



Let's open the path to progress

Securing Asia Pacific's
green future

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 Orsted



Realising the vast potential of Asia Pacific's transition to green energy requires close and sustained collaboration between industry, governments and communities.

Together, we must combine our efforts to drive the scale and speed of viable offshore wind buildouts to create long-lasting value for all parties.

Per Mejnert Kristensen
President of Ørsted Asia Pacific



A defining moment for offshore wind in Asia Pacific

I have had the privilege to live and work in countries across Asia Pacific for more than 30 years. For all of us who call this part of the world our home, it is increasingly obvious that the severe impacts of global warming are threatening lives and livelihoods.

Asia Pacific is a crucial region for global decarbonisation. Its dynamic markets are an important engine room of the global economy. In recent years, they have also been some of the world's largest carbon emitters.

The positive news is there is solid consensus from governments on the need to free their energy systems from fossil fuels. In response, we are seeing administrations set ambitious green energy goals towards mid-century and beyond. And with over a third of all RE100 companies based in this region, we know there is high demand for clean power to remain competitive in global supply chains.¹

For many APAC countries, as a form of variable baseload power, offshore wind is the best decarbonisation solution. This is partly because of constraints on land availability and other geographical limitations. There are vast areas readily available at sea and offshore wind is a proven technology which can replace coal power with significant volumes of green power.

A maze of risk and complexity

Today, the wind power industry is facing a complex interplay of factors which, whilst individually manageable, collectively form a maze of risk and complexity. Capital expenditure (CAPEX) inflation, rising interest rates and supply chain bottlenecks have hit the industry hard. Regulatory uncertainty and impractical restrictions undermine the ability for developers to maximise the resources available, and for investors to see sufficient value creation.

For the sake of future generations, it is imperative that green projects, especially the first wave of offshore wind farms, succeed in Asia Pacific. At this critical moment where offshore wind needs to scale-up, profitability is falling and investments are failing to materialise.

Despite the turbulence, I am confident that the barriers to the rapid build-out of offshore wind power can be overcome. Collaboration between governments and industry has the power to achieve great things: to bring an end to dependence on fossil fuels; to demonstrate climate leadership; to enhance energy security; and to enable clean economic growth.

Opening the path to progress

Ørsted has built and operated more than 30 offshore wind farms across three continents. We know what it takes to establish value-creating renewable projects. And we take our responsibility to advocate for the sustainable development of the green energy industry very seriously.

Policy support is the principal driver of wind deployment. The success and growth of the offshore wind industry has been centred upon the positive interplay between policy ambitions and government support. We also recognise that there is no 'one size fits all' solution and that markets across APAC are unique environments with diverse cultures, regulatory landscapes, workforce strengths and industrial capabilities.

Realising the vast potential of Asia Pacific's transition to green energy requires close and sustained collaboration between industry, governments and communities. Together, we must combine our efforts to drive the scale and speed of viable offshore wind buildouts to create long-lasting value for all parties.

Priority areas for collective action

This short paper is intended to help frame some of the conversations on what's required to move forward together. We have identified four key areas for collective action to catalyse the APAC region's green future:

1. **Scale up to secure investment**
2. **Speed up and streamline processes**
3. **Award for societal value, not just cost**
4. **Collaborate for a competitive regional supply chain**

Our industry's ability to deliver is strengthened with a firm and visible pipeline of projects, and by unlocking market volumes, for instance through large-scale tenders which maximise economies of scale. This de-risked environment enables offshore wind developers to place orders, make supply chain investments and deliver successful renewable energy projects in Asia Pacific.

If we work together to build it in the right way, green energy can help create a more just and prosperous world, generating benefits for nature, society and the economy.

So, let's open the path to progress.



Per Mejnert Kristensen
President of Ørsted Asia Pacific

1. 37% of RE100 members are head quartered in Asia Pacific.
RE100 Annual Report (January 2023)

Barriers to progress

Offshore wind power remains a competitive, rapid-to-deploy and secure solution for Asia Pacific's energy needs.

