AlixPartners

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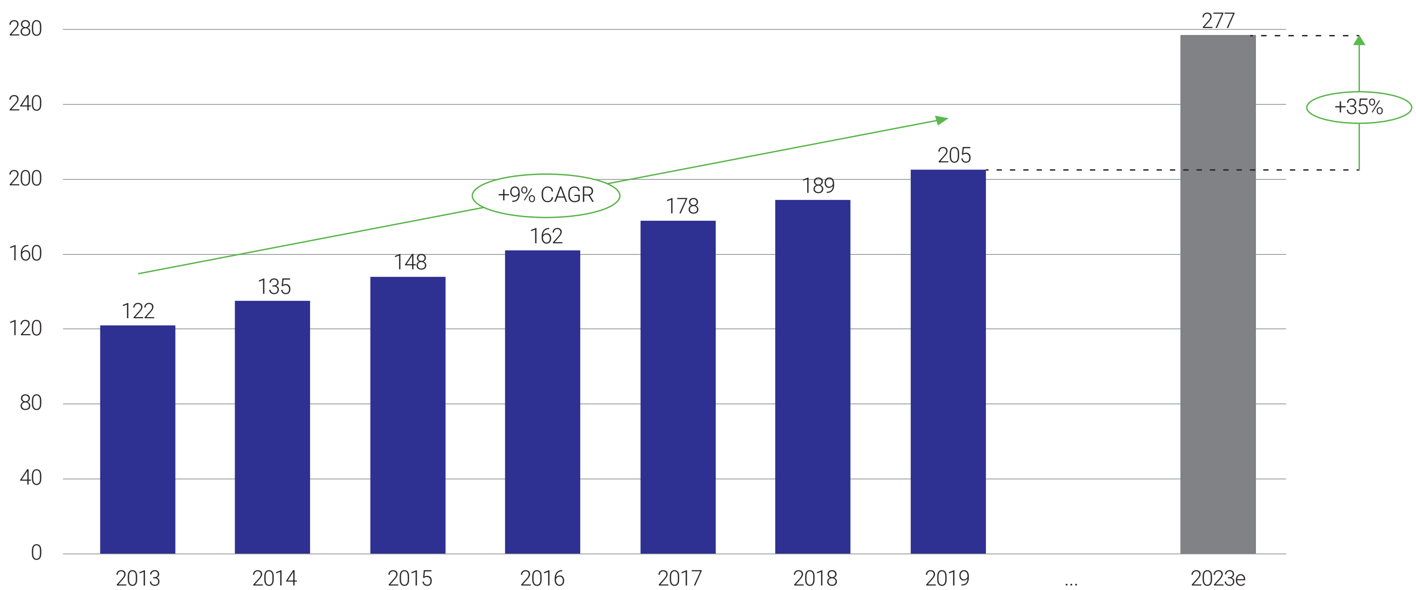
HOW CAN WIND PARKS IN EUROPE PREPARE FOR FADING STATE SUBSIDIES?

Helped by vast improvements in technology and burgeoning investor interest, Europe's wind power capacity has risen steadily over the last decade. However, trouble might be afoot for the industry on the continent as wind power continues to compete with other renewable energy sources for a decreasing total pool of government incentives.

In 2018, wind made up 18% of Europe's total power generation capacity. While there are broad differences among the various European nations based on policies and market conditions, there continues to be strong overall investor demand for wind power installations throughout the continent. In 2021, onshore wind investment is expected to continue to grow year-over-year, which will result in increased exposure for investors in the area. Over the next three years, wind installations are expected to increase by around 35% (figure 1).

