Hawthorn Club event

Meredith Annex
Johana Typoltova

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**Bloomberg
New Energy Finance**

Executive summary

Auctions, merchant risk, rising competition and higher interest rates threaten to change the dominant renewable energy business models for Europe in the next decade. This presentation, delivered to Hawthorn Club members in London on January 16, delves into the challenges and potential solutions which utilities have begun to explore.

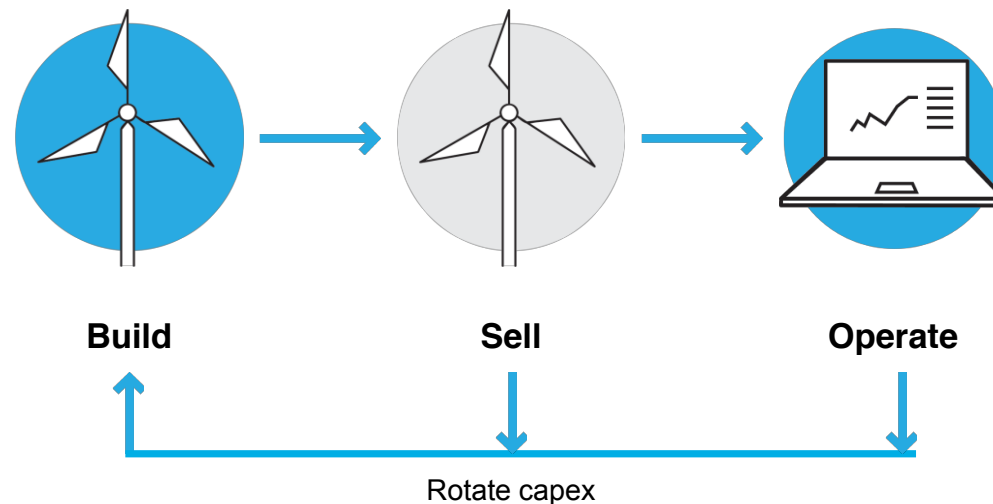
- The build, sell, operate (BSO) model relies on utilities constructing renewable energy assets, then selling stakes to institutional investors. It is likely to remain the leading model in the short term.
- However, auctions present a challenge. Already, they are leading to competitive pressure and higher risk in European renewables. While auction methodologies have improved, renewable energy assets are already carrying more merchant exposure.
- Corporate PPAs are a popular way to manage this risk. By adding some revenue certainty, these agreements can make a project more bankable in the near term. However, PPAs are hard to structure and rarely remove merchant risk entirely.
- Flexible demand, especially dynamic electric vehicle charging, can help improve the economics for merchant renewable energy by shifting consumption to hours with more renewable output. This increases realized power prices, and may be more effective than adding battery storage or relying on ancillary service markets.
- Finally, utilities are experimenting with new customer offerings to lock in demand for renewables or to create flexible demand. Yet the scalability of these experimental solutions is of concern, and relies on assumed demand for sustainability from new generations.

>50% Auctioned capacity in 2017 came from EMEA region

1.1GW Corporate PPA capacity signed in EMEA in 2017

50:50 Debt-equity ratio possible for merchant renewables

Build, Sell, Operate business model diagram

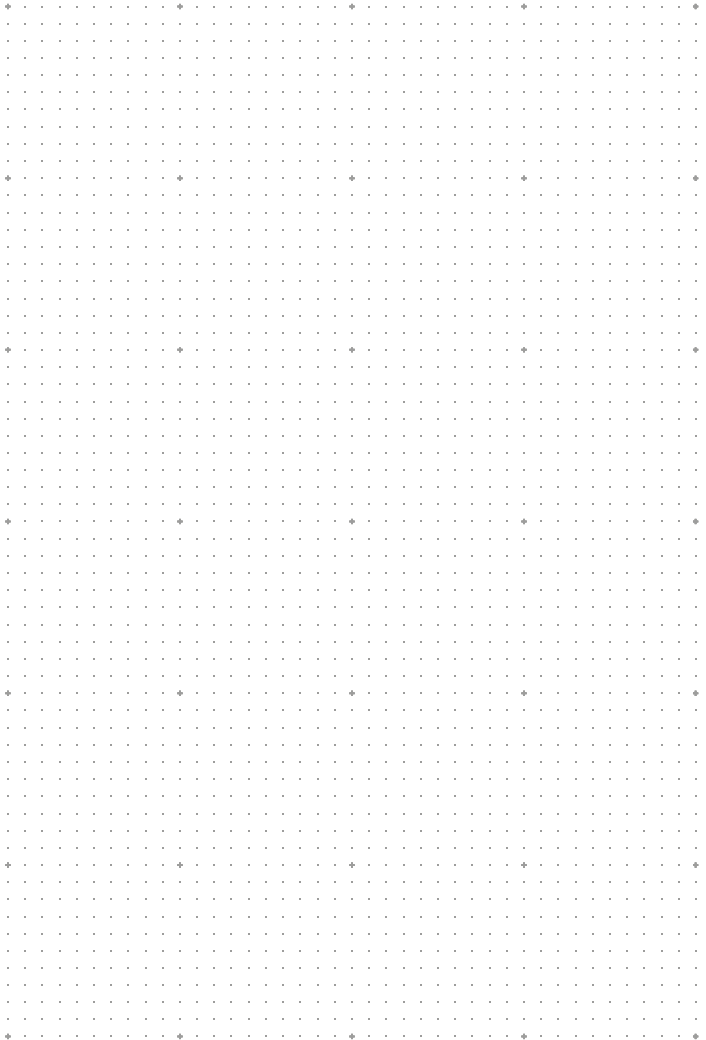


Source: Bloomberg New Energy Finance. Note: The build, sell, operate (BSO) model is one of the dominant renewable energy strategies among European players.

Contents

The state of play	3
Implications for renewable energy	8
Changing business models	14
Reduce costs	17
Power purchase agreements	20
Address merchant risk	26
New customer models	35

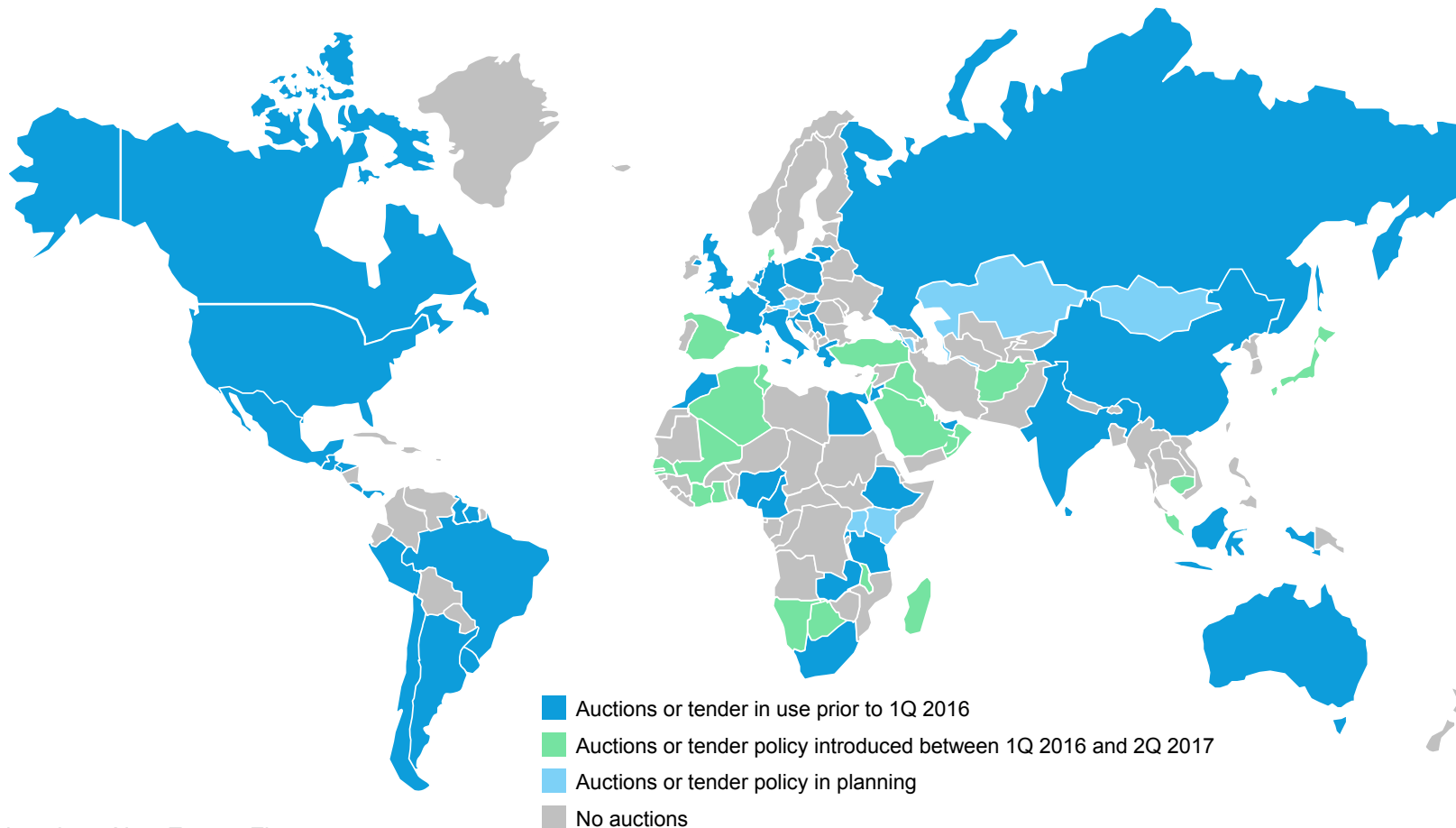
The state of play



Map of auctions globally

Analysis from: [Clean Energy Auctions – The Global Trends 2017](#) ([web](#) | [terminal](#))

Subsidization of renewables over last decade has delivered economies of scale and activity leading to decreased costs. The auctions were then introduced to decrease the cost for governments and also to prevent the governments from having to guess where the technology costs are going. Clean energy auctions are now a global and accelerating phenomenon. In 2016, the auction centre of gravity has started to shift from Latin America, which dominated the picture over 2009-14, to a much more even distribution across the globe.



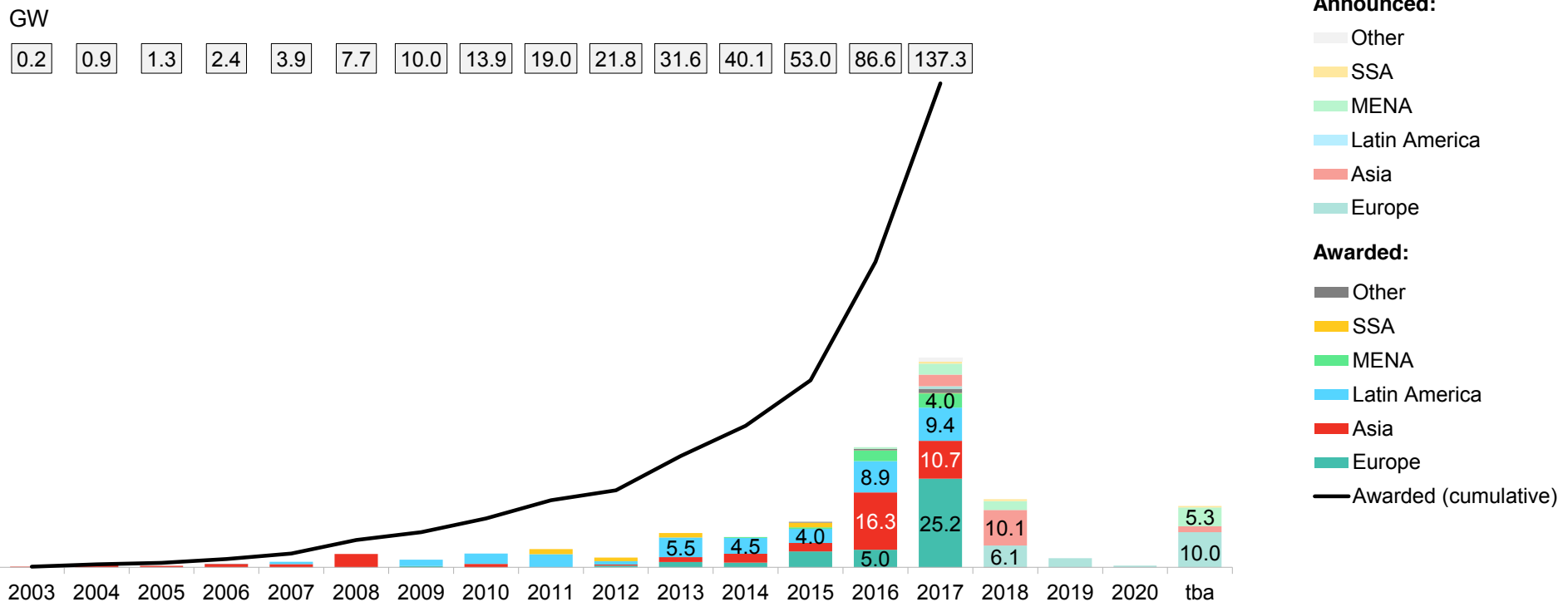
Source: Bloomberg New Energy Finance

Europe led in auctioned capacity in 2017

Analysis from: 1Q 2018 Global Auction and Tender Results ([web](#) | [terminal](#))

2016 marked a step change, with 35.6GW of new renewables capacity sold through a competitive bidding process, an equivalent of more than two-thirds of the capacity auctioned the year before. However, the majority of auctioned capacity still came from Asia and Latin America. The top auction destination has changed in 2017 as France and Germany begun onshore wind auctions. In 2017, Europe dominated globally auctioned renewable capacity for the first time and in the Global Auction and Tender Calendar ([web](#) | [terminal](#)). BNEF assumes the same will happen this year.

