RENEWABLE ENERGY

ANNUAL REVIEW **2016**

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Financier Worldwide canvasses the opinions of leading professionals around the world on the latest trends in renewable energy.

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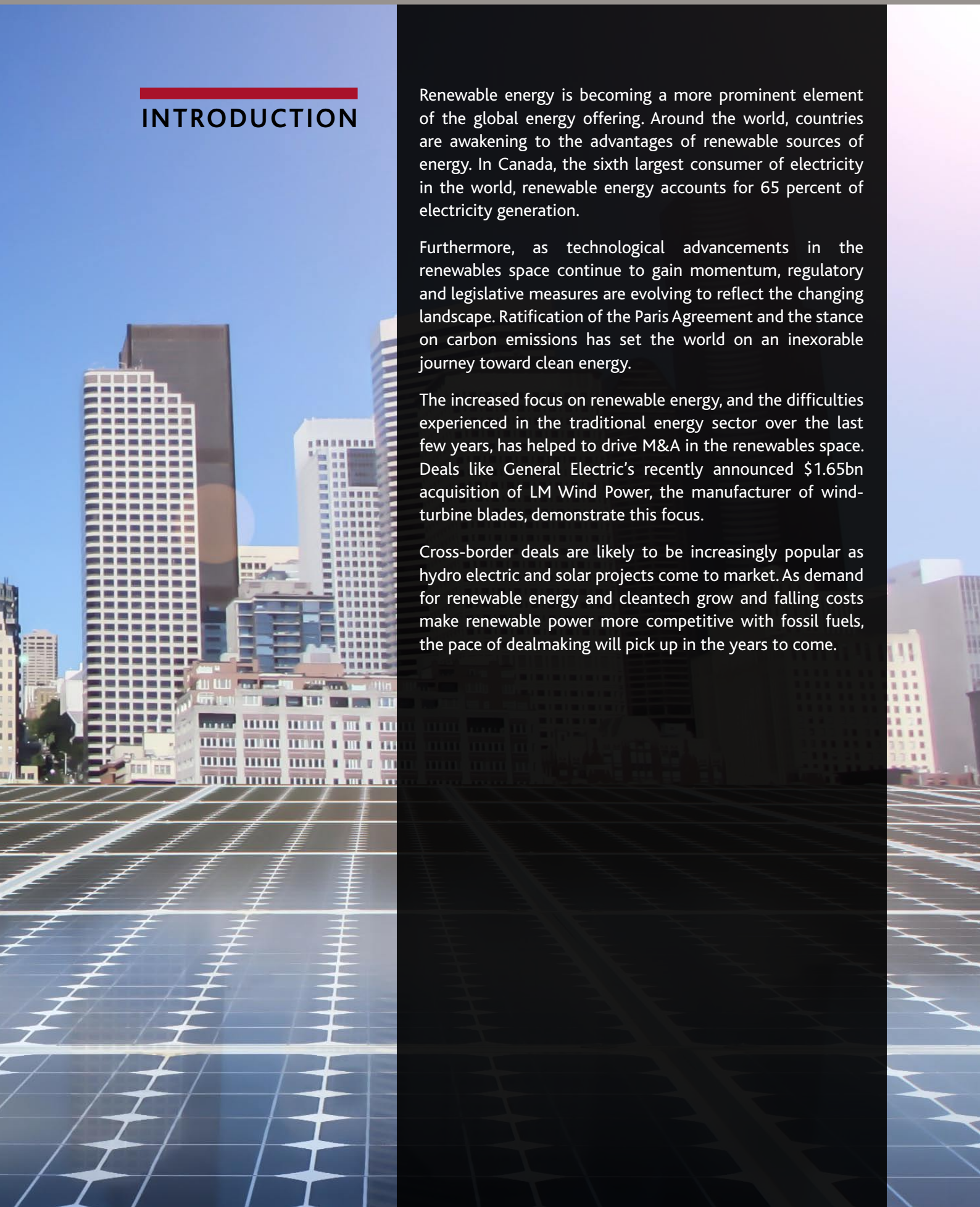


INTRODUCTION

Renewable energy is becoming a more prominent element of the global energy offering. Around the world, countries are awakening to the advantages of renewable sources of energy. In Canada, the sixth largest consumer of electricity in the world, renewable energy accounts for 65 percent of electricity generation.

Furthermore, as technological advancements in the renewables space continue to gain momentum, regulatory and legislative measures are evolving to reflect the changing landscape. Ratification of the Paris Agreement and the stance on carbon emissions has set the world on an inexorable journey toward clean energy.

The increased focus on renewable energy, and the difficulties experienced in the traditional energy sector over the last few years, has helped to drive M&A in the renewables space. Deals like General Electric's recently announced $1.65bn acquisition of LM Wind Power, the manufacturer of wind-turbine blades, demonstrate this focus.

Cross-border deals are likely to be increasingly popular as hydro electric and solar projects come to market. As demand for renewable energy and cleantech grow and falling costs make renewable power more competitive with fossil fuels, the pace of dealmaking will pick up in the years to come.

UNITED STATES

TODD E. ALEXANDER
CHADBOURNE & PARKE LLP

Q IN YOUR OPINION, WHAT KEY TRENDS HAVE DEFINED THE RENEWABLE ENERGY SPACE OVER THE PAST 12-18 MONTHS OR SO? WHAT IMPACT ARE MACROECONOMIC FACTORS, SUCH AS ENERGY PRICES, HAVING ON RENEWABLES?

