

Global Energy Game Changers

Focus on Asia Pacific

2017 (Issue 7)



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Dentons' Global Energy team is excited to present the newest edition of its Global Energy Game Changers series, a compendium of insightful analysis of the most important issues facing the energy industry. This issue is focused on key developments in the Asia Pacific region.



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In keeping with this edition's focus on the Asia Pacific region, we asked colleagues in our Energy practices within the region to share their views on the most significant trends, issues and challenges facing the energy sector today.



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Introduction

In this, our seventh edition of *Game Changers Impacting the Global Energy Sector*, we turn our focus toward Asia and the Pacific. The energy industry in this region is undergoing transformation on a scale and at a pace rarely before witnessed. The rapid changes present both new challenges and new opportunities for our clients who are active in the region, whether they operate in the private or public sector. In this edition, we explore development trends and investment opportunities in this dynamic environment.

Implementation of China's new industrial policy is impacting every aspect of the energy sector. In addition to the tremendous growth in traditional energy sources, China is quickly taking on a global leadership role in renewable energy investment and climate initiatives. At a more granular level, new-energy markets, such as the electric vehicles market, are presenting opportunities for inbound investment.

Singapore's energy sector is coming off a challenging year, but the outlook for the future is cautiously optimistic. Likely consolidation in the oil-and-gas sector and an uptick in small-scale liquefied natural gas (LNG) projects look to be among the immediate trends. And throughout the ASEAN region, countries are grappling with how to achieve a balance between security of supply, affordability for 600 million consumers, and the goals of sustainable development—all while growing local economies.

With investments of more than A\$200 billion in infrastructure spending in the past decade, much to support demand for LNG exports, Australia is in the midst of a growth explosion. The country is poised to surpass Qatar as the world's largest LNG exporter. Foreign investor interest in opportunities within Australia has prompted the government to take a very cautious approach with respect to approvals of acquisitions of the country's infrastructure assets. The Foreign Investment Review Board (FIRB) has given a green light to recent transactions, and all indications are that this trend will continue. Nevertheless, it appears that regulators favor diversified consortia over single foreign bidders for national assets.

Concern about foreign investment in national infrastructure and energy assets seems to have become a broader trend. EU antitrust authorities, for example, have recently taken an expansive view of jurisdiction over transactions involving state-owned entities, even where a company enjoys relatively extensive autonomy in its decision-making and operations. In particular, countries in the Asia Pacific region and elsewhere are grappling with how to deal with China's increasing regional and global capabilities.

Also in this edition, we explore measures in the region to address local and global climate issues, including reduction of greenhouse gas emissions—whether as a means to comply with international commitments under the Paris agreement, or in response to local pressures to improve air quality.

We hope that you will find the topics we cover in this volume to be timely and helpful. The authors and their exceptional colleagues are pleased to discuss any of these issues or other matters that your business may be facing in the global energy space. As the world's largest, most dynamic and most innovative law firm, Dentons has breadth and experience to help your business not only face these and other challenges head on, but to thrive in the midst of change and uncertainty and new frontiers.

Sincerely,

Jennifer Morrissey, Editor

Dentons was named the “Energy Firm of the Year” for the third straight year by *Who's Who Legal Awards 2017*



Quantum viewpoints:

Trends and projections for the energy industry

In keeping with this edition's focus on the Asia Pacific region, we asked colleagues in our Energy practices within the region to share their views on the most significant trends, issues and challenges facing the energy sector today.



Q: What key geopolitical events are impacting the energy outlook for the Asia Pacific region today?

BEIJING: The South China Sea issue is the key geopolitical event affecting the energy outlook in the Asia Pacific region. The South China Sea is the core interest of China's sovereignty and marine power strategies, the essential strategic node of China's Belt and Road initiative, as well as the focal point of interest among China, the ASEAN member states and the United States.

After Vietnam first stated a different position from China on the South China Sea issue, the Philippines then challenged China by initiating the South China Sea Arbitration, thus making the South China Sea issue an inevitable and essential topic for the ASEAN Summits in recent years. How China handles the South China Sea issue vis-à-vis Vietnam, the Philippines, Malaysia, Indonesia and Singapore (all of which have an interest in the South China Sea), as well as other ASEAN countries, will directly impact the energy outlook across the Asia Pacific region.

For instance, in order to gain support from Thailand, Laos and Myanmar, China has invested in large-scale energy and infrastructure projects in these countries, including oil and gas pipelines, high-speed railways, and ports. And over the past year, both Malaysia and Indonesia have leaped to the ranks of China's top 10 targets for outbound investment.

TAIPEI: Internationally, the success of the 2015 Paris climate change negotiations (COP21) has been a key driver of low-carbon energy transition in Taiwan and the whole Asia Pacific region. Though Taiwan is not a party to the United Nations Framework Convention on Climate Change (UNFCCC), the government voluntarily published its Nationally Determined Contribution (aiming to slash GHG emissions by 20 percent from 2005 levels) and has decided to phase out nuclear power by 2025. These ambitious goals can bring both policy and commercial opportunities (based on a planned 20GW of installed solar power capacity and 3GW of offshore wind power). Meanwhile, the Asia Pacific Economic Cooperation (APEC) has launched several regional energy initiatives, such as the multi-year APEC Energy Smart Communities Initiative (ESCI), to achieve the COP21's climate commitments and build technical capacity across the diverse Asia Pacific economies.

Domestically, Taiwan's new political landscape also creates new opportunities and uncertainties for the region. The Tsai Ing-wen administration that assumed power in May 2016 is now liberalizing



Rongqing (Samuel) Jiang

is a senior partner at Dentons. He has been named a "recognized practitioner" in the field of Energy & Natural Resources (PRC) by

Chambers Asia Pacific, and recognized as one of the top 10 Chinese M&A Lawyer by ALB. Samuel has 21 years of experience in the fields of cross-border investment and financing, and dispute resolution, and has an impressive track record of providing legal services on 400 transactions across Asia, Africa, America, Europe and Australia. rongqing.jiang@dentons.cn



Chung-Han Yang is a doctoral researcher at the University of Cambridge and of counsel with Dentons. His practice focuses on energy, environment and foreign

investment. Before joining the firm, Chung-Han was formally a senior legal officer at the Environmental Protection Administration in Taiwan and a liaison with the US Environmental Protection Agency in Washington, DC. He has a wide range of experience advising Taiwan's energy-related governmental departments as well as two major state-owned energy corporations—Taiwan Power Company and CPC Corporation Taiwan. chunghan.yang@dentons.com.tw

Taiwan's electricity markets and has drafted a new, eight-year national infrastructure investment plan to support this reform. Public investment under this scheme would be about NT\$882.49 billion (US\$29.2 billion) and would raise an extra NT\$1.78 trillion in private investment. Also important is the Tsai administration's New Southbound Policy, which calls for new comprehensive relations with ASEAN countries, Australia and New Zealand, but strategically pivots away from China. This significant geopolitical shift may reshape investment and energy trade flows and make the existing China-Taiwan energy engagements—including the cross-strait carbon market proposal, bilateral agreements and policy dialogues—face a relatively uncertain future.



Q: Over the past year, what local/national policy and regulatory changes have impacted the energy sector?

SYDNEY: In Australia, the populist and divisive nature of the current state of politics has resulted in an unstable approach to the development of sound policy on an integrated national basis. With a number of changes to leadership and government over the past seven years, together with various states and territories of Australia effectively “going their own way,” it is difficult to provide a coherent approach to energy security and climate policy. A review has recently been undertaken by Dr. Alan Finkel, Australia’s Chief Scientist, to assist the federal government in formulating a policy. At the time of this writing, there are suggestions that Australia may be in an “energy crisis.” One thing is now clear: A belated political appreciation for energy security in this country will dictate climate policy.

Significant changes to energy policy have recently been made on the run. Recent events in South Australia have caused its government to implement its own, short-term solutions to its electricity problems—it has suffered state-wide blackouts—including building its own backup gas-fired generator; investing in large battery storage facilities; giving state ministers the power to intervene in, or interfere with, the National Electricity Market (NEM); requiring network operators to have 200MW available as backup; and providing incentives to gas explorers. South Australia’s own renewable energy target is 50 percent (currently it sources 43 percent of its energy needs via renewables), Victoria is pursuing a 40 percent renewable energy target and Queensland is chasing 50 percent. Then the federal government initiated Snowy 2.0 (an expansion of the Snowy Mountains hydro scheme) from out of the blue and without meaningful consultation with key stakeholders, including the Victorian and NSW governments. So while we have been privatizing parts of our electricity industry, policies are now being considered to “nationalize” aspects of the energy cycle.

Recently, the federal government has used its constitutional power to impose restrictions on exports of LNG to ensure domestic gas is available. This must be a short term fix, surely, and one reminiscent of the Whitlam government (1972-75) days (under the then Energy Minister, Rex Connor) regarding nationalization. It raises concerns about sovereign risk for any investor. The problem is that domestic gas prices are currently much higher than those achievable for export. In my view, while some raise concerns about such a threat of export control action, it is a response to unique circumstances and does not represent a general policy shift toward nationalization and interference with market arrangements.



Kym Livesley is the regional head of Dentons’ Corporate practice and Energy and Resources group in Australia. He has over 30 years’ experience in the energy, resources and industrial sectors and his corporate transactional practice includes Australia, Papua New Guinea, Southeast Asia, Africa, the USA and South America. *Chambers Asia Pacific* and *Best Lawyers* have ranked Kym one of the profession’s leading Energy and Resources lawyers, and he has held leadership positions in the Australian Mining and Petroleum Law Association (national president, 2005), the Australian Institute of Company Directors (fellow), the Minerals Council of New South Wales and the Association of International Petroleum Negotiators. He was chair of ASX listed Acacia Coal Limited (2013-15).
kym.livesley@dentons.com

Part of the crisis has been the lack of domestic gas (most of which is being used for LNG and being exported) and increased reliance on renewables without a coherent change in, or amendment to, the NEM to facilitate the transition from coal to a low-emissions electricity sector. Coal and gas will continue for some time to play a vital role in the transition to low-emission generation.

The enormity of the issues facing authorities, including the Australian Energy Market Commission (AEMC), in developing a coherent policy on energy security—and by that I mean ensuring the availability of energy sources, such as gas; the operation of the NEM and the National Electricity Rules (NER); the Australian Energy Market Operator's (AEMO's) approach and role—should not be underestimated. What is also often forgotten when comparing Australia to so-called learnings from other countries (especially in Europe) is the vastness of the Australian continent, the disparate energy options region-wise (Western Australia, for example, is not part of the NEM) and a general lack of infrastructure, all of which make for a challenging environment.

There have been, and continue to be, calls for a consistent long-term national integrated energy, energy security and climate change prevention policy to address uncertainty in the sector as to where to invest and security of supply (of natural gas and electricity generation). Such an integrated policy is required to attract investment, support growth, realize Australia's emission reduction goals under international obligations at the lowest possible cost, and improve energy security. The NEM needs to be reviewed. Asset closure and consolidation of power generation appear to be made without reference to affordability of electricity. Notwithstanding current political views, there is clear industry support for an emissions intensity scheme (EIS).

Furthermore, the voice of the consumer has to be listened to and taken into account. Behind-the-meter (BTM) renewable energy systems, such as solar batteries and other consumer-based energy technologies, will assist in reducing peaks in demand and stresses on the network.

Expect more policy and regulatory changes in the energy space in the near future—hopefully not developed in a haphazard and reactive way, but taking a well-considered, national approach.

BEIJING: Under the guidance of the PRC's 13th Five-Year Plan for National Economic and Social Development, China introduced in 2016 a series of policies and regulations, including clarification of guidelines, principles, goals, policy orientation and key tasks of the country's energy



Yunfeng Song is a senior partner at Dentons. He has in-depth experience in M&A (including cross-border transactions), foreign direct investment, finance, private equity and

venture capital investment, formation of renminbi-denominated (RMB) private equity funds, IPOs (listing on A-share market and the National Equities Exchange and Quotations Co. Ltd.), issuance of bonds and other securities transactions and general corporate practice. His clients include both state-owned and private enterprises, reputable funds and A-share listed companies, primarily in the energy (traditional and new), culture and entertainment, finance and internet sectors.

yunfeng.song@dentons.cn

development. As a result, China's energy industry experienced a number of changes that year. In the field of traditional energy, it was necessary to strictly control capacity expansion, accelerate the elimination of outdated capacity and prioritize the implementation of an energy-saving strategy. Meanwhile, in the "new energy" sector, adjustments were made to the mechanism for allocating project development targets so as to favor market-based policy instruments over an administrative planning approach. Also, steps were taken to ensure the systemization of power consumption; lower the FIT (feed-in tariff); guide needed changes to the industrial pattern; and promote more rational investment. Lastly, with respect to power development, new policies will address the establishment of appropriate market mechanisms for opening up power markets and promoting their good operations.



PAPUA NEW GUINEA: Papua New Guinea is one of the Asia Pacific region's fastest growing economies, with energy playing a key role in its economic development. Rich in natural resources, it is home to the largest resource extraction project in the Asia Pacific region, the world class PNG LNG project. Recently there has been greater confidence in upstream exploration, as expressed by serious foreign investment dollars spent on such work.

The Department of Petroleum and Energy (DPE) is the regulator of oil and gas projects in PNG. In recent times, we have seen moves by the PNG government to convert the DPE into a petroleum resources authority. The DPE has been exploring with relevant entities and individuals as to how to work collaboratively to build the capacity of the regulator and how best it should be institutionally set up. Efficient, high-quality regulation is key to elevating PNG's profile as a favorable investment destination. The country is sending a very strong signal to the industry that it recognizes the value of foreign investment. The government has been clearly indicating that, with an efficient regulatory body in place, PNG's profile as a safe and reliable investment destination will attain even greater heights. That will create incentive to plan a wide range of energy policies and projects.



Stephen Massa is the managing partner of Dentons' Port Moresby office and an experienced finance, corporate and commercial lawyer. He is recognized as one of Papua New Guinea's leading lawyers in the 2018 edition of *Chambers Asia Pacific*. Stephen advises financial institutions, governments, central banks, state owned enterprises, corporations and NGOs on a range of transactions, projects and challenging matters in Papua New Guinea including major energy and resources projects. stephen.massa@dentons.com



Q: To what extent have smart grid technologies and policies been implemented in Asia's megacities?

SHANGHAI: In general, Asian countries have reached a consensus on the smart grid market. But because of their different conditions and stages of development, they inevitably make different demands on their smart grids. Developed countries, such as Japan and Korea, require more precise and refined power-generating capacity from their existing smart grids, while developing countries, such as China, need to first establish a smart grid system before tailoring it to their specific needs.

In Japan, smart grid demonstration projects were launched a few years ago in Yokohama, Toyota, Kyoto-fu and Kitakyushu. The Japanese government and non-governmental institutions cooperate to promote the development of smart grids, including providing considerable financial support.

In Korea, smart grid technology was first applied in Jeju Island. In 2009, the Korean government decided to launch a large-scale smart city demonstration project there and that model has since been extended to other major cities in Korea. At the same time, the penetration rate of smart meters continues to increase.

As the largest electricity consumer in the world, China is suffering from serious environmental pollution resulting from its fossil fuel-dominant energy supply. Smart grid is seen as a significant way to accommodate intermittent renewable energy, increase efficiency and cultivate energy savings, and is treated as a priority industry in China. The Law of the People's Republic of China on Renewable Energies, issued by the National People's Congress and amended in 2009, stresses intelligent grid technology as a significant area for power grid construction. The National Development and Reform Commission(NDRC) and the National Energy Administration (NEA) in 2015 enacted further guidance to promote smart grid development. According to the guidance, the government must promote investment in the smart grid in cooperation with private capital and financing institutions to create stable conditions for the development of the smart grid. With the encouragement of the government, smart grid construction has made huge progress in recent years, especially in Shanghai, where the government invested approximately CN¥250 million in smart grid construction in 2015 and various corresponding reform projects were carried out.



Nancy (Qingnan) Sun is a senior partner at Dentons with extensive experience advising Asia Pacific and other international clients on inbound and outbound

transactions. Nancy has particular experience in project finance in the mineral energy and agriculture sectors, round-trip investment, capital-raising, syndicated loans, leveraged acquisition finance, trade finance, and employee relations strategy. Nancy is a strong negotiator and developer and implementer of client-driven solutions to complex legal problems. Her approach at the outset of any matter is to gain a full understanding of the client's legal and business objectives, a necessary predicate to providing value-added advice geared toward achieving the desired outcome. The quality of her work and client service have elicited high praise from clients.

nancy.sun@dentons.com



Keith Brandt, managing partner of the Hong Kong office, practices in the area of commercial dispute resolution with a particular focus on resolution of high-stakes disputes,

including high court/commercial court litigation, domestic and international arbitration, expert determinations, ADR, and mediations for clients in the energy, construction and financial services sectors. Keith has been widely recognized by Chambers Asia Pacific for his dispute resolution work both globally and in the Asia Pacific region.

keith.brandt@dentons.com

HONG KONG: China, Japan and South Korea are, without doubt, the major players in the Asia market and all got head starts in attracting investments in their smart grid projects. Back in 2012, the smart grids of China, Japan and South Korea were already cumulatively valued at US\$8.5 billion, with China alone accounting for 70 percent of that. In 2016, representatives from Japan, South Korea, China, and Russia signed a memorandum of understanding to partner in the creation of an “Asia Super Grid.”

However, other megacities, predominantly in Southeast Asia, are considerably behind in developing smart grids, presumably due to their relative lack of resources, both technological and financial. However in recent years the ever-growing populations and increasing demand for electricity in these megacities have spurred investment in smart grid technologies, as their traditional grid infrastructures prove insufficient or inefficient. A recent study of the Southeast Asia region projected investments in smart grid infrastructure totaling US\$24.6 billion over the coming decade.

In 2016, Singapore Power, the nation’s electricity utility, signed deals totaling about US\$7.5 billion to fund smart grids, data analytics projects, smart-metering Malaysia and Thailand had plans to invest significantly on smart metering to manage demand, etc., while Laos and Vietnam have obtained funding from the World Bank to deploy smart meters and implement distribution automation applications and systems.

Southeast Asian countries’ investments go further than the adoption of smart grid technologies to include the drafting and implementation of relevant policies and regulations, according to a study that mentioned Singapore, Malaysia and Thailand as drafting (and enforcing) regulations to back up their projects.

Hong Kong is still in the initial stages in implementing smart grid technologies. Hong Kong’s two power companies have both carried out R&D projects, including, in 2013, a pilot scheme involving a time-of-use tariff and summer saver rebate that was tested in certain residential areas. But these projects were relatively small in scale and scope. Policy-wise, the Hong Kong government in 2014 and 2015, respectively, launched public consultations on Future Fuel Mix for Electricity Generation and Future Development of the Electricity Market, which discuss the options going forward to promote renewable energy use and demand-side management through the use of distributed renewable energy systems and measurement products, including advanced metering infrastructure (AMI), feed-in tariffs, net-metering systems and access to the grid. It is our view that the process of implementing these measures and policies will create numerous business opportunities.

Q: How is the region harmonizing national and international strategies for achieving energy and environmental security?

YANGON: At this stage of its development, Myanmar's focus remains on defining a reasonably clear and consistent domestic energy strategy. The new NLD-led government has been seeking to address a number of significant obstacles to rapid energy sector development, including: reconciling several competing national electricity plans put forward by various stakeholders; prioritizing potential sources of additional generation capacity; transforming a lingering socialist-era centralist mindset to streamline the concession-approval process; and rebalancing retail and wholesale electricity tariffs to reduce (or eliminate) government subsidies.

