Strategic advice for new players in the APAC energy industry: What you need to know.

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Contents

Overview

As the world experiences rising climate change concerns and the need for sustainable energy solutions increases, APAC - with its diverse country profiles and some of the world's fastest-growing economies - has ambitious renewable energy goals that require short-term action and long-term planning. New players entering the sector are at a distinct disadvantage given their lack of deep domain knowledge and power systems engineering.

This white paper lays out some of the considerations for emerging participants and offers insights into the unique landscape of the energy industry in transition. It also advocates for specialist strategic advisory services to help navigate and accelerate the energy transition across APAC.

Introduction

The geopolitical climate, the diminishing availability of traditional energy sources, and net-zero objectives are driving the renewable energy transition and expansion. There are countless real-world examples to validate the motivation behind this shift. For example, the cost of running a coal-fired generator is expensive and forcing coal providers to close their businesses. The prices of renewable energy technologies like wind turbines, solar panels, and batteries are plummeting. Increasing gas prices are incentivising consumers to pursue more fuel-efficient options or consider travelling less. Geopolitical conflicts are forcing people to assess how to manage resources simply to "keep the lights on."

In addition, extreme weather events and disasters threaten the long-term sustainability of development in the Asia-Pacific (APAC) region. Statistics from 1989 to 2018 show that the region has experienced a significant increase in the number, intensity, and impact of tropical cyclones, floods, droughts, and heatwaves. Earthquakes and tsunamis have also caused significant loss of lives and economic damage[1]. More recently, the 2020 flood in Bangladesh was one of the worst in the country's history. And the unprecedented wildfires in Australia in late 2019 and early 2020 (called "black summer") destroyed 20% of Australia's forests and killed tens of millions of animals.

The world's 10 costliest weather disasters of 2020 saw insured damages worth $150B, topping 2019 figures. These same disasters claimed at least 3,500 lives and displaced more than 13.5 million people.

Amid extreme weather events and natural disasters are rising energy demands. APAC accounts for approximately 60 percent of the global population and has the world's fastest-rising regional energy demand. About 85 percent of APAC countries currently depend on fossil fuels for energy[2] but are eager to pursue projects that support transitioning to clean, renewable sources.

The energy industry continues to grow rapidly as interest and investments in renewable energy generation increase in APAC. This industry is becoming an increasingly attractive market for developers, investors, generators, governments, and other stakeholders. Forecasts from leading investment management firms indicate that APAC will become a renewable energy leader, with over half of the world's electricity generation projected to come from the region by 2030.[3]

1 Asian Development Bank (ADB), Climate Change and Disaster in Asia and the Pacific [Infographic], https://www.adb.org/news/infographics/climate-change-and-disasters-asia-and-pacific

2 International Renewable Energy Agency (IRENA), Asia and Pacific, https://www.irena.org/asiapacific

3 Why APAC is tipped to lead renewable investments by 2030, Asian Power, https://asian-power.com/power-utility/in-focus/why-apac-tipped-lead-renewable-investments-2030

Preliminary considerations

There are complexities and peculiarities of this industry that many generators, developers, investors, transmission/distribution companies, and others don't consider - or don't know to consider. Engineering solutions within the energy industry are often challenging, lengthy, and costly, making it imperative to understand the realities needed to see these projects through to fruition. A project's requirements will determine the details to be managed, but it is important to think through a few preliminary considerations, such as:

- Governmental policies and trends, like net-zero objectives
- The reality of the project's progress: Will it reach implementation or stay in planning?
- Securing financial backing
- The necessity of pragmatism
- Being able to walk away from the project if the risk is too high, particularly for developers and financiers

Navigating the industry

Solutions for utilities and energy companies are not as straightforward as they once were, where local thermal generation (and subsidised fuel) met local demand without considering the environmental or social impact.

The complexities of the evolving energy ecosystem can deter generators, developers, investors, regulators, and other stakeholders from pursuing and implementing viable projects. Not fully understanding these same complexities can create barriers to entry and prove costly from a financial and business perspective.

A trilateral solution

A traditional engineering solution always considers the practical and technical aspects of implementation. However, a trilateral approach to handling the uniqueness of energy projects proves most effective, and includes the following components.

Component	Objective	Question it Answers	Examples
1 **Practical:** Understanding what you're getting involved in, how the business currently operates, and where you need to be within the industry.	To make projects work from a business advisory perspective.	Does the project make sense from a business perspective?	Identifying and managing the practical building blocks to make the solution function day to day.
2 **Technical:** Considering all the technical specifications and requirements of your project and ensure the solution can integrate into the main infrastructure or network of the endpoint.	To get projects across the finish line.	How do you get from point A to point B?	Considering the cost of reburying cables in 10 years and factoring in seabed assessment as part of projecting long-term cost.
3 **Transitional:** Navigating between legal, economic, technical, social, and regulatory elements.	To make projects work commercially.	How do you fill the gaps between practical and technical?	Managing the regulations or legal barriers to getting a project implemented and/or working with third-party countries to manage transmission networks that have never had large marine cables.