FIGURE 1: EUROPE WIND CAPACITY GREW STEADILY BY 9% CAGR TO 205 GW AND IS EXPECTED TO GROW AN ADDITIONAL 70 GW BY 2023



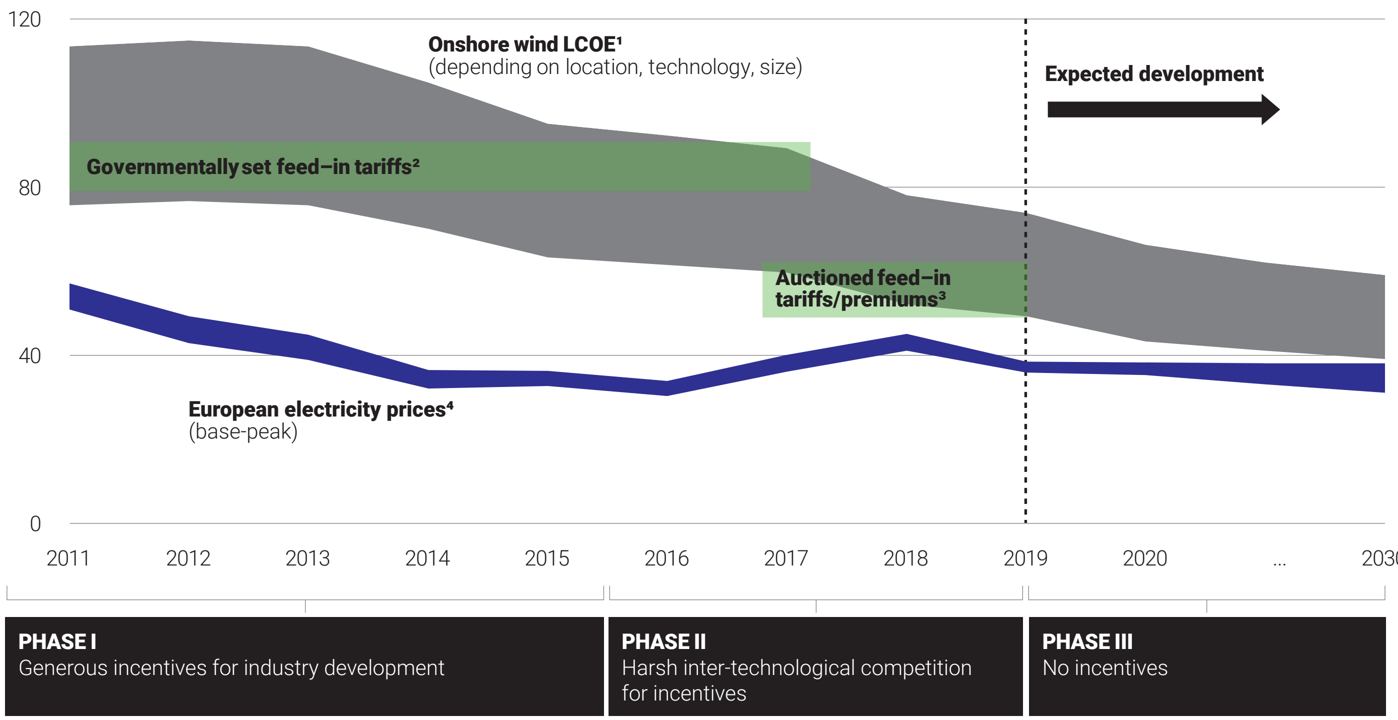
Note: Wind installed capacity in GW. 2019 mix: 183 GW Wind onshore, 22 GW offshore
Source: Wind Europe 2019, Wind Europe market outlook 2019, analyses on EU-28 countries

Historically, any difference between the market price of electricity and levelized cost of energy (LCOE), which measures the efficiency of each plant, has been covered by government subsidies set up to encourage growth of what was then a developing industry (figure 2).

LCOE is defined as the average revenue per unit of electricity generated required to recover the costs of building and operating a plant during its full lifecycle. It is calculated by dividing the sum of all costs over a plant's life by the total of electrical energy produced over its life.