In the short term, we see considerable promise in the likely finalization of tariff issues, the formation of a single, consolidated, government-led national energy plan, and the potential adoption of a Yangon Regional energy plan. This includes the likelihood that Yangon, as the most developed and populous area, will take the lead in defining the energy strategies to be deployed throughout the rest of the country. There is also an opportunity for the Myanmar government to make a concerted move away from direct involvement in the generation of grid-distributed mains electricity, and instead focus on approving concessions and purchasing and distributing wholesale power supply, thereby providing the private sector and development funders greater latitude in determining which power generation projects are the most viable from the standpoint of commercial and technical feasibility.

ASEAN: The development of an ASEAN power grid was first discussed in the 1980's. However it wasn't until 2007 that the 10 ASEAN States signed a memorandum of understanding on the ASEAN power grid. It was seen as an aspiration to create a regional interconnection of power that could provide for greater security and increased supply, as well as making power cheaper for the people. The plan called for, in the first instance, increased bilateral connectivity, followed by development of a framework for multi-country transmission. Over the past 10 years there has been a small but significant group of projects on bilateral connectivity—Laos/Thailand, Laos/Vietnam, Myanmar/Thailand, Malaysia/Thailand, Singapore/Malaysia and Malaysia (Sarawak)/Indonesia. Today a true regional connectivity is closer to reality. The recent signing of a deal for the importation of power from Laos to Malaysia via Thailand, and leaving the door open for Singapore's inclusion, demonstrates the ability to integrate the ASEAN mainland power grids. There is increased emphasis on better connectivity across the region, as countries recognize that an integrated power grid can provide greater diversity of supply and overcome vulnerabilities in domestic generation. However, the biggest issue facing development of a full ASEAN grid remains transmission networks, which are underinvested in most ASEAN countries.



Mark Livingston is the resident partner of Dentons Myanmar. Before joining Dentons, Mark worked as a corporate advisor and private practice lawyer in

Melbourne, Beijing and Yangon, the latter where he founded and managed his own firm. He also held senior in-house counsel roles in the natural resources industry in Singapore and Melbourne. Mark has extensive experience managing and resolving legal, regulatory and operational issues in developing markets, with a particular focus on natural resources projects, complex fundraising transactions and development and implementation of corporate governance and compliance practices. He has been living and working in Asia for seven years, and has resided in Yangon on a full-time basis since 2014.

mark.livingston@dentons.com



John Dick, an internationally recognized Energy partner, focuses his more than 27 years of experience on foreign investment into ASEAN countries, with emphasis

on Energy, Resources and Infrastructure. He has advised on upstream oil and gas projects, the development and acquisition of coal fired and gas power projects and has been involved in the development of a variety of infrastructure projects throughout ASEAN as well as a number of the largest mining transactions in Indonesia. John has been recognized by International Who's Who of Mining Lawyers, and by Best Lawyers for both Energy and Project Finance & Infrastructure. He is currently the Honorary Secretary of the Australian Chamber of Commerce, Singapore and the Honorary Treasurer of AustCham ASEAN.

john.dick@dentons.com



Nancy (Qingnan) Sun
nancy.sun@dentons.cn

SHANGHAI: China is fully integrating and leading the transformation of global energy structures.


According to ICAP (International Carbon Action Partnership) statistics, by the end of 2017, there will be 19 carbon trading systems around the world and these markets will be responsible for more than 7 billion tons of GHG emissions (contributing to nearly half of the global GDP and accounting for more than 15 percent of global carbon emissions). The year 2017 also marks the start of China's national carbon emissions trading scheme, which aims to limit GHG emissions by setting up a national trading platform with a uniform carbon emission trading price. Once set up, it will be the world's largest such market and will play a key role in the stabilization and reduction in the world's carbon emissions.

Additionally, China has ratified the landmark Paris climate agreement, which is a huge step toward its implementation. China's decision to ratify the Paris accord was in line with its policy of actively dealing with climate change, according to a Xinhua report. In order to fulfill its obligations under the agreement, the Xinhua report noted that by 2030, China will need to cut carbon emissions by 60 to 65 percent per unit of GDP, compared with 2005 levels, and boost its use of non-fossil fuels until they account for 20 percent of the nation's energy consumption. This move shows the government's commitment and confidence in its ability to transform national economic growth to an energy-innovated mode.

Also, a National Energy Development Strategy Action Plan was published. This plan serves as the official guideline for Chinese energy development from 2014 to 2020. According to it, a well-organized and open energy market will emerge by 2020. And in 2016, the National Energy Administration issued a notice to guide energy work nationwide in which it underscored the significance of innovation in the development of the energy industry.







Development trends in China's energy industrial policy and opportunities for legal services providers

By Xuekai (Vincent) Qian

1. Recent trends in China's energy industrial policy

1.1 Coal

China has become the world's largest country in terms of both coal production and consumption. In 2016, coal production reached 3.36 billion tons, accounting for 62.3 percent of primary energy resource consumption. This is down from 2015, when production was 3.75 billion tons, representing 64 percent of primary energy resource consumption. Nevertheless, it is clear that coal is still a major portion of China's resource mix, despite the fact that coal production recorded a downward trend in recent years.

The declining demand for coal has mainly been due to the slowdown of the world economy. In concert with overcapacity of coal production, this led to a serious supply and demand imbalance. Consequently, many coal enterprises that were in limbo went into debt crisis.

The Chinese government has since adopted many policies and measures to bail out those troubled enterprises and improve their economic performance. Among these are an opinion issued by the State Council in February 2016 on measures to address coal industry overcapacity. The Opinion emphasizes that full use of rule-of-law and market mechanisms will be employed to tackle the overcapacity issues, and that coal production overcapacity will be addressed in tandem with the national energy transformation and improvement program. The policy calls for controlled expansion of production capacity and elimination of outdated production capacity. It encourages measures to reform and restructure coal enterprises. Large-scale coal enterprises are encouraged to take over small and medium-sized companies through M&A and restructuring in order to better achieve economies of scale and improve the competitiveness of the larger enterprises. By doing so, these large companies can develop their own governance structures to further improve mine operations, raise production levels and enhance coal utilization efficiency. It also calls for a substantial reduction in workforce in the coal industry and retraining and relocation of those workers.

Meanwhile China's "13th Five-Year Plan" for coal industrial development emphasizes substantial reform of state-owned enterprises (SOEs) in coal, enhancement of innovation and market competitiveness of coal enterprises, modernization of corporate management systems, diversification of ownership of currently state-owned coal enterprises that meet certain standards, and capital market listings for group enterprises that meet criteria for IPOs.

1.2 Oil and natural gas

In the field of oil and gas, oil consumption in 2016 reached 556 million tons. However, crude oil output in China fell below 200 million tons, with its external dependency exceeding 65 percent. Natural gas is considered a clean energy alternative that has significant market prospects in replacing coal and oil. At present, natural gas is mainly used as a household fuel or as a feedstock in the chemical industry (e.g., fertilizer). Future incremental growth will be in the fields of fuel gas, gas-fired electric generation, industrial fuels and transportation.

The Chinese government also advocates for the reform of state-owned petroleum enterprises in two main ways: first, qualified SOEs are encouraged to diversify equity and develop mixed ownership; and second, incentives are encouraged to attract capital investment in the oil industry.

Anticipating that increased cooperation between state-owned petroleum enterprises and private investors will drive the reorganization of energy-related businesses in the areas of engineering technology, project engineering and equipment manufacturing, the National Energy Administration recently issued a "Notice on Promoting Government and Social Capital Co-operation Model in the Fields of Energy" (Notice). The Notice sets forth a series of policies and measures to enhance cooperation and promote the use of the public-private partnership (PPP) model in the energy industry. Specifically, the Notice calls for creation of a "green channel" and online approval platform for energy PPP projects, streamlining the approval process and making it transparent to the public.



The government also will actively promote energy price reform and take steps to achieve a more balanced relationship between the government and the oil and natural gas markets. The government will refrain from interfering with the market where prices can be determined by market forces, and will endeavor to promote fair competition in the energy sector.

1.3 New energy

As traditional fossil fuels are expected to become gradually depleted in the future, a fundamental alternative to traditional energy resources is renewable energy (e.g., wind, solar, geothermal, biomass and nuclear). These new energy sources had not been widely deployed in China. Development lagged due to technical constraints, but China is rapidly and aggressively forging ahead. New energy consumption in 2015 was at just 12 percent of the national portfolio, but grew to nearly 25 percent in 2016 according to some reports. As demand for low-carbon energy increases, renewables have great market potential and might eventually replace traditional fossil fuels, changing the structure of the energy landscape of China over the long run.

Under China's Renewable Energy Law, the state provides pricing protection for renewable power generation. The law establishes how many hours, on an annual basis, that wind and photovoltaic power should be incorporated into the generation portfolio. At the same time, energy companies are directed to work improve technological innovation, promote reforms in the renewable energy market, establish new operational and price mechanisms for electric power, and actively explore inter-ministry electricity price formation mechanisms. In order to accomplish the goals of this law, problems of limited access to the power grid will also have to be resolved.

The Chinese government has also called for interim measures to address funding and development of renewable energy in China. These measures include preferential taxes and subsidies, which should benefit China's renewable energy industry.

2. Opportunities created by the changes to China's energy industrial policies

2.1 Opportunities arising from the transformation and restructuring of the traditional fossil fuels sector

As noted above, the Chinese government has adopted a series of policies and measures to help domestic enterprises reduce overcapacity of coal production. For instance, mining industry consolidation, both through mergers and restructuring activities, will significantly reduce the number of small domestic coal mines. The aim of this policy is to form large-scale coal-mining enterprises with annual outputs of more than 50 million tons each. As this occurs, the government is generally to refrain from unnecessary market intervention, but will support eligible state-owned and private coal-mining enterprises in M&A activities so that they can

achieve needed economies of scale and management synergies and focus on technological development. The government will promote and support cross-region and cross-sector mergers, so as to create robust companies and foster integrated operations between coal mining and electric generation.

The policy also contemplates changes to the merger process that should result in opportunities for the legal services industry. For example, more stringent guidelines related to disclosures will require more robust diligence during the pre-merger phase. Target companies are not permitted to intentionally conceal truthful information or provide false information. Due diligence will include verification of company standing and operations, including compliance with laws, the integrity of property rights, and credit and debt. Special attention should also be paid to the target company's assets, including whether mortgages or other security measures have been satisfied and whether all outstanding taxes have been paid. In connection with employment issues, lawyers should verify whether the buyer strictly abides by the Labor Contract Law and other relevant laws and regulations.

An acquiring party should also conduct environmental diligence. For example, there are strict laws in China concerning sewage disposal or discharge of pollutants. Failure to comply could result in very hefty fines, and in egregious instances, a company can be forced to close its business. Lawyers should request representations and warranties from the target company to ensure that it is in strict compliance with all applicable laws.

2.2 Opportunities for legal services in the new energy sector

New energy resources are becoming more widely integrated into the Chinese power system. With low pollution and low carbon, new energy has great market prospects in terms of replacing traditional fossil fuels and optimizing the current energy structure. With the increased deployment of renewables come new opportunities for legal services providers. For example, lawyers can become involved in the early stages of wind power and hydroelectric power projects by providing legal assistance in connection with project site investigation, land acquisition, environmental impact assessments and so forth. During the project construction stage, lawyers can assist with project risk

assessment, government procurement, project tender and bidding, due diligence, business negotiations, financing, and drafting and review of legal documents. In the course of contract performance, lawyers may also be called on in connection with developing project management systems and risk prevention and control systems to mitigate project risks.

China's "13th Five-Year Plan for Solar Energy Development" states that the government should actively promote construction of roof-top photovoltaic power generation projects as well as to further the construction of solar energy pilot projects. The aim is to build 100 separately distributed photovoltaic pilot areas by 2020, with installation of photovoltaic power facilities on 80 percent of newly constructed building roofs, and 50 percent of existing building roofs. China's movement toward adoption of an "engineering, procurement and construction" (EPC) model presents different risks than the energy performance contracting model, and advice from experienced lawyers is frequently sought to ensure successful project implementation in accordance with national policies and regulations.

2.3 Opportunities related to "opening-up" policies

On January 12, 2017, the State Council issued the "Notice on Several Measures to Expedite Opening-up and Active Use of Foreign Capital." This policy follows a number of other market reforms and recent measures designed to aid in opening China up to foreign investment. This particular policy stipulates that the mining industry is to ease restrictions on foreign capital investment into areas such as oil shale, oil sands, shale gas and other unconventional oil, gas and mineral resources. The measure calls for creation of a registration system to replace the current system of reviews of proposed Sino-foreign cooperation in the development of oil and natural gas resources in China. The new measures should significantly reduce restrictions on and impediments to foreign investment in the oil and gas sector. It also is designed to attract investment in the construction of energy infrastructure and will create a level playing field in competition for foreign investments. It is anticipated that the measures will lead to a surge in inbound investment.



2.4 Opportunities related to China's "belt and road" strategy

The "Belt and Road Initiative" (BRI) is a development strategy that focuses on connectivity and cooperation between over 50 Eurasian countries, with particular emphasis on infrastructure development as a means to spur economic growth in the region.

Natural resources, and oil and gas in particular, are abundant among the countries along the BRI regions. The proven recoverable oil reserves in the region (excluding China), at 2,131.8 billion tons, account for 68.6 percent of worldwide proven recoverable oil reserves, while natural gas reserves are estimated to reach 212.64 trillion cubic meters, accounting for 72.3 percent of the proven natural gas reserves in the world.

Investment in the BRI region is subject to the laws of the country where the investment is made. Thus, bilateral or multilateral agreements are often negotiated to promote energy cooperation among BRI countries. Lawyers play an important role in the formulation of these international agreements. Skilled lawyers also can help make the government or enterprise decision-making process more transparent, efficient and compliant with applicable rules. Lawyers can also provide services to developers of energy construction projects, both in the public or private sector, by assisting with the design of sophisticated transaction and financing structures, drafting legal documents, identification and avoidance of legal risks, and helping the government and businesses establish legal and stable relationships.

Lawyers also play a role in resolving disputes. The complicated international environment and differing legal systems make energy companies in different countries particularly vulnerable to legal disputes in the

course of co-operation. In this respect, lawyers can be retained to help with mediation, arbitration and litigation, and to help negotiate solutions that avoid escalation of disputes. In early stages of project cooperation, due diligence is conducted to identify and mitigate investment risks. This is especially true in the bidding process for some major energy projects. Lawyers should become masters of the energy laws of the countries where a project is under consideration, and of the relevant international trade rules, as early as possible. They also can help with timely communication with stakeholders and interested parties in the localities where a project is being developed. Finally, they can help foster the successful implementation of energy projects through the cooperation of lawyers among countries within the BRI region.

At present, China has reached energy cooperation agreements with many countries in the BRI region. For example, in 2014, Sino-Russian East natural gas supply and marketing contracts were executed, and a Sino-Russian joint venture was created to develop the Botobinsk Oilfield Project and to build a Tianjin Dongfang refinery. In Central Asia, co-operation includes a Sino-Kazakhstan crude oil pipeline project and Chinese investment in the Amu Darya Natural Gas Project, in the Bagtyarlyk contract area, in Turkmenistan. In the Middle East, Sinopec and Saudi Aramco have entered into a joint venture to invest in an oil refining ethylene project with the oil being traded to China from Saudi Arabia.

The primary areas of energy cooperation among the BRI countries are concentrated in the power grids and cross-border power trade across the regional interconnection between China and the ASEAN countries. With further development of energy cooperation, expertise from lawyers from different countries practicing in the field



of energy resources will be required including providing advice on different investment models to best achieve project goals while promoting and protecting the interests of the parties.

In addition, the public-private-partnership model promoted by the Chinese government in recent years supports the development of energy-related projects. This policy will undoubtedly bring about additional opportunities for the legal services industry. And with the introduction of private investment in BRI projects, legal services will also be needed for projects in construction, operation and transfer phases. This all represents not only challenges for lawyers, but opportunities as well.

3. Opportunities related to China's accession to the Paris accord on climate change

The Paris accord, adopted at the United Nations Paris Conference on Climate Change at the end of 2015, became effective in China on November 4, 2016, after completion of domestic approval. Under the agreement, China submitted the following "Intended Nationally Determined Contributions" (INDCs):

China will:

1. Lower carbon dioxide emissions per unit of GDP by 40 to 50 percent by the year 2020, and by 60 percent by the year 2030; and will reduce fossil fuels in primary energy consumption by approximately 15 percent by the year 2020, and 20 percent by the year 2030;
2. Increase forest reserve volumes by approximately 4.5 billion cubic meters as compared with 2005 levels; and
3. Reach peak of carbon dioxide emissions by 2030 or sooner.

These INDCs are reflected in China's "13th Five-Year Plan." Meeting these climate goals will require China to undertake structural reforms in its energy industry, including transitioning away from traditional fossil fuels and increasing the development of green, low-carbon and environmentally friendly energy sources. In recent years, the growth of investment in domestic and international environmental protection industries has been relatively stable, with China's investment growth in this area at an average annual rate of between 20 and 30 percent. It is estimated that for China to achieve its goals by 2030, about 41 trillion yuan of investment will be needed. More than 10 trillion yuan had already been invested by 2015, but much more will be needed over the next 15 years. Capital will come from both national public funds and private sector investments, and will be directed largely toward technical innovations aimed at transforming and even revolutionizing industries. And along with the demand for environmental protection and emissions reduction measures, a tremendous growth in demand for related legal services is also anticipated.



Vincent (Xuekai) Qian
Senior Partner, Beijing
D +86 10 5813 7655
xuekai.qian@dentons.cn



Current issues for foreign investment into Australia in the energy sector

By Kym Livesley and Samantha Walker

Background

Foreign investment in Australia is regulated by the Foreign Acquisitions and Takeovers Act 1975 (Cth) (FATA). The rules regarding what proposed transactions are notifiable and require approval under the FATA, and what are sensitive industries or sectors, is beyond the scope of this article. Suffice to say it is a nuanced area and very fact-dependent. Rather, this article focuses on the “national interest” test, explained below, and several recent case studies, which together should inform any discussion of foreign investment in the Australian energy sector.

Refusal on “national interest” grounds

The Australian Federal Treasurer, assisted by the Foreign Investment Review Board (FIRB), has primary responsibility for making decisions under the FATA to either block or make divestment orders in relation to proposed foreign investments where the government considers the application to be contrary to Australia’s “national interest.” Alternatively, the government may issue a statement of no objection (known as a FIRB approval), either with or without conditions attached, where it does not consider the application to be contrary to the national interest.

Recent FIRB approvals granted to foreign investors seeking to invest in Australian-owned critical infrastructure assets within the energy sector indicate that more potential acquisitions of Australian infrastructure and utilities companies are likely to take place in the near future. Notwithstanding this, recent case studies where the Australian government has blocked investment proposals by individual foreign investors (discussed below) demonstrate that national security, specifically in relation to potential foreign government control over these assets, is a significant concern for, and focus of, the FIRB. Recent case studies also show that the FIRB and the Australian government have demonstrated a preference for diversified ownership structures when complying with the FIRB’s investment-approval framework, and have favored foreign consortiums as opposed to individual foreign bidders.