Global auctioned and announced renewables capacity



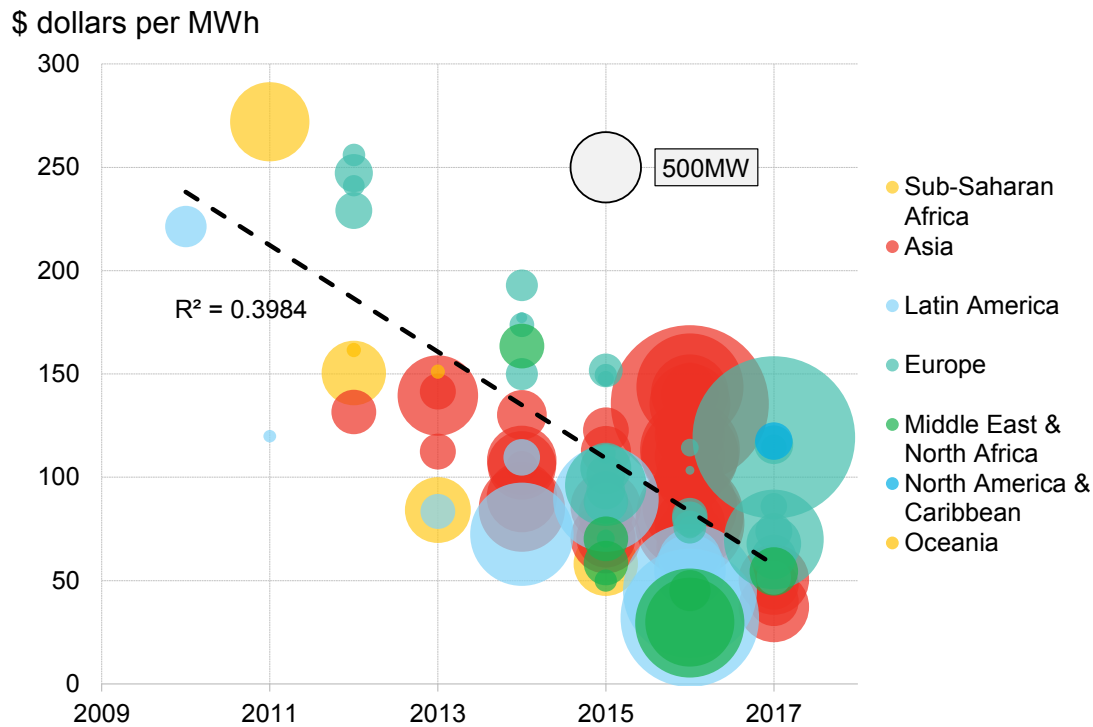
Source: Bloomberg New Energy Finance. Note: Excludes 60.8TWh of renewable electricity already auctioned in Chile between 2006 and 2017 and 12 billion euros of subsidy budget to be awarded in the Netherlands in October 2017.

Solar and onshore wind average auction winning prices

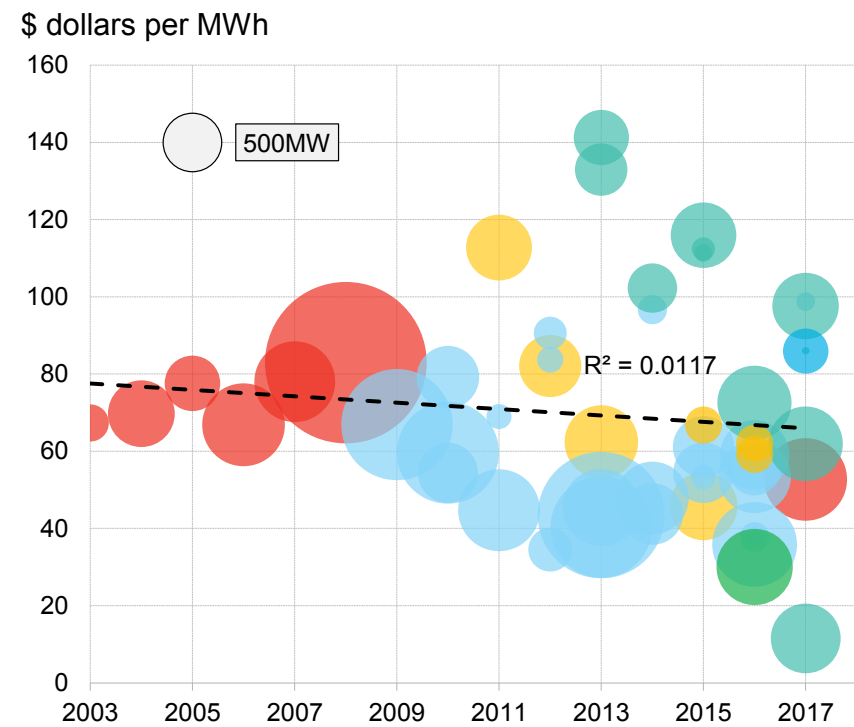
Analysis from: [Clean Energy Auctions – The Global Trends 2017](#) ([web](#) | [terminal](#))

Solar auction clearing prices show correlation across the globe, indicating that most countries can capture the benefits of steep cost declines in the sector. On contrary, development costs for wind still depend on local conditions, the difference increasing as the growing size of the towers and blades requires different approach for transporting to the sites.

Solar



Onshore wind



Bloomberg New Energy Finance. Note: These charts are generated using the data from BNEF's Global Auction and Tender Results database.

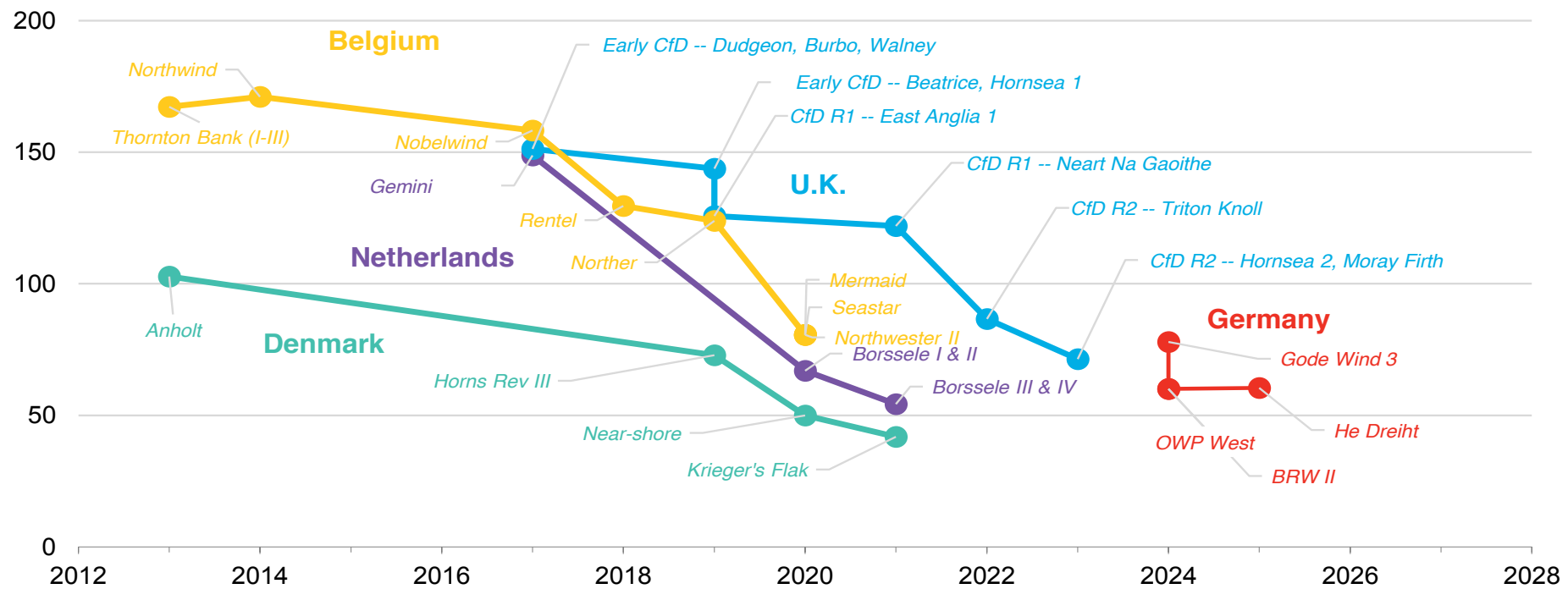
Levelized auction prices

Analysis from: 2H 2017 Offshore Wind Market Outlook ([web](#) | [terminal](#))

Over the years, auction policies have also become more sophisticated. Many integrate de-risking mechanisms and guarantees, or are backed by multi-year auction schedules that increase visibility to the process. Offshore wind projects in Europe are increasingly sheltered from project development risk, allowing lower bids to be made. The Borssele III project in the Netherlands secured a PPA at 54.5 euros/MWh in a “derisked” auction, while the Neart na Gaoithe project to be delivered the same years in the U.K., where development risks are borne by the developer, will deliver power at over twice the price.

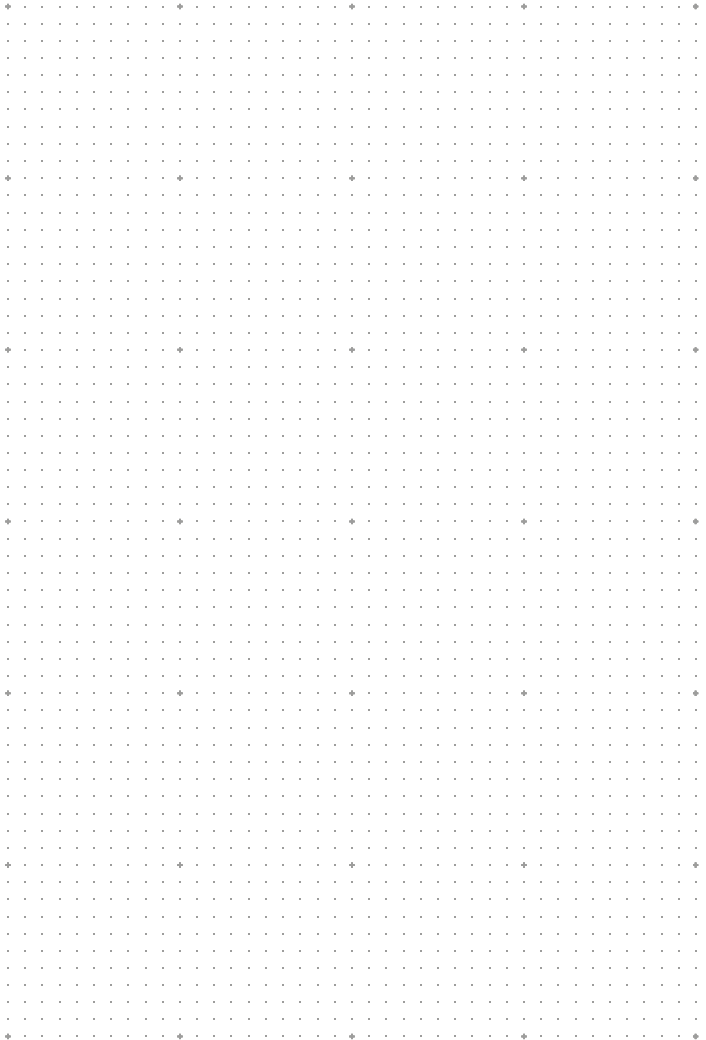
Offshore wind levelized bids by commissioning year

Levelized bids (2016 \$/MWh)



Source: Bloomberg New Energy Finance. Notes: Figures refer to an estimated project LCOE, taking into account tariff, inflation, merchant tail assumption and a 23-year project lifetime. Horizontal axis refers to commissioning year.

Implications for renewable energy



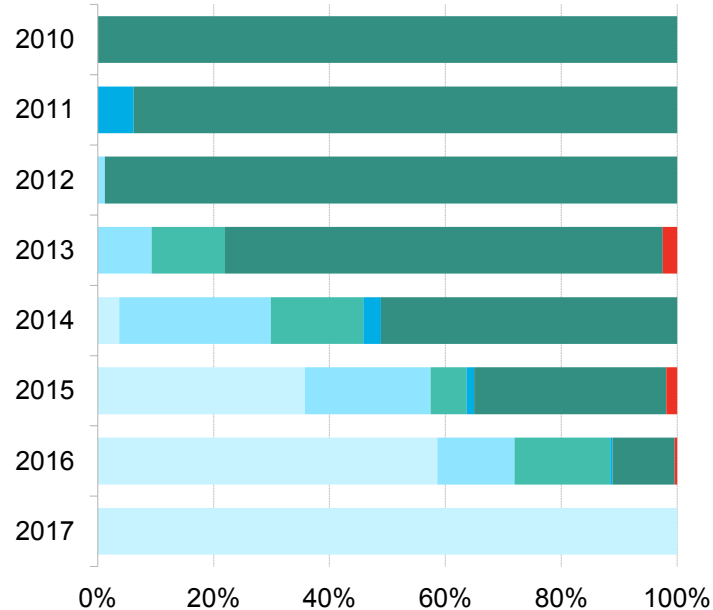
Cancellation is not a bad word

Analysis from: [Clean Energy Auctions – The Global Trends 2017](#) ([web](#) | [terminal](#))

Auctions continue to improve project delivery conditions. The package of permits, delivery deadlines and bid bonds needed to participate in most auctions together with the PPA obtained by winning projects, lays the ground for the project construction phase. However, with projects auctioned years ahead, a developer might find that market conditions have changed by the time construction is due to start, and decide to cancel the project, leaving the country project pipeline empty. On the other hand, regulators can be easily trapped in overprocurement of capacity, leading to curtailment and depressed power prices. Brazil is the first country to have started an auction-contract cancellation mechanism (all red projects in the onshore wind chart below), as its optimistic power demand forecast did not materialize and the market was oversupplied.