However, as with other large infrastructure industries, inflationary pressures have caused disruption. Rising costs of materials, energy, labour and capital have negatively impacted the business cases of projects.

The long lead times from when a project is awarded through to final investment decision (FID); higher capex requirements; and the immense need for scaling supply chains make offshore wind uniquely affected. At the same time, regulatory uncertainty further stresses projects with technical, procedural, and administrative barriers to progress.

Close collaboration between industry and governments has made offshore wind an historic success around the world. This continued cooperation across APAC markets will be essential to overcome the challenges in the months and years ahead.



Four key challenges

1 Small project sizes limit value creation

The capacity of a project is fundamental to enabling economies of scale, maximising efficiencies and building a cost-effective energy system.

It is comparatively more expensive to build smaller wind farms. Gigawatt-sized projects are able to achieve significant value-for-money scale effects whilst using relatively similar transmission infrastructure and vessels required to construct smaller wind farms.

In some Asia Pacific markets, we have seen a trend towards small volumes of capacity in recent years. For instance, Taiwan introduced a 500 MW cap per project in its first auction of the Zonal Development Phase and Japan's Round 2 projects were around 400 to 600 MW. We are optimistic that increased capacity will be allocated in the future which will bring mutual benefits to governments, developers, suppliers and citizens.

2 Supply chains face bottlenecks

Asia Pacific is at risk of getting left behind in the global competition to attract and secure logistics services, suppliers and talent. Demand is set to grow dramatically for a limited supply of installation vessels, specialised equipment, infrastructure and industry expertise. The markets who can create a long-term enabling environment will succeed.

The buildout rate of offshore wind energy is accelerating in other parts of the world. Political momentum in America to tackle climate change has catalysed rapid clean energy deployment. Europe has been galvanised by the energy crisis caused by Russia's war on Ukraine and decision-makers are determined to realise a pipeline of large-scale offshore wind projects.

There is a careful balance to be struck on how governments nurture their domestic suppliers whilst allowing the flexibility required to optimise and speed up construction, providing value to both energy consumers and society.

A mismatch between the capacity of domestic suppliers and local content policies can further increase costs, cause delays and undermine market confidence.

A successful approach should be based upon a realistic assessment of current industry and workforce capabilities.

3 Regulatory uncertainty

The primary benefits of offshore wind are that it's a clean and abundant energy supply which can be deployed at speed under the right regulatory conditions.

Capital investments by the supply chain and bids made by offshore wind developers must be made several years before steel can hit the water. Strong investment signals are therefore required for developers and the supply chain to unlock the resources and speed of deployment needed.

As an emerging industry in Asia Pacific, regulatory frameworks have inevitably taken some time to develop and mature. Efficient permitting processes and transparent licencing procedures coordinated at all administrative levels will be key to accelerating the green energy transition.

4 Unrealistic pricing

Over the last few decades, the offshore wind sector has demonstrated it can deliver ever larger projects on predictable timescales, at ever lower costs whilst creating skilled, fulfilling, well-paid jobs in communities often outside the economic centres. Following recent macroeconomic shocks, projects' economic outlooks have changed detrimentally and the dynamic of long-term investment certainty has changed.

Markets across Asia Pacific must resist the temptation to 'race for the bottom' on cost alone.

Low guaranteed cap prices in the region have increased the likelihood of zero-subsidy bids, meaning a reliance on the private market. This adds challenges to financing at a time when rising interest rates and soaring costs of capital have increased both the costs and complexity of projects.

Price-only auctions and upfront payments for sites can be counter-productive to long-term investment for a sustainable industry.

Ørsted believes that offshore wind should spur economic activity and create jobs. Investments should also help solve other important societal challenges including biodiversity protection and decarbonisation of supply chains.

Finding a way forward

What's to gain?

Offshore wind offers a clean, reliable and substantive part of today's energy systems and is a cost-efficient way of reducing carbon emissions from our economies.

A successful offshore wind industry drives economic activity at home and enables companies to compete in global green supply chains. It attracts lasting investments and creates high-quality jobs, not least in coastal communities. It can also bring many additional benefits such as energy independence, accelerated innovation and enhanced biodiversity.