Determining “national interest”

What will be considered contrary to Australia’s “national interest” is not defined under the FATA, and assessments by the government are conducted on a case-by-case basis. When considering whether a foreign investment proposal is contrary to Australia’s national interest, the government will consider factors such as:

- Australia’s ability to protect its strategic and security interests;
- Whether the proposed investment may result in an investor gaining control over market pricing, or production of goods or services in Australia;
- Potential impact of the proposed investment on Australian tax revenues and consistency with other Australian government policies;
- Potential impact on the local economy and community, including the level of local participation in the enterprise or industry post-investment, and the interests of employees and stakeholders; and
- The character and corporate governance principles of the investor.

Where a proposed foreign investment involves a foreign government or a state-owned entity, the government will consider, in addition to the “national interest” factors set out above, the commercial nature of the proposed investment and whether the investor may be pursuing broader political or strategic objectives contrary to Australia’s national interest. This includes whether the potential investor’s governance arrangements could facilitate actual or potential control by a foreign government and the extent to which the prospective investor operates at arm’s length from the foreign government.

Australia needs foreign investment capital, but there appears to be increasing concern by national security units about the extent of foreign investment in critical infrastructure.

FIRB to give greater consideration to national security when assessing applications for purchase of critical infrastructure assets by private foreign investors as well as state-owned enterprises

The Foreign Acquisitions and Takeovers Regulation 2015 (Cth), which amended the FATA, reflect this concern. Implemented in March 2016, the changes require that all non-government-related foreign investors obtain FIRB approval to invest in Australian government-owned critical infrastructure assets. Such assets include public infrastructure (airports and airport sites, ports, infrastructure for public transport, electricity, gas, water and sewerage systems), existing and proposed roads, railways and inter-modal transfer facilities that are part of the National Land Transport Network or are designated by a state or territory government as significant or controlled by the government; telecommunications infrastructure; and nuclear facilities (collectively, critical infrastructure assets). Previously, FIRB assessment of critical infrastructure assets was only required when the proposed acquirer was a foreign state-owned enterprise.

These changes were implemented after consultation with Australian state and territory governments held in 2015, following the Northern Territory government's grant of a 99-year lease, worth A\$506 million, over the Port of Darwin (namely the port and facilities of East Arm Wharf, including the Darwin Marine Supply Base and Fort Hill) to a Chinese company, Landbridge Group. The deal was not subject to FIRB review at the time because Landbridge was a non-government foreign investor and the grantor of the lease was an Australian government entity, and therefore exempt from notifying. Security concerns were allegedly raised in relation to potential sabotage, cyber attacks and the port being used for intelligence-gathering due to the nature of the critical infrastructure assets involved.

Recent case studies

The FIRB's increasing concerns about national security when it comes to foreign investment in critical infrastructure assets is demonstrated by a number of recent case studies, discussed below.

Successful sale of TransGrid to foreign consortium (November 2015)

As part of the New South Wales (NSW) government's plan for the partial privatization of 49 percent of NSW electricity networks, the NSW government successfully sold 100 percent of electricity transmission



operator TransGrid on a 99-year lease to an international consortium of investors from Canada and the Middle East as well as locally based investors, including Hastings Funds Management and Spark Infrastructure, in a deal worth A\$10.258 billion.

Ausgrid sale to Chinese investors blocked (August 2016)

The Australian government blocked offers to purchase NSW electricity distributor Ausgrid from Chinese government-owned State Grid Corp (a Beijing-based company, wholly owned by the government of China, and the largest shareholder in the non-listed Electranet, which operates the South Australian electricity transmission network), and Hong Kong-listed entity Cheung Kong Infrastructure, on the basis that the deal was contrary to the national interest due to the structure of the transaction and the nature of the assets.

In October 2016, the NSW government subsequently sold a 50.4 percent stake in Ausgrid for A\$16.189 billion to two local investors, AustralianSuper and IFM Investors.

The success of a foreign consortium involving local investors in the Transgrid case study, and failure of individual foreign bidders in the Ausgrid sale is demonstrative of the FIRB's apparent aversion to the acquisition of critical infrastructure assets by foreign investors alone.

FIRB approval obtained for sale of S. Kidman & Co. Ltd. cattle company to Gina Rinehart and Shanghai CRED (December 2016)

Similarly, in the agriculture sector, FIRB approval was eventually obtained for the acquisition of S. Kidman & Co. Ltd. (an Australian company with pastoral leases covering 101,000 square kilometers across Queensland, Western Australia, the Northern Territory and South Australia) to Gina Rinehart's Australian company Hancock Prospecting, with Chinese company Shanghai CRED obtaining a one-third minority stake in the target through a joint venture company, Australian Outback Beef. The Australian government had previously blocked an initial all-Chinese offer by Pengxin on the basis that complete foreign ownership was contrary to national interest due to the size and defense sensitivity of S. Kidman's landholdings.

This is another example of the FIRB's apparent preference for a foreign consortium of investors over an all-foreign investor.

FIRB approval obtained for acquisition of DUET (April 2017)

Cheung Kong Infrastructure (a Hong Kong-listed entity that was blocked from buying Ausgrid in 2016), successfully obtained FIRB approval for its A\$7.4 billion purchase of energy networks operator DUET Group. Cheng Kong Infrastructure is owned by the Li Ka-shing group, which already owns

stakes in several Australian assets, including South Australian power networks, Powercor Australia and Australian Gas Networks.¹

Concerns have been raised about the DUET deal² due to the company's ownership of the Dampier Bunbury Natural Gas Pipeline—linking Western Australia's (WA) gas reserves to Perth and coastal WA, as well as a number of electricity distribution networks in Victoria. Speaking in relation to the DUET deal, the director of the Australian Strategic Policy Institute and former deputy secretary for strategy in the Department of Defense, Peter Jennings, has said that the FIRB needs to consider whether foreign ownership presents a national security risk and must focus on the "aggregation effect" of an ever-larger part of Australia's energy infrastructure being owned by a small group of Chinese and Hong Kong businesses.

Mr. Jennings says that "DUET's gas and electricity infrastructure is, by any measure, strategic. In WA, the Navy's main submarine base at HMAS Stirling, the Special Forces Regiment and the super-secret Defense Satellite Communications Station at Geraldton all rely on local critical infrastructure to operate." Mr. Jennings says that "DUET's gas and electricity infrastructure is, by any measure, strategic. In WA, the Navy's main submarine base at HMAS Stirling, the Special Forces Regiment and the super-secret Defense Satellite Communications Station at Geraldton all rely on local critical infrastructure to operate."

FIRB approval obtained for Chow Tai Fook's takeover of Alinta Energy (April 2017)

Immediately following the DUET approval, FIRB approval also was granted (subject to strict conditions), to Hong Kong-based Chow Tai Food Enterprises to acquire Alinta Energy, an Australian natural gas and energy retailing company.

Takeaway points

- In January 2017, Federal Treasurer Scott Morrison, along with Attorney-General George Brandis, stated that, "With increased privatization, supply chain arrangements being outsourced and offshored, and the shift in our international investment profile, Australia's national critical infrastructure is more exposed than ever to sabotage, espionage and coercion."
- Key risks to critical infrastructure assets lie in the susceptibility of Internet-run industrial control systems for ports, power grids and gas pipelines to damage caused by cyberattacks.

1 "FIRB approves Chow Tai Fook's takeover of Alinta," David Stringer and Edward Johnson, published by the *Sydney Morning Herald* (April 23, 2017).

2 "Time to overhaul the FIRB," Peter Jennings, Australian Strategic Policy Institute, published by *The Weekend Australian* (April 8, 2017).



- Steps have been taken to strengthen the FIRB, including:
 - The appointment of David Irvine, former head of ASIO to a part time position on the FIRB board; and
 - The establishment of a Critical Infrastructure Centre within the attorney-general's department, tasked with building a "critical assets register that will enable a consolidated view of critical infrastructure ownership in high risk sectors across the country."
- Mr. Jennings suggests that a key problem will be overcoming bias that facilitating foreign investment is the overriding national priority and denying any investment is irrational. Suggestions have been made that the FIRB could be removed from the Treasury and given its own statutory basis to advise government on foreign investment and national security implications of individual and aggregate investments.
- The case studies discussed above suggest that, going forward, a stronger consideration of security interests will be given to large infrastructure projects in sectors where China is building up regional and global capacities. However, despite these concerns, more potential acquisitions of listed infrastructure and utilities companies can be expected to take place in the future, now that the DUET and Alinta acquisitions have received FIRB approval.



Kym Livesley

Partner, Sydney

D +61 2 9931 4894

kym.livesley@dentons.com



Samantha Walker

Solicitor, Sydney

D +61 2 9035 7224

samantha.walker@dentons.com





The power supply trilemma in ASEAN: Balancing affordability, security and sustainability

By John Dick

ASEAN is one of the fastest growing regions in the world, averaging 5.5 percent GDP growth over the past six years. This growth is expected to continue, as the 2015 ASEAN Economic Community (AEC), ASEAN's version of the European Common Market, begins to have an impact, harmonizing tariffs and treatments within ASEAN. Currently the sixth largest economy in the world (if seen as a single economy), the AEC is designed to have an accelerator effect on trade and investment.

This high economic growth off the back of significant manufacturing investment has placed significant pressure on existing infrastructure, particularly power, where demand has increased exponentially. This has led to governments focusing on the availability and affordability of power. At the same time, governments recognize the environmental impact of fossil fuel power generation and that long-term security of supply will be enhanced by having significant renewables capacity.

This tension between security (availability of supply), affordability (cost of electricity) and sustainability (environmental impact) is the power supply trilemma. Trilemma theory suggests that for three given objectives, meeting two goals will necessarily involve sacrificing the third. For ASEAN seeking to develop its power resources to ensure that it maintains economic growth, this would appear to suggest that countries will sacrifice sustainability to ensure availability and affordability.

ASEAN power market

Availability prioritization is driven by the need to ensure close to 100 percent electrification and to guarantee baseload power to sustain industrial and urban development. As a result, we see an increased reliance on coal, with coal power fuel mix in ASEAN projected to rise from 32 percent in 2013 to 50 percent in 2040. In parallel, the depletion of domestic gas reserves in ASEAN is expected to result in a decline of gas use from 44 percent to 26 percent over the same period. On the affordability front, use of (expensive) oil will all but be phased out, dropping from 5.6 percent to 1.1 percent (although it should be noted that this is because of price concerns and could be reversed if oil prices stay depressed). Renewables are projected to grow to 22 percent by 2040. A large part of this is hydropower and, for Indonesia, geothermal power, which tap renewables at competitive pricing with other fuel sources and provide baseload power (the focus being on their affordability and availability rather than sustainability).

The other major driver in power is the development of transmission systems to ensure the most effective distribution of power to the required markets. The importance of improved delivery cannot be underestimated, as it will result in less wastage and power loss. This will enhance the prospect of transnational power distribution (the cornerstone of the ASEAN power grid), which then opens up opportunities for alternative fuel mix through shifting of electricity rather than fuel.

As noted above, ASEAN is a region, not a single country. The individual countries that make up ASEAN are at very different stages of economic development, have different population demands, different availability of natural resources and different approaches to the provision of power, all of which impact the energy needs and focuses of each country. Further, power development historically has been undertaken on a country-by-

country basis, with some bilateral engagement for fuel supply (Myanmar to Thailand) or power supply (Malaysia–Singapore interconnector, Laos's hydropower sales to Thailand, Sarawak Malaysia hydropower sales to Kalimantan Indonesia). The ASEAN Power Grid Initiative is intended to promote regional interconnectivity of power, particularly focused on the Indochinese countries, where the Mekong provides significant opportunity for additional hydropower schemes. The first multinational agreement under the ASEAN Power Grid Initiative was signed in September 2016, and will see up to 100 MW of power supplied from Laos to Malaysia, through Thailand. It is anticipated that this agreement will be further extended to include Singapore.

Most countries in ASEAN operate under a variation of the single-buyer structure (i.e., a state-owned utility). Singapore and Philippines are the only countries with competitive wholesale electricity markets (and both come from the segregation and privatization of the single-buyer structure), with Vietnam moving that way. The single-buyer structure results in enormous financial demands being placed on state utilities to develop power infrastructure to keep pace with the growing demand.

To date, the focus in permitting private investment in power has been on generation, with governments retaining investment in transmission and often distribution and retail. As a result, the independent power project with guaranteed offtake arrangements (power purchase agreements) model plays a critical role in developing generation infrastructure across the region. In a number of countries, governments have sought to introduce schemes to facilitate investment in renewables, to move the energy mix away from fossil fuel dominance.

Turning to country-specific analysis:

Indonesia

Indonesia is the largest economic market in ASEAN, representing more than 60 percent of the overall GDP. It is blessed with abundant natural resources for power generation—coal, oil, gas, geothermal and hydro. It is estimated that 40 percent of the world's geothermal power potential sits in Indonesia. Indonesia historically has relied on fossil fuels for energy generation. In 2013, the fuel mix was 40.08 percent oil, 30.9 percent coal, 18.26 percent gas and less than 5 percent renewable, 3.2 percent of that being hydro.

PT Perusahaan Listrik Negara (PLN) is the state-owned power company in Indonesia. PLN is the major provider of all public electricity and electricity infrastructure in Indonesia, including power generation, transmission, distribution and retail sales, making it the country's only fully integrated power utility company. Under Indonesia's Electricity Law of 2009 (Law 30/2009), PLN no longer has a legal monopoly over electricity generation, transmission and distribution. However, it has a right of first refusal over any activity in the sub-sector, which has been an effective deterrent to new entrants.

The Minister of Energy and Mineral Resources' Electricity Supply Business Plan (RUPTL) 2016-2025 aims to achieve an electrification ratio for Indonesia of 99.7 percent by 2025. To do this and meet increased demand, Indonesia will need to add 80,000 MW of capacity on top of its current 48,000 MW of capacity. Of this, between 45,600 MW and 62,000 MW are expected to be constructed by the private sector pursuant to PPAs with PLN. The RUPTL is a very important document as it forms the basis for tender, direct selection or direct appointments for independent power producers (IPPs). As part of the RUPTL, over 14,000 MW of hydro and 6,300 MW of geothermal power will be developed.

While over 40 percent of new development will be coal-fired, with a further 30 percent using gas, Indonesia's National Energy Policy is to adjust the fuel mix by 2025 to 25 percent oil, 22 percent gas, 30 percent coal and 23 percent renewable. However, there is real concern about its ability to achieve this.

Laos

Dubbed the "Battery of Asia,"¹ Laos produces more electricity for export than it consumes domestically. Laos currently operates 42 power stations with installed capacity of 6,391 MW. Of these, 39 are hydro, one is coal-fired and two are sugar cane.² The state electricity company, Électricité du Laos (EDL) owns and operates the country's electricity transmission and distribution assets. The company also manages the import and export of electricity. Its subsidiary, EDL-Generation Company, which is now listed on the Laos Stock exchange, holds all its generation assets. Interestingly, 27 plants are IPPs. Local IPPs sell power to EDL for the domestic grid while IPPs with foreign investors are primarily engaged in the export market. All the export-oriented IPPs have dedicated transmission lines into their export markets. In all, 14 transmission lines carry power to Thailand, two to Vietnam, one to China, two to Cambodia, and one to Myanmar.³ The first multinational agreement under the ASEAN Power Grid Initiative was signed in September 2016, which will see

up to 100 MW of power supplied from Laos to Malaysia through Thailand. Notwithstanding its export of power, Laos in past years has ended up buying power back from Thailand to support domestic consumption, particularly when dams are low and generating capacity is restricted.

Laos has a theoretical hydropower potential of 26,500 MW, with 18,000 MW technically exploitable⁴. Current plans are to expand installed capacity to 14,000 MW by 2020, primarily through the construction of up to 53 additional hydropower plants.⁵ This has caused some backlash from other countries along the Mekong (particularly Cambodia and Vietnam) who fear the number of dams will restrict water flow to the lower reaches. Laos also has the potential to develop additional coal-fired plants, given its estimated 600 million to 700 million tons of coal reserves, although currently this does not feature in national planning. There is limited solar generation, mostly found in isolated communities that have no access to hydro.

Laos offers significant potential for ASEAN countries to diversify their energy mix to increase exposure to renewable energy.

Malaysia

Malaysia has almost 28,000 MW of capacity, which is growing at annual rate of about 3 percent. It operates in three distinct markets—Peninsular Malaysia, Sarawak and Sabah (the Eastern, Borneo-based states). Peninsular Malaysia operates as a single market with about one third of the generating capacity provided directly by Tenaga, the state-owned energy company, and the remaining two thirds provided by independent power producers pursuant to offtake agreements with Tenaga.

The electricity supply market is vertically integrated and the main utilities (distribution companies) are government-linked. At present, Malaysia is about 99.4 percent electrified and has a 20 percent reserve capacity over demand (down from 35 percent in 2010).

1 "Laos hydropower a 'battery' for power-hungry region", BBC, December 10, 2010.

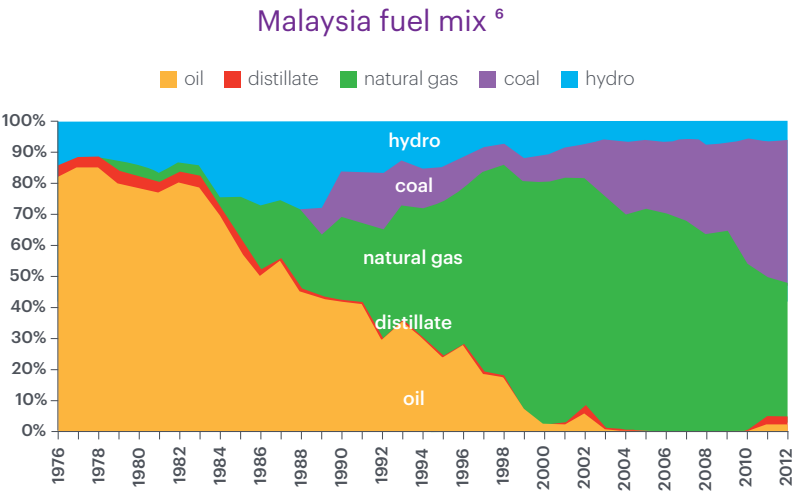
2 "Laos Electricity Facts - Electricity in Laos," Laotian Times, January 10, 2017. <https://www.laotiantimes.com/2017/01/10/laos-latest-electricity-facts/>.

3 Ibid.

4 "International Hydropower Association 2016 Hydropower Status Report"; www.hydropower.org/country-profiles/laos.

5 "Laos Electricity Facts - Electricity in Laos", Laotian Times, January 10, 2017. <https://www.laotiantimes.com/2017/01/10/laos-latest-electricity-facts/>

Malaysia maintains a “five fuel mix” policy for power generation. As can be seen in the diagram below, the country is heavily dependent on fossil fuel, although this dependency has shifted from distillate and oil (90 percent in the 1970s) to natural gas and coal (90 percent since 2000). There has been a substantial increase in the use of coal, with the level of hydro as a percentage of the fuel mix declining.



It is expected that as local reserves of gas thin, gas use will decline and coal use will rise. This is in line with government policy both to satisfy demand and relieve price pressure.