FIGURE 2: POWER PRICES VERSUS LCOE

Electricity prices, onshore wind Levelized Cost of Energy ('LCOE') and incentives, Europe, €/MWh



1. AlixPartners analysis, IRENA data and Fraunhofer ISE
2. Average for main European countries, OECD
3. Average of European auctioned prices for onshore only or technology-neutral (including onshore wind) auctions, Wind Power Monthly – Tender Watch
4. Average of Elix day-ahead prices (base and peak products), Bloomberg

But now, government incentive schemes are increasingly moving away from fixed benefits independent of electricity market price (or, feed-in tariffs) to a market-price dependent system (or, feed-in premiums). This is negatively affecting revenues of non-dispatchable renewable sources such as wind power. More recently, incentives have taken the shape of technology-neutral tenders, putting wind in competition with all other renewable sources. As renewable energy sources progressively develop and governments become more concerned about the consequent burden of subsidies on electricity prices, European incentive schemes may completely disappear. In some countries, like the UK in 2016, incentives have already ended.

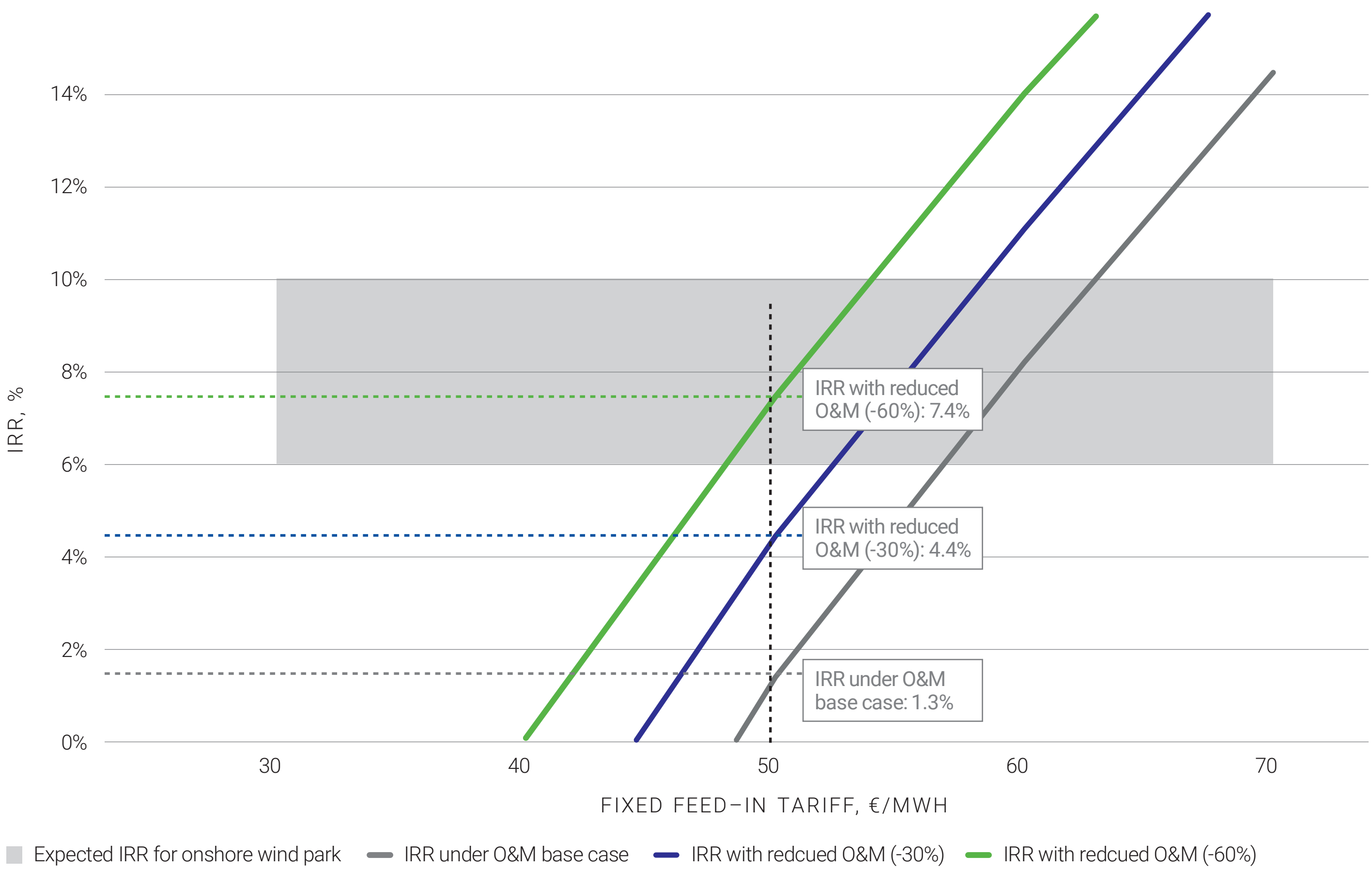
As incentives get diluted, profitability of onshore wind investments may come down significantly.