Finding a way forward

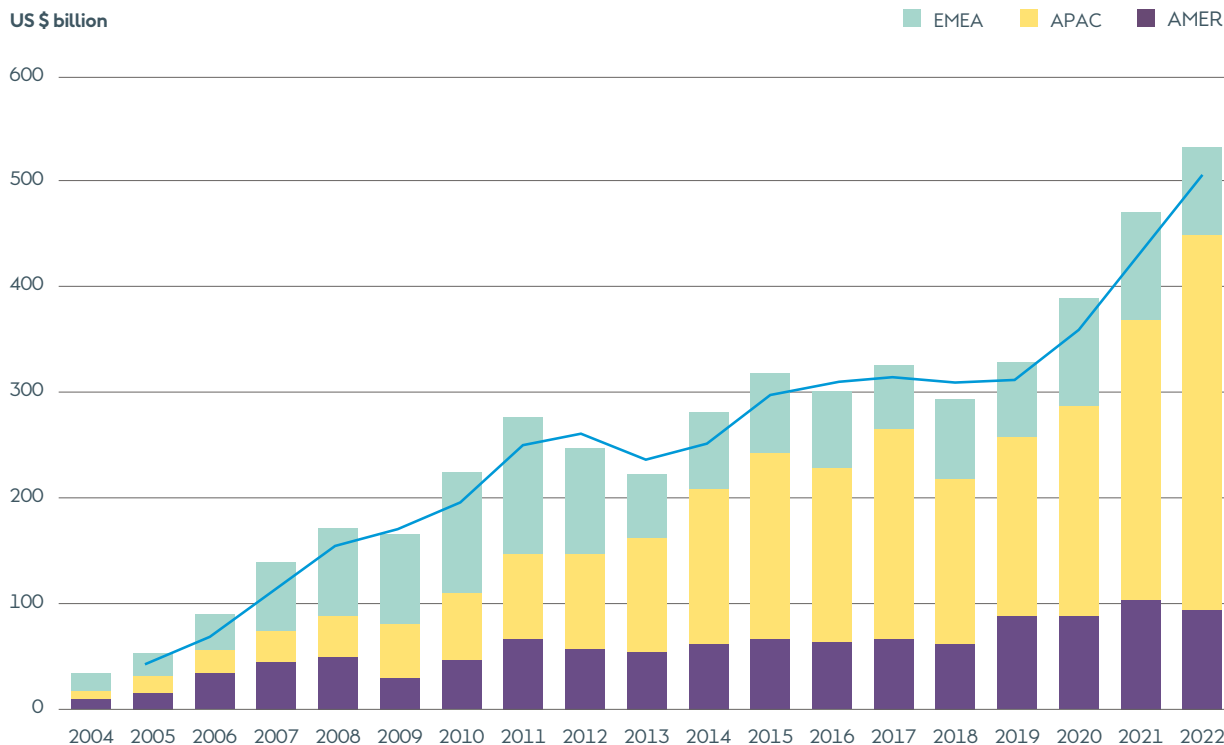
Ørsted has undertaken our own green transformation in the last decade. In the late 2000s we were one of the most coal intensive power generators in Europe with an expanding oil and gas production business. But we took a strategic decision

to become a global green energy company, as we were convinced it was the right approach strategically, financially and environmentally.

Ørsted's business transformation has been a story of innovation, steep learning curves and difficult strategic choices that have led to long-term gains. We didn't do it because it was easy. We did it because it was the right thing to do.

In this turbulent period, industry, government and countries across the APAC region must intensify cooperation together to unlock the power of offshore wind at scale. We have outlined four key areas for collaboration in the pages which follow. This includes our recommendations as well as recognition of some of the challenges which policy makers face on the path to progress.

Investment is growing in Asia Pacific's renewable energy sector



APAC new investment in renewable energy reached US \$356bn in 2022 (Source: BNEF Renewable Energy Investment Tracker 1H2023)



1

Scale up to secure investment

Governments and policymakers have delivered a first key step in meeting future green energy demands by raising ambitions for offshore wind and putting high targets in place.