What, then, of renewables? Malaysia has a small renewables program managed by a central authority, the Sustainable Energy Development Authority of Malaysia (SEDA Malaysia), a statutory body formed under the Sustainable Energy Development Authority Act of 2011. Like many regional countries where there is a centralized, vertically integrated electricity industry, Malaysia takes a feed-in tariff (FIT) approach to renewables that includes biomass (inclusive of municipal solid waste), biogas (inclusive of landfill/sewage), small hydro and solar photovoltaic, all up to 30 MW or as the minister approves. The 2016-2020 plan targets a capacity under the FIT program of 2080 MW. To be eligible for FIT, a project must be 51 percent Malaysian-owned. The funding source is limited to a fixed percentage imposed on the state utility’s electricity revenue, with six-month quotas on new feed-in approvals. FIT for solar photovoltaic will cease after 2017.

While the Bakun Dam in Sarawak offers significant hydro potential, its use is constrained by the inability to supply peninsular Malaysia. However, Sarawak has been developing the export of power within Kalimantan with connection to Sabah, Brunei and Indonesia.

6 “Brief Outlook on Malaysian Electricity Supply Industry”, TNB & Malaysia National Committee of CIGRE (MNC-CIGRE), Datuk Seri Ir Azman Mohd, Chairman, MNC-CIGRE, and CEO/President, Tenaga Nasional Berhad.

Myanmar

At about 4,500 MW of installed capacity supporting 54 million people, Myanmar has one of the world's lowest electrification rates (34 percent). With an estimated demand increase of 9-14 percent per annum and a program for rapid electrification that will only push the demand higher, Myanmar is expected to add almost 20,000 MW by 2030.

Myanmar passed a new Electricity Law in 2014, replacing the previous law enacted in 1984. The new Electricity Law is quite general and requires more specific implementing regulations, but it does distinguish between generation, transmission, distribution and use, and requires licenses for each stage. It also established an Electricity Regulatory Commission (ERC) with responsibility for formulating policy, advising the Ministry of Electric Power (MOEP), setting standards, undertaking inspections and, most important, setting tariffs. The MOEP retains responsibility for approval of all projects above 30 MW and all projects connected to the national grid. State and regional authorities have authority to approve projects below 30 MW that are not connected to the national grid. Foreigners are permitted to invest, but smaller projects will only be considered on a joint-venture basis.

Myanmar currently operates on a state-owned, single-buyer model, with electricity heavily subsidized. Generation is open to the private sector and both domestic and foreign investors participate. Myanmar Electric Power Enterprise (MEPE) purchases all power (there are some very small generator sales direct to end customers) and sells to Electricity Supply Enterprise and Yangon Electricity Supply Board for distribution to households, businesses and other users, with some private involvement at the retail level. The biggest issue for private generators is agreeing on a reasonable tariff. Generation is not the only issue; the country is in desperate need of transmission upgrading to not only deliver the electrification targets but also ensure availability. This remains firmly in MEPE's hands.

Myanmar, like Laos, relies on hydro for the bulk of its electricity, but is currently seeking to diversify supply. Currently, 58 percent comes from hydro (down from 75 percent in 2012), 40 percent from natural gas and 2 percent from diesel. It is expected that by 2030, this fuel mix will have reduced the percentage of hydro and gas—through the introduction of coal and renewables—to 38

percent hydro, 20 percent gas, 34 percent coal and 8 percent renewables. The government is keen to diversify away from hydro due to seasonal uncertainty with water supply. Currently 500 MW of power is exported. Whether this continues will depend on the trade-off between a stable domestic supply and the benefits of foreign exchange earnings.

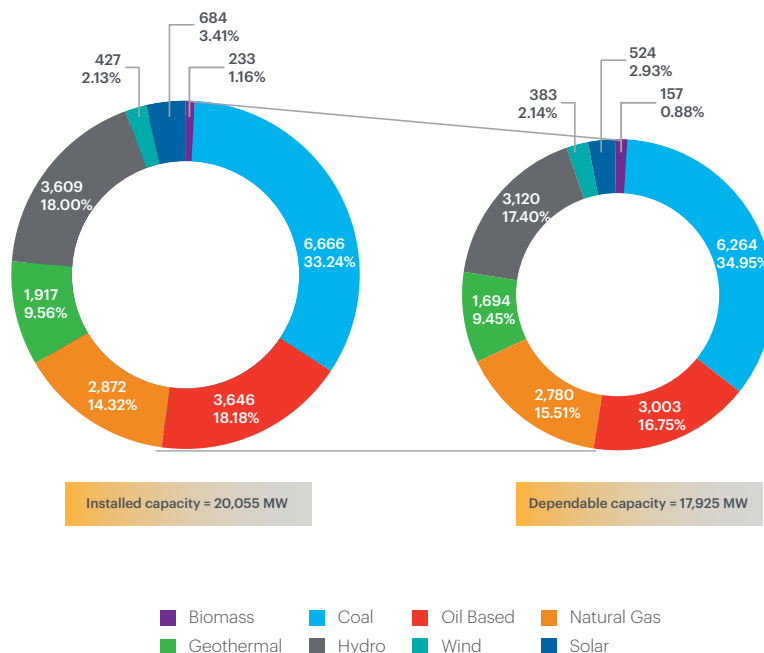
The Philippines

The Philippines began its electricity market reforms in 2001 with passage of the Electric Power Industry Reform Act of 2001 (EPIRA), which was designed to:

- Separate the power sector into generation, transmission, distribution and supply
- Privatize the National Power Corporation (NPC) through the sale of NPC's generation and transmission assets

The stated aim was to accelerate the country's total electrification and provide more reliable and competitively priced electricity. Subsequent sales yielded US\$10.2 billion, which was used to pay down debt. Subsequent reforms have moved to a fully competitive wholesale and retail market. However, only 10 percent of power is traded on a spot market, with the remaining 90 percent sold through bilateral contracts. Additionally, the reforms allowed for ownership of both generation and distribution assets, so the major generators are also distributors. Arguably, the only real change to the market structure was a transition from a monopoly to an oligopoly, the effect of which has been that consumers face the second-highest power prices in Asia, after Japan.

Further, there has been significant underinvestment in generation capacity (both new and maintenance) since 2001. According to the Philippines Department of Energy, current generation capacity is 20,055 MW. However, dependable capacity drops to 17,925 MW while available capacity drops by almost 23 percent, to 13,835 MW. With peak demand at 13,197 MW, this means the system has only a 4.8 percent buffer, explaining why parts of the Philippines regularly experience prolonged outages.

Philippines power mix in June 2016 ⁷

As of June 2016, renewable energy plants (geothermal, hydro, wind, biomass and solar) constituted the largest share (34.3 percent) in the total installed capacity, but with respect to actual generation, this number drops to 24 percent. Meanwhile coal represents 33 percent of installed capacity but 46 percent of actual generation, highlighting the reliability of coal generation. In the first six months of 2016, the Philippines added 520 MW of solar to the total installed capacity, an investment made attractive by the feed-in-tariff (FIT) scheme with priority offtake. The Philippines operates its FIT scheme on a first-constructed basis and has had two rounds. In the second round, 890 MW of solar were installed, with only 500 MW receiving the FIT. Because of public pressure on the cost of electricity, whether there will be a third round remains a major question mark.

In December 2016, Energy Secretary Alfonso G. Cusi indicated that the Philippines would move away from a fuel mix policy to a policy that supported 70 percent baseload, 20 percent mid-merit and 10 percent peaking power. “We want an energy mix where there will be competition,” he said. “So coal, gas, geothermal, hydro or nuclear can compete in that 70 percent baseload.”⁸ The Philippines Department of Energy has forecast increases in capacity through December 2026 of 13,853 MW, mostly through coal projects, with committed generation of 6,179 MW by June 2016.⁹

⁷ Republic of Philippines, Department of Energy website: https://www.doe.gov.ph/sites/default/files/pdf/electric_power/2016_power_situationhighlight_jan_to_june.pdf

⁸ “DoE: Dumping Fuel Mix Policy Boosts Baseload Competition,” BusinessWorld Online, Article 5, December 2016: <http://www.bworldonline.com/content.php?section=Economy&title=doe-dumping-fuel-mix-policy-boosts-baseload-competition-&id=137292>

⁹ Republic of Philippines, Department of Energy website: https://www.doe.gov.ph/electric-power/january-june-2016-power-situation-highlights#quickset-electric_power_2

The Philippines has traditionally been seen as a major supporter of initiatives to reduce global warming and the push for greater sustainability focus in power generation, so the increased focus on coal generation was seen as a major departure from this. The move highlights the pressures on the Philippine government to focus on availability and affordability of power.

Singapore

Singapore is a developed economy. It is predominantly services-based, with large high-end manufacturing. At the same time it has a small population (5.5 million people) and no natural resources. Singapore is recognized by the United Nations Framework Convention on Climate Change (UNFCCC) as being “alternate energy disadvantaged.”

Singapore’s generating capacity in March 2016 stood at 13,405 MW, with over 97 percent of that produced by merchant power plants.¹⁰ Since 2003, the island city-state has reduced its fuel dependence on petroleum products from 36.4 percent to 0.7 percent, with natural gas increasing from 60 percent to 95 percent over the same period. The balance of energy is a mixture of municipal waste, biomass and coal. Singapore is beginning to introduce limited solar photovoltaic but otherwise has no opportunity to adopt other forms of renewable energy (geothermal, hydro, wind) due to a lack of availability.

Singapore’s shift from oil to natural gas was primarily to improve carbon emissions by taking advantage of regional gas supplies (from Indonesia and Malaysia). Singapore is also connected to the Malaysian National Grid via a 200 MW-capacity submarine cable.

Singapore’s power vulnerability is in its reliance on one fuel source (gas), but the state’s ability to influence its supply mix is limited unless it moves to participate in an ASEAN power grid. Even so, the security of supply issue is paramount to Singapore and therefore

diversification of sources of gas supply has become an important aspect of its power policy, with Singapore looking to become a regional gas trading hub as part of the solution.

Of great interest in supply diversification is the potential to upgrade the Malaysian National Grid link and to connect to Sumatra, Indonesia, through Batam Island, thereby giving Singapore access to generation imports.

Thailand

Thailand is the second largest economy in ASEAN. However, over the past 20 years, a combination of financial crises (Asian and global), political instability and natural disasters have seen its economic growth fluctuate wildly from strong positive to negative and back to strong positive. Average demand for electricity has grown by almost 5 percent per annum over the past decade. Current capacity, as of December 2016, sits at 41,550 MW, with almost two-thirds of that coming from natural gas-fired plants. The Thailand Power Development Plan 2015-2036, forecasts capacity growing to 70,335 MW with the addition of almost net 29,000 MW (after retiring 24,700 MW of existing capacity). Almost half of the additional capacity will come from renewables.

Thailand’s historical and expected fuel mix¹¹

Fuel	2014	2026	2036
Imported hydropower	7	10-15	15-20
Clean coal, including lignite	20	20-25	20-25
Renewable energy, including hydro	8	10-20	15-20
Natural gas	64	45-50	30-40
Nuclear	-	-	0 - 5
Diesel/fuel oil	1	-	-

¹⁰ Singapore Energy Statistics 2016, pp. 24 and 25.

¹¹ Thailand Power Development Plan 2015-2036, Ministry of Energy, Thailand. Endorsed by the National Energy Policy Council (NEPC) on 14 May 2015; Acknowledged by the Cabinet on 30 June 2015.

In the 1990s, the government, faced with an inability to fund the growing demand for generation and transmission, initiated IPP projects. The Electricity Generating Authority of Thailand (EGAT), which previously had a monopoly on generation, continued to be the largest generation company and sole transmission company, buying the power from the IPP projects. However, the terms of the IPP projects were too favorable to investors, effectively removing all risk from the projects (market demand, exchange rates, fuel cost, tariff and sovereign risk). Following the Asian financial crisis of 1998, Thailand was required to make electricity reforms. However, momentum to move to a pool model was abandoned by the incoming Thaksin government in 2003 in favor of an enhanced-single-buyer market, where EGAT maintains its control over transmission and purchases all power from the IPPs. Despite efforts in 2007 to head down a liberalization path, this has not moved forward and the enhanced-single-buyer model has been maintained.

Like Singapore, Thailand relies heavily on natural gas for electricity generation, with more than two thirds of its supply coming from gas. The issue of diversity of supply impacts all three elements—security, affordability and sustainability—of the trilemma. Thailand is depleting its gas reserves and presently relies on the importation of gas (from Myanmar) and on LNG.

Thai energy policy is therefore focused on strengthening gas availability and diversification. One approach has been increased use of coal, which has brought its own complications, as coal needs to be imported and creates environmental issues. Another has been the importation of power from Laos and the hydro schemes along the Mekong River. A third is a 300 MW-capacity transmission line with Malaysia. The ASEAN power grid is most beneficial for Thailand as it enables significant supply diversification, albeit at increased political security of supply risk.

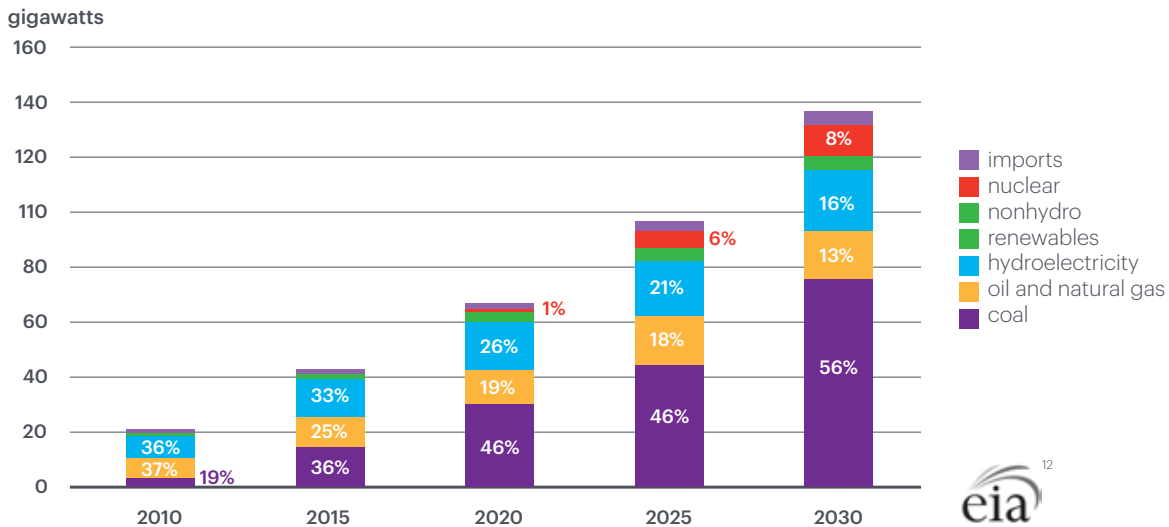
Vietnam

With the opening up of Vietnam's economy in 1990 and accelerating economic growth over the past decade, Vietnam has seen the strongest increase in electricity demand in ASEAN over that time. Industrial and household demand has driven this increase, which is double the GDP growth rate over the last decade.

Vietnam's 2016 revised Power Development Plan 7 (Revised PDP 7) provides for development of a number of different fuel sources, with the largest investment being focussed on the coal sector. The plan foresees US\$148 billion in investments in generation and distribution capacity through to 2030, with installed capacity to rise from the current 34,000 MW to more than 135,000 MW.

By 2030, coal-fired power stations are expected to account for 56 percent of installed capacity in Vietnam, up from the current 34.4 percent. With the substantial increase in capacity, this means that the coal-fired plants will produce an additional 45,800 MW. For this, Vietnam will require approximately 190 million tons of coal per year by 2030, almost 15 times the volume consumed in 2012. With local coal production forecast to rise from 45.1 million to 55 million tons by 2030, coal imports will be needed to bridge the supply gap.

Historical and expected electric generating capacity in Vietnam (2010-30)



Although hydroelectric generation capacity is expected to increase from 17,000 MW to 27,800 GWs by 2030, hydro power is projected to drop from around 37 percent to 16.9 percent in the next 15 years, and nuclear is expected to grow to 8 percent of total capacity. In the short term, the government plans to bridge the gap in power supply through importation of hydropower from Laos.

In terms of reform of the electricity industry, Vietnam is well on the path to implementing a wholesale market. Over the past few years, Vietnam Electricity (EVN) has been restructured by the separation of generating assets from transmission and retail entities. Further, generation has been divided into three companies with a view to equitization and partial privatization. In February 2017, the deputy minister of industry and trade announced that regulations for a competitive wholesale power market would be issued in the second half of 2017, to be fully implemented by 2019. This move is partially designed to encourage international investment into Vietnam's wholesale market to meet the expansion funding gap.

Given Vietnam's 10-12 percent annual power demand growth, the industry plan reflects the need for substantial baseload power and the ability to move generation to where it is needed in the South. While renewable energy/hydro will form a significant part of the power mix until 2035, it is availability that will drive government policy.

Conclusion

ASEAN is made up of 10 countries at different points in the development cycle, most of which are struggling not only to keep up with current energy demands as their economies grow but also to ultimately provide for full electrification (and effective distribution). In such circumstances, availability of power tends to drive national power

policy. Also a major factor is the cost of electricity, as the region seeks to compete globally for manufacturing investment to drive economic growth. As a result, in the short to medium terms, governments will prioritize cheap and readily available fuel sources over all others.

Hydropower and geothermal energy offer significant opportunities for some countries in the region. As a renewable source of power, they are generally cost-competitive with fossil fuels. Both these forms of renewable energy also have the distinct advantage of being baseload power sources and therefore directly compete with coal and gas. Their major issue is location; specifically the need to be located near the source, often in remote locations, which means the efficiency focus is not only on generation but also transmission. Interestingly, in Myanmar, the government is seeking to reduce the country's reliance on hydropower as a security-of-supply issue, to reduce the reliance on hydro as a buffer against drought.

It is also clear that governments recognize that alternate, renewable sources of power, although expensive today, will cheapen over time as technology improves efficiency. The various FIT structures around the region enable experimentation with alternate power to establish a presence in the market without too much reliance given today's high cost. A limiting factor is still that such sources cannot be considered for consistent baseload power.

The development of transnational interconnectivity through the ASEAN Power Grid provides some interesting opportunities for countries to rebalance their supply mix. However, until there can be an integrated grid with overarching market rules, these arrangements are likely to be bilateral.

One thing is certain, economic growth in ASEAN will leave governments with a continuing need to expand generation capacity, which will require investment well beyond their financial capability. The end result is that, over the next 20 years, there will be significant opportunities for the private sector across the full spectrum of generation projects and countries within ASEAN.



John Dick

Partner, Singapore

D +65 6885 3642

john.dick@dentons.com





Climate change measures companies should take in light of China's announced cap-and-trade program

By Chen Li

Climate change has become the most crucial of all global environmental problems, drawing extensive attention from the international community. The Chinese authorities have devoted much attention to the issue, including, in line with the requirements of the times, the embrace of market-based approaches to reducing emissions levels. Environmental protection is inextricably linked with climate change. Chinese entities have faced unprecedented pressure both to protect the environment and to combat the ill effects of climate change and have found themselves subject to increasingly harsh environmental monitoring by government regulators. This article addresses the measures that companies should take to combat climate change and comply with increasingly stringent environmental monitoring, and the influence on Chinese companies of the planned Carbon Trading System (CTS).

1. Chinese authorities have been paying close attention to combating climate change

China is determined to take a leadership role in combating the problem of climate change. In accordance with the Paris agreement—the latest international pact to focus on the issue—the Chinese authorities have made timely submissions of the nation's Intended Nationally Determined Contributions (INDC). The Chinese authorities have stated that ecological sustainability, achieved through implementation of green development, is key to enhancing the quality of social and economic development.