ALEXANDER: There are three key trends that I would like to highlight. The first is the affect of rapidly declining prices for solar power. Recent examples include the $2.99 per kWh bid to develop an 800MW solar project in Dubai and only slightly higher bids by developers in Mexico's most recent auction. In the US, we are seeing similar declines in pricing, although I have yet to see a contract as low as the ones announced in the Middle East. The second trend is the growth in the number of independent power producers who are bypassing the utilities and selling directly to private companies. In 2015, 3160MW of such power purchase agreements were signed. The third trend is the extension by the US Congress of the renewable energy tax credits on 18 December 2015. These credits are the unpinning of the US renewables market and the extension provided the industry with the certainty necessary to foster continued investment in the renewables sector.

Q WHAT TYPES OF RENEWABLE ENERGY SEEM TO BE ATTRACTING THE MOST ATTENTION IN THE US?

ALEXANDER: In the US, wind and solar continue to dominate the renewables sector. For instance, the US installed 2051MW of solar PV in Q2 2016 to reach 31.6GW of total installed capacity. However, the most interesting developments relate to offshore wind and rooftop solar. The first offshore wind project in the US closed earlier this year – the $290m, 30MW project off the coast of Rhode Island. The US government has awarded approximately 12 offshore leases, so other offshore wind projects may achieve commercial operations. The residential solar market is growing rapidly in a few new regions where solar has only recently reached grid parity, while rates of growth have slowed in other more mature markets, such as California.

Q IN WHAT WAYS ARE ENERGY POLICIES AND POLITICAL AGENDAS SHAPING THE RENEWABLE ENERGY DEBATE? HOW WOULD YOU DESCRIBE THE OUTLOOK FOR THE ENERGY MIX IN THE US, IN TERMS OF TRADITIONAL FOSSIL FUELS VERSUS CLEAN ENERGY?

ALEXANDER: The mix of technology providing the US with energy is changing. Coal-fired generation has been in decline while natural gas-fired generation and renewables have increased. The US Environmental Protection Agency issued the Clean Power Plan in 2014, which would further emphasise this trend. Under the plan, CO2 emissions would be reduced by 32 percent from power plants by 2030 compared to 2005 levels. The plan is being challenged by the Murray Energy Corporation and the attorneys general in 12 coal-reliant states who question whether the EPA has been given legal authority by Congress to regulate CO2 emissions. As a result, even though the plan was finalised in 2015 and was supposed to take effect this year, lengthy litigation has effectively blocked the implementation of the plan to date.

Q HAVE THERE BEEN ANY SPECIFIC LEGISLATIVE OR REGULATORY DEVELOPMENTS IN THE US LIKELY TO AFFECT THE RENEWABLE ENERGY SPACE?

ALEXANDER: In December 2015, Congress passed a bill that extended the production tax credit and investment tax credit, which underpin wind and solar development in the US. Wind projects generally claim the production tax credit, which was extended through 2016, after which it will decline in each year rateably until it fully expires in 2020. Solar projects generally claim the investment tax credit, which is equal to 30 percent of eligible property, and was extended through 2019, after which it will fall to 26 percent in 2020, 22 percent in 2021 and 10 percent in 2022. As a result, there is a rush to start construction on wind projects in 2016, so as to qualify for the full production tax credit.

"Given the intermittent nature of most renewables, energy storage is seen as an essential ingredient to increasing the mix of energy supplied by renewable resources."

Q COULD YOU PROVIDE AN INSIGHT INTO CURRENT ADVANCEMENTS IN RENEWABLE ENERGY? WHAT ISSUES ARE DRIVING THE FLOW OF INVESTMENT, R&D CAPITAL AND PROJECT DEVELOPMENT, FOR EXAMPLE? IS INNOVATIVE TECHNOLOGY HAVING AN IMPACT?

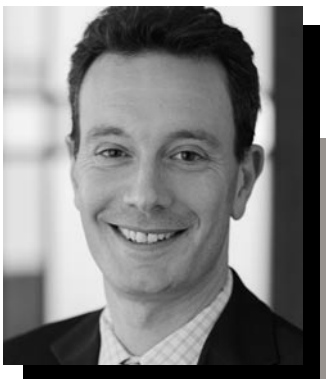
ALEXANDER: Significant research efforts, and dollars, have been spent on energy storage. Given the intermittent nature of most renewables, energy storage is seen as an essential ingredient to increasing the mix of energy supplied by renewable resources. In furtherance of this goal, the California Public Utilities Commission approved a target requiring the state's three largest investor-owned utilities, aggregators and other energy service providers to procure 1.3GW of energy storage by 2020. Further, the US Internal Revenue Service has issued three private letter rulings confirming that a 30 percent investment tax credit can be claimed on batteries that are installed as part of renewable energy projects. The batteries must be positioned and operated in a way that they are considered part of the electric generating equipment.

Q HOW WOULD YOU CHARACTERISE M&A ACTIVITY IN THE RENEWABLE ENERGY SPACE IN THE US? WHAT ARE THE MAIN FACTORS DRIVING DEALS?