Energy transition landscape

The energy sector must address unique challenges like integrating renewable energy, modernising the grid, and adapting to changing customer expectations about how they access energy. For more than 150 years, fossil fuels have been at the core of global economies, in response to evolving industry and consumer demands. The relationship between emerging renewable alternatives and fossil fuels continues to create a rift within the energy transition landscape. Relevant, sustainable strategies and infrastructure are imperative for a smooth transition to renewable energy sources for businesses, employees, and consumers who understand the critical role fossil fuels play across the landscape.

Market challenges

Along with wanting to meet energy transition objectives and reduce reliance on fossil fuels, APAC has an increasing population-driven energy demand. The energy industry is also experiencing a lack of depth, with millions of active projects and net zero driving substantial global investments. This influx of projects can diminish or prevent a proper evaluation of feasibility: The need and the funds often exist, but is the project achievable, viable, realistic, and practical? Quality strategic advice answers these questions pragmatically and does a “deep dive” to uncover and tackle what lies beneath the surface.

The journey to sustainability

Some APAC countries are looking to taper back traditional resources and use more renewables. However, in many cases, the process is not a simple replacement - out with the old, in with the new. Energy transition in APAC poses some issues with inadequate grid systems and unsupportive policies and regulations. An inflow of renewables has presented challenges with balancing the grid, as coal-fired power stations shut down, particularly in southern Australia.

Historically, conventional energy generation has been stable, so energy projects need to assess the feasibility of transitioning and, in many cases, modernizing entire infrastructures. Early and adequate feasibility studies can help ensure the new system has the same or improved level of stability as the previous system. It is also important to view projects with a “renewing/rethinking” perspective to ensure the transition happens and moves seamlessly from the “as-is” state to the desired “to-be” state.

- Currently, energy storage systems (ESS) tend to bridge the gap between synchronous generation and renewables to support many networks. For example, using ESS as an alternative source of fast-acting frequency reserve can replace that which would have been supplied through a conventional thermal plant.
- Technology is also helping systems that are equally or comparably stable. Grid-Forming Inverter technology is evolving and improving to provide functionalities usually delivered by synchronous generators.

Energy transition and expansion is more of a journey toward sustainability, involving a phased approach to meet near-, mid-, and long-term goals. Skilful strategic advisory uses a phased project approach that incorporates future planning and future-proofing.

You don’t know what you don’t know

Building a successful energy business model and implementing sustainable transition and expansion projects requires a lot of time, money, and experience. It’s understandable to want to economise and navigate this industry on your own. Unfortunately, most who enter this industry don’t consider the true cost of going it alone.

Going it alone

You can expect every project to be unique and require different criteria, parameters, and solutions, making it difficult to establish “cookie-cutter” processes. Dealing with frequently moving parts can be frustrating when you’re just entering the market and trying to build a sustainable business model, revenue stream, and reliable reputation.

While the industry provides numerous opportunities, it’s often inundated with environmental, regulatory, compliance, societal, financial, and geopolitical complexities. Plus, it’s time-consuming to research and gather the associated level of experience, expertise, resources, and information to handle these complexities seamlessly.

APAC’s energy transition is a multifaceted arena; opportunities are ramping up more quickly and populations are growing:

- Transmission and transition networks need to be defined and can’t be built overnight. These types of projects involve an in-depth understanding of logistics, compliance, safety, and environmental and societal impacts.
- States in Australia have taken the lead to establish renewable energy zones to encourage investments, but you need to know what that means for your business from every angle (i.e., technical, regulatory, political, and societal).

The cost of going it alone? You could lose millions of dollars, destroy a sustainable business model, and risk your reputation. A strategic advisor could share lessons learned and best practices from previous projects to help you avoid unnecessary financial, business, or reputational loss.

One size doesn't fit all

Recognising that "one size doesn't fit all" is critical to survivability in this industry. Advising on projects - with the understanding that each one is unique - allows for a more hands-on, tailored service. An adept strategic partner will:

- Be able to think on their feet even when faced with less-than-comprehensive information.
- Apply deductive reasoning to your project and troubleshoot challenges and obstacles.
- Take the various bits and pieces from a deep well of knowledge and resources to fill in the blanks that standard engineering solutions don't address.

Assurance

Developers struggle to meet the capacity requirements they want to achieve; investors are looking for more projects to invest in simultaneously. As a result, finding reliable industry experts with strong technical and strategic advisory credentials - to provide investors reassurance - has become more challenging. A significant part of assurance for investors is providing the confidence that they are going to get a return on their investment but also that the project is based on technically appropriated foundations to build robust ROI projections.