To this end, the Chinese legislative authorities have not only expanded the range of environmental liabilities for which a company with operations in China can be held responsible, but also established an Environmental Public Interest Litigation (EPIL) system and levied environmental protection taxes.

The current Chinese environmental liability system includes administrative liabilities, civil liabilities and criminal liabilities. At the same time, the Supreme People's Court of the People's Republic of China (Supreme Court) publishes judicial interpretations aimed at guiding the outcomes of these various environmental proceedings throughout the country.

In 2015, the Supreme Court published “Interpretation of the Supreme Court People's Court on Several Issues Concerning the Application of Law in the Conduct of Environmental Civil Public Interest Litigations,” and “Interpretation of the Supreme People's Court of Several Issues on the Application of Law in the Trial of Disputes Over Liability for Environmental Torts.”

In 2016, the Supreme Court, together with the Supreme People's Procuratorate, published "Interpretation of the Supreme People's Court and the Supreme People's Procuratorate on Several Issues Concerning the Application of Law in the Handling of Criminal Cases of Environmental Pollution."

The Chinese authorities have further advanced the process of environmental protection by levying environmental protection taxes (rather than environmental protection fees) so that the more pollution an entity generates, the more taxes it will be assessed, whereas if an entity can reduce its pollution, it will enjoy a certain level of tax relief. Dubbed the "Environmental Protection Tax Law of the People's Republic of China," it has been published and will become effective on January 1, 2018.

In 2016, the Shan Dong De Zhou Intermediate People's Court rendered a judgment in an Environmental Public Interest Litigation (EPIL) case, ordering a defendant to pay a penalty of more than 20 million RMB, which will be used to mitigate the environmental pollution. This case is the first one involving the court's treatment of air pollution, and its successful outcome has buoyed public support for the new EPIL system.

While China recognizes the enforcement and deterrence benefits of resolving environmental problems through legal actions, authorities also recognize the limitations of relying on legal action alone to achieve the authorities' goals, and is experimenting with other methods to incentivize more sustainable practices. Based on lessons learned from both pilots at home and models in use elsewhere, such as European Union's Emissions Trading System (EU ETS), Chinese authorities have established a number of market-based approaches and other environmental controls to combat climate change.

2. Establishment of a Chinese carbon trading system

2.1 The goal of the carbon trading system.

The aim of China's still-under-development carbon trading system (CTS) is to transform the cost to the environment (and public) associated with greenhouse gas (GHG) emissions into a cost to be borne by the companies producing the emissions. This is going to be accomplished via a cap-setting and trading system under which Chinese authorities will impose a maximum allowable GHG emissions level for a particular area, monitor the companies or industries contributing to the problem, and then determine emission allowances, through either free allocation or auction, for the covered entities respective, who are then free to trade allowances among themselves (albeit remaining subject to certain periodic compliance requirements).

2.2 Getting CTS off the ground.

The establishment of a CTS is being accomplished by drawing on the lessons learned from seven subnational pilot carbon trading programs and their gradual transition to a national carbon market. Pursuant to a “Notice on Carrying out Pilot Work on Carbon Emission Trading” issued by China’s National Development and Reform Commission (NDRC) on October 29, 2011, seven cities or provinces—Beijing, Shanghai, Hubei, Guangdong, Shenzhen, Tianjin and Chongqing—served as the pilot markets. On October 2016, NDRC published the “Notice on Key Works in Preparation for the Launch of the National ETS” (the Notice), which calls for the launch of a national carbon trading market in 2017. Chinese authorities are currently preparing for this launch.

2.3 CTS’s impact on companies

2.3.1 Monitoring when emissions exceed the threshold of emission compliance.

During the pilot period, the participating companies were evaluated based on a combination of industries and annual carbon dioxide emissions. Each pilot market had its own characteristics. On the whole, the industries that were reviewed were steel, chemical and power. As for the national carbon market, the companies that will be included in the trading program will be determined by total annual comprehensive energy consumption: to be eligible a company must have consumed more than 10,000 tons of coal in any year of 2013, 2014 and 2015.

2.3.2 Covered companies are subject to strict compliance requirements under CTS.

Under the CTS, covered companies will be required to submit monitoring plans, and will be subject to regular reporting as well as a verification process that meets standards set by the authorities. In addition, they will be required to hold a sufficient number of allowances in their compliance accounts each year to cover their emissions. There are some policy differences between the various ETS pilot programs, but generally speaking, their compliance requirements and reporting deadlines are similar.

2.3.3 Non-complying covered companies will face restrictions.

Each ETS pilot has its local rules, regulations and governance system and, therefore, their respective participants face differing liabilities. For example, in the Beijing pilot, a company found to be noncompliant could face penalties of as much as three to five times the market price for allowances¹. In the Shanghai pilot, noncompliant companies could be fined more than 50,000 RMB to 100,000 RMB. They may also face credit default as a result of failure to comply with limits².

1 See Article 4, “The Decision on the Implementation of Carbon Emissions Trading Pilot Work Under the Precondition of Strictly Controlling Carbon Emissions in Beijing”

2 See Articles 39 and 40, “Regulation of Carbon Emissions in Shanghai”



3. Limiting climate change impacts is good business.

Based on the twin goals of combating climate change and promoting environmental protection generally, the measures that the Chinese authorities take are expected to become more and more strict and diverse. It is the author's point of view that companies, as the main agents of environmental responsibility, should be proactive in addressing climate change, not only by raising awareness of environmental protection laws and regulations, but also by being more cooperative during inspections.

3.1 The lesson of Volkswagen's "emission-gate" scandal: Comply or face severe consequences

In 2015, when Volkswagen took illegal measures to ensure that its vehicles passed inspection with a rating of "high environmental standards"—despite the fact that they actually emitted massive amounts of pollutants—the US Environmental Protection Agency charged the company with cheating on emissions tests and deceiving customers, charges it spent up to \$14.7 billion to settle. The scandal also caused serious harm to its stock price and seriously tarnished its public image. The harsh public reaction has given many Chinese companies pause. In recent years, the Chinese government has made progress on both basic environmental legislation and the enforcement of environmental laws, including the new Environmental Protection Law, which became effective in 2015 and is considered the strictest environmental legislation in Chinese history. Under this law, Chinese environmental administrations have, individually and in association with other administrations, launched environmental enforcement investigations. Companies are cautioned to comply or risk severe consequences from the authorities and the public.

3.2 Stay current on the law and the consequences of noncompliance—and provide effective compliance training.

The CTS that is in the works is a domestic exploration and practice of the Chinese authorities informed by the experience of the EU. For Chinese entities it is a wholly unfamiliar market and even for pilot participants it is a relatively new experience. Whether a company chooses to reduce emissions by means of technology improvement and innovation, or to get more allowances by trading in the new carbon market, is a business judgment matter. Either way, an effective compliance program is essential to ensure that the requirements of the new laws are met. Some companies have established departments specifically to oversee particular trading operations and invited experts to train their employees. This has had a very positive effect on their participation in the carbon market. But not all entities have been as careful. In a case of air pollution, one company has already been fined over a million yuan as a result of not knowing the rules and understanding the complex relationship between regulations. With implementation of stricter national environmental legislation, companies are advised to take the initiative to know the law, consult with our team if you have any questions, and organize trainings for your employees, so that there will be a deep, institutional understanding of the relevant regulations.

3.3 Build effective relationships with supervising organizations.

Management of allowances is essential. The carbon trading market has specific time requirements and entities should ensure that their allowances match the allowances they are supposed to submit in order to determine whether the trade is to buy or to sell before the compliance. Covered companies that lack enough allowances may ask the government for help. Some pilots use an auction mechanism to help these participants get allowances to submit. So there is still room for the companies and administrators to build a relationship of cooperative consultation. Random inspections by authorities are always a possibility and companies that maintain open, cooperative communication with the relevant authority are better positioned to pass these inspections, or at least mitigate the potential penalties.



Chen Li

Senior Partner, Shanghai

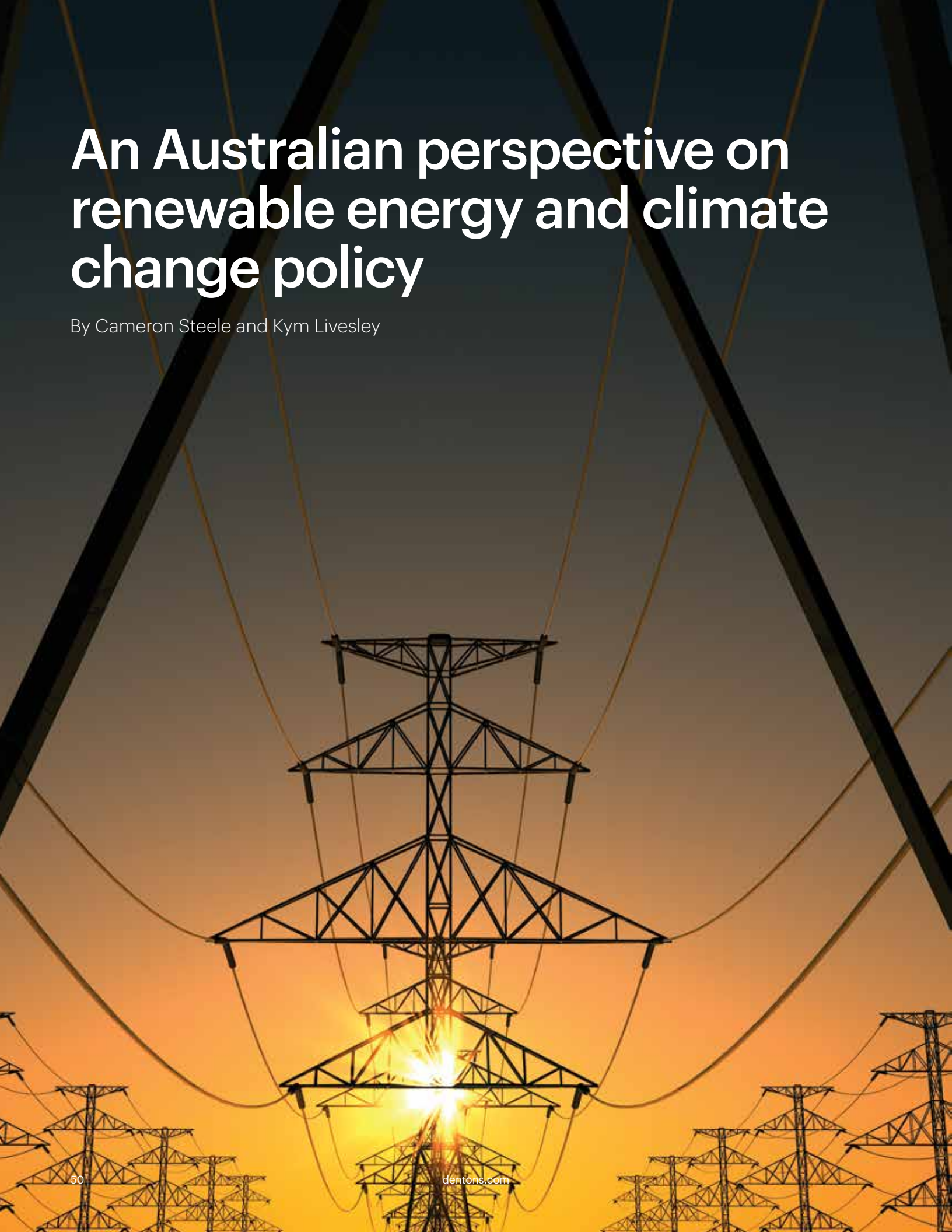
D +86 21 2028 3287

li.chen@dentons.cn



An Australian perspective on renewable energy and climate change policy

By Cameron Steele and Kym Livesley



Overview of the National Electricity Market

Australia's electricity generation sector is the country's largest source of carbon emissions—accounting for about 35 percent of the total—and is the focal point of political debate on climate change. Political sensitivity around electricity pricing has led to power generation being dealt with differently from other carbon-intensive sectors.

Electricity is supplied to Eastern and Southern Australia through the National Electricity Market (NEM), the longest geographically connected power system in the world. Only Western Australia and the Northern Territory are not connected to the national network, which distributes power from electricity generators to large industrial energy users and local electricity distributors.

The NEM is a physical supply system (referred to as “the grid”), but it is also comprised of:

- a wholesale electricity market; and
- a financial market.

The participants in the NEM include electricity generators, transmission network service providers, distribution network service providers and the market customers. Generators offer to supply the market with specified amounts of electricity at specified prices for specified time periods, and from those bids the market operator determines which generators will be deployed to produce electricity.

A financial market sits alongside the wholesale electricity market and involves retailers and generators entering into hedging contracts to buy and sell electricity.

The assets of the NEM are owned and operated by state governments (as opposed to the federal government) or by private businesses.

Regulation of the electricity sector

Responsibility for regulation of the electricity sector in Australia is divided among local, state and federal governments. The local councils and state governments are responsible for regulating and approving facilities for the generation of electricity. States and territories have jurisdiction over land and its use, as well as local environmental and planning controls. So it is state regulators that predominantly approve projects such as wind and solar. Some electricity generators are owned by state governments. However, the NEM is governed by federal laws and administered by federal regulatory bodies. This division of responsibility between the states and the federal government has resulted in a raft of incompatible policies.

At the federal level, Australia has had national emissions reduction targets since 1990. Under the Paris climate change agreement, the federal government committed to reducing national greenhouse gas emissions by 26 percent to 28 percent below 2005 levels by 2030. Several state governments have set renewable energy targets well in excess of the national target, typically supported by generous minimum feed-in tariffs for energy supplied to the grid under small-scale renewable energy schemes and, in some instances, by providing state-funded support for capital expenditures on renewable energy projects. Some local councils have also introduced renewables incentives for the electricity sector. For example, the Adelaide City Council offers its residents and businesses generous incentives for rooftop solar and storage systems.

Members of the federal government have been critical of what they describe as the “heroic” emissions reduction targets of certain state governments, which they claim have curtailed investment in coal-fired generators and threaten the security and reliability of energy supply through the national electricity market.



At the date of this writing, the South Australian government has set a renewable energy target of 50 percent by 2025, subject to national renewable energy policy being retained. The Victorian government has committed to a two-stage renewable energy target of 25 percent by 2020 and 40 percent by 2025. The Queensland government has set a renewable energy target of 50 percent by 2030. The Australian Capital Territory has committed to achieve 100 percent renewable energy by 2020.

Australia's current mix of national climate policies for the electricity sector

The federal government has introduced a mix of policies aimed at meeting its obligations under the Paris accord. These include:

1. The Emissions Reduction Fund and Safeguard Mechanism

The centerpiece of the federal government's policy suite to reduce emissions is the Emissions Reduction Fund (ERF), a so-called "direct action" plan containing three key components:

- (a) A program to credit carbon abatement projects
- (b) A fund to purchase credits allocated under the first component
- (c) An emissions trading scheme, referred to as the Safeguard Mechanism

The first component of the plan allows for Australian carbon credit units (ACCUs) to be created for eligible carbon abatement projects. Participants may also tender under a reverse auction process for their ACCUs to be purchased by the regulator of the ERF.

The third element of the policy, the Safeguard Mechanism, establishes base emission levels for large emitters. Large facilities (excluding grid-connected electricity generators) with direct emissions of 100,000 tons of carbon dioxide equivalents (tCO₂-e) per year are allocated a baseline emissions level and must ensure that their net emissions stay below that baseline. One method of keeping a facility's net emissions below the baseline is by purchasing and surrendering ACCUs.



In theory, the Safeguard Mechanism applies to the electricity sector but a fixed, sector-wide baseline applies to all grid-connected electricity generators. The electricity sectoral baseline is set at 198 million tCO₂-e. This was based on the high-point in annual emissions from the sector between 2009 and 2010 and between 2013 and 2014, and is well above current levels, which means that the baseline should have no immediate impact for grid-connected electricity generators.

2. The Renewable Energy Target (RET) scheme

The RET provides financial incentives for renewable energy by creating a market for certificates, which are created for generating renewable energy. Energy retailers acquire these certificates to meet their annual renewable energy obligations under federal legislation.

3. The Australian Renewable Energy Agency (ARENA) and the Clean Energy Finance Corporation (CEFC)

ARENA is a federally funded agency that supports clean energy technologies by providing financial grants and assistance for the research, development and deployment of renewable energy technologies. The CEFC provides support through investment in clean power solutions, including large- and small-scale solar, wind and bioenergy, including developing new sources of capital for the clean energy sector, such as climate bonds, equity funds, aggregation facilities and other financial solutions.

ARENA was established by the former government, led by ex-Prime Minister Julia Gillard, in 2012. At the time of this writing, the current government, led by Prime Minister Malcolm Turnbull, has introduced a bill into Parliament which, if passed, will strip ARENA of much of its funds. However, at the time of this writing, the bill has been blocked by crossbenchers in a hostile parliament and may never become law. There is also speculation that the government may pursue changes to the investment rules of the CEFC to help subsidize next-generation coal-fired power stations.

Security and reliability the dominant drivers for energy policy

In August 2016, the federal Climate Change Authority¹ released a review of Australia's climate goals and policies. The Authority recommended the introduction in 2018 of an emissions intensity scheme for electricity generators and that the baseline should decline linearly to reach zero well before 2050, consistent with Australia's obligations under the Paris agreement.

The report's dominant driver was the government's commitment to meet its international obligations.

However, a series of events have followed that may have shifted the focus back onto security and reliability. The events that have raised concerns about the current direction of energy policy in Australia include:

- **First half of 2016:** Following extremely dry conditions, Tasmania's hydropower generator was required to install temporary diesel generation to protect the island state's electricity supply.
- **July and August 2016:** South Australia experienced very high and volatile prices but averted a statewide blackout.
- **September 28, 2016:** South Australia experienced statewide blackouts.
- **November 3, 2016:** Australia's most emissions-intensive power station, Hazelwood, announced its closure, effective March 31, 2017.
- **February 10, 2017:** Extremely hot temperatures resulted in power being cut to more than 40,000 homes in South Australia for more than half an hour. To avoid blackouts across New South Wales, Australia's largest aluminium smelter required to cut production by 30 percent (300 MW).

At the request of the Council of Australian Governments (COAG) Energy Council, which represents the state and federal government energy ministers, the Australian Energy Market Commission (AEMC)² and the Australian Energy Market Operator (AEMO)³ delivered interlocking reports assessing a range of potential emissions reduction policies. The Commission was tasked with analysing three alternative mechanisms to reduce emissions and the ability of each those mechanisms to integrate with the NEM's design and operation. The AEMO was tasked with assessing the impact on security and reliability.

1 "Towards a Climate Policy Toolkit: Special Review on Australia's Climate Goals and Policies," Climate Change Authority, 2016.

2 "Final Report: Integration of Energy and Emissions Reduction Policy," Australian Energy Market Commissioner, December 2016.

3 "Advice on the Integration of Energy and Climate Policy: AEMO Stage Two Report," Australian Energy Market Operator, November 2016.

The reports of the AEMC and the AEMO found that, of the three policies assessed, an emissions intensity scheme was best suited to the electricity market's pricing and risk management framework and had the lowest economic costs and the lowest impact on electricity prices and system security. The emissions intensity scheme evaluated under the reports would involve an emissions intensity target (similar to a baseline) for the wholesale electricity generation sector and where generators with an emissions intensity above the target are liable to buy credits and those with an emissions intensity below the target to create and sell credits. The emissions intensity target is expressed as the amount of CO₂ emissions divided by the amount of electricity generation. The target would reduce over time.