ALEXANDER: There has been significant M&A activity in the US over the last 12 months. The biggest contributor to this has been the bankruptcy of SunEdison, which was previously the most active developer and acquirer of renewable energy projects in the market. SunEdison is in the process of auctioning between four and five GWs of operating and development assets. Recently, NRG has announced plans to acquire 26 commercial and industrial projects from SunEdison. Other sales have been announced as well, including to First Reserve and Onyx Renewables.

Q LOOKING AHEAD, WHAT TRENDS DO YOU EXPECT TO SEE EMERGING IN RENEWABLE ENERGY? WHAT ISSUES ARE LIKELY TO INFLUENCE THE CONTINUED GROWTH OF THIS AREA?

ALEXANDER: There is growth in community solar projects. These projects afford those who cannot otherwise take advantage of residential solar, such as apartment dwellers, with an opportunity to subscribe to an interest in a solar facility. There also has been a growing trend by regulated utilities to seek approval to impose a surcharge on residential solar users in an effort by the utilities to allocate some of their fixed infrastructure costs to users who would otherwise have very low utility bills. The utilities argue that the homeowners with solar panels usually see dramatic reductions in their electric bills while they continue to rely on the grid for electricity at night and on cloudy days. As a result, the utilities are collecting less revenue from these customers even though their infrastructure costs remain nearly the same.



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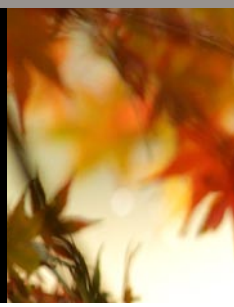
Todd Alexander is a recognised leader in the renewables sector. His practice includes representing developers of and lenders to energy-related projects, including solar, wind, hydro, biomass, biofuel, fertiliser, desalinisation and clean coal facilities. He has participated in limited recourse financings in the United States, Latin America, Asia and Africa. He has represented both the sellers and purchasers of ownership interests in several power projects and biofuel facilities.

CANADA

SCOTT WHITBY
FASKEN MARTINEAU DUMOULIN LLP



Q IN YOUR OPINION, WHAT KEY TRENDS HAVE DEFINED THE RENEWABLE ENERGY SPACE OVER THE PAST 12-18 MONTHS OR SO? WHAT IMPACT ARE MACROECONOMIC FACTORS, SUCH AS ENERGY PRICES, HAVING ON RENEWABLES?

WHITBY: Over the last 12 to 18 months, we have seen continued consolidation among industry participants with larger developers acquiring projects from smaller independents as they approach or reach construction ready stage. Larger Canadian developers have also been looking abroad, for example to Europe, the US and Latin America, for opportunities to expand their portfolios, with fewer recent opportunities in local markets. There is now new or renewed interest in fossil-fuel based markets such a Alberta and Saskatchewan, which have recently implemented new policies committing to the development of renewables and that are intended to encourage new investment to replace retiring coal generation. Record low oil and gas prices, with plentiful and low-cost gas as the alternative fuel in many of the key markets, and the development of mega hydro projects in BC, Site C, Manitoba, Keeyask and Labrador, Lower Churchill, have continued to suppress or delay investment in new wind and solar renewables, despite dropping prices of solar and wind.

Q WHAT TYPES OF RENEWABLE ENERGY SEEM TO BE ATTRACTING THE MOST ATTENTION IN CANADA?

WHITBY: Canada is the sixth largest consumer of electricity in the world and has the world's third largest capacity for renewable energy, with approximately 65 percent of its total electricity generation originating from renewable sources. Each year, renewables account for a greater share of Canada's electricity generation capacity. At present, hydroelectricity is the largest single source, accounting for approximately 59 percent of total electricity generation and making Canada the second largest producer of hydroelectricity in the world. Manitoba, British Columbia, Newfoundland and Labrador and Quebec produce over 90 percent of Canada's hydroelectricity with approximately one-half of that generated in Quebec. At present, wind and solar power generation are Canada's two fastest growing sources of electricity generation. Wind power generation is now the second largest source of electricity generation, accounting for approximately 3.5 percent of total electricity generation in Canada.

Q IN WHAT WAYS ARE ENERGY POLICIES AND POLITICAL AGENDAS SHAPING THE RENEWABLE ENERGY DEBATE? HOW WOULD YOU DESCRIBE THE OUTLOOK FOR THE ENERGY MIX IN CANADA, IN TERMS OF TRADITIONAL FOSSIL FUELS VERSUS CLEAN ENERGY?

WHITBY: The renewable energy debate is largely driven by provincial energy policies in Canada. Provincial governments, each with their own objectives around climate change and the energy mix in their region, position themselves differently in the renewables debate. Demand for electricity was greatly reduced in most provinces by the last recession and there was a corresponding negative impact on policies aimed at increasing renewables. Provinces were far more active on the topic in the mid-2000s. However, with the COP 21 Paris Agreement, and a number of provincial governments' and the Canadian federal government's new focus on climate change related issues, we are already seeing new renewable energy policies emerge in a number of jurisdictions. Record low oil and gas prices continue to mute the economic competitiveness of renewables however, and so strong policy signals will be required for there to be a significant change in the energy mix in the short to medium term.