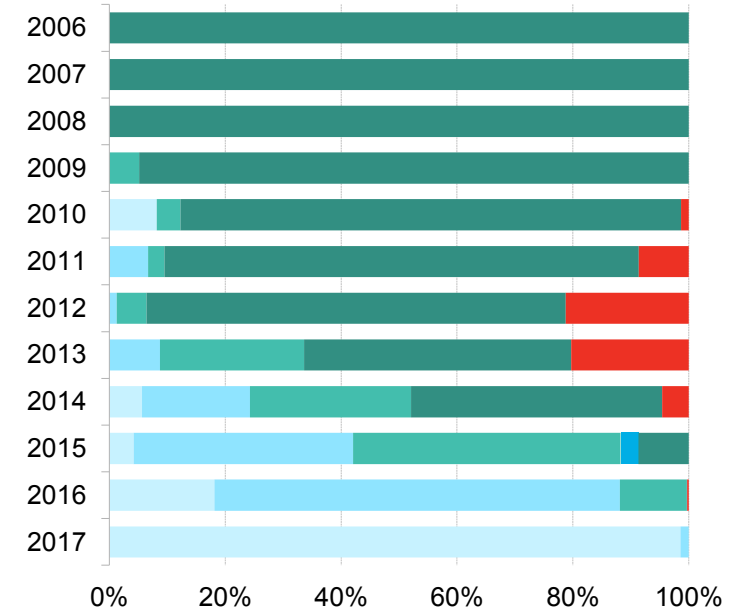
PV

Development status of winning projects by auction year



Onshore wind

Development status of winning projects by auction year



Source: Bloomberg New Energy Finance

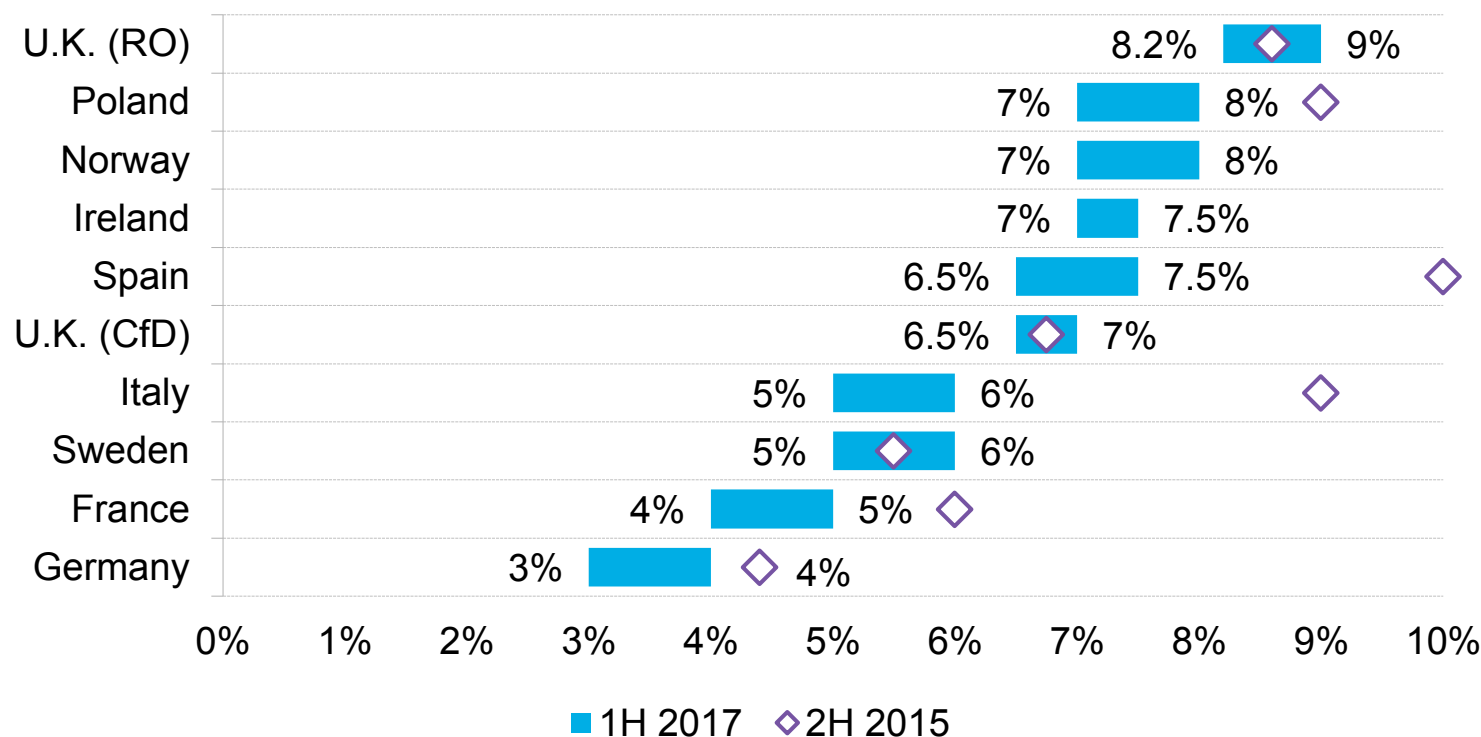
Equity returns are at record lows...

Analysis from: [Under Pressure: Onshore Wind Equity Returns in Europe](#) ([web](#) | [terminal](#))

Before assessing what financing will look like in the times of merchant risk, we look at the current state of financing. At the moment, plentiful capital in the market is keeping returns under pressure. Investors are prepared to reduce return requirements and accept more aggressive structures.

Institutional investor unlevered equity return expectations for onshore wind

Unlevered equity returns for institutional investors



Bloomberg New Energy Finance. Note: RO = Renewables Obligation. CfD = contract-for-difference.

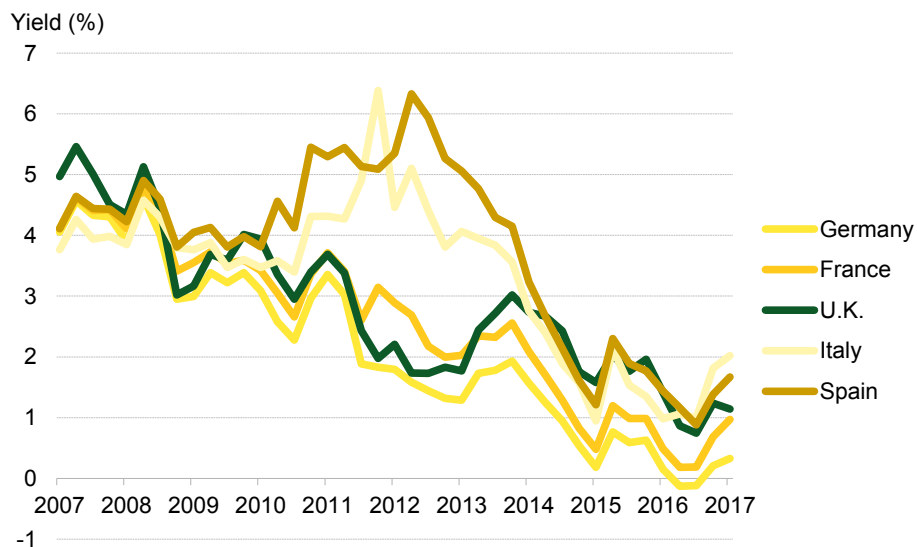
Implications for renewable energy

...with lots of money chasing not so many projects in unique macro environment.

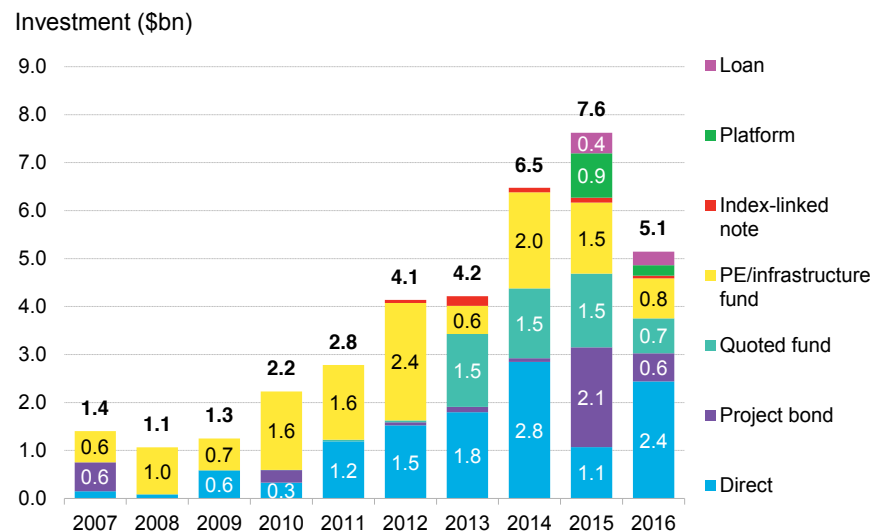
Analysis from: 2017 Europe Asset Finance and Institutional Flows ([web](#) | [terminal](#))

International interest rates and bond yields are at historically low levels, forcing financial and institutional investors to look at infrastructure assets that pay steady and dependable cash flows. Institutional commitments grew from only \$1 billion or so per year to a record \$7 billion in 2016. As the 2017 Europe Asset Finance and Institutional Flows publication reports, more than \$4.8 billion was already recorded by July 2017. The supply of green power projects reaching the financing stage is limited, so the result is ample liquidity in that market.

European 10-year sovereign bond yields



Institutional investment in European renewable energy projects



Bloomberg New Energy Finance. Note: Yields for generic 10-year bonds.

Bloomberg New Energy Finance. Note: 2016 figures are Q1-Q3 only. See H2 2016 Europe asset finance and institutional flows ([web](#) | [terminal](#)).

Discussion: Are we already seeing merchant projects being financed?

With the presence of feed-in tariffs and contracts-for-difference providing revenue certainty, we have seen greater interest from both financial and institutional investors in renewable assets. [What will the market look like with merchant projects?](#)

- Bankers and developers previously interviewed by BNEF predict that project finance will continue to be available in the coming era of unsubsidized wind and solar. However, pools of equity providers may be smaller, debt-equity ratios lower (from 80:20 to 70:30 or less), equity return requirements higher, debt service coverage ratios and loan margins higher and the tenor shorter.
- Some players are already seeing projects with merchant risk cross their desk. Such deals have traditionally been undertaken for thermal plants, and are now being reviewed for renewable energy. There is some willingness to accept small levels of merchant risk in the short-to-medium term, when market fundamentals are clear. Overall, there is a healthy scepticism being applied to power price forecasts used in asset valuations.
- Some coverage from PPAs can help to mitigate these changes. For more on this discussion, please see [slides 20-25](#).

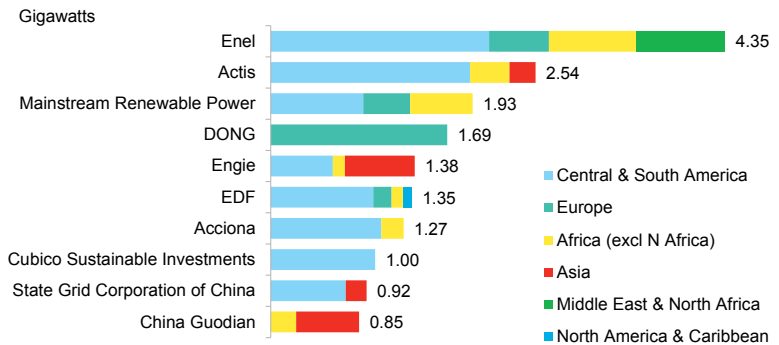
Implications for renewable energy

European utilities are present in auctions across the globe

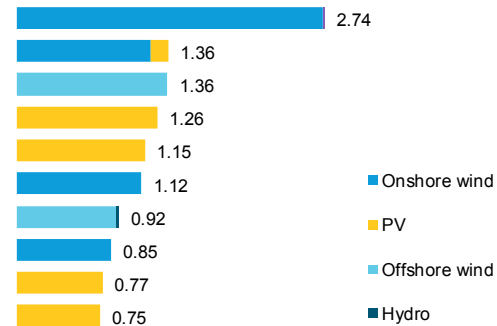
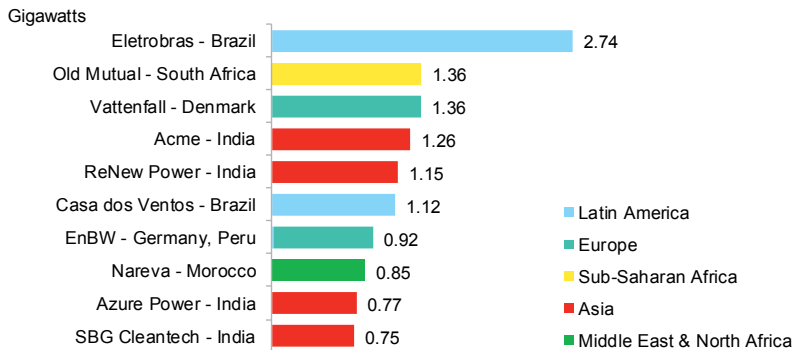
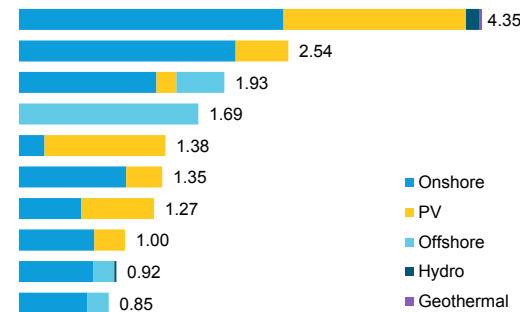
Analysis from: Clean Energy Auctions – The Global Trends 2017 ([web](#) | [terminal](#))

Most European utilities were somewhat late to the renewables game in their home markets. This is not the case when looking at the global picture. Enel, Engie, EDF and Acciona have all capitalized on the many auction programs in Latin America, and their history in the region, to grow an increasingly geographically diversified portfolio. As European markets shift to auctions, more opportunities will arise, and a home market advantage may come into play. Several companies have seen success just from their home countries (bottom charts). Brazilian national utility Eletrobras ranks second globally, just behind Enel, in our project-level auction results data. Sovereign-owned Nareva Holding is one of the largest players in Moroccan tenders.

Global auction winners by region...