The COAG Energy Council has also appointed Australian chief scientist Dr. Alan Finkel to undertake an independent review of the future security of the national electricity market. At the time of this writing, industry consultation for the Finkel review was still underway.

However, there are indications that power shortages and the closure of the Hazelwood power station may strengthen the resolve of conservative members of Parliament to resist moving from the current "direct action" plan to an emissions intensity scheme for the electricity sector. It would seem that, at a federal government level, security and reliability may once again become the dominant driver for energy policy in Australia.

An Australian "energy crisis"?

Against the backdrop of the above, we now have politicians, energy providers, commentators and untold other stakeholders screaming for some policy continuity to avoid what some believe will be an "energy crisis." Australia is blessed with abundant energy reserves of coal and gas, limitless sunshine and wind reserves. Yet we are in the midst of a political debate at state and federal levels over climate policy and energy security and regulation. How did we get into this position? The following points are worth noting:

- "Coal" is the new four-letter word. While it is a mainstay of exports of this country, there is much pressure to reduce reliance on coal and move to clean generation. So there have been some closures of coal baseload power supplies, one being the Hazelwood brown coal power station in Victoria.
- With reduced baseload power, prices spike and commercial customers see their power supply contracts renewed at higher prices as the forward price for electricity increases.
- Transition from coal to less emission-based power requires another form of supply: gas.



- With the huge investment in recent years, Australia will, by 2020, become the largest exporter of LNG in the world. The project owners, to support their export contracts, are sucking the domestic gas being produced. This results in a shortage of gas locally. Such is the shortage, that Prime Minister Turnbull has met with such gas suppliers requiring them to make good on commitments to ensure there is domestic supply (under threat of controlling exports, which the federal government has jurisdiction over). What has been in operation in Western Australia—a domestic gas requirement for all gas producers in that state—was not implemented elsewhere, although steps are now being taken. Southern Australia is now providing incentives for gas explorers but with provisos regarding domestic requirements.
- International gas prices have fallen, so the export of LNG using gas from Australia is at cheaper costs than that available domestically.
- Gas shortages have been contributed to by various states and territories having selective bans on onshore exploration and fracking.
- States such as South Australia have gone ahead with their own short-term solutions and market interventions—including providing incentives for gas exploration, requiring network operators to have 200 MWs backup in place, building state-owned, gas-fired plants for emergencies, and giving their own state energy minister the power to interfere in the NEM to ensure the lights stay on in that state.

Conclusion

With six prime ministerial changes over the past eight years, energy policy in Australia has been plagued by a lack of consistent policy. Add to this the complexity of dealing with multiple layers of government (local, state and territory), each with their own discrete energy policies and targets. There is also a need for a bipartisan approach to energy security in light of the obligations under the Paris agreement, but that may be difficult in the current political setting.

In short, energy policy can best be described as a “work in progress.”



Cameron Steele

Director, Sydney

D +61 2 9931 4738

cameron.steele@dentons.com



Kym Livesley

Partner, Sydney

D +61 2 9931 4894

kym.livesley@dentons.com

Postscript Note

Since first preparing this paper, Australia's chief scientist, Dr. Alan Finkel, has delivered the Final Report of the Independent Review into the Future Security of the National Electricity Market (Final Report). The Final Report makes 50 recommendations, including the introduction of a clean energy target (CET). This key recommendation has been rejected by the Turnbull government but the other 49 recommendations of the Final Report have all been accepted. The CET aimed to provide an incentive to new generators that produce electricity below a specified emissions intensity threshold. Generators adopting low emissions technologies would have benefited under this model by receiving certificates and electricity retailers would have been required to purchase certificates to demonstrate that a predetermined share of their electricity came from low emissions generators. The CET was criticized by some members of the government as imposing a price on carbon.

Rather than adopting the CET, the Turnbull government has announced the national energy guarantee (NEG). This concept is the outcome of a number of weeks' work by the newly established Energy Security Board—itsself a Finkel recommendation. The NEG imposes obligations on energy retailers, and is made up of two parts:

- a reliability guarantee – retailers will be required to supply a minimum level of dispatchable energy (i.e., from ready-to-use sources such as coal, gas, pumped hydro and batteries). The required levels of dispatchable energy will be set by the Australian Energy Market Commission (AEMC) and Australian Energy Market Operator (AEMO) and may be determined on a state-by-state basis.
- an emissions guarantee – retailers will be required to supply a minimum level of lower emissions energy. The level of the emissions guarantee will be determined by the federal government, having regard to Australia's international commitments, and will be enforced by the Australian Energy Regulator (AER).

The details of the NEG have not yet been released, including the requirements of dispatchable energy and lower emissions energy. How one measures it will also be of interest, especially when purchasing electricity by financial instruments.

Apart from the CET, the Turnbull government has accepted every recommendation of the Final Report. The accepted recommendations include a proposal to impose reliability obligations on new variable renewable electricity (VRE) generators such as wind and solar. Under this recommendation, minimum dispatchable capacity requirements may be set for new VRE generation projects in particular regions. This may require new VRE generators to pair with a new, non-variable electricity generator such as a large-scale battery or gas. This proposal may support the use of gas as a complementary or transitional fuel source, regarded by Finkel, along with renewables, as the fuels of the future. However, this recommendation is colored by the present lack of gas for domestic use and arguably insufficient feedstock for some LNG plants in operation.

The Australian Energy Market Commission (AEMC) is also currently considering a rule change request to align dispatch and settlement periods under the wholesale electricity market. The proposed rule change may affect the competitiveness of gas or coal-fired power generators.

Finally, the Turnbull government has announced that it will implement the Australian Domestic Gas Security Mechanism under export regulations to ensure sufficient natural gas supply to meet the forecast needs of Australian consumers. If necessary (and presumably as a last resort), Australian LNG projects may be required to either limit exports or find offsetting sources of new gas.

The follow-on consequence of Australia's residential customers paying some of the highest electricity rates in the world remains a challenge for the Turnbull government. In sum, sky-high prices and power outages mean that the energy system in Australia—certainly in the Eastern seaboard states—is not working as intended.



Opportunities for foreign automakers in China's "new energy vehicles" market

By Nancy (Qingnan) Sun

With the climate and energy goals set by China's "12th Five Year Plan" for 2011–2015 successfully achieved, the country is now a leading producer of renewable energy and one of the world's most vibrant clean energy markets. The whole nation has witnessed an improvement of its energy structure and the rapid development of green industry. Total energy consumption in 2015 was limited to a rise of only 0.9 percent over the prior year, and coal-generated energy consumption even declined by 1.6 percent compared to 2014. Clean energy, including hydro, wind, nuclear and natural gas, accounted for 17.9 percent of total energy consumption.

However, challenges remain. Haze floating above most cities in central China is a constant reminder to the government that more investment in clean energy production and greenhouse gas emissions control will be needed over the coming decades. Accordingly, on January 5, 2017, China's National Development and Reform Commission and National Energy Board jointly released the "13th Five Year Plan of Renewable Energy Development" (13th FYP), which set more ambitious energy and climate goals for the period from 2016 to 2020.

One key project included in the 13th FYP, "new energy vehicles," has been especially attractive to foreign automakers who are eager to enter the competitive Chinese market to produce both whole cars and auto parts.

Introduction

New energy vehicles, as defined by the "Managing Rules for the Access of New Energy Vehicle Manufacturing Enterprises and Products," refers to vehicles that:

- use unconventional vehicle fuels as the power source (or the use of conventional vehicle fuels in new onboard power units);
- integrate advanced technologies for vehicle power control and drive; and
- comprise new technical principles, technologies and structures.

New energy vehicles include plug-in hybrid electric vehicles (PHEVs), pure electric vehicles (battery electric vehicles, or BEVs, including solar cars), fuel cell electric vehicles (FCEVs), hydrogen engine cars, and other vehicles powered by new energy sources, such as high-energy storage or dimethyl ether.

In 2016, China produced and sold more than 300,000 new energy vehicles, with almost 250,000 units of BEVs and more than 80,000 units of PHEVs. These developments have pushed China ahead of the US by more than 300,000 sales. More exciting, under the new FYP, total production and sales volume of new energy vehicles are projected to reach five million by 2021. More urban car parks and charging infrastructure will be installed to support this growing market.



While this all looks promising from an investment perspective, foreign investors still have some concerns about the Chinese government's attitude regarding the inflow of foreign capital into this blooming market. This worry is not unfounded, as there are a number of policy restrictions and regulations that may limit foreign investment participation. Generally speaking, the rules restrict the equity proportion of foreign investment in a Chinese company, although the opportunities vary between three different businesses: whole car manufacturers, electric battery manufacturers and manufacturers of other vehicle parts.

1. Whole car

Foreign investment in the Chinese whole car manufacturing industry is subject to the state's strict control. According to the "Catalogue of Industrial Guidance for Foreign Investment" (known as the Investment Catalogue), foreign investment in new energy vehicle manufacturing must be in the form of a joint venture, with the percentage of Chinese shares at not less than 50 percent (the 50-50 rule). Moreover, in accordance with the "New Energy Automobile Production Enterprises and Product Access Regulations," producers of new energy cars must apply for the approval of the Ministry of Industry and Information Technology.

In fact, the 50-50 rule has been in existence for 22 years, and was introduced in the 1994 edition of the "China Auto Industry Policy." Underlying this policy is a lack of confidence by the Chinese government that Chinese automakers can survive in the face of heavy competition from foreign auto manufacturers, and with good reason. According to statistics, there are 33 such joint ventures right now in the Chinese car industry. In a ranking of the car sales for the first half of 2016, out of these 33 foreign investor-Chinese joint ventures, 13 occupy the top 20 market positions. Moreover, the top four are all joint ventures: SAIC-Volkswagen, FAW-Volkswagen, SAIC-GM and SAIC-GM-Wuling. The strong competitiveness shown by foreign auto companies has caused the Chinese government to delay allowing wholly-foreign-owned carmakers to enter the Chinese car manufacturing market.

Nevertheless, analysts reportedly are optimistic that the share restrictions will eventually be lifted as domestic car companies gain experience and confidence in their ability to innovate.

2. Electric batteries and core battery components

The electric battery industry is included on a list of industries in which foreign investment is encouraged, according to the Investment Catalogue (amended in 2015). Foreign investment is also encouraged in connection with the manufacturing of battery components and battery separators that comply with a series of specific technical parameters. In either case, as with whole-car manufacturing, there is a requirement that foreign investment cannot exceed 50 percent of the total.

This market has already attracted competitors from many world famous companies, including Samsung, LG Chemical and Panasonic, all of which have opened battery factories in China.

Samsung SDI has built a power battery factory in the Xi'an High-tech Industrial Development Zone and LG Chemical has a new energy battery project in Nanjing. Both have been in operation since 2015. Their combined output can supply batteries to an estimated 50,000 pure electric vehicles and 180,000 plug-in hybrid vehicles. Panasonic is also planning to build a car lithium battery factory in Dalian which is expected to go into production before the end of 2017.

Moreover, the market for battery separators is, due to high technical barriers and high gross margins, firmly in the control of foreign enterprises. Well-known enterprises, such as Japan's Asahi Kasei, account for more than 70 percent of the market share in China.

3. Other vehicle parts

Encouraging to foreign investors, wholly foreign-owned companies are allowed to participate in the manufacturing of some key collateral vehicle parts, and those who want to avoid the share restrictions and strong competition in the whole car and battery markets may want to consider vehicle parts as a point of entry.

Despite the restrictions on foreign investment in vehicle manufacturing, China is gradually liberalizing its auto parts industry by adding the manufacturing of more auto parts to the "encouragement" category of the Investment Catalogue.

Back to 2004, only 12 auto parts projects were chosen for inclusion in the "encouragement" category. By 2007, this number had climbed to more than 20, including the addition of anti-lock and body stability systems for the first time. With the revision of the Investment Catalogue in 2011, gearbox appeared on the list for the first time, although the number of parts and components listed did not increase significantly overall. The Investment Catalogue of 2015 saw a further increase in the number of auto parts in the "encouragement" category, including the addition of CVT (continuously variable transmission) and electromechanical gearbox parts.

Not only has the number of auto parts that foreign investors can invest in been gradually increasing, but the number of projects subject to restrictions has been decreasing. For example, in the field of automotive electronics, the number of projects with a share requirement dropped from six to two through Investment Catalogue revisions.

Industry insiders believe that the gradual lifting of the restrictions on foreign investment in core parts can help create a fair competitive environment, in turn forcing China's parts and components enterprises to improve their research and development and manufacturing technology.

Some analysts believe that with the rapid development of China's new energy auto industry, the demand for upstream support will increase and the investment in new-energy-vehicle core parts and components may be further refined.

Incentives and challenges

1. Tax incentives and the battery business directory

The "State Council on the Issuance of Energy-Saving and New Energy Automotive Industry Development Plan (2012-2020) Notice (Guo Fa [2012] 22)" requires all regional governments to research and improve their vehicle tax policy systems. New energy vehicles and key parts companies that are qualified to obtain the preferential income tax for high-tech enterprises should also be eligible for other related preferential policies, according to this law.

For example, Zhejiang Province has issued "Implementation Views on Accelerating the Development of Energy-Saving and New Energy Automotive Industry (Zhejiang Zheng Fa [2012] 90)," which provides a 15 percent reduction of the corporate income tax for qualified energy-saving and new energy vehicles and key parts manufacturing enterprises. Additionally, expenses incurred in the research and development of new technologies, new products and new processes that are not included in the current period's profit and loss account can either be deducted (up to 50 percent of the R&D expenses as intangible assets), or amortized (at 150 percent as intangible assets).

Customers who choose to purchase electric vehicles also enjoy several tax incentives, including exemptions from consumption tax and exemptions from purchasing tax (through the end of 2017), as well as discounts on vehicle registration fees. All these consumer-side incentives help promote the sales of new energy vehicles.

As a side note, foreign battery manufacturers need to consult the “Battery Business Directory,” published by Ministry of Industry and Information Technology, as only companies listed in the directory can take advantage of the incentives described above.

2. IP protection and national security review

One shared worry of foreign car companies cooperating with domestic Chinese entities is the protection of their intellectual property, especially patents. On the one hand, many new energy car enterprises, to improve their market competitiveness, invest massive resources into the research and development of new environmentally friendly power systems and supporting parts with higher energy efficiency. On the other hand, to open the Chinese market to sales of these products, companies must cooperate with Chinese car companies and bear the risk of leakage of commercial secrets and proprietary information. Accordingly, two key areas where the foreign investor needs to pay close attention when considering and structuring a joint venture or transaction are proper registration of patents and trademarks in China, and the wording of the confidentiality clauses in their cooperation agreements.

In addition, foreign companies trying to enter the Chinese market by purchasing a Chinese car, or car part, manufacturing enterprise, may trigger a national security review as a result of the associated foreign capital inflow or sharing of the Chinese company’s key technologies. It is important to address these issues well in advance of a potential acquisition or merger in order to avoid unexpected delays caused by government scrutiny.

Conclusion

China is in the midst of economic transition; challenged by rapid economic growth as well as the need to lower environmental impacts. The Chinese government clearly supports the exploration of renewable energy and will continue to do so in the coming decades. New energy vehicles, as a solution to air pollution, have attracted players from outside the country to compete in Chinese markets. The key to success for foreign investors in the automotive sector is understanding the intention of legislators and keeping up with policy changes in the new energy vehicle business. Investors seeking to make the most of these opportunities can rely on Dentons大成 familiarity with this sector and the Chinese business environment generally.



Nancy (Qingnan) Sun
Senior Partner, Shanghai
D+86 21 5878 7580
nancy.sun@dentons.cn





Singapore: Asia's oil and gas hub was glad to see the end of 2016

By Kirindeep Singh

Oil, gas and chemicals services have long been pillars of the Singapore economy. An oil-trading hub for more than a century, Singapore has attracted billions of dollars in investment over the past two decades as the oil and gas sector has experienced tremendous growth both in terms of infrastructure and finance. Major companies in Singapore include prominent manufacturers and distributors of oil and gas equipment, as well as global leaders in construction of offshore equipment for that industry. Additionally, major field service companies for the oil and gas industry are headquartered in Singapore.

As these companies' operations have grown, so, too, has the refining and petrochemical industry. Hundreds of companies in Singapore trade in petroleum and natural gas products, and Singapore has a combined refining capacity of more than 1.3 million barrels per day (bpd). This not only places the island nation high up in the ranks of the world's largest refining centers, but also has led it to become a major pricing center for the global oil and oil products markets.

That said, the collapse of global oil prices—it stands at about US\$50 a barrel as of July 31, 2017—has been a subject of mounting concern in Singapore as the oil and gas sector begins to turn sour.

Will low oil prices persist?

The *Financial Times* has observed that low oil prices are having a detrimental effect on the Singapore economy, “turn[ing] this strength into a source of economic pain as rig builders have been forced to slash jobs while smaller oil services providers face bankruptcy.”¹ Minor rises in oil prices are unlikely to help. According to one observer, prices, at least in the near term, are more likely to fall below US\$50 per barrel than to rise toward the US\$70 per barrel or more that is needed to sustain the industry.²

So then what is driving the recent increase in prices and why shouldn't prices continue to rise? Experts point to the market's reaction to an OPEC production cut on oil inventories, but this may be premature because there still is a glut. The US has added a nearly unprecedented 13.8 million barrels to storage, and more than a hundred horizontal rigs were added to American drilling operations during just the few months after OPEC announced the reduction in its supply in September.³ Logically, this can only act to drag prices back down.

1 “Oil and gas downturn spells trouble for Singapore,” Jeevan Vasagar, *Financial Times* (Aug. 7, 2016), available at <https://www.ft.com/content/cbb746d6-5ac2-11e6-9f70-badea1b336d4>

2 “Don't Hold Your Breath For \$70 Oil Prices,” Art Berman, *Forbes* (Feb. 14, 2017), available at <https://www.forbes.com/sites/arthurberman/2017/02/14/dont-hold-your-breath-for-70-oil-prices/#360cdf095133>

3 See id. (noting that 130 horizontal rigs have been added since September 2016).



The International Monetary Fund (IMF), for its part, shows a slight increase in its forecast for the average oil price for 2017 in its January update to the *World Economic Outlook*.⁴ Among other reasons, the projections reflect the agreement among OPEC members and other major oil producers to limit supply. However, the increase is expected to be moderate. IMF's assumed price based on futures markets (as of December 6, 2016) is US\$53.1 per barrel in 2018.