To fulfil these ambitions and secure investment, the best possible wind resource and large volumes of offshore wind projects should be brought to the market.

Only when capacity targets are converted into tenders, and when sites and building rights are allocated, can orders be placed and investments into scaling supply chains made.

A solid pipeline of large-scale wind projects and a transparent market framework creates the conditions for long term success for the following reasons:



Economies of scale enable developers and suppliers to **build, learn and innovate** across the value chain. This, in turn, lowers costs and creates stronger incentives to invest.



Large-scale projects in high wind speed areas make the **most efficient use of available seabed**. This approach maximises the green power generated for consumers whilst minimising disruption to stakeholders.



Multi-GW wind clusters allow transmission system operators and offshore wind developers to work out a **better way to share costs and revenue**.



The overall cost of the buildout can be lowered if a critical mass of projects to localise parts of the supply chain is achieved.

Ørsted recommendations

- Establish comprehensive and open marine spatial planning mechanisms which identify new go-to areas for renewable energy including offshore wind (fixed-bottom and floating).
- Front load and tender as much as possible, as soon as possible, to provide clarity for industry and incentivise large scale supply chain investment.
- A credible pipeline of large-scale, ideally gigawatt-class, opportunities make it attractive for the industry and developers to invest locally, as future returns on investments are more certain.

The policy maker's perspective

- Marine spatial planning is complex and multi-sectoral, requiring time-consuming coordination across ministries and other institutions.
- Availability of technical data for offshore wind planning (e.g. wind resources, grid infrastructure and supply chain) may require additional research and development.

2

Speed up and streamline processes

There is a growing implementation gap between targets and actual build-out.

These days, end-to-end construction of a GW-scale offshore wind farm by an experienced developer can be completed efficiently within three years. However, offshore wind projects are taking far too long to progress from the early development stage to full commissioning.

Policymakers can significantly reduce development risks – and thereby cost – of projects by adopting best practices for planning and permitting.

The One-Stop-Shop

To accelerate offshore wind deployment to deliver large volumes of green energy, we recommend the concept of channelling these projects of national interest via a 'one-stop-shop' (OSS) consent process. This approach provides clear rules to facilitate a single point of access to government. This model is well established in mature European markets such as Denmark, the United Kingdom and the Netherlands.

While permitting procedures vary greatly across jurisdictions, governments can also speed up processes through central coordination well in advance of project initiation. This may include site mapping and selection, consultations with stakeholder communities and conducting environmental surveys and investigations.²

Ørsted recommendations

- Increase speed by tendering multiple sites simultaneously.
- Simplify permitting procedures with a 'one-stop-shop' authority to streamline processes, help manage stakeholder issues and promote efficient operations.

The policy maker's perspective

- Need to harmonise responsibilities among authorities at different levels where in many cases powers may not be defined or existing laws overlap.
- Recognise offshore wind projects as infrastructure projects of high national significance.
- Identify or establish the right entity to coordinate all relevant bodies for a one-stop-shop (OSS). Undertake processes to establish OSS legitimacy, capabilities and resources.

Example of the Danish Energy Agency acting as a 'one-stop-shop' authority here: https://ens.dk/sites/ens.dk/files/Globalcooperation/one-stop_shop_oct2020.pdf

3

Award for societal value, not just cost

The deployment of offshore wind power should bring additional social, economic and environmental benefits.

In some circumstances, price has been the only factor considered when awarding renewable energy projects. When allocating site and project exclusivity solely on the grounds of an up-front, price-only auction, all project and price risks are then placed on the developer. This leads to a counter-productive race to the bottom on prices.

Instead, we must create a 'race for the top' for the best long-term sustainable societal value we can secure from the energy transition. Tenders must be designed to also ensure offshore wind buildouts gain public support throughout the entire lifecycle by bringing benefits to environment, communities and energy systems.

A societal value approach

For centralised tenders, innovation, environmental, and social sustainability could supplement – or even replace – price as evaluation criteria for offshore wind projects.