Q HAVE THERE BEEN ANY SPECIFIC LEGISLATIVE OR REGULATORY DEVELOPMENTS IN CANADA LIKELY TO AFFECT THE RENEWABLE ENERGY SPACE?

WHITBY: The most important legislative and regulatory development that will affect the renewable energy space is an increasingly consistent national approach to carbon pricing. Four provinces – BC, Alberta, Ontario and Quebec – have already established provincial mechanisms to impose a price on carbon. These provinces use different mechanisms: cap and trade in Ontario and Quebec, a carbon tax in BC and a mixed system in Alberta that includes a carbon levy, fixed caps on certain sectors and a form of cap and trade for large emitters. The federal government recently announced that it intends to introduce a national carbon tax to ensure consistency among Canadian provinces. The national carbon tax will be set at $10 per tonne in 2018 rising to $50 per tonne in 2022. The federal carbon tax is intended to spur provincial carbon pricing initiatives – the federal carbon tax will apply only in provinces that have not adopted an equivalent provincial carbon price, either through a carbon tax or using cap and trade.

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"Nationally, the future implementation of Canada's carbon tax policy and related climate change initiatives will be a key driver for increased renewable energy development."

Q COULD YOU PROVIDE AN INSIGHT INTO CURRENT ADVANCEMENTS IN RENEWABLE ENERGY? WHAT ISSUES ARE DRIVING THE FLOW OF INVESTMENT, R&D CAPITAL AND PROJECT DEVELOPMENT, FOR EXAMPLE? IS INNOVATIVE TECHNOLOGY HAVING AN IMPACT?

WHITBY: Canada is on the frontline of advancements in renewable energy. The adoption of the Paris Agreement at COP21 by Canada signalled a renewed commitment by the newly elected federal government to encourage the development of renewable energy technologies. Challenges to the sector persist as many of these technologies remain economically challenging absent policy direction or subsidies. New renewable technologies also face commercialisation barriers due to the current state of depressed energy prices globally and competition from mature energy technologies. Currently, there are two areas of technological advancement that are having a noteworthy impact on the renewable energy sector in Canada. First, the development of grid-connected energy storage installations has the potential to mitigate the intermittent nature of renewable energy and promote its widespread adoption. Sustainable Development Technology Canada (SDTC), a Federal programme that funds cleantech projects and fosters commercialisation, is investing in projects such as the Underwater Compressed Air Electrical Storage system that allows for grid scale electricity to be stored in the form of compressed air below water.

Q HOW WOULD YOU CHARACTERISE M&A ACTIVITY IN THE RENEWABLE ENERGY SPACE IN CANADA? WHAT ARE THE MAIN FACTORS DRIVING DEALS?

WHITBY: Canada has seen measured renewables related M&A activity in recent years. The interest in renewables globally has seen a number of Canadian companies acquiring interests in renewables projects overseas. In 2015, a consortium of investors, including Canadian pension fund OPTrust, co-invested in an Australian wind farm project, and Enbridge Inc. picked up an interest in a UK offshore wind project. In Canada, development of large-scale utility hydroelectric projects over the last few years has muted the demand for other new renewable projects, and has had a corresponding chilling effect on the M&A market. Still, there have been a number of M&A related transactions. Large developers like EDF EN Canada have been divesting of project interests to financial investors as projects are de-risked and reach commercial operation.

Q LOOKING AHEAD, WHAT TRENDS DO YOU EXPECT TO SEE EMERGING IN RENEWABLE ENERGY? WHAT ISSUES ARE LIKELY TO INFLUENCE THE CONTINUED GROWTH OF THIS AREA?

WHITBY: Nationally, the future implementation of Canada's carbon tax policy and related climate change initiatives will be a key driver for increased renewable energy development. There will be detractors and resistance from some provinces and sectors. If the policy is implemented as proposed, with incremental annual tax/cap and trade increases, it will spur investment in renewable energy and other technologies that reduce or avoid carbon emissions. Canada is a mix of different power markets and utility systems and each will be affected in its own way. The markets expected to provide substantial non-hydroelectric renewables growth in Canada will continue to be Alberta and Saskatchewan. The pace of renewables development in those markets will be determined by the details of the next renewables procurement in Alberta, expected in late 2016, and subsequent processes. The continued development over the next five plus years of large scale hydroelectric and other projects currently under construction in BC, Manitoba and Labrador will continue to slow the need for new medium to large scale projects from other renewable sources in those markets in the mid-term.

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CHILE

GONZALO JIMÉNEZ
CARIOLA, DÍEZ, PÉREZ-COTAPOS & CÍA LTDA

Q IN YOUR OPINION, WHAT KEY TRENDS HAVE DEFINED THE RENEWABLE ENERGY SPACE OVER THE PAST 12-18 MONTHS OR SO? WHAT IMPACT ARE MACROECONOMIC FACTORS, SUCH AS ENERGY PRICES, HAVING ON RENEWABLES?

JIMÉNEZ: In May 2014, the Chilean government published the Energy Agenda for the years ahead. This document contains the guidelines for implementing policies and regulations in the energy sector. By the time the Agenda was published, the generation industry was mostly controlled by four major generation companies and energy prices were among the highest in the region. The Agenda contemplated a more active role for the government in defining policies and new regulations. One of the declared purposes of the Agenda was to lower energy costs, introduce more competition to the market and increase efficiency and diversification in the energy industry. The Agenda was the basis of two new laws which were enacted in 2015 and 2016. The first introduced amendments to the bidding process for energy supply to distribution companies, promoting the participation of greenfield projects, and the second introduced major amendments to transmission regulations.