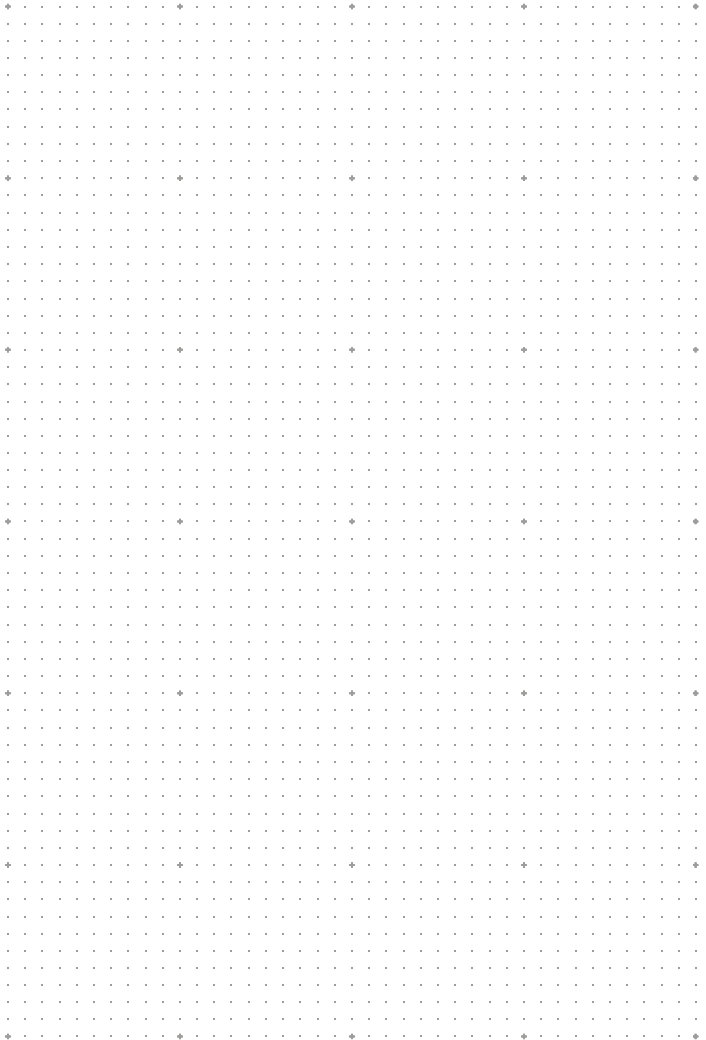


By technology...



Source: Bloomberg New Energy Finance. Note: Companies in the top half are active in more than one market.

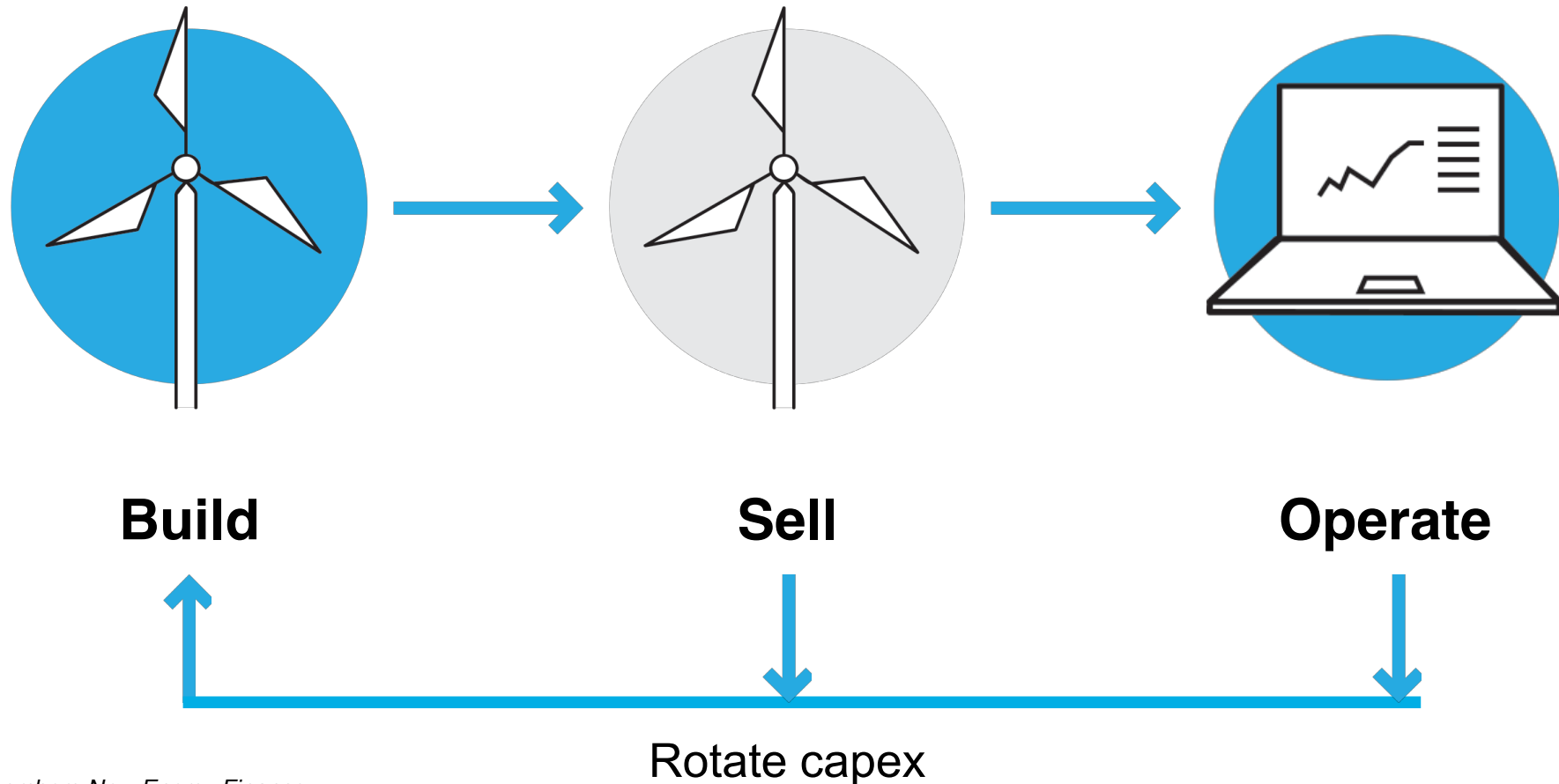
Changing business models



Predominant business model

Analysis from: [Utilities Discover Joy of Selling Assets to Investors](#) ([web](#) | [terminal](#))

The Build, Sell, Operate (BSO) model is one of the dominant business models for renewable energy build among European utilities. It involves the utility taking an asset through the construction phase and then selling off stakes to institutional investors. The utility then signs an operation and maintenance (O&M) contract for the facility as well.



Source: Bloomberg New Energy Finance

The BSO depends on a balance

Analysis from: [A Guide To New Offshore Wind Investors](#) ([web](#) | [terminal](#))

The benefits of the BSO model relate to revenue and cash flow. The O&M contract provides a steady revenue stream for the asset's lifetime. The BSO also enables capital rotation: once the utility has sold off stakes in a project, the cash raised can be recycled into future renewable energy projects. The BSO model relies on a fine balance to work – and there are a number of trends which could challenge this strategy in the next decade. Auctions can lead to reduced project pipelines, undermining the value of reinvesting capital from asset sales. Auctions also introduce competitive pressure, causing some utilities to compromise on equity returns – which can reduce investor demand. Merchant risk could also dampen enthusiasm from institutional investors, while higher interest rates could shift their focus towards bond yields.

Benefits: more revenue and better use of funds

- + Capital rotation allows for more capacity development
- + Service contracts are an added revenue stream
- + Premiums can enable more aggressive bidding



Risks: loss of appetite, margins get too tight

- Lack of project pipeline/ competitive bidding
- Merchant risk
- Higher interest rates

Source: *Bloomberg New Energy Finance*

Options for the future

1

Reduce costs

2

Power purchase agreements

3

Address merchant risk

4

New customer models

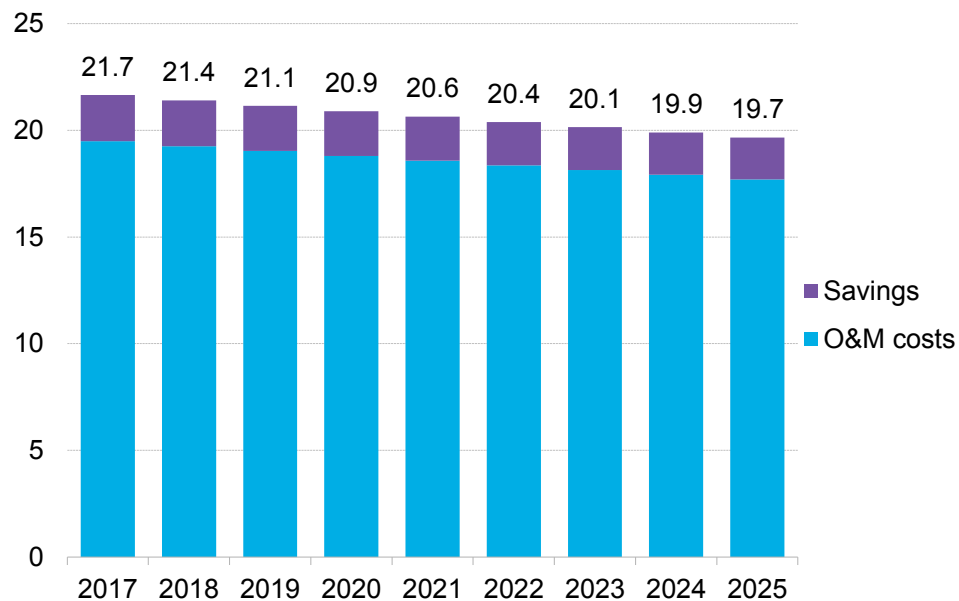
Digitalization saves up to 10% of O&M costs

Analysis from: [The Costs and Benefits of Digitalizing Energy](#) ([web](#) | [terminal](#))

Development costs have historically been the main target of cost reductions for both wind and solar – with plenty of success. Now developers and asset owners are increasingly focusing on the operation and maintenance and to digitalization as the main means to achieve cost reductions. From an asset owner’s perspective, digital systems can contribute to cost reductions in three ways. First, predictive maintenance can replace reactive maintenance, where system is only serviced when it signals distress. Second, better data and more advanced analytics can increase output and uptime. Finally, increasing accuracy of output forecasts provided to grid operators leads to better integration of renewables to the market.

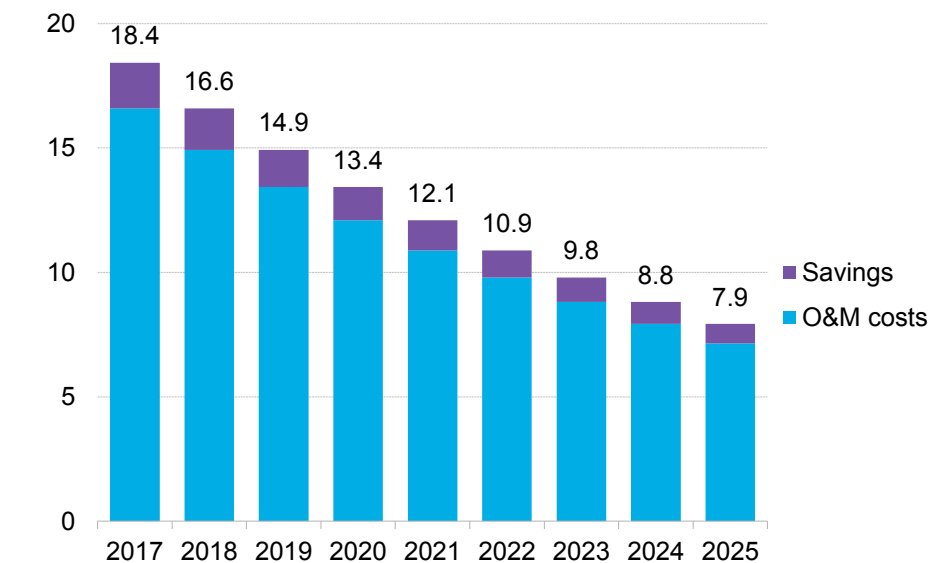
Wind

\$m/GW/year



Solar

\$m/GW/year



Source: Bloomberg New Energy Finance. Note: More information in BNEF’s report *The Costs and Benefits of Digitalizing Energy*.

Changing business models

Competitive landscape, but scale and partnerships are still a work-around

Analysis from: [Digital Wind: IoT Systems and Services](#) ([web](#) | [terminal](#))

An asset owner faces a choice between digital services from equipment manufacturers, independent service providers or, if its portfolio is large enough, taking the services in-house. However, it can also mix and match and create the best fit for its needs. We expect the same behavior from the market. The huge variety and number of companies with digital solutions should decrease in the future as the market matures and consolidates.



Source: Bloomberg New Energy Finance. Note: Digital Wind: IoT Systems and Services.

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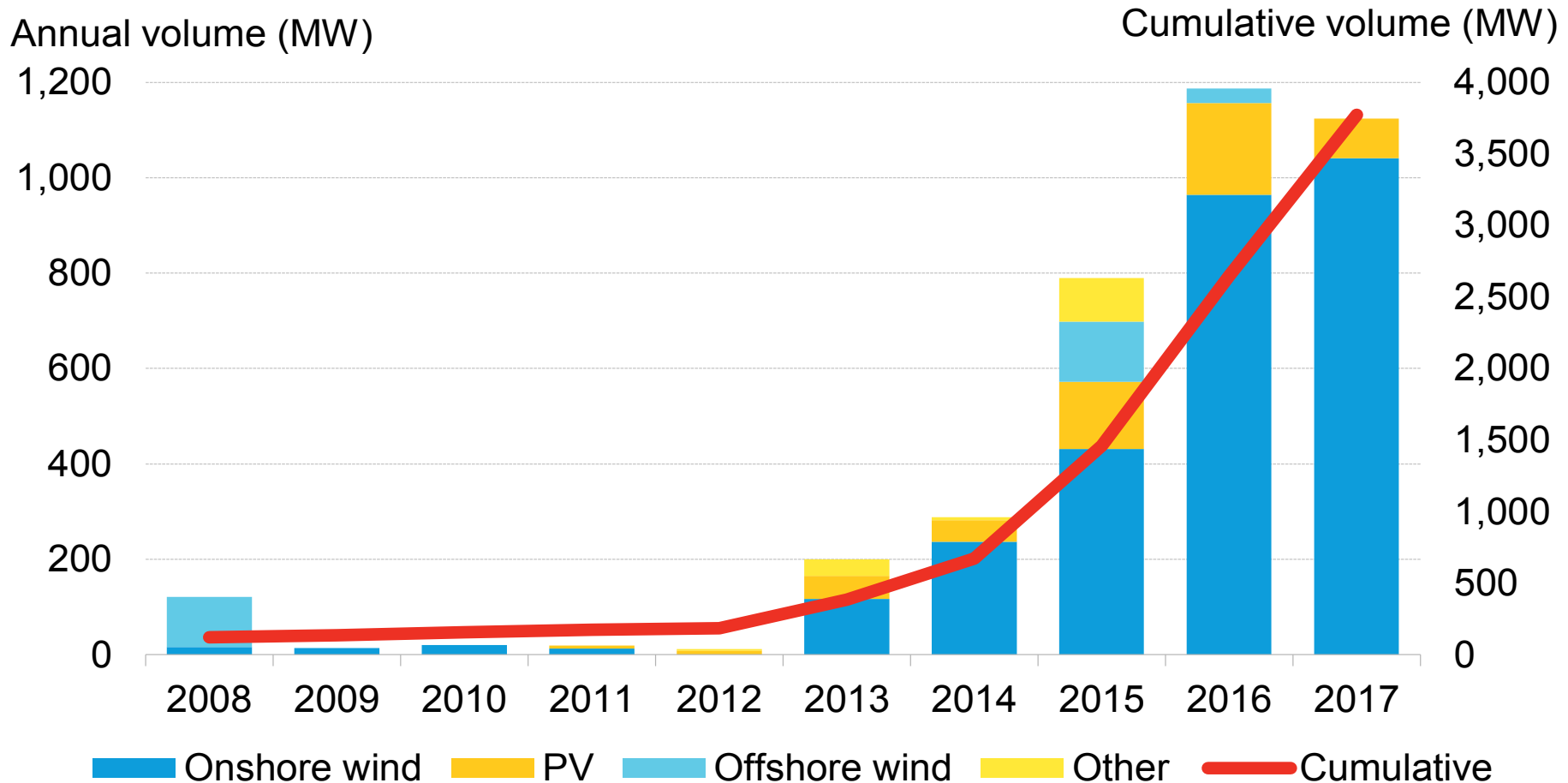
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New customer models

Corporate PPAs in EMEA are rising

Analysis from: [Global Corporate PPA Database](#) ([web](#) | [terminal](#))

Power purchase agreements can be signed with retail or distribution firms, or directly with a corporate energy customer. Corporate PPAs are rising all around the world, including in the EMEA region. PPAs provide revenue certainty for projects without a feed-in tariff.