Due diligence

Mistakes and oversight in the energy industry are particularly costly. Due diligence provides (1) the "checks and balances" to ensure your project moves continuously from envisaging to implementation and (2) alternatives to achieving your end goals. The due diligence process recognises there are several right solutions and involves some mediation between various parties to find a mutually acceptable solution. Another important strategy is to create a Due Diligence team consisting of experts who understand the energy industry holistically: the regional landscape, regulations, compliance, technical connections, locations, owner's engineer, and networks (e.g., lawyers, CPAs, engineers, economists, ministries) to connect you to the right resource.

Differentiation

Previously smaller engineering and consulting companies within this industry have grown large and cumbersome. They've de-risked their workstream and become repetitive, reducing exposure to financial and commercial risk. These companies either assign a large bench of experts to a project or flood the project with graduates and limited-experienced resources. Both scenarios prevent them from providing personalised and tailored solutions, which involve asking tough questions and having in-depth, pragmatic discussions. All of this takes time, specialised knowledge and expertise, and decades of industry experience, which is what differentiates great strategic advisors from good ones.

When engaging strategic advice and support, ensure they offer complementary capabilities, such as being able to identify and manage the transitional components; providing the necessary due diligence; recognising the current solutions, mechanisms, and processes appropriate for the next decade; recommending institutional capacity building; and operating from a future-proofing perspective. Consultants who approach the energy industry with a one-size-fits-all mindset typically can't provide a higher-end, more personalised service.

QUICK GUIDE:
Before starting your energy project

Understanding the financial investment

Financing for the physical assets is most likely available through the state or a third-party funding stream, but there is no regulatory mechanism available to pay for the asset base. While there are various models to achieve this, each model would have different impacts on the regulatory structures of the country. It might also be necessary to update primary legislation, licences, and secondary regulation before the project could be achieved. Otherwise, there would be a significant risk to investor confidence if no firm mechanism existed to remunerate the associated investment.

Identifying who will build and operate the project

Although there are several models to determine who will build and operate the project, the most likely scenario would be either a third party or the transmission system operator (TSO) engaging an engineering procurement and construction (EPC) company to deliver the project with an associated handover. However, there may not be licence provisions for a third party or the TSO to be an offshore transmission operator.

Facilitating power infeed to select APAC countries or regions

Procuring power from somewhere else (also known as “wheeling”) requires multi-lateral agreements between the country of origin’s utility or government, the generator, the cable owner, and the procuring entity within the APAC country. This type of structure currently exists in many geographies, but a deeper assessment is required to determine to what extent the current regulatory structure can support this approach.

Managing technical regulatory updates

Electricity Law formalises a region’s electricity supply to ensure the availability of quality, reasonably priced electricity in sufficient quantities. There might also be a separate regulator law empowering its function to award licences to relevant parties for transmission, distribution, and generation.

Grid codes, which are living, evolving documents and technical standards, govern how users of the electricity system must behave. Proposed changes to the grid codes are suggested by the TSO and relevant stakeholders. The Grid Code Review Panel (and eventually the regulator) facilitates the process and enacts the changes.

Understanding other practical operational considerations

Developing energy projects requires foresight, strategic planning and consideration of all stakeholders involved. For example, are you sure your project has been considered adequately in the planning criteria currently used to ensure the security of supply on the network? If not, there is a risk of infeed loss that may lead to a project not being accepted by the utility or regulatory authority. Lean on an experienced strategic advisor to be sure you’re aware of all the operational issues that, if not handled correctly, increase risk.

Conclusion

The energy sector is facing unique challenges in the drive toward sustainable energy solutions. Additional challenges, particularly in the APAC region, involve meeting ambitious 2030 renewable energy goals and attending to increasing interest and investments in renewable energy generation. This means balancing short-term delivery with strategic forecasting. Transition, expansion, and modernisation projects within the industry are often complex, extensive, and expensive. For new players, navigating the industry will be less bumpy and more successful with support from a dexterous strategic advisor who uses a phased approach that includes future planning and future-proofing.

PSC Advantage

These considerations are complex and require realism, deep thinking, and strategic delivery. PSC has extensive experience in all these areas and is actively working with utilities, regulators, governments, and wider stakeholders to ensure the successful delivery of energy endeavours in Singapore, Australia, and other APAC countries. Because PSC has 27 years of global energy experience and expert power systems engineers, we can provide detailed advantages and disadvantages for various options and ultimately recommend a path forward to ensure your energy projects start off right and stay on track.