Similarly, in its July 2017 update to the Short-Term Energy Outlook, the US Energy Information Administration includes a scenario that shows average crude oil prices hovering around US\$53 per barrel in 2017 and rising to US\$55 per barrel in 2018, with less volatility in the market than was the case in 2016.⁵

Meanwhile, commodities traders have revised their February 2017 predictions downward, from between US\$45 to US\$65 per barrel in the first few months of 2017, to US\$36 to US\$60 per barrel by October 2017.⁶

Swiber Offshore: In the eye of Singapore's 2016 oil and gas storm

Another dip in oil prices below US\$50 per barrel would spell bad news for Singapore's oil and gas industry. And based on events in 2016, few analysts are optimistic about a speedy recovery. The high-profile defaults of Swiber Holdings Ltd. and Swiber Offshore Construction Pte Ltd., a Singapore-listed marine engineering company in the business of

4 World Economic Outlook: Update, January 2017, International Monetary Fund, available at <https://www.imf.org/external/pubs/ft/weo/2017/update/01/>

5 Short-Term Energy Outlook, US Energy Information Administration (July 2017), available at https://www.eia.gov/outlooks/steo/pdf/steo_full.pdf

6 "Oil Price Forecast 2017 - 2040," Kimberly Amadeo, The Balance (updated July 20, 2017), available at <https://www.thebalance.com/oil-price-forecast-3306219>



constructing offshore oil platforms, in the summer of 2016, followed by news of an investigation by authorities in connection with the company's financial disclosures, sent the local bond market reeling. Already struggling from economic slowdown, Swiber was pushed to reorganization when delays in an oilfield project in West Africa contributed to the company's default on a coupon payment and a failed attempt to raise needed capital from the sale of preferred shares. The company initially filed to wind itself up, but then received court approval for judicial management, a court-supervised rescue plan to give it time to reorganize debt. Meanwhile, news that Singapore's largest local bank had significant exposure to Swiber caused ripples throughout the banking sector.

Other Singapore companies in the oil and gas sector similarly struggled last year.⁷ Unable to meet debt payments, several have also filed for judicial management. Some are cutting staff as profits tumble and market value erodes. Those companies that are backed by Singapore's state investment company are at least able to hang on. Smaller companies are in more precarious positions; and even the oil majors have cut back upstream activity in response to low

prices, which has a trickle-down effect on the rest of the sector. And, according to some reports, rough seas still lie ahead with more insolvencies expected in the oil and gas sector as debt comes due in 2017 and 2018.⁸

Finally, to complete the list of "bad news" for 2016, output in the marine and offshore engineering sector fell nearly 30 percent in 2016, according to data from Singapore's Economic Development Board, making it one of Singapore's worst-performing industries in that year. Given that the marine industry accounts for at least seven percent of Singapore's gross domestic product (GDP), this certainly does not augur well for the country's economy.

As a result, in November 2016, the Singapore government stepped in with a S\$1.1 billion package to help bail out the country's offshore marine sector. The package includes government-backed bridge loans to help companies with short-term cash flow problems, as well as risk-sharing mechanisms. Assistance is available for companies throughout the offshore sector—contractors, shipyards, exploration and production companies, equipment manufacturers, service companies and so forth—but for some companies, the relief may be too late.

7 See *supra* FN1.

8 See "Swiber's Liquidation: 7 Things We Learn," *Marine Nexus* (July 29, 2016), available at <https://marinenexus.com/articles/swibers-liquidation-7-things-we-learn> (noting that "Swiber is just the tip of the iceberg.").

Is there a silver lining?

It seems as though the past year has brought nothing but bad news and more bad news. But is there a silver lining? One positive may be that the downturn frees up breathing space for the Singapore oil and gas industry to reassess, consolidate and reinvent itself. The Singapore Economic Development Board (EDB) recently reported that there may still be opportunities for Singapore to weather the global downturn by refocusing capabilities toward developments in new or related energy sectors.⁹

LNG to the rescue?

The EDB reports that natural gas is expected to make up 30 percent of the global energy mix by 2035. With far lower carbon dioxide emissions than coal or fuel oil, along with cost and reliability benefits, natural gas is becoming the fuel of choice for power generation. With the rise in global demand for natural gas has come rapid growth and opportunities in LNG. Investment in LNG production and transport is on the rise (expected to exceed US\$240 billion between 2016 and 2020), and new opportunities are also materializing, such as the growth of small-scale LNG. The slowdown in overall gas demand growth and prolonged downturn in oil and commodity prices present challenges to the industry, but natural gas still offers valuable opportunities in the longer term.

The EDB is of the view that Singapore oil and gas companies should be able to transition existing capabilities—available infrastructure, shipyards, construction marine engineering capabilities, storage and transportation—to take advantage of the expanding LNG industry. To do this, Singapore companies will need to build strategic relationships with other companies in order to acquire LNG-specific assets, know-how and technology. They will also need to integrate themselves with key stakeholders and players in the LNG industry, from project developers to shippers and traders to producers to end users, including utility companies, industrials and government entities. And, of course, companies will need to pull together financing, including working with government authorities, private lenders and funds, and multilateral development institutions.

The upside to lower oil prices

On a brighter note, as a net importer of oil, the Singapore economy stands to benefit from the fall in global oil prices. In a statement to the Singapore Parliament in January 2015, the Minister for Trade and Industry Lim Hng Kiang forecast that a drop in oil prices would translate to lower electricity

⁹ See International Enterprise Singapore, available at <https://www.iesingapore.gov.sg/Home/VentureOverseas/BrowsebySector/Transport&Logistics/Oil&Gas/Downstream/SectorInformation>.

tariffs and fuel costs—directly benefiting businesses and consumers.¹⁰ Lower rates meant lower costs for manufacturers and businesses, which would translate to lower consumer prices. This, in turn, would result in lower inflation and increased consumer purchasing power, stimulating consumption and boosting the economy, according to the minister's statement.

While this has generally come true, to the benefit of consumers and the LNG industry, it leaves open the question of whether the oil and gas industry as we know it might be a thing of the past.

The challenge ahead

"The Stone Age did not end for lack of stone, and the Oil Age will end long before the world runs out of oil." So predicted Sheikh Ahmed Zaki Yamani, former Saudi Arabian oil minister, in an interview in 2000.¹¹ While the Sheikh may not have foreseen the precise convergence of events that is currently causing such distress to the global oil industry, he certainly was correct about the shift that seems to be unfolding throughout the global energy industry. Whether due to new technological breakthroughs, efforts to address climate concerns, and changing internal and external policy landscapes, the energy industry is in transition and Singapore's oil and gas industry may be on the verge of an existential crisis unless it can find a place for itself in the newly forming paradigm. This will require that companies explore new growth opportunities and adapt quickly to changing dynamics of supply and demand. Those that hope to survive the sector's reinvention will also need to embrace new technologies, invest in new products and areas, and look to new and more creative financing options.

It's a troubling, turbulent and uncertain time but the downturn provides some much needed breathing space for oil and gas players to reassess, regroup and innovate. In short, the downturn could turn out to be an interesting and dynamic time for the industry after all.

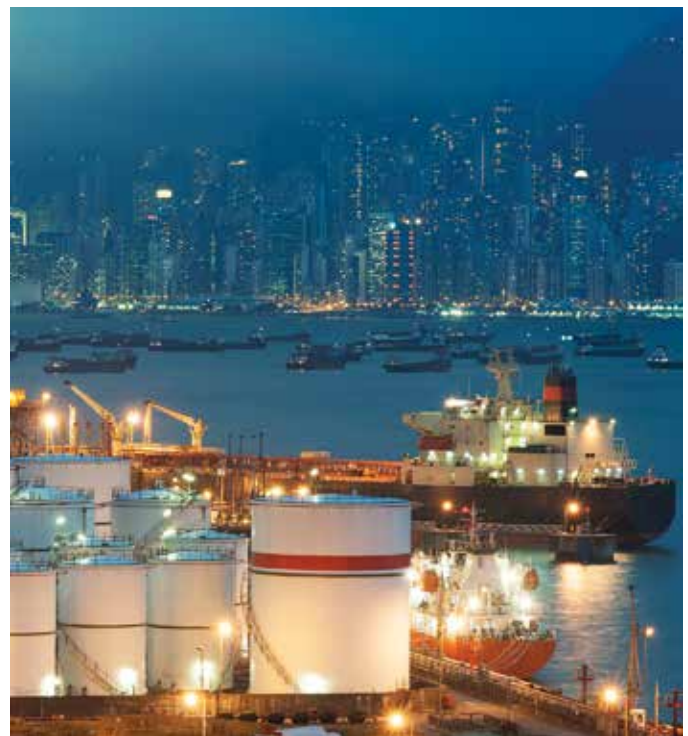


Kirindeep Singh

Senior Partner, Singapore

D +65 6885 3632

kirindeep.singh@dentons.com

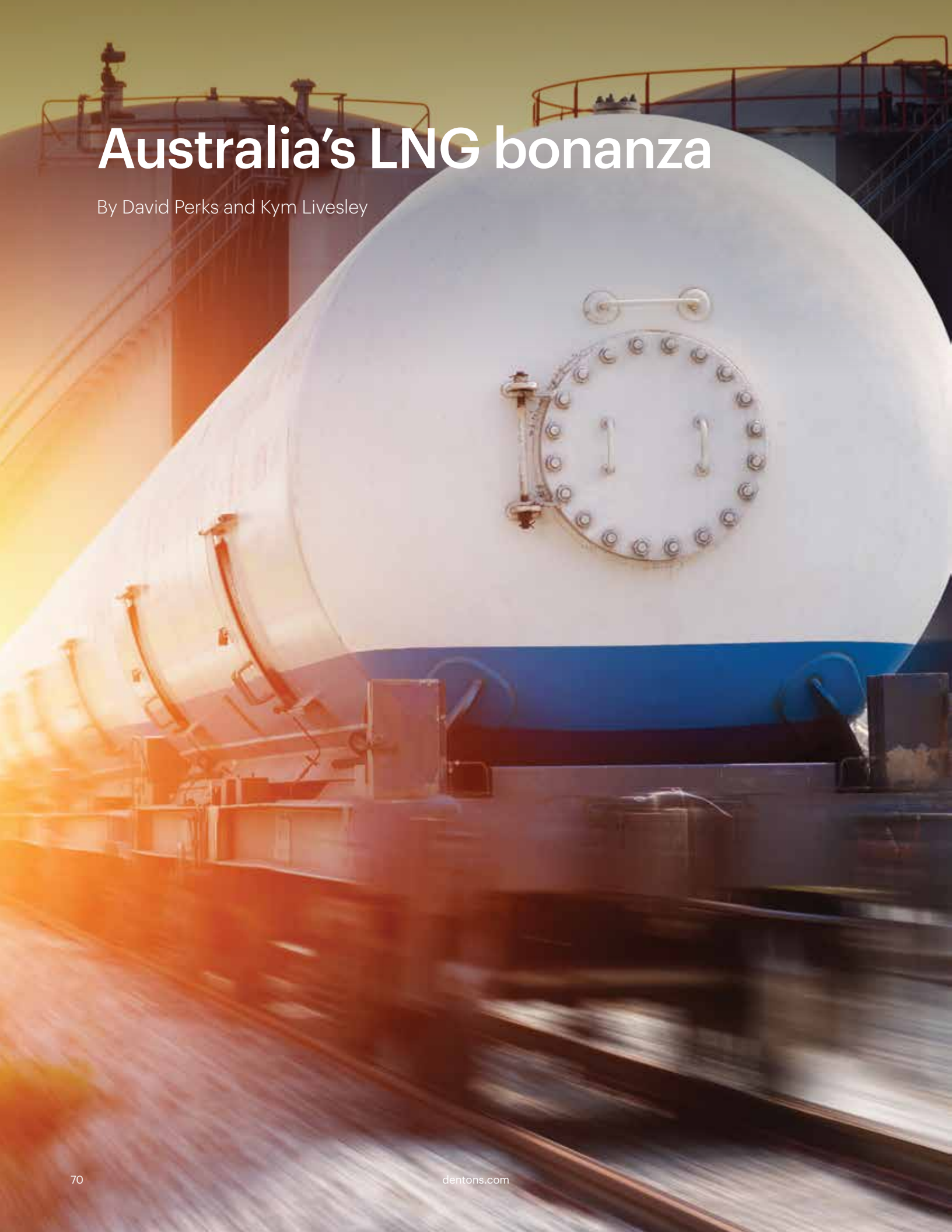


10 "Minister Lim Hng Kiang's Reply to Parliament Question on implications of decline in oil prices on Singapore economy," Ministry of Trade and Industry Singapore (MTI.gov.sg) (Jan. 19, 2015), available at <https://www.mti.gov.sg/NewsRoom/Pages/Minister-Lim-Hng-Kiang-percent27s-reply-to-Parliament-Question-on-implications-of-decline-in-oil-prices-on-Singapore-economy.aspx>

11 "Sheikh Yamani predicts price crash as age of oil ends," Mary Fagan, The Telegraph (June 25, 2000), available at <http://www.telegraph.co.uk/news/uknews/1344832/Sheikh-Yamani-predicts-price-crash-as-age-of-oil-ends.html>

Australia's LNG bonanza

By David Perks and Kym Livesley



Introduction

Australia is blessed with vast mineral wealth, and a significant part of the country's natural resources bounty is an abundance of natural gas. The huge onshore reserves of coal seam gas in northeast Australia, and the vast reserves of conventional gas in offshore regions of northwest Australia have been the object of more than A\$200 billion in infrastructure spending over the past decade. The primary purpose of this enormous investment has been to extract and convert this natural gas into liquefied natural gas (LNG) for export. As a result of this investment, Australia is expected to overtake Qatar as the world's biggest LNG exporter.

The total value of Australian LNG exports in 2016 was A\$17.9 billion, an increase of 8.6 percent over the previous year. With oil prices already 25 percent higher than the 2016 average, the value of LNG exports is expected to double in 2017, to about A\$36 billion.

This significant increase in demand for Australia's LNG is a game changer for both Australia and the predominantly Asian markets into which it will be sold.

This article provides an overview of the Australian LNG industry, the risks and opportunities it faces and its impact of global energy markets. The recent Australian experience also contains many lessons on bringing LNG projects to fruition, wherever they are located.

Overview of the Australian LNG industry

Australia has the following LNG projects, either in production or nearing production:

Project	Location	Original commencement/ Expected commencement	Ownership	Project type
Northeast Australia				
Australia-Pacific LNG	Gladstone, Queensland	2015	Origin, ConocoPhillips, Sinopec	Coal Seam Gas (CSG)
Gladstone LNG	Gladstone, Queensland	2015	Santos, Petronas, Total, Kogas	CSG
Queensland Curtis LNG	Gladstone, Queensland	2015	British Gas/ Shell, CNOOC, Tokyo Gas	CSG
Northwest Australia (Northern Territory)				
Darwin LNG	Darwin, Northern Territory	2016	ConocoPhillips, Santos, INPEX, Eni, Tokyo Electric, Tokyo Gas	Conventional gas
Ichthys LNG	Darwin, Northern Territory	2017	INPEX, Total, others	Conventional gas

Project	Location	Original commencement/ Expected commencement	Ownership	Project type
Northwest Australia (Western Australia)				
North West Shelf	Offshore Western Australia	1989	BHP Billiton, BP, Chevron, MIMI, Shell, Woodside	Conventional gas
Pluto LNG	Offshore Western Australia	2012	Woodside	Conventional gas
Gorgon LNG	Offshore Western Australia	2016	Chevron, ExxonMobil, Shell, Osaka Gas, Tokyo Gas, Chubu Electric	Conventional gas
Prelude FLNG	Offshore Western Australia	2017	Shell, INPEX, Kogas, CPC	Conventional gas – but floating production
Wheatstone LNG	Offshore Western Australia	2017	Chevron, KUFPEC, Woodside, Wheatstone, Kyushu Electric	Conventional gas

The Australian LNG industry has several salient characteristics:

Costs: Given Australia's high standard of living and comprehensive regulatory environment, the country tends to be an expensive place to operate in. The cost pressures faced by recent LNG project owners has not been helped by the fact that so many projects were under construction at the same time. This has had the effect of creating various supply chain shortages and the attendant price increases for a large range of skills and materials that result from an excess of demand over supply.

Ownership: As can be seen from the table above, there is a very high degree of foreign ownership in the Australian LNG industry. While foreign investment regulation has been the subject of increased scrutiny and significant regulatory change in recent years, the country remains very receptive to foreign investment. Many of the projects include, as owners of small stakes, the long-term offtakers. This ownership structure, originally developed for Japanese investors in the Australian resources sector, has now been adopted by other foreign investors.

CSG: The LNG projects in Queensland rely on coal seam gas (CSG) for their raw gas. CSG extraction has not been without some controversy, specifically claims that the water table has been adversely affected. In addition, the standard form documentation for conventional gas exploration and production projects must be amended for use in CSG and other types of unconventional gas extraction projects, as the latter involve a much larger number of wells, and new wells in different locations are constantly needed.

FLNG: The Prelude project noted in the table above is the first floating LNG (FLNG) project in the world. The nature of FLNG is explored in more detail below.



Floating LNG

The Prelude FLNG project is the world's first floating liquefied natural gas platform, as well as the largest ship ever constructed. Jointly owned by Shell (67.5 percent), Inpex (17.5 percent), Kogas (10 percent) and CPC (5 percent), the facility will chill natural gas produced at the field to -162°C (-260°F), shrinking its volume by 600 times so it can be shipped to customers in other parts of the world. The facility is 488m (1,600 feet) long and 74m (240 feet) wide. Along with its contents, it weighs around 600,000 metric tons. Now constructed, the facility has been towed to its location, some 475 kilometers (around 300 miles) northeast of Broome, Western Australia. It will now be moored and connected to the undersea infrastructure and the whole production system commissioned. The facility will remain permanently moored at the location for around 20 to 25 years before needing to dock for inspection and overhaul. The LNG, liquefied petroleum gas (LPG) and condensate produced will be stored in tanks in facility's hull. LNG and LPG carriers will moor alongside to offload the products.

Where building an undersea gas pipeline to shore over a long distance can be prohibitively expensive, FLNG platforms make development economically viable, opening up new business opportunities. The prospect of a FLNG platform as an alternative to a land-based development does act to put a limit on the state to extract concessions and payments for certain land

use rights. The success of the Prelude project and continuing innovations in FLNG design will make FLNG a real alternative to land-based development, for which costs can be prohibitive because of rent-seeking by provincial governments or interest groups.

Of course, moving LNG production to an offshore setting presents a demanding set of challenges. In terms of the design and construction of the FLNG facility, every element of a conventional LNG facility needs to fit into a much smaller area, while maintaining appropriate levels of safety and giving increased flexibility to LNG production. Once the facility is in operation, wave motion will present another major challenge. LNG containment systems need to be able to withstand the damage that can occur when wave and current motions cause movement in the partly filled tanks. Product transfers also are complicated by the effects of winds, waves and currents in the open seas. Solutions to reduce the effect of motion and weather have to be addressed in the design, which must ensure that the facility is capable of withstanding—and even reducing—the impact of waves. Technological development in this area has been mainly evolutionary rather than revolutionary, leveraging and adapting technologies that are currently applied to offshore oil production or onshore liquefaction.

An advantage of FLNG is that because all processing is done “on location” (i.e., at the gas field), there is no need to lay long pipelines all the way to the shore. There is



also no need for compression units to pump the gas to shore, dredging and jetty construction or the onshore construction of an LNG processing plant, significantly reducing the project's environmental footprint.

Preventing exports from causing domestic supply constraints

LNG project owners' commitments to long-term export contracts has resulted in some shortages of gas supply to the domestic market, and domestic prices have risen as a result. There is now emerging concern that one of Australia's key economic advantages—cheap and plentiful energy supplies—may be compromised. It is perhaps inevitable that, where there is the ability to sell both domestically and internationally, prices in both markets would equalize so long as the market for energy is not subject to any factors other than market forces.

It is ironic that Australia currently has a gas shortage, in no small measure due to the LNG projects (and the activities of certain governments and their approach to hydrocarbon exploration and exploitation), yet those foreign entities or SOEs who have a stake in the LNG projects appeared to have secured themselves feedstock.