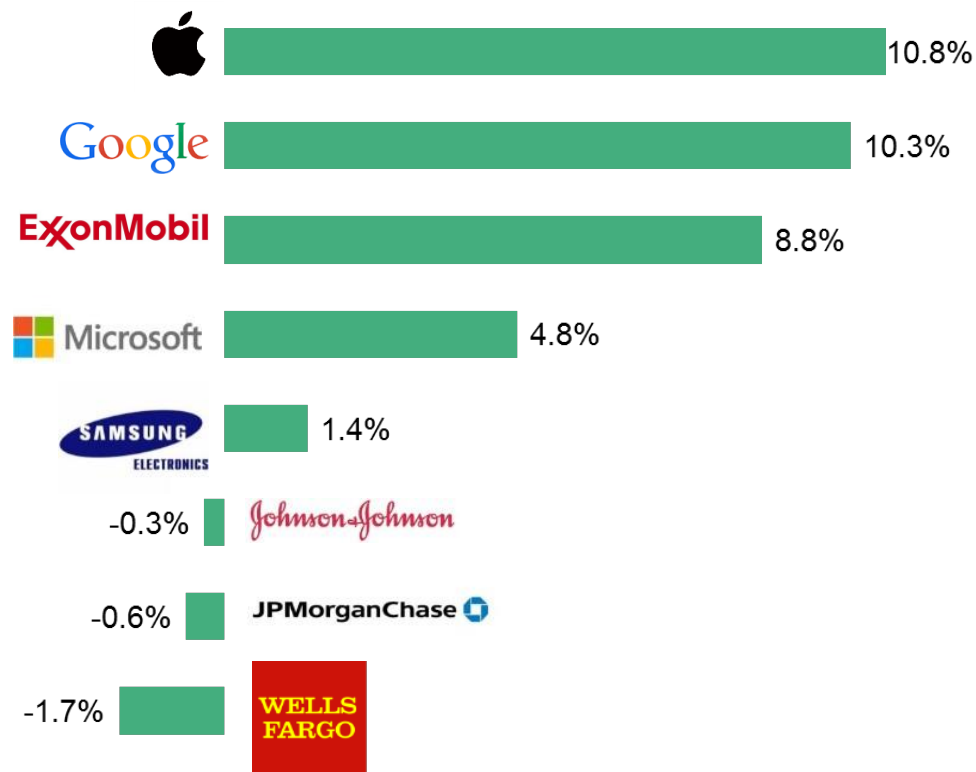
Source: Bloomberg New Energy Finance. Note: Data as of November 2017.

Companies are a source of demand growth...

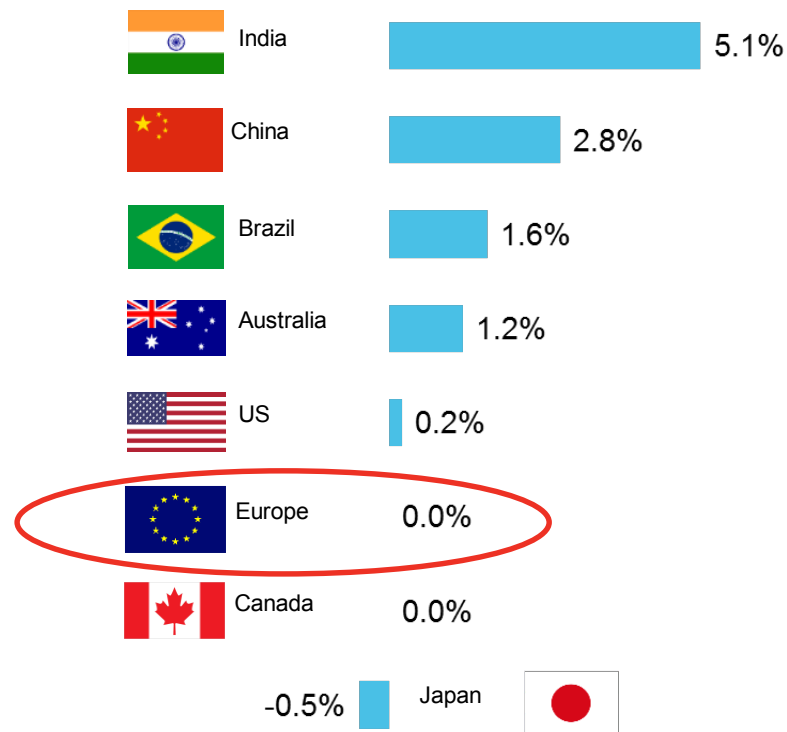
Analysis from: [Webinar: Corporate Renewable Energy Procurement](#) ([web](#) | [terminal](#))

While BNEF does not expect power demand growth in Europe over the next decade, many large corporations represent a source of rising demand. In some cases, the pace of this growth even outstrips electricity demand growth expectations in India and China.

Top 8 corporates by market cap
Electricity demand CAGR, 2016-25



Top 8 countries by electricity consumption
Electricity demand CAGR, 2016-25



Source: Bloomberg New Energy Finance.

...and demand scale

Analysis from: Webinar: Corporate Renewable Energy Procurement ([web](#) | [terminal](#))

In addition to demand growth, corporates also bring scale. For some, their global electricity consumption can be equivalent to or larger than the demand from a single country.

Annual electricity consumption (2014)

RioTinto

60 TWh



Czech Republic



22 TWh



Hungary



15 TWh



Dominican Republic

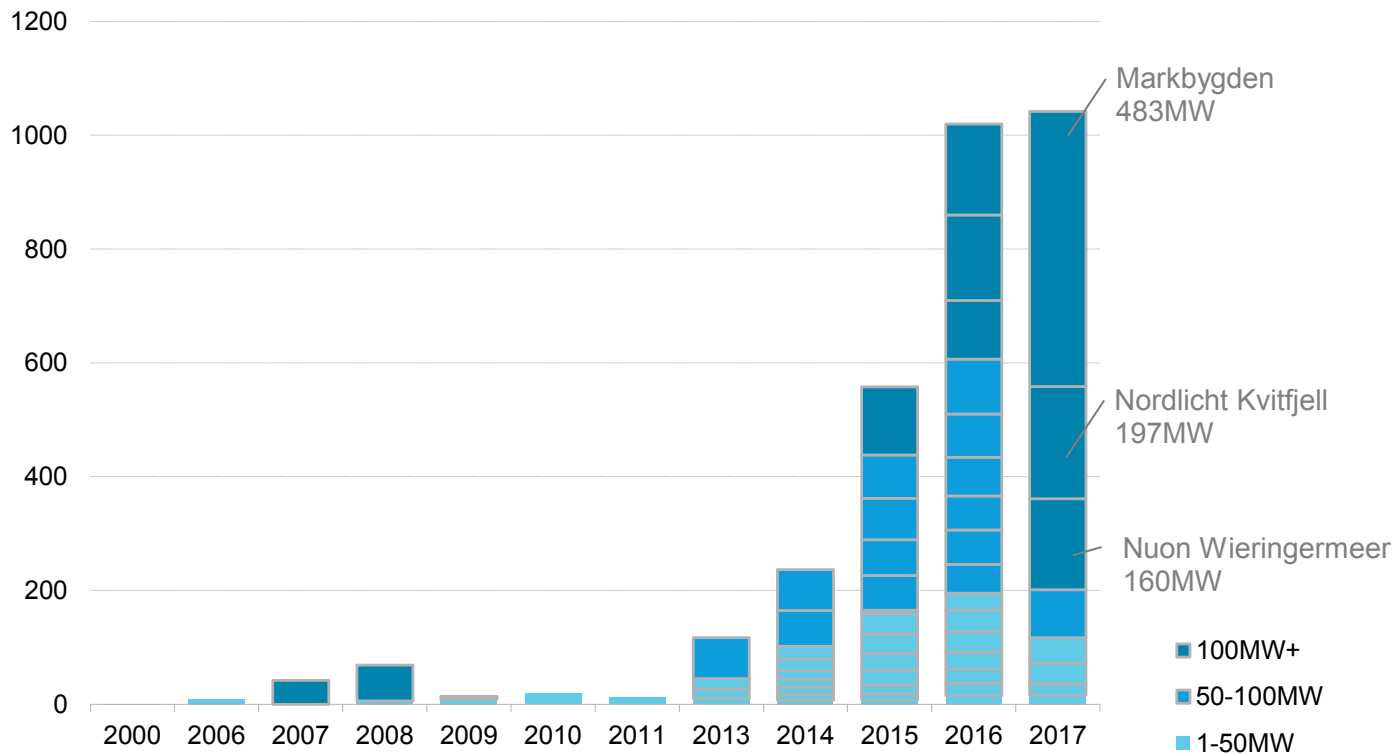
Source: Bloomberg New Energy Finance.

Focus remained on ‘mega-projects’ in 2017

Analysis from: [Inside a Record-Breaking Renewable Corporate PPA Deal](#) ([web](#) | [terminal](#))

In 2017, corporate PPAs have been combined with project scale. For instance, the Markbygden project is associated with Europe’s largest corporate PPA – a 1.65TWh contract with Norsk Hydro. Yet this deal had a lower debt/equity ratio than the average onshore wind project in northwest Europe – obtaining 62.5% debt, compared to 75-80% for the average project. This is because the PPA did not cover the whole project. Offtaker risk is also a challenge that must be considered, as corporations could go bankrupt before the end of their PPA term.

EMEA onshore wind corporate PPAs (MW)



Source: Bloomberg New Energy Finance. Note: Capacity by estimated PPA signing date. Data as of November 2017.

Discussion: Are corporate PPAs a universal solution to merchant risk?

As feed-in-tariffs are phased out, developers and utilities must find alternative ways to secure revenue for their assets. With merchant risk still a challenge for financing, corporate PPAs look promising. They may also be a way to lock in growing demand. **Yet are corporate PPAs sufficient to solve current challenges?**

- PPAs are seen as a door-opener for financing subsidy-free renewable energy projects across the industry. However they are hard to structure, tailored to the individual parties and locations involved.
- PPAs are also seen as a way to protect assets from the risks of low wholesale power prices. This was particularly relevant to the Norsk Hydro PPA mentioned on [slide 24](#). Yet investors warn that a PPA shouldn't be priced too much in favor of the power asset as compared to the offtaker, as this could increase the risk of default.
- Asset lifetimes are just as, if not more, important than company credit risk when considering the bankability of a PPA. While companies come and go, a PPA tied to a long-term asset, like a mine, will have a more secure future.
- From the offtaker's perspective, there are two main reasons to sign a PPA. First is an internal sustainability goal, especially green energy mandates or branding concerns. The second is supply stability. Long-term power supply secured by the PPA provides the offtaker with certainty that a sufficient and reliable quantity will be at its disposal during the life-time of the project.

Options for the future

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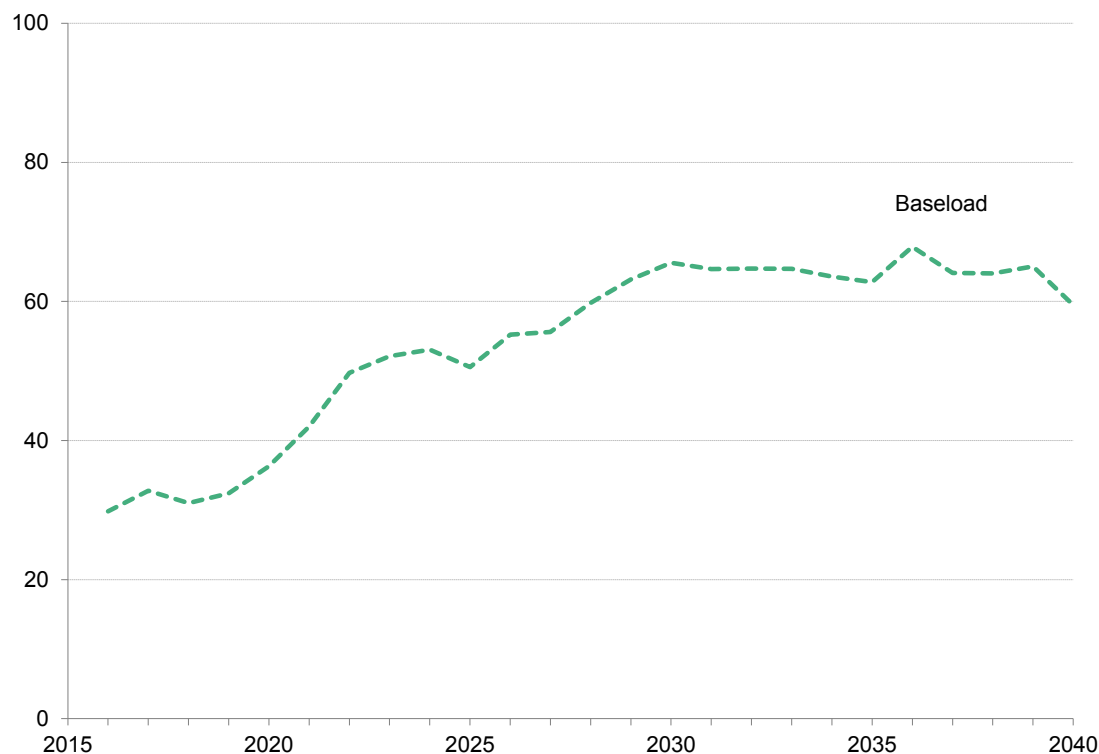
Wholesale prices may rise again...