Hypothetically, a decrease of 10 €/MWh in feed-in tariffs would barely allow for an investment in a new wind park to break even over an approximated 20-year lifetime of the project (versus previous internal rate of return of 6 to 10%), even when accounting for reduced capital expenditures owing to technological improvements and usual annual reduction in operations and maintenance costs.

If they are to regain this level of profitability, wind operators must seek to reduce operations and maintenance costs – the only actionable costs once the park has been built – by half or two-thirds compared to old non-renegotiated costs.

As an example, with reference to figure 3 below, with a fixed feed-in tariff of 50 €/MWh (down 10 €/MWh from recent incentivized prices seen in the market), IRR would only be in the range 1 to 2% at the O&M nominal level. Decreasing O&M costs by 30% would generate an IRR in the range of 4 to 5%. Decreasing O&M costs even more by 60% would generate an IRR in the range of 7 to 8%, more in line with what an investor would expect when investing in wind parks.

FIGURE 3: PROFITABILITY UNDER SEVERAL SCENARIOS OF FIXED FEED-IN TARIFFS



Assumptions under base case: 20 years of project lifetime (during which feed-in tariff is assumed to be fixed), 29% of capacity factor, CAPEX 1.4 M€/MW, average O&M costs for installed wind parks 46 k€/MW, 80 to 20% debt-equity financing, 3.3% real after-tax weighted average cost of capital, debt interest rate average between 1.5 and 3%, 29.7% corporate tax rate, Guarantees of Origin revenues of 1 €/MWh
Source: AlixPartners analysis based on IEA Wind TCP Task 26 Technical Report (April 2019) and literature research

While this seems extremely challenging, there are six main levers that can be used to streamline and optimize operations and maintenance (O&M) costs:

1 WIND PARK SIZE AND LOCATION

Larger wind parks generally have a lower investment cost per unit installed capacity. This is related to technology performance but also to the common use of infrastructure such as land, grid connections, etc. Because wind park size usually does not change significantly after initial construction and is a significant driver of O&M costs, careful planning must take place prior to development and construction. But in situations where assets might have aged, repowering can increase the size of the park in brownfield sites. There are a few aspects to determining the appropriate size and design:

- By locating wind parks together, companies can better manage combined operations and maintenance activities, with more streamlined interventions and personnel scheduling.
- Balance of plant equipment is generally common to all wind turbine generators, which helps spread operations and maintenance costs across larger parks.
- Since asset management is largely a fixed cost, bigger parks allow for economies of scale.

2 CONTRACT TERMS AND CONDITIONS

Another significant driver of cost optimization is the terms and conditions within O&M contracts when services are outsourced. Service internalization can often help obtain double-digit percent savings but requires rigor and diligence. But in case of externalization, short-term benefits must be proved sustainable over the medium and long term. Here are some things to consider when outsourcing:

- How and to what extent are services bundled? Is the service being provided by the original equipment manufacturer or an independent service provider?
- Is there room for price negotiation depending on contract duration, fixed versus variable costs, incentive schemes, etc.?