Q WHAT TYPES OF RENEWABLE ENERGY SEEM TO BE ATTRACTING THE MOST ATTENTION IN CHILE?

JIMÉNEZ: Solar and wind are top of the list. There are some countries in which hydro power is the obvious choice, like Colombia and Brazil. In the case of Chile, however, most of the hydro reserves are in the Deep South, far from populated areas. On the other hand, there are no relevant reserves of gas, oil or coal in Chile. Nuclear is difficult to implement due to seismic activity. Geothermal is still underdeveloped mainly due to high exploration costs and the uncertainty of economic feasibility. In addition, energy integration with other nations has been difficult in the past and to some extent traumatic. Therefore, the obvious choices for independent and reliable energy in Chile are solar and wind, since northern Chile has some of the highest solar radiation in the world, and wind is normally close to the seashore, with Chile's coastline exceeding 4000km.

Q IN WHAT WAYS ARE ENERGY POLICIES AND POLITICAL AGENDAS SHAPING THE RENEWABLE ENERGY DEBATE? HOW WOULD YOU DESCRIBE THE OUTLOOK FOR THE ENERGY MIX IN CHILE, IN TERMS OF TRADITIONAL FOSSIL FUELS VERSUS CLEAN ENERGY?

JIMÉNEZ: Policies and regulations in recent years have promoted renewable energy. A law enacted in 2015 promoted the participation of new entrants and greenfield projects, mostly in renewables. As a result, a recent public bidding process impacted the energy sector in two ways. First, prices for residential customers dropped dramatically. The lowest price was offered by a new solar plant at US$29/MWh, which is approximately one-third of the price proposed in previous bidding processes. The average price was US$47.5/MWh. Second, although the existing dominant Endesa, owned by Enel, was awarded nearly 50 percent of the supply agreements, the other half was awarded to new companies, some of which do not have a presence in the local market. This changes the structure of the generation sector, which has been dominated mainly by Endesa, Colbún, AES Gener and GDF Suez. In terms of participation, clean energy was awarded most of the contracts, but this energy needs traditional energy as the basis of the system, which may operate at times of the day when solar and wind is not available.

Q HAVE THERE BEEN ANY SPECIFIC LEGISLATIVE OR REGULATORY DEVELOPMENTS IN CHILE LIKELY TO AFFECT THE RENEWABLE ENERGY SPACE?

JIMÉNEZ: In 2008, a new law provided that all generation companies that withdraw energy from the grid to trade it with energy with distribution companies or end users must provide evidence that a certain percentage of their withdrawals during each calendar year are injected into the grid through renewable sources, either owned or contracted. The percentage of renewables initially established in the law was 5 percent of the total withdrawals for customers, which was to be increased gradually until 2020 to 10 percent. In 2013, however, a law established new percentages up to 20 percent by 2025. The law also established mandatory public bidding processes in order to achieve the applicable percentage, which was subsequently amended in 2015 to promote the participation of greenfield projects.

Q COULD YOU PROVIDE AN INSIGHT INTO CURRENT ADVANCEMENTS IN RENEWABLE ENERGY? WHAT ISSUES ARE DRIVING THE FLOW OF INVESTMENT, R&D CAPITAL AND PROJECT DEVELOPMENT, FOR EXAMPLE? IS INNOVATIVE TECHNOLOGY HAVING AN IMPACT?

JIMÉNEZ: Traditionally, Chilean law has been neutral in terms of technology. For a long time, the supply agreements for distribution companies were necessarily awarded to those proponents offering the lowest price, regardless of the source of energy. From 2015, however, the law allows for the awarding of supply agreements considering other factors like the diversity of generation sources. This way, in the last bidding process that ended in August 2016, some of the blocks of energy were designed for the participation of renewable energies. On the other hand, the law of 2015 introduced a mechanism that allowed awarded bidders to postpone the initiation of the supply for up to three years in case of delays in the development or construction of new projects due to unforeseeable events. This enabled the participation of several newcomers.

Q HOW WOULD YOU CHARACTERISE M&A ACTIVITY IN THE RENEWABLE ENERGY SPACE IN CHILE? WHAT ARE THE MAIN FACTORS DRIVING DEALS?

JIMÉNEZ: There are a number of local developers looking to sell their ready-to-build projects to foreign companies. These projects are commonly mini hydro and solar projects. On the other hand, major changes in the economy in general, and to energy prices in particular, mean that some supply agreements are no longer attractive either for the offtaker – because the agreed cost for energy turned out to be extremely high in comparison with current market prices – or for the generator because the energy price in the current market is much higher than the contracted price. In all these cases, the party that wishes to walk away may initiate legal actions either for the revision of prices or for early termination. This has happened in the past in connection with LNG based PPAs and may happen in the future with other technologies, such as wind and solar if market prices substantially deviate from long term contractual prices. In some cases, the renegotiation of the terms of a PPA has created an opportunity for new companies to enter with a willingness to take over existing PPAs and generation assets.

"From a political point of view, both the government and the people do promote and advocate renewables."