Policymakers should engage with industry on tender design and learn best practices from mature markets. It's fine to adapt an iterative approach. It is important to be as transparent and consistent as possible, to provide clarity for investors.

Ørsted prioritises finding and delivering value-creating solutions that are scalable and have sustainable outcomes for nature and people. We take an ecosystem-wide view of restoration, including looking beyond our asset footprint where this could have the best outcome for biodiversity. We are also working with our supply chain to improve resource circularity, reduce carbon and ensure responsible sourcing.

Ørsted recommendations

- Design tenders for renewable energy projects that incentivise developers to deliver on non-price factors.
- Introduce strict minimum criteria to ensure deliverability of projects and create a level playing field for the industry.
- Integrate a societal value approach through non-price criteria to incentivise industry to deliver benefits for society and nature such as socio-economic development, sustainable supply chains and a positive impact on biodiversity and the environment.

The policy maker's perspective

- Determine the right balance between different societal values in price and non-price criteria.
- Consult with stakeholders and create frameworks for target-setting, measurement and reporting guidelines on societal values.

4

Collaborate for a competitive regional supply chain

We understand that governments want to support their domestic companies to enter and succeed in a clean industry of the future. We believe that many countries across Asia Pacific have vast potential to build competitive industries for the global offshore wind supply chain.

As with all business sectors, sustainable, long-term value creation is ideally built from existing capabilities and requires time and support to succeed.

Competition is a major driver to incentivise technology advancement, quality and ensure a fair price. Free market mechanisms prevent developers from making excessive commitments and suppliers from over-promising. This is the best way to create economically viable projects.

Maximising regional competitive advantages

Asia Pacific has many competitive advantages across this powerhouse region with manufacturing expertise, skilled workforces and proven suppliers for offshore wind.

Recognising the inherent strengths that each market brings, regional collaboration across the APAC supply chain ensures the industry builds on the specific capabilities and track record of individual markets. This means countries playing to their strengths rather than seeking to deliver all aspects of the offshore wind value chain by themselves.

Greater flexibility for developers on sourcing is key to a buildout which is faster, cheaper and more fit-for-purpose to create value for countries and, ultimately, help fulfil green energy targets.

Ørsted recommendations

- Capability assessments should be based on credible analysis of market conditions and coordination of regional supply chain strengths.
- Activate the 'low-hanging fruit' by growing existing local capabilities to promote long-term success.
- Allow as much flexibility as possible on local content to promote a healthy investment environment and encourage free market competition.

The policy maker's perspective

- Balance the attainment of short-term decarbonisation targets whilst strengthening the domestic industrial base.
- Address concerns around import dependency from regional supply chains.
- Improve access to data across APAC markets to understand regional supply chain capabilities.

About this paper

Asia Pacific is at a critical point in its green transformation journey. Countries in this region have set ambitious renewable energy targets. Meeting them requires bold and decisive action to open the path to progress.

This Ørsted paper identifies the barriers to progress for Asia Pacific's green transition, and how we can take them down together. These barriers are often technical, procedural and administrative.

So, while it's not an easy task to break them down, it is within our power, if we work together

About Ørsted Asia Pacific

Ørsted is present in the markets in Asia Pacific with the highest potential for offshore wind projects.

We help to establish a local and vibrant industry by developing, constructing, and operating new offshore wind farms and creating local jobs, while ushering in an era of green energy for all in Asia Pacific.

Taiwan is the home of our APAC headquarters and the regional frontrunner for offshore wind. Across Taiwan, Japan and Korea we have a multi-gigawatt project pipeline. In 2023, we submitted a feasibility licence application for Australia's first offshore wind zone, off the coast of Victoria.

About Ørsted

The Ørsted vision is a world that runs entirely on green energy. Ørsted develops, constructs, and operates offshore and onshore wind farms, solar farms, energy storage facilities, renewable hydrogen and green fuels facilities, and bioenergy plants. Ørsted is recognised on the CDP Climate Change A List as a global leader on climate action and was the first energy company in the world to have its science-based net-zero emissions target validated by the Science Based Targets initiative (SBTi).

Get in touch

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