Analysis from: [2017 Germany Power Market Outlook](#) ([web](#) | [terminal](#))

Some utilities are exploring ways to economically operate renewable energy assets in competitive power markets. Merchant risk also affects existing projects, after an existing feed-in tariff or contract-for-difference expires. Beyond just the challenge of navigating volatile power markets, renewable energy assets also realize a lower power price than the average generator. This is because of price cannibalization, as renewables drive down power prices during their own asset class's hours of generation.

BNEF Germany power market forecast

EUR/MWh, nominal



Source: Bloomberg New Energy Finance

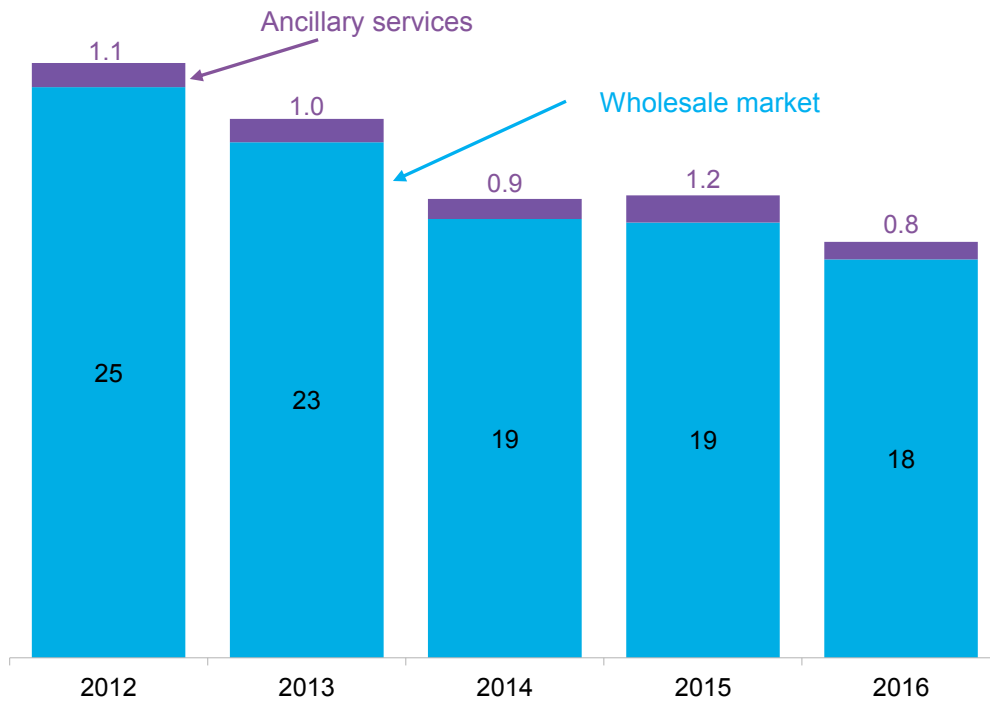
Ancillary services are small compared to wholesale market

Analysis from: U.K. and German Ancillary Service Market Trends ([web](#) | [terminal](#))

Many players are interested in using grid services as a way to supplement revenues from wholesale generation. However, such markets are shallow and increasingly competitive – with thermal plants, renewable assets, storage units, demand response and virtual power plants all competing for the revenue.

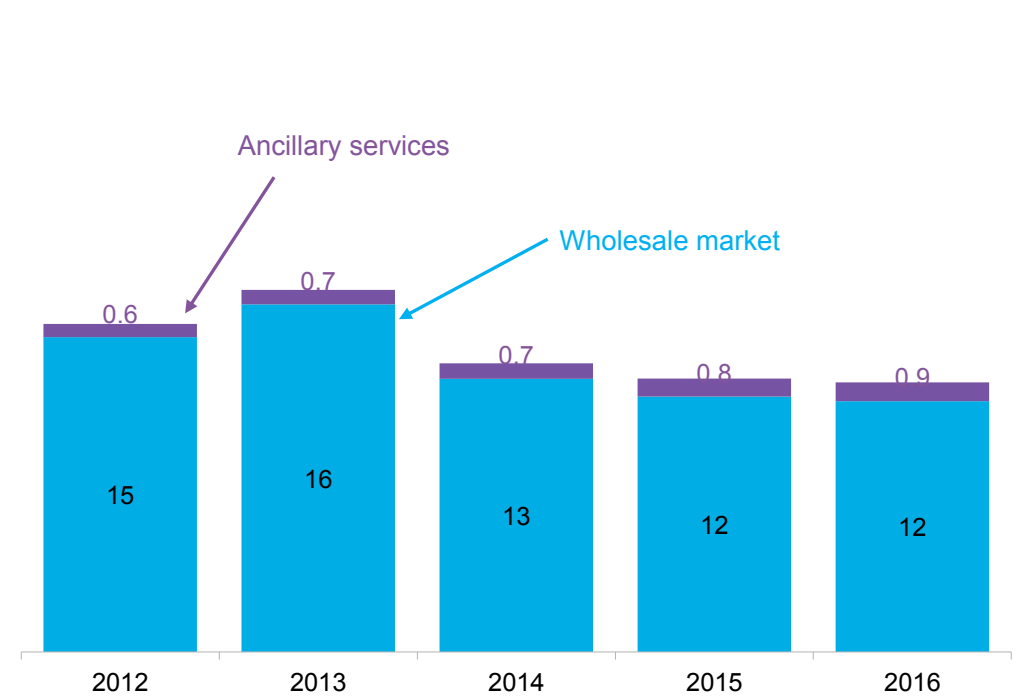
Wholesale vs. ancillary services market, Germany

Billion euros



Wholesale vs. ancillary services market, U.K.

Billion pounds



Source: Bloomberg New Energy Finance

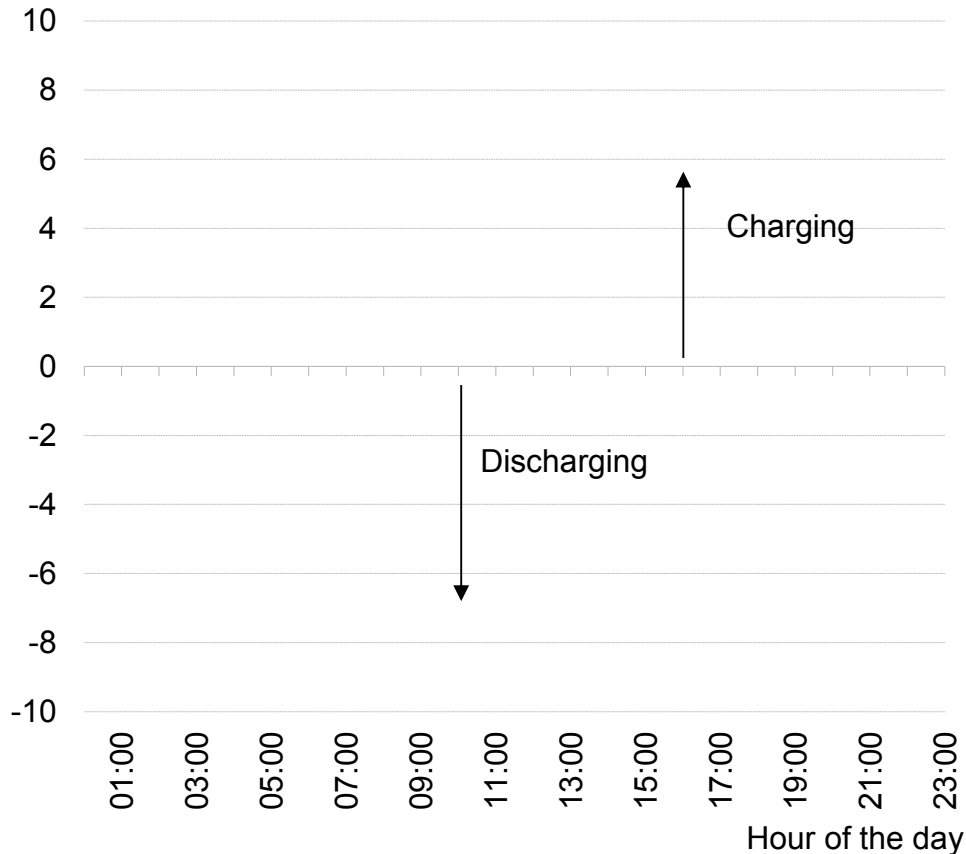
Changing business models

A battery can be added to go for price arbitrage or ancillary services

One option could be to install battery storage at the renewable energy asset's site, which can help the asset realize higher power prices and participate in ancillary service markets.

Charging/discharging profile for a battery paired with solar in Germany, summer

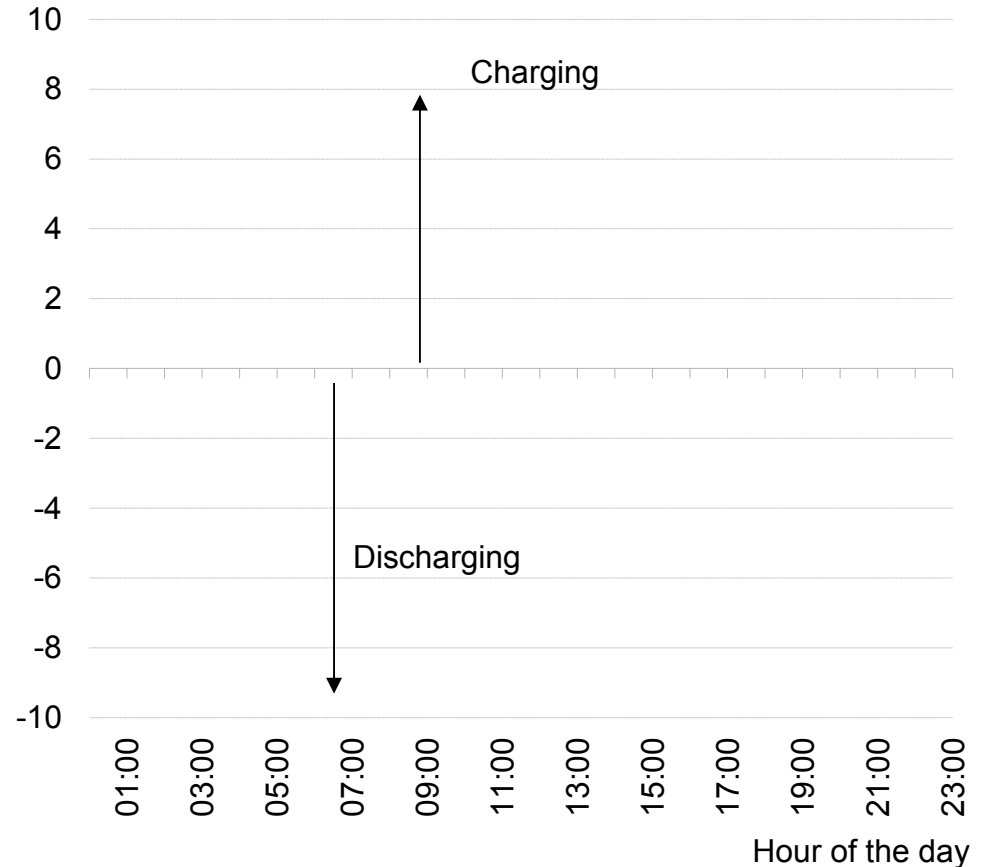
Battery load profile (MW)



Source: Bloomberg New Energy Finance

Charging/discharging profile for a battery paired with onshore wind in Germany, winter

Battery load profile (MW)



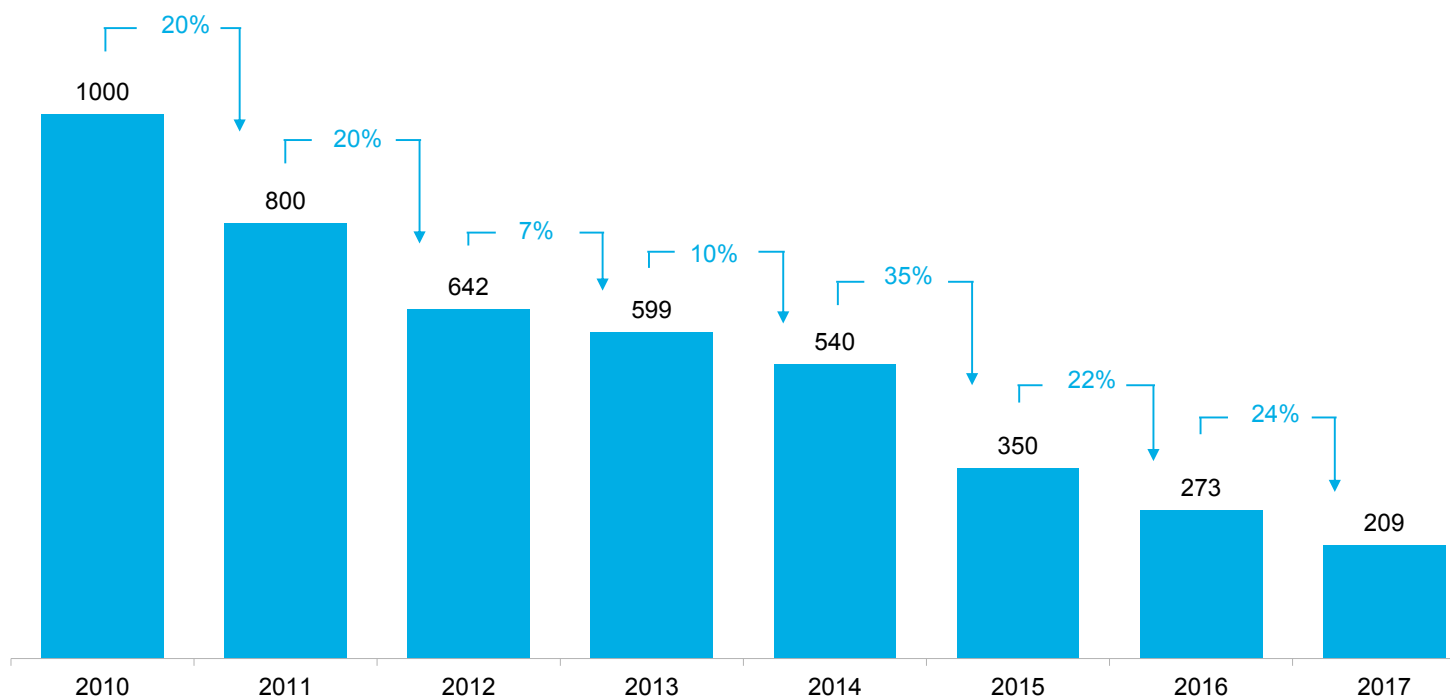
Lithium-ion battery pack prices continue to fall

Analysis from: [2017 Lithium-Ion Battery Price Survey](#) ([web](#) | [terminal](#))

The interest in adding stationary storage is driven in part by the significant cost reductions seen in lithium-ion battery packs since 2010. BNEF expects this trend to continue, as the many applications for lithium-ion batteries (most notably electric vehicles within the energy and transport space) continue to drive up learning.