The irony of this shortage, and the high price of gas, created enough political pressure to cause the Australian government to act, and act quite quickly. In June 2017, the government announced that it would implement the Australian Domestic Gas Security Mechanism (ADGSM) (by means of amendments to the Customs (Prohibited Exports) Regulations 1958). The objective of the ADGSM is to ensure there is a sufficient supply of natural gas to meet the forecast needs of Australian consumers by requiring, if necessary, LNG projects which are drawing gas from the domestic market to limit exports or find offsetting sources of new gas. The ADGSM came into effect on 1 July 2017. The ADGSM is targeted and will operate for five years. It will be reviewed in 2020 to consider whether it is meeting its objectives. As justification for the new rules, the Prime Minister, Malcolm Turnbull stated that "Gas companies are aware they operate with a social license from the Australian people. They cannot expect to maintain that license if Australians are shortchanged because of excessive exports." This amendment to the rules, long after investment has been committed, is another instance of the Australian government changing the rules of the game. This is hopefully not a theme that will become common.

Western Australia reservation policy as a response to export preference

Western Australia's vast gas fields support Western Australia's LNG export industry, as well as the state's domestic gas market. Western Australia is keen to diversify its economy into downstream processing and value-adding manufacturing industries. A key driver for this is affordable energy.

The Western Australian government's domestic gas policy aims to secure the state's long-term energy needs by ensuring that LNG export projects also make gas available to the domestic market. The policy seeks commitments for the equivalent of 15 percent of gas from new offshore developments to be available for domestic use.

Since the 1970s, successive governments have maintained a domestic gas policy. In 2006, the government formalized the policy with the release of the Western Australian Government Policy on Securing Gas Supplies, the aim of which is to maintain domestic gas prices below export parity.

In 2012, the application of the policy was clarified in the Strategic Energy Initiative's Energy 2031 final paper, which stipulates that gas producers must demonstrate their ability to meet the Domestic Gas Policy as a condition of project approval. The state will require LNG producers to commit to making domestic gas available by:

- reserving domestic gas equivalent to 15 percent of LNG production from each LNG export project;
- developing and obtaining access to the necessary infrastructure (including a domestic gas plant, associated facilities and offshore pipelines) to meet their domestic gas commitments as part of the approvals process; and
- showing diligence and good faith in marketing gas to the domestic market.

The reservation policy has been applied to some onshore LNG developments, while, for others, agreements between project proponents and the state government that are ratified by an Act of Parliament (state agreements) govern domestic supply commitments. The Pluto and Wheatstone projects will each supply the equivalent of 15 percent of their LNG exports to the domestic market under the reservation policy. The NWS Joint Venture has also signed a state agreement to supply domestic gas equivalent to 15 percent of the LNG from two new fields, consistent with the reservation policy. A domestic supply requirement was also imposed on the Gorgon Joint Venture, which agreed to supply a total of 2,000 PJ (approximately 1.9 tcf) to the domestic market under a state agreement.

As noted above, the Prelude project will utilize FLNG technology, and the gas will be liquefied at sea rather than onshore. As a result, the Western Australian reservation policy will be avoided. The Ichthys project will transport gas via a subsea pipeline to Darwin in the Northern Territory for liquefaction, one of the longest subsea pipelines ever constructed. Building the plant across the border in the Northern Territory, rather than in Western Australia, means that the Western Australian reservation policy does not apply.

The domestic gas reservation policy can be viewed as acting as an implicit tax on producers. This lowers the incentive to invest in gas exploration and production, lowering overall activity in the domestic economy. The lower price that domestic consumers pay for gas acts as an implicit subsidy, resulting in an opportunity cost because the additional gas supplied to the domestic market is not put to its highest-value use. It shifts labor and capital into downstream, gas-intensive industries and away from other sectors of the economy. This could be viewed as a diversion of resources toward lower value uses rather than a generation of new activity.

The East Coast of Australia does not currently have a domestic gas policy.

Pricing and long-term contracts

The current pricing of Australian LNG exports is based on conventions in the Asian LNG market that involve long-term contracts linked to the price of oil. The historical reason for this was that when Japan started importing LNG in 1969 to diversify its energy supply, crude oil was the major competing source of fuel for generating power, thereby providing a deep and liquid market as the basis for LNG pricing. As other Asian economies began importing LNG, long-term oil-linked contracts were already well established and provided the basis for the LNG pricing that now prevails in the Asia Pacific region.

LNG prices are denominated in US dollars per million British thermal units (US\$/mmBtu), which is a measure of the price per unit of energy content.

Despite the recent slump in oil prices, the fundamentals for long-term global energy growth are strong. Population growth and an increasingly energy-intensive lifestyle should continue to drive demand and, therefore, prices.

Japan remains the largest customer for Australian LNG, taking 48 percent of 2016 cargoes. China is now the second-biggest customer, taking 30 percent of cargoes (60 percent of cargoes from Queensland). Korea is an emerging buyer (53 cargoes) and 2016 saw regular Australian cargoes to India (16 cargoes).

Taxation

The Australian government, like many other First World governments with aging populations and the automation of many types of employment, is facing and will continue to face, challenging budget conditions. At the same time, increased focus is being given to preventing international tax arrangements that result in profit-shifting and limited income tax being paid in Australia.

Given the difficulties taxing the income of multinationals in high-tax jurisdictions such as Australia, it is perhaps inevitable that more focus will be given to taxing those things that cannot be shifted through paperwork alone—things like land and mineral resources. The Australian government has recently expressed concerns that tax revenue from Australia's oil and gas sector and, in particular, from recent LNG investment is perhaps lower than it should be. Profits from the sector have more than halved since 2013 despite Australia being on track to become the world's biggest LNG exporter by 2020.

The Australian government has released the report of a review into the Petroleum Resource Rent Tax (PRRT), which applies to all onshore and offshore petroleum production. The PRRT is assessed on a petroleum project basis and is levied at a rate of 40 percent of a project's taxable profit. Taxable profit is calculated by deducting a project's eligible project expenses from the assessable receipts derived from the project. Deductible expenditure broadly includes those expenditures, whether capital or revenue in nature, which are directly incurred in relation to the petroleum project.

Where a project incurs deductible expenditure that exceeds its assessable receipts in a financial year, the excess is carried forward and uplifted to be deducted against future assessable receipts derived by the project in future years. PRRT payments are deductible for company tax purposes. The PRRT is designed to capture profits after a return on the costs of development of a project has been realized. Oil and gas projects have long lead times and involve significant capital investments before any revenue is realized. Under the PRRT regime,

projects do not pay tax until all their prior eligible expenditures have been deducted.

The PRRT is a profit-based tax rather than a flat royalty like those that apply to the mining of iron ore and coal.

Experts have noted that the PRRT regime was designed during a time when oil was more profitable than gas, and that the current tax system is not fit for purpose when it comes to ensuring a return on gas resources.

The report highlighted improvements that can be made to the PRRT regime over the longer term. The report found that the decline in PRRT revenue did not, in itself, indicate the Australian community is being shortchanged in receiving an equitable return from the development of its resources. It also found that the current scheme is not deterring investment. The report recommended some changes that impact beyond the current investment decision horizon, such as uplift rates, transferability and order of claiming deductions. The Australian government is currently considering its response to the report. The Australian government will, however, be keen to ensure that any changes are not seen as increasing Australia's sovereign risk. However, any changes to the PRRT regime are likely to meet this criticism.

What does the future hold for Australian LNG?

The forecast for LNG production in Australia is positive. However it is expected that companies will struggle to justify big LNG builds over the next few years as the supply overhang in the LNG market, coupled with such uncertainties as deregulation and the role of nuclear energy in Japan, have made some buyers reluctant to commit to long-term contracts.



David Perks

Partner, Perth

D +61 8 9323 0913

david.perks@dentons.com



Kym Livesley

Partner, Sydney

D +61 2 9931 4894

kym.livesley@dentons.com

Postscript Note

Since first preparing this paper, the Australian government has taken the policy actions described in the postscript note at page 57.





The EU's “consolidated turnover” approach: New challenges for transactions with Chinese energy enterprises

By Burt (Xiaofeng) Li

Chinese outward investment in the energy sector hit a new regulatory hurdle in the past year in connection with potential transactions in the European Union. In an arguably protectionist-inspired move away from recent precedent involving Chinese companies, the EU antitrust authorities have taken an expanded approach to jurisdictional thresholds where a Chinese state-owned entity (SOE) company seeks to acquire European energy assets, even where that Chinese company enjoys a good deal of autonomy in its decision-making and operations. The change means that Chinese companies may now be subject to an added layer of scrutiny to obtain approval for investments in Europe.

EU competition law: Threshold for jurisdiction

Transactions subject to the merger control authority of the European Commission (the Commission) must be approved by the Commission before they can be consummated. The EU may assert jurisdiction over any entity, public or private, where the transaction has “an EU dimension.” The threshold for EU approval authority is measured in terms of the merging parties’ global turnover (i.e., revenue). The Commission has jurisdiction over transactions where:

- (a) the combined global sales of the parties to the transaction amounts to more than €5 billion, and the combined aggregate sales of at least two parties to the transaction is more than € 250 million; or
- (b) the combined global turnover of the merging parties is more than € 2.5 billion and the combined turnover of the merging entities is more than €100 million in each of three EU member countries (with turnover of at least €25 million for each of two of the merging parties in each of those three EU member states), and EU-wide sales of at least €100 million for each of at least two of the merging entities. (Mergers that fall under this threshold, or where more than two thirds of the EU-wide turnover is within a single European country, may be reviewable under individual state merger controls.)

In mergers involving SOEs, EU regulations allow the authorities to look at the aggregated economic activities of all entities that make up an economic unit with independent power of decision. The Commission has issued guidance which notes that where the merging SOE is “not subject to coordination with other state-controlled holdings” or is not “under the same ...center of commercial decision-making” as other businesses, it may be considered “independent” for merger review purposes.

In previous cases involving mergers between Chinese SOEs and European companies, the Commission has not had to take the aggregated approach, as the jurisdictional threshold was met by the SOE without looking beyond its own turnover. However, the Commission left open the possibility of a broader approach in those earlier cases.

The CNG/EDF joint venture: The Commission changes its approach to Chinese SOEs

Last year, the Commission reviewed and approved a joint venture between China General Nuclear Power Group Co., Ltd. (CGN) and Electricité de France (EDF). See European Commission Case M.7850 - EDF/CGN/NNB Group of Companies, Regulation (EC) No 139/2004 Merger Procedure, Article 6(1)(b) Non-Opposition, Date: 10/03/2016. The transaction involved CGN's investment and acquisition of a joint right of control over three EDF holding company affiliates set up to construct and operate three nuclear power plants in the UK (collectively, the NND companies).

In this case, CGN's total EU turnover, if viewed as an independent entity, would not have reached the required threshold to trigger EU merger control. In the other transactions involving Chinese SOEs, the jurisdictional threshold was met, so the EU clearly had review authority. In those cases, the EU regulator considered the degree of control exercised over CGN by the Chinese Central State-owned Assets Supervision and Administration Commission (SASAC)¹, but generally accepted the parties' arguments that there was no competitive concern because, among other things, SASAC's ability to influence or exert control over the business strategies and budgets of SOEs under its oversight was limited by Chinese law, and that there were no interlocking directorates between the entities, so there was no risk of coordination or sharing of confidential or strategic business information. This time, however, in order to meet the jurisdictional threshold for review, the Commission looked beyond CGN and included the combined total turnover of all SOEs under SASAC's supervision that were operating in the energy sector.

CGN argued that the same considerations the Commission has examined in other cases involving Chinese SOEs were applicable to the case at bar. The 2008 People's Republic of China Enterprise State-Owned Assets Law requires SASAC to abide by the principle of "separate government functions from enterprise management," and prohibits SASAC from interfering in companies' legal and independent operations. Further, SASAC is unable to direct the strategic business practices of CGN. For example, CGN's Articles of Association provide that SASAC can only relieve a director appointed by SASAC at a meeting of the shareholders, and only when that director has engaged in misconduct or illegal activity. Moreover, there are no interlocking directors serving on the boards of both CGN and SASAC and an internal confidentiality agreement would preclude it from sharing confidential or sensitive information with other SASAC-controlled SOEs, so that there would be no coordination of business operations.

¹ SASAC is akin to a holding company, created to hold the shares of SOEs that previously were held directly by the state. There are approximately 300 central government SASACs (also referred to as Central SASACs), as well as a host of provincial and municipal SASACs overseeing local government SOEs (sometimes called Local SASACs).

The Commission conducted a close analysis of the Chinese laws addressing the scope of SASAC's authority over CGN and concluded that CGN did not have independent control over its business and investment strategies. SASAC is the majority shareholder in CGN. It has the ability to appoint officers and senior executives (including the chairman, vice chairman, president, chief financial officer and others) and to recommend to shareholders the appointment of directors. SASAC also evaluates and assesses the performance of executives annually and determines bonuses and incentives in accordance with the results of those performance evaluations. Regulations require SOEs under SASAC's supervision to submit their investment plans to SASAC annually, and to promptly report any investments not included in those annual plans. The SOE is responsible for managing and optimizing the investments once made, but as a practical matter, SASAC does have the power to approve strategic business and investment decisions. The lack of interlocking directorships, according to the Commission, was not sufficient to support a conclusion that CGN has independent decision-making authority.

Significantly, the Commission found that SASAC has particular ability under Chinese law to influence coordination between SOEs in the energy and nuclear industries. The law on SOEs expressly provides that "the state shall take measures to promote the centralization of state-owned capital to the important industries and fields [such as the energy and nuclear industries] that have bearings on the national economic lifeline and state security ... and strengthen the control force and influence of the state-owned economy." Among other things, CGN is part of the China Nuclear Industry Alliance, an association that was directed by the Chinese government to "achieve some synergy" and was established for the purpose of eliminating harmful competition in the export markets. The Commission pointed to provisions in the CGN-EDF Term Sheet for Industrial Cooperation as support for its finding that SASAC is able to influence the strategic investment decisions and facilitate coordination between SOEs in the energy industry, and therefore CGN (and other SOEs in this industry) could not be regarded as independent.

As a result, the Commission determined that it could aggregate the EU turnover of all SASAC-controlled Chinese SOEs in the EU energy industry in order to reach the jurisdictional threshold. The decision looked at the combined turnover of CGN and China National Chemical Corporation (ChinaChem) another Chinese SOE that operated a number of crude refining plants in the EU, which easily brought the CGN-EDF transaction within the scope of the Commission's merger review authority. (In fact, the Commission had easy access to information about ChinaChem, as not long before it had reviewed a proposed merger between Pirelli and a ChinaChem subsidiary.)

Effect on Chinese M&A investment in the EU

The CGN-EDF case represents the first time that the Commission has extended its merger control authority to find jurisdiction over a transaction involving a Chinese SOE by looking to the turnover of another Chinese SOE operating in the EU energy industry.

As a practical matter, it means that SASAC-supervised Chinese companies, at least in the energy sector, will likely need to be prepared to seek Commission approval for merger activity with European entities. Beyond this, the implications for future transactions are not clear, and the Commission's decision raises a number of questions, among them:

Will the EU take this approach to all transactions involving SASAC-supervised SOEs, or does the fact that this case involved an enterprise in the energy—and particularly the nuclear energy—industry somehow set it apart from mergers in other industries?

On the one hand, the language used in the Commission's decision appears to be limited to SASAC-controlled SOEs in the energy field. On the other hand, the language that the Commission pointed to in the Chinese law on SOEs referred quite broadly to enterprises related to "the national economy life line" and "national security." It is not yet clear just how broadly the Commission will interpret this when addressing investment in the EU by Chinese SOEs. Certainly a broad range of companies and industries could come within the scope of this provision, and thus be subject to an aggregated turnover analysis in order to permit the EU Commission to scrutinize transactions.

How will SOEs under the control of Local SASAC or other Chinese government authority react to the Commission's exercise of jurisdiction?

Except to the extent that CGN is partly owned by a local SASAC, the Commission did not address whether Chinese SOEs under the supervision of Local SASACs would be treated the same as those under Central SASAC's control. The turnovers of the SOEs controlled by Central SASAC were enough to meet the jurisdictional threshold, so the Commission expressly left open the question of when and if local SASACs would be considered as forming a single entity with the merging party for purposes of determining jurisdiction. Related to this question, what approach will the Commission take when a merger or acquisition involves a Chinese SOE that has no presence in the EU (prior to the transaction), or when a transaction is between a Chinese SOE and a non-European company? These questions are not addressed at all in the Commission's decision.



How does the Commission's approach to Chinese SOEs comport with the terms of EU Treaty Article 101?

EU Treaty Article 101 prohibits companies from entering into anti-competitive agreements or otherwise engaging in collusion; however, the prohibition is generally not applicable to enterprises that form the same economic unit. The Commission's review to date has focused on whether SASAC-controlled SOEs could be regarded as a single entity for purposes of its merger control jurisdiction; but so far, the Commission has avoided the question of whether any particular Chinese SOE is independent from other Chinese SOEs for Article 101 purposes.

Practitioner's observations

The Commission's rather aggressive approach to the joint venture between EDF and CGN was surprising given CGN's relatively minor prior activity in the EU energy sector. CGN is, of course, active in China's nuclear sector, but it was something of a newcomer to Europe. When the CGN-EDF transaction was undertaken, CGN had holdings in three UK wind projects (for which it held a majority share in only one), and also had an investment in a one-gigawatt solar project in France. But while these other transactions may not have caused the Commission any concern, CGN's interest in the EU's nuclear industry (CGN's core business in China) caught the Commission's attention

and likely prompted it to find a "European dimension" to the transaction so that it could exercise jurisdiction where none would otherwise lie.

One could argue that CGN's wind and solar holdings were in a separate industry from the nuclear industry, and therefore may not have been appropriate for inclusion in the analysis to determine CGN's presence and influence in the relevant European market. Nevertheless, the Commission did look at this aspect of CGN's business, and concluded that the holdings were related to the transaction in question. Still unable to find that CGN met the threshold for the exercise of jurisdiction over the joint venture, it was only by looking to another SASAC-supervised SOE that was active in an arguably related (at least according to the Commission) subsector of the European energy economy, that the Commission was able to establish the necessary threshold for review.

During the course of its merger review, the Commission thoroughly examined the October 2015 strategic investment agreement between EDF and CGN, including their choice of reactors for use at each of the sites and each of their goals in entering the joint relationship. In particular, the Commission notes that CGN was eager to have its reactor technology approved for use in the UK. It is clear from the focus of the Commission's decision that it was the transaction's potential impact on the nuclear sector



that was of interest to it, even though the deal could not have increased concentration in the sector or stifled competition or prevented new market entry (indeed, CGN was itself a new entrant to the European nuclear market) or caused any of the other usual antitrust concerns that arise in connection with merger review.

Nevertheless, the CGN-EDF decision may herald the advent of two sets of standards for European merger review applicable to transactions in nuclear and other highly sensitive sectors of the economy. Whether the Commission will take the same approach in future antitrust reviews of transactions involving Chinese SOEs is uncertain. It may decide to apply the aggregated-turnover approach more broadly, say to all transactions involving SOEs regardless of nationality. Or this case may be an outlier, the approach based solely on the specific circumstances of a company operating in a select segment of the energy sector. Only time will tell.



Burt (Xiaofeng) Li
Senior Partner, Beijing
D +86 10 5813 7059
xiaofeng.li@dentons.cn

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