About the authors

Dr. Graeme Hutchison, Team Leader Regulations & Strategic Advisory

Graeme is a chartered electrical engineer and leads PSC's Regulation and Business Advisory team in Europe. He has been involved in numerous projects related to power system planning, investment appraisal, privatization and regulatory studies, system operations and security, and due diligence.

Graeme is the project director for drafting the NEOM's and Bahrain's Transmission and Distribution Security Standard. He has been involved in various reviews and updates of grid codes, power purchase agreements, and due diligence activities in Europe, Africa, and the Middle East. Graeme has been an advisor and principal point of contact to the Saudi Arabian Electricity Regulatory for over 10 years, assisting them with Revenue Determination, Grid Code updates, black-out investigations, planning standards, and transmission investment appraisal. Graeme is also the compliance officer for six offshore transmission system operators (OFTOs) within the UK.

Roderick Kisten, General Manager Power Networks

Rod has more than 20 years of experience in the power sector; his main areas of expertise are project/study management, sub-transmission design, and network planning and analysis. He has been involved in several renewable projects including wind, solar, and BESS for various clients throughout Australia.

Through these projects, Rod has delivered feasibility studies, grid connection studies, connection application agreements, connection support, and concept designs for these projects as well as fulfilling Owner's and Lender's Engineer roles for clients. He has also been involved in various due diligence projects related to renewables developments on both the buyer and vendor sides.

At PSC, we're helping power a more sustainable world

At PSC we're helping power a more sustainable world. Our global team of electricity experts has been tackling the thorniest problems for some of the most prominent industry players for over 27 years. By empowering people to make a difference and do the right thing, we help our clients and employees innovate and thrive in a rapidly changing industry.

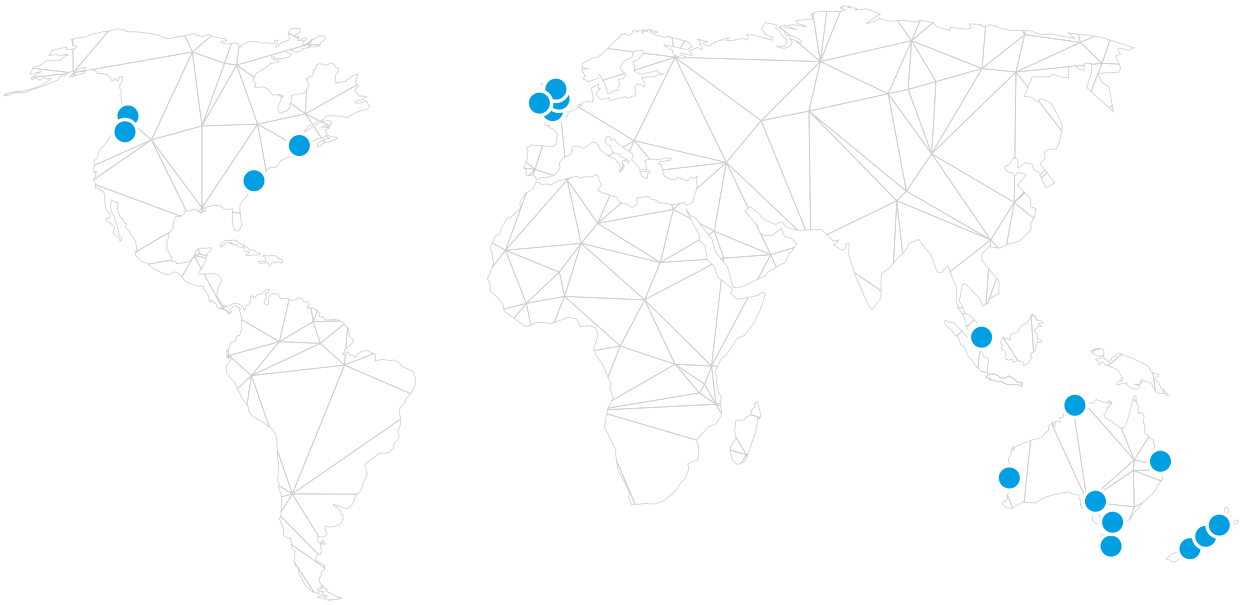
PSC offers clear strategic advisory services across the entire energy value chain to help save you time and money. Our practical strategic direction helps you meet deadlines and budgets, get the most out of your team, and optimise regulatory compliance.

The present situation our industry finds itself in provides not only challenges but great opportunities. We have the benefit of having worked with many different energy companies and developers around the globe for over two-and-a-half decades, and the countless lessons we have learned make us uniquely qualified to provide expert strategic advice.

If you would like help developing strategies to shape future growth, improve operational performance and achieve lasting value for your customers, employees and shareholders, PSC is here to help.

Schedule a strategic advisory session today. Contact Roderick Kisten by email at roderick.kisten@pscconsulting.com

For more information about PSC, visit our website: www.pscconsulting.com



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