BNEF lithium-ion battery price survey results – volume weighted average

Battery pack price (\$/kWh)



Source: Bloomberg New Energy Finance Note: ESS is stationary energy storage.

Storage presents a mixed bag, but electric vehicles could come to the rescue

- **Storage adds to costs and co-location may not be the optimal place for batteries:** Even with declining battery prices, adding a storage unit may not be the optimal solution. Batteries can significantly add to the capex of the project, making it harder to reach a sufficient internal rate of return (IRR). Furthermore, co-location at a renewable energy site may not be the optimal spot for the battery: it may be better placed for grid services elsewhere, and will be limited in its price arbitrage opportunity by the generation profile of the existing renewable energy asset.
- **Electric vehicles (EV) can contribute to demand:** EVs and flexible demand sources could improve the situation for merchant renewables. In BNEF's New Energy Outlook, the share of EVs in Europe's vehicle fleet rises from 0.3% in 2017 to 49% in 2040, while EV charging accounts for 10% of total European electricity demand by 2040. This could offset some of the demand reductions expected in countries like Germany and the U.K.
- **Flexible EV charging can help lift realized power prices for renewables:** Even more important is the time of day when the electric vehicles (EVs) are set to charge. Under a fixed profile (left-hand charts), EV charging matches consumer behavior patterns. The majority of charging therefore happens at night, while the car is parked at home, and benefits night-time generation – often gas. Flexible charging, however, matches EV demand to the electricity price – shifting more demand into low-priced hours, which have more renewable energy (right-hand charts). This can raise realized power prices, especially for solar.

Source: Bloomberg New Energy Finance

Options for the future

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Power purchase agreements

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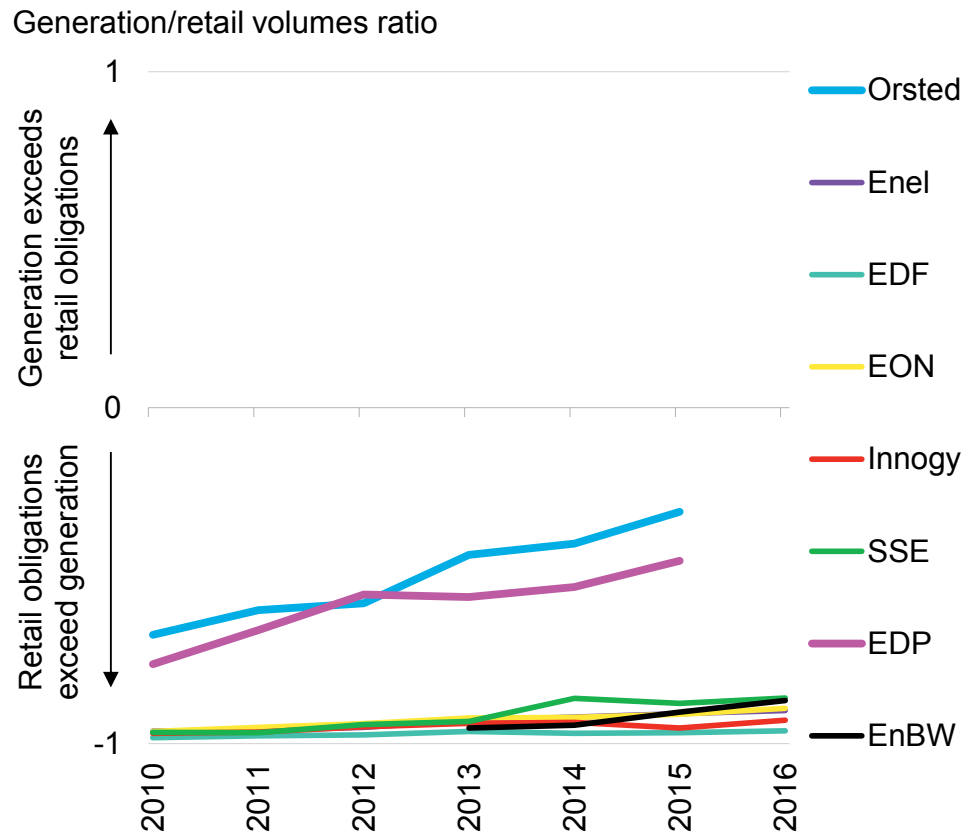
New customer models

Changing business models

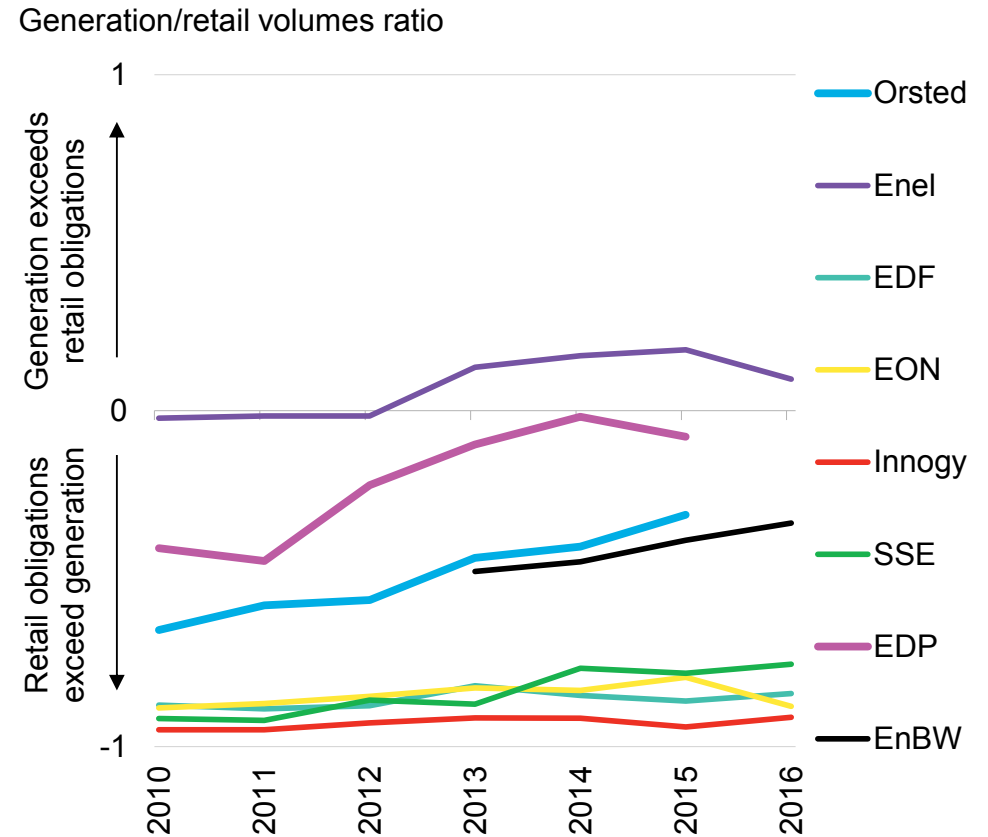
Using retail base as a hedge for renewable energy generation

Many utilities are exploring new customer business models, which can also back their renewable energy business. This can include demand-side flexibility or creating a hedge for renewable energy output. By selling more than they generate, firms can insulate themselves from the impact of low commodity prices.

Renewable (excluding hydro) generation vs. retail supply



Renewable and hydroelectric generation vs. retail supply



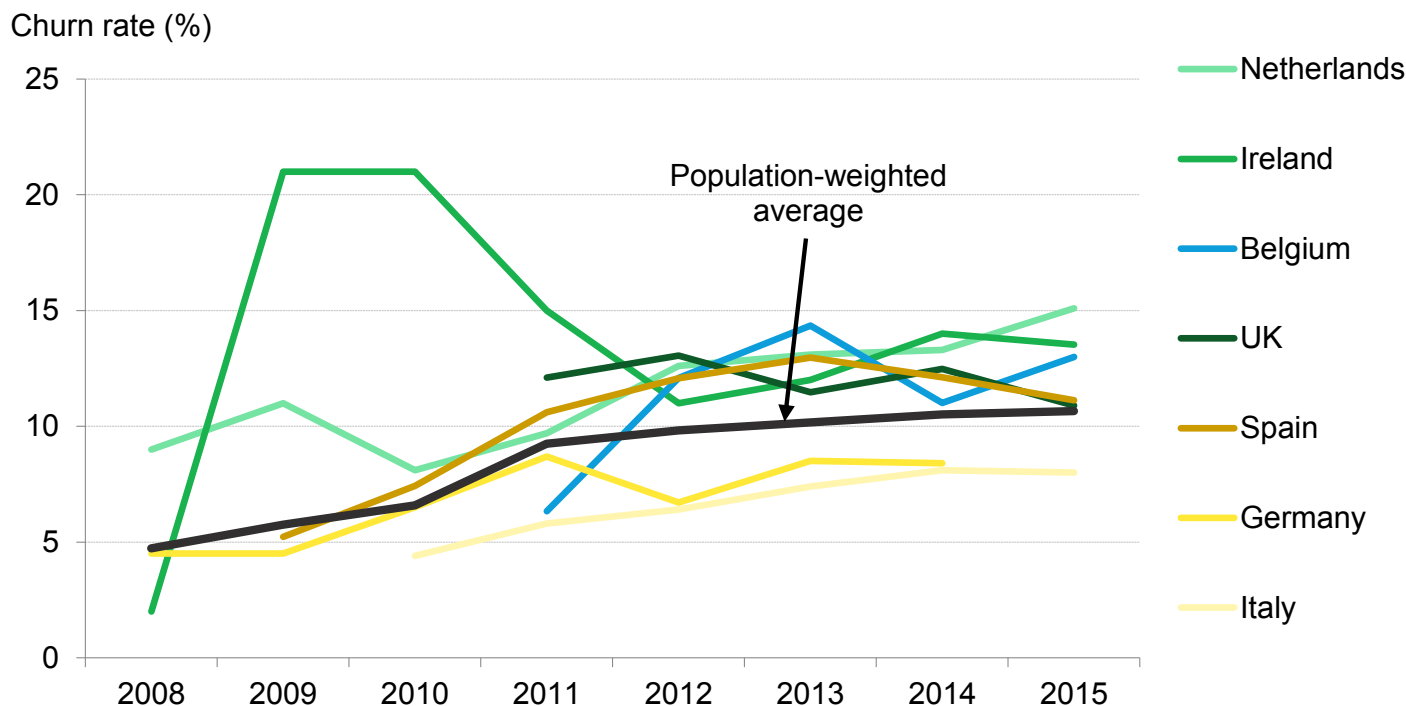
Source: Bloomberg New Energy Finance, Bloomberg LP {FA<GO>}. Note: Selection of top-10 largest western European utilities by market cap, subject to data availability.

Annual churn rates for European countries are on the rise

Analysis from: [European Utility Residential Retail Strategy](#) ([web](#) | [terminal](#))

Yet customer churn (the measure of lost accounts as a percentage of the customer base) can threaten retail-oriented strategies. Residential churn rates have been rising across Europe, driven by dissatisfaction with incumbent retailers, new players entering the retail market, and energy regulators' efforts to encourage switching.

Electricity retail churn rates by European country



Source: Bloomberg New Energy Finance, energy regulators Note: Churn refers to the number of energy retail accounts lost to competitors during a given period. It is shown as a percentage of the total customer base. Belgium, Portugal, Ireland and Netherlands show switching for all end-user sectors. Spain, Italy and Germany represents annual churn for household customers only. The U.K. figure is average quarterly residential sector churn. Weighting on the BNEF-calculated population-weighted average switching value is based on total electricity customer accounts per country, as reported by regulators.

Utilities are expanding service offerings

Analysis from: [European Utility Residential Retail Strategy](#) ([web](#) | [terminal](#))

All the same, more utilities are experimenting with new downstream business models. Green tariffs, which explicitly lock in a customer base for renewable energy output, are increasingly common. Utilities are also exploring newer opportunities which foster demand-side flexibility, ranging from electric vehicles to peer-to-peer trading.