3 ENHANCED FORECASTING AND PLANNING ACCURACY

By leveraging big data, maintenance and planning accuracy can be improved. Relevant data can come from both external and internal sources, including wind speed and other weather forecasts; information related to component use, status, and positioning; and onsite as well as remote park inspections data. These can both help improve maintenance effectiveness and reduce imbalances:

- Wind turbine generator (WTG) maintenances can be better scheduled, minimizing the overall impact on costs and, consequently, profitability.
- Improved data on the use and status of each WTG component can better predict maintenance needs and reduce more costly corrective actions later.
- More accurate forecasts can help improving asset availability and avoid imbalance penalties.

4 WORKFORCE MANAGEMENT

In cases where operations are in-house, the size and skill level of the full-time employee cohort and process effectiveness are significant cost levers. A central, remote control room can act as a repository of georeferenced job activities and incorporate reporting dashboards that track key performance indicators (KPIs). Central dispatching can be driven by either activity or team, ascertaining whether the task requires specialized skills or if it can be fulfilled by a more generalist team and thus take advantage of geographic proximity. The control room can schedule technician agendas, create optimal routing, and collect data on resolution status. Other workforce optimization levers include:

- Improved operations management: it traces workforce performance levels and helps set the right targets and incentives to improve them. It finds capability gaps against role requirements and helps close these by upgrading existing talent or hiring personnel who have skills currently missing from the workforce.
- Optimization of third-party spend: a balanced tradeoff between in-house and outsourced activities based on skills availability and compared profitability can help improve productivity and work quality. This also offers the possibility of renegotiating vendor contracts.
- Enhanced process effectiveness: by geo-localizing all tasks, reviewing on-site and remotely controlled tasks, and building a database of historic tasks by location, type, difficulty, and required skills, several cost optimizations are possible. These can include improved service delivery routes, more accurate matching of skill level to event, and eliminating the root cause of failures.

5 COMPONENTS AND SPARE PARTS MANAGEMENT

Spare parts management is a business of availability. The goal is to deliver the required component with the shortest lead time at the lowest possible cost. The first step is to properly identify and segment into main components and spare parts and then down into make-to-order, commercial, and out-of-catalogue items. In addition, the process should allow for end-to-end visibility on component availability, location, route to destination, and inverse logistics for disposal or refurbishment. This is achieved through creating clear roles and responsibilities, shared targets, and data-driven performance monitoring.

Cost of components can be reduced through the following levers:

- Best price acquisition: detect price gaps versus other market transactions; align future prices; lead direct negotiations; compare total cost of ownership; etc.
- Volume leverage: reduce the number of suppliers; concentrate volumes across spending categories; and define a list of preferred suppliers.
- Tendering and competitive bidding: relaunch the request for proposal process for large share of spend and reshuffle the share of suppliers.
- Global sourcing: expand suppliers outside of the home country and develop new suppliers.
- Supplier development: work on joint process improvement with key suppliers.

6 ORGANIZATIONAL EFFICIENCY

Through increased efficiency in asset management and by utilizing economies of scale (for example, through consolidation), management can become as lean as possible and cut down on overall general and administrative expenses. The key is to manage centrally while deploying locally. This would demand strong central coordination and sharing, while maintaining clear end-to-end visibility, as well as clear local accountability into assets availability and maintenance.

Future for onshore wind operators can still be bright without state subsidies, but will require much higher cost discipline. There are clear rewards for operators in proactively addressing untapped potential.

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ABOUT US

For nearly forty years, AlixPartners has helped businesses around the world respond quickly and decisively to their most critical challenges – circumstances as diverse as urgent performance improvement, accelerated transformation, complex restructuring and risk mitigation.

These are the moments when everything is on the line – a sudden shift in the market, an unexpected performance decline, a time-sensitive deal, a fork-in-the-road decision. But it's not what we do that makes a difference, it's how we do it.

Tackling situations when time is of the essence is part of our DNA – so we adopt an action-oriented approach at all times. We work in small, highly qualified teams with specific industry and functional expertise, and we operate at pace, moving quickly from analysis to implementation. We stand shoulder to shoulder with our clients until the job is done, and only measure our success in terms of the results we deliver.

Our approach enables us to help our clients confront and overcome truly future-defining challenges. We partner with you to make the right decisions and take the right actions. And we are right by your side. When it really matters.