Q LOOKING AHEAD, WHAT TRENDS DO YOU EXPECT TO SEE EMERGING IN RENEWABLE ENERGY? WHAT ISSUES ARE LIKELY TO INFLUENCE THE CONTINUED GROWTH OF THIS AREA?

JIMÉNEZ: It is expected that the recently enacted amendment on transmission of electricity regulations will help in solving bottlenecks in the grid for energy transmission from the north of the central grid to the centre and south of the country. In addition, the interconnection of the two main grids – the northern grid known as 'SING' for its Spanish acronym and the central grid known as 'SIC' for its Spanish acronym – will allow for transmission across the entire country. All this will enable solar plants and wind farms to inject all their capacity into the system, thus making projects more profitable. From a political point of view, both the government and the people do promote and advocate renewables, so the current national goal of 20 percent by 2025 is likely to increase to something in the neighbourhood of 40 or 50 percent in the near future.

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UNITED KINGDOM

MUNIR HASSAN
CMS CAMERON MCKENNA LLP

Q IN YOUR OPINION, WHAT KEY TRENDS HAVE DEFINED THE RENEWABLE ENERGY SPACE OVER THE PAST 12-18 MONTHS OR SO? WHAT IMPACT ARE MACROECONOMIC FACTORS, SUCH AS ENERGY PRICES, HAVING ON RENEWABLES?

HASSAN: Over the last 12 to 18 months, we have seen early closure of the 'renewables obligation' (RO) to more established renewable technologies, with full closure of all new capacity imminent on 31 March 2017. We have also seen the introduction of the 'contracts for differences' (CfDs) scheme, with the results of the first auction published on 26 February 2015, which has brought with it myriad associated processes for qualification and participation in auctions. CfDs serve to cushion those projects which are successful from macroeconomic factors, as generators are able to invest in low carbon technologies but are not exposed to the volatility of wholesale prices. We have also observed an increase in the sizes of projects, both in terms of scale of individual projects and also in terms of larger portfolios offered to the market. Developers and investors are trying to achieve better economics in a highly competitive market.

Q WHAT TYPES OF RENEWABLE ENERGY SEEM TO BE ATTRACTING THE MOST ATTENTION IN THE UK?

HASSAN: This varies depending on the players involved. Offshore wind remains a big part of the renewable energy mix, with the fourth and fifth offshore transmission tender rounds launched by Ofgem in relatively quick succession – in March and October 2016, respectively – and set to connect approximately 2.5 GW of generation capacity. The closure of the RO has resulted in a decline of onshore wind, but it is still attracting investment. Solar projects have also been impacted by the RO closure. Development of biomass has been sluggish, but more nascent technologies such as wave and tidal power are coming to the fore. This is perhaps unsurprising given we are an island nation with plentiful wave and tidal resource around the UK.

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Q IN WHAT WAYS ARE ENERGY POLICIES AND POLITICAL AGENDAS SHAPING THE RENEWABLE ENERGY DEBATE? HOW WOULD YOU DESCRIBE THE OUTLOOK FOR THE ENERGY MIX IN THE UK, IN TERMS OF TRADITIONAL FOSSIL FUELS VERSUS CLEAN ENERGY?

HASSAN: Energy policy is at the heart of the political agenda. The previous government announced early closure of subsidy schemes in 2015 in an attempt to control public expenditure. In November 2016, then Energy Secretary Amber Rudd framed the challenge in energy policy as the need to "make sure that energy remains as the backbone of our economy, while we transform to a low carbon system". However, she also spoke about getting "the right balance between supporting new technologies and being tough on subsidies to keep bills as low as possible", stating that she had "inherited a department where policy costs on bills had spiralled". She concluded that "new nuclear, new gas and, if costs, come down, new offshore wind will all help us meet the challenge of decarbonisation". This new energy agenda set the scene for 2016, with further impacts expected as a result of the Brexit vote. Research by Clean Energy Pipeline indicates a fall in clean energy project finance investments by 78 percent to $1.6bn in Q3 2016, meaning almost $6bn less spent in the UK on developing new solar, wind or biomass projects.

Q HAVE THERE BEEN ANY SPECIFIC LEGISLATIVE OR REGULATORY DEVELOPMENTS IN THE UK LIKELY TO AFFECT THE RENEWABLE ENERGY SPACE?

HASSAN: The renewable energy industry is in a period of ongoing change. Legislation and regulation is constantly evolving to keep pace with changes in technology, policies and political views, resulting in almost day to day changes in the application of new renewable projects. With a highly interconnected system, legislative developments in other areas also have an impact on the deployment of renewable energy. Development of energy storage technology has resulted in acceptance of 201 MW of Enhanced Frequency Response (EFR) from storage devices following the first EFR tender in July 2016. The current review and restructuring of distribution networks is expected to result in the implementation of distribution system operators who will be able to more proactively manage the deployment of embedded renewable

generation. The capacity market, with the next auction anticipated in December 2016, is also expected to have an impact on deployment of renewables as it drives investment in reliable sources of capacity, which tend to be more traditional technologies. The industry is in a state of flux, with many more changes in progress and in the pipeline.