Utility	Green tariff	Home EV charge point	Residential solar and/ or storage	Virtual power plant or demand response	Peer-to-peer trading
Centrica	Not active	Discontinued	Yes	Yes	Not active
Eon	Yes	Yes	Yes	Yes	Under development
EDF	Yes	Yes	Yes	Through partnerships	Not active
EDP	Not active	Yes	Yes	Exploring	Not active
EnBW	Yes	Yes	Yes	Yes	Yes
Eneco	Yes	Yes	Yes	Yes	Yes
Enel	Yes	Yes	Yes	Yes	Not active
Engie	Yes	Yes	Yes	Through partnerships	Not active
Fortum	Yes	Yes	Yes	Exploring	Under development
Iberdrola	Yes	Yes	Yes	Exploring	Exploring
Innogy	Yes	Yes	Yes	Exploring	Exploring
Vattenfall	Yes	Yes	Yes	Yes	Yes

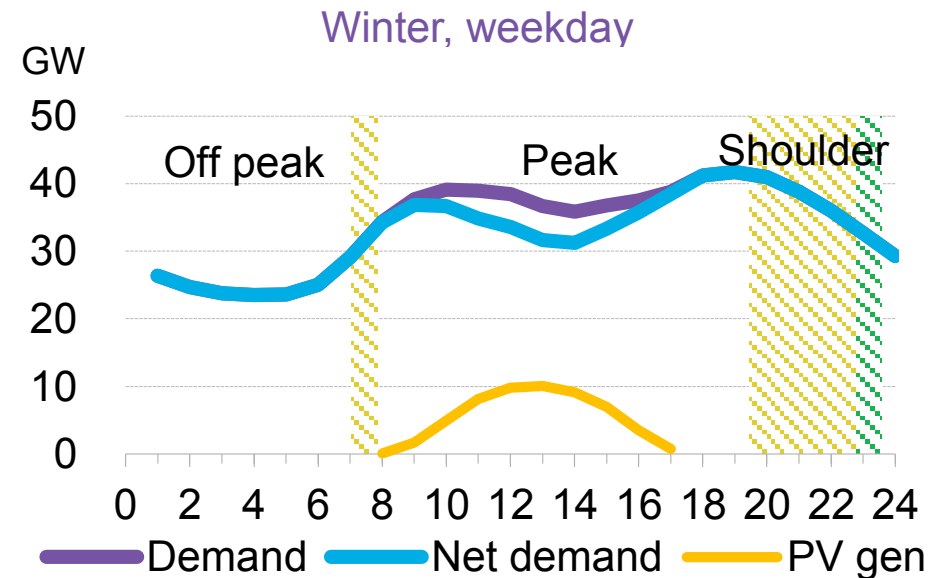
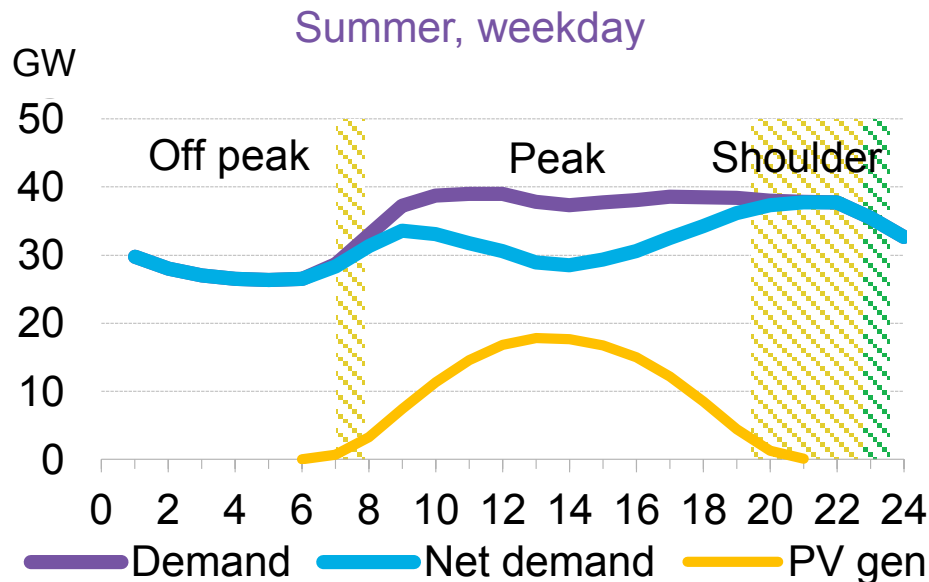
Source: Bloomberg New Energy Finance, companies. Note: Includes demand response and virtual power plants at commercial and industrial client sites.

Demand, PV generation and TOU tariffs: Italy

Analysis from: [Time-of-Use Electricity Tariffs and Solar](#) ([web](#) | [terminal](#))

One example of such retail innovation is time-of-use pricing. Within these tariffs, customers are charged different prices for their consumption depending on the hour of the day. Usually, the bands are set such that the cheapest hours to consume are at night, when demand is low. This can encourage load-shifting to off peak hours within the customer base. However, time-of-use tariffs could also be used to incentivize consumption in the middle of the day – when solar is highest – rather than at night.

Demand, PV generation and TOU tariffs: Italy



Source: Bloomberg New Energy Finance, Note: Data for demand and solar generation is average for June 2017. Net demand (in these cases) refers to the total demand seen by utility less PV generation (utility scale)

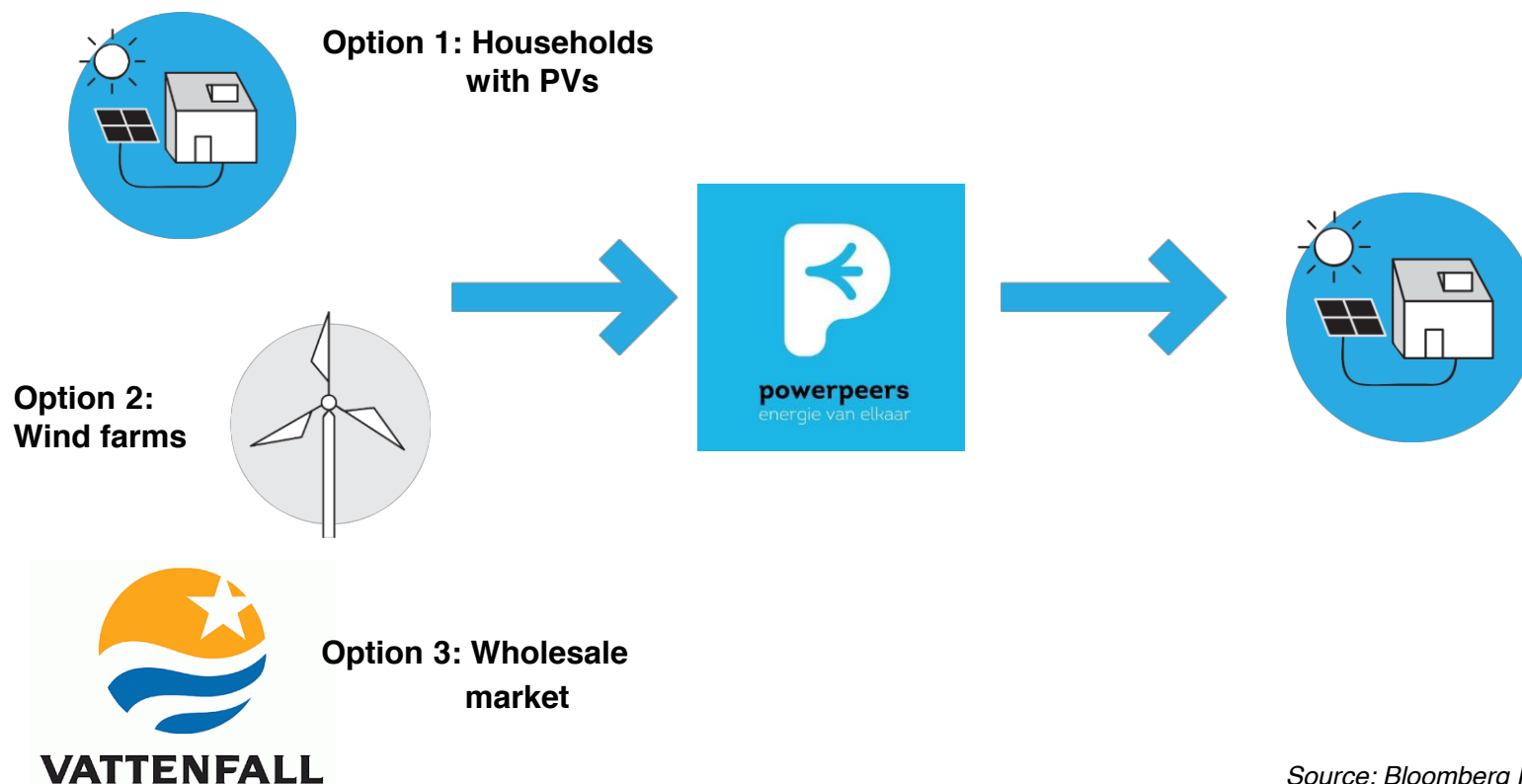
Source: Bloomberg New Energy Finance, Note: Data for demand and solar generation is average for January 2017. Net demand (in these cases) refers to the total demand seen by utility less PV generation (utility scale)

Vattenfall's Powerpeers showcases opportunities in peer-to-peer trading

Analysis from: [Gridchain: Will Blockchain Work in the Energy Sector?](#) ([web](#) | [terminal](#))

Peer-to-peer trading (P2P) often means empowering a customer to purchase excess generation from embedded solar within their community. Within Powerpeers, Vattenfall's P2P trading platform in the Netherlands, this is made possible. Yet Powerpeers customers can also choose to have their power supplied from specific wind turbines or utility-scale solar installations across the country, rather than from neighbours with productive capacity. Due to regulations in the Netherlands which require the energy retailers to balance the market, Powerpeers still manages the energy transactions and the billing process.

Three sources of power for Powerpeers customers

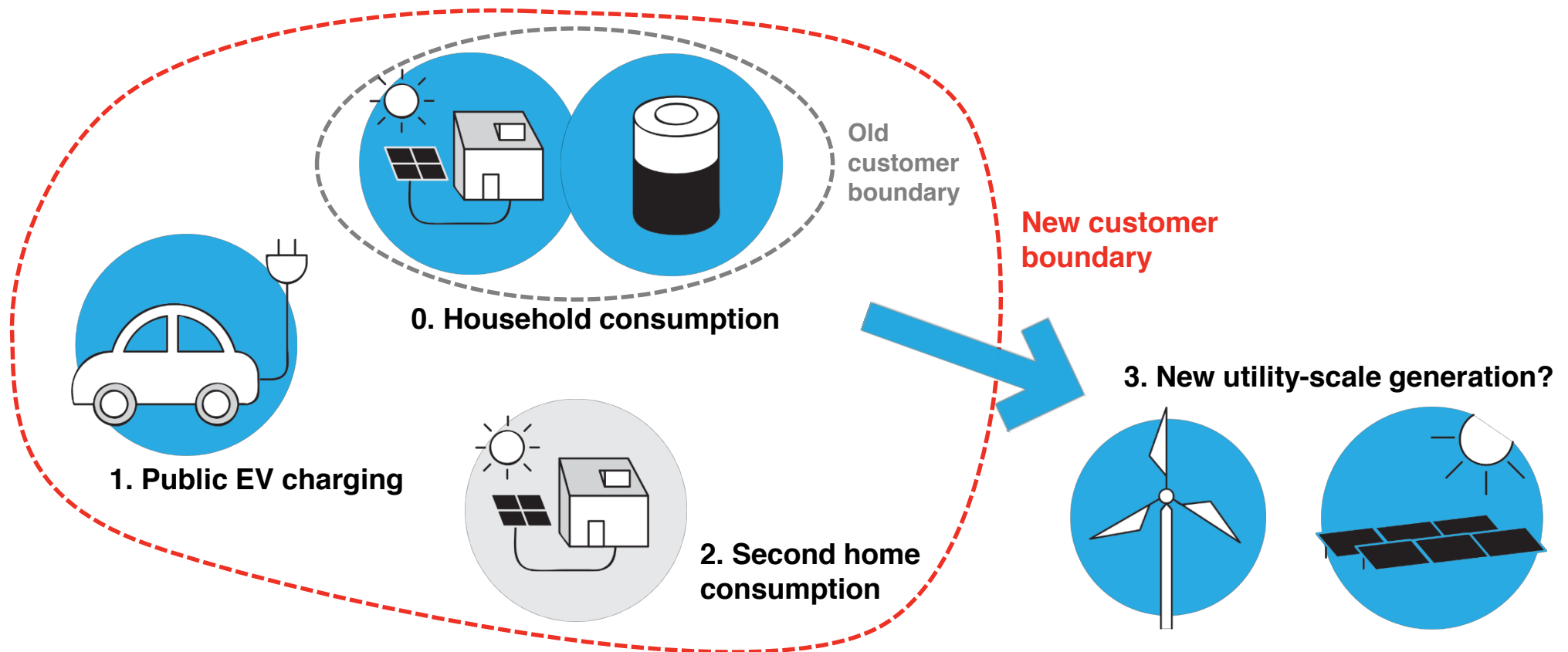


Source: Bloomberg New Energy Finance

Eon's SolarCloud, Aura and Plus redefine customers' boundaries

Analysis from: [European Utilities Offer Solar, Smart Home: The Data](#) ([web](#) | [terminal](#))

Through Eon Aura and SolarCloud, users can match consumption at public EV charging meter with excess generation from their home's solar panels. This works like virtual net-metering: Eon tracks and allows users to match their excess generation with consumption at public charging stations. Eon plans to extend this to cover second homes, like vacation houses, as well. Next, the firm wants to empower customers that cannot install solar at home, such as those in an apartment complex or who are tenants of a property, to contribute to new solar or wind. Eon would build solar and wind to meet their consumption needs.



Source: Bloomberg New Energy Finance

Discussion: Are the newer utility retail models viable?

Utilities are exploring new business models to secure their client base in the highly competitive and changing environment. Experimental solutions range from green tariffs to demand-side flexibility solutions. [Do these products guarantee utilities' place in the future energy market?](#)

- There is a lot of excitement about new business models, but many confess doubt about their ability to reach scale. Newer retail products are only being taken up by a small portion of the customer base. This makes it challenging to serve as a replacement for the BSO model.
- Others are pinning hope on a new generation of customers, especially millennials, with an appetite for renewable energy or sustainable electricity tariffs. Such customers also tend to have higher comfort with digital solutions, from smart meters to online billing, which can help unlock demand-side flexibility and enable renewables integration. As the customer base shifts, green tariffs and digital offerings may no longer be niche.
- The interest in digitalization and new retail tariffs also stems from concerns about grid stability and management, which remains a concern for all. Even in an extreme scenario where utilities are replaced by Google or Amazon in the energy retail business, there will still need to be a grid. The question will be who manages it. Here, utilities are seen as holding an advantage, especially those that already own distribution networks.
- Alternatively, if utilities remain the electricity suppliers of the future, these firms can monetize their customer data to inform grid management.
- Ultimately, these future scenarios depend on the design of the market. Regulators could seek to design a retail market that uses retail pricing, or move to a system that shifts value to flexibility and grid capacity over electrons. For more, see BNEF's Power Market Design and Price Formation page ([web](#) | [terminal](#)).

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