Q COULD YOU PROVIDE AN INSIGHT INTO CURRENT ADVANCEMENTS IN RENEWABLE ENERGY? WHAT ISSUES ARE DRIVING THE FLOW OF INVESTMENT, R&D CAPITAL AND PROJECT DEVELOPMENT, FOR EXAMPLE? IS INNOVATIVE TECHNOLOGY HAVING AN IMPACT?

HASSAN: Much investment has been made in developing tidal, wave and lagoon technologies. The Swansea Bay Tidal Lagoon 'pathfinder' obtained a Development Consent Order in 2015 and construction is expected to start in 2017. We have also seen a number of floating offshore wind demonstrator projects, which could encourage commercial deployment once proven. Cost savings are also an important driver, with a lot of R&D focused on improving the efficiency of technology generally, the efficiency of component parts – such as turbines and offshore foundations – and the ability to scale up technology to achieve economies of scale. Investment is also driven by government through innovation competitions which allow licensed entities to obtain funding for R&D through their prices controls, and by developers who are keen to keep their supply chains busy to ensure future availability.

Q HOW WOULD YOU CHARACTERISE M&A ACTIVITY IN THE RENEWABLE ENERGY SPACE IN THE UK? WHAT ARE THE MAIN FACTORS DRIVING DEALS?

HASSAN: M&A activity has been frantic. Recent changes have resulted in a shortage of deals while many investors are looking for opportunities to invest and grow their capital. Funds and other investors that have traditionally invested only in proven operational assets are now investing much earlier in the lifecycle of projects, at the construction and even development phases, as competition becomes fiercer. The pace of secondary market trading has also increased, with larger portfolios offered to the market.

"The future holds some uncertainty about government subsidies for new renewable technologies."

Q LOOKING AHEAD, WHAT TRENDS DO YOU EXPECT TO SEE EMERGING IN RENEWABLE ENERGY? WHAT ISSUES ARE LIKELY TO INFLUENCE THE CONTINUED GROWTH OF THIS AREA?

HASSAN: We expect that newer technologies will become commercially deployable as the pathfinder and demonstrator projects prove that they are financially viable. While the government has earmarked funding to subsidise low carbon electricity prices, more players are fighting over an ever diminishing pot. We expect that competition in the M&A market will therefore continue to be fierce. The future holds some uncertainty about government subsidies for new renewable technologies, particularly as we focus on our new relationship with Europe and the rest of the world, but there will also be new opportunities and the drive to decarbonise the economy has not diminished.

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Munir Hassan is a partner in the Energy & Utilities Team and Head of Clean Energy at CMS in the UK. Mr Hassan advises on all aspects of electricity power generation, particularly in the renewables sector, including the securing of the project opportunity (whether merchant or government procured), permitting, dealing with the challenges of a constantly changing commercial and regulatory environment on a national and international level, the commercial arrangements for projects, the subsidy arrangements, the project contracts and construction arrangements. He is the editor of 'Wind: Projects & Transactions' and also of the forthcoming 'Power: A Practical Handbook'.

PORTUGAL

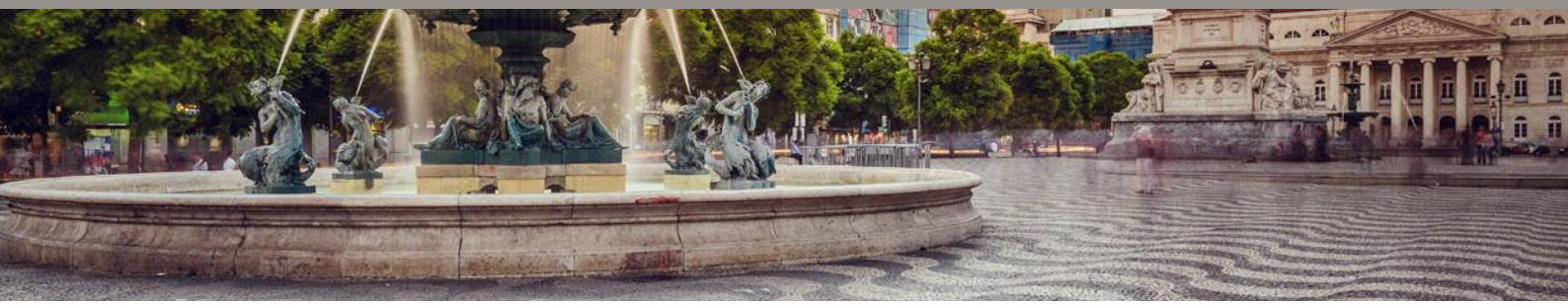
RICARDO ANDRADE AMARO
MORAIS LEITÃO, GALVÃO TELES, SOARES DA SILVA & ASSOCIADOS

Q IN YOUR OPINION, WHAT KEY TRENDS HAVE DEFINED THE RENEWABLE ENERGY SPACE OVER THE PAST 12-18 MONTHS OR SO? WHAT IMPACT ARE MACROECONOMIC FACTORS, SUCH AS ENERGY PRICES, HAVING ON RENEWABLES?

AMARO: The renewable energy sector in Portugal is undergoing a period of transition. The last renewable energy projects with guaranteed remuneration, via feed-in-tariffs (FiTs), are now reaching completion and no new remuneration schemes have been approved thus far by the government. This state of play, coupled with a low interest rate environment and the need for deleveraging for many of the traditional players in the sector, has resulted in M&A and asset rotation transactions. On the origination side, on the other hand, there have been requests for capacity injection in projects with no guaranteed remuneration, perhaps signalling the economic feasibility of renewables generation without FiT even in current wholesale prices. Unlike other European countries, in Portugal, FiTs for existing projects have been kept almost intact since their inception. Nevertheless, a very recent Ministerial Order enacted by the Secretary of State for Energy affairs has determined that renewable public funds granted to existing projects shall be offset against future FiT payments, in a negative impact to the industry – if we include 'co-generation' projects – estimated, by the Ministerial Order, at €140m.

Q WHAT TYPES OF RENEWABLE ENERGY SEEM TO BE ATTRACTING THE MOST ATTENTION IN PORTUGAL?

AMARO: Discounting large hydroelectric plants, onshore wind has traditionally been the preferred type of renewable energy investment in Portugal, owing to geographical conditions and reasonable cost technology. Recently, however, photovoltaic technology has garnered some attention, due to high levels of sunlight in the country and increased competitiveness in the price of solar panels. Offshore wind is also in the spotlight, as recent pilot projects are being deployed to attempt to produce renewable energy in a medium scale and in deep waters.



Q IN WHAT WAYS ARE ENERGY POLICIES AND POLITICAL AGENDAS SHAPING THE RENEWABLE ENERGY DEBATE? HOW WOULD YOU DESCRIBE THE OUTLOOK FOR THE ENERGY MIX IN PORTUGAL, IN TERMS OF TRADITIONAL FOSSIL FUELS VERSUS CLEAN ENERGY?

AMARO: Recent energy policy has been attempting to balance the commitments undertaken before the EU and the international community on carbon emissions with fiscal prudence and the need to curb costs with the tariff deficit and overcosts payable to renewable energy producers that benefit from FiTs. Thus, the trend is to, while not directly reducing FiTs – which would raise issues of legality and imperil many projects which were made feasible through bank financing – work with other ways to diminish the burden of renewables to the Portuguese national electricity system and to the tariff deficit. This has been done through two main measures. Firstly, Decree-Law no. 35/2013 has reduced the tariff period for small hydro and wind power plants. For the latter, a solution was negotiated with wind energy promoters whereby an extension of the tariff period for an additional eight years was granted against the payment of an 'NPV neutral' contribution by said promoters to the national electricity system. The second measure was Ministerial Order 268-B/2016, which aims to offset FiT payments with amounts received from public support schemes. Finally, as Portuguese energy needs have been stagnant since the crisis, the energy mix has been trending further toward renewables and big hydro plants.

Q HAVE THERE BEEN ANY SPECIFIC LEGISLATIVE OR REGULATORY DEVELOPMENTS IN PORTUGAL LIKELY TO AFFECT THE RENEWABLE ENERGY SPACE?

AMARO: The most important recent legislative development impacting renewable energy has been the Ministerial Order. This measure approved a reduction in the amount of the public funds granted to electricity generation facilities in relation to the guaranteed amounts paid by the last resort supplier of the Portuguese National Electricity System to the respective promoters. The Ministerial Order provides that, no later than 30 days from the date of its enactment, the member of government responsible for energy affairs must publish an order identifying, for each electricity generation facility, the amounts received in excess that shall be recouped in favour of the National Electricity System. Such amounts shall be recovered, pursuant to the provisions of the Ministerial Order, based on a value in euros per MWh to

be deducted to FiT payments, also to be defined by an order of the member of government responsible for energy affairs, and "as soon as possible". Also worth mentioning is the Special Contribution for the Energy Sector, which has not, thus far, affected renewable energy generation facilities, despite rumours that it would be enacted. Furthermore, this is unlikely to change throughout 2017, pursuant to the most recent state budget.

Q COULD YOU PROVIDE AN INSIGHT INTO CURRENT ADVANCEMENTS IN RENEWABLE ENERGY? WHAT ISSUES ARE DRIVING THE FLOW OF INVESTMENT, R&D CAPITAL AND PROJECT DEVELOPMENT, FOR EXAMPLE? IS INNOVATIVE TECHNOLOGY HAVING AN IMPACT?

AMARO: Advancements in renewable energy in Portugal include the development of a pilot project named Demogravi3 by a consortium led by EDP – a lead energy player and utility in Portugal – consisting of an innovative hybrid concrete-steel, self-buoyant bottom standing gravity based foundation for offshore wind farms positioned in water depths between 35m and 60m. The objective of the technology is to take wind generation further offshore. This project has received funding from the European Union's Horizon 2020 Framework programme. Another hot topic for renewable energy concerns the promotion of self-consumption. Energy efficiency rules and the slow but steady rise of the electric vehicle in Portugal are fostering the development and installation of self-consumption units in businesses and homes, especially with PV technology.

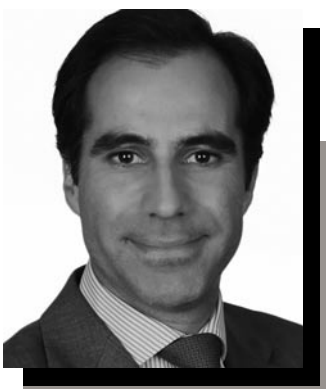
Q HOW WOULD YOU CHARACTERISE M&A ACTIVITY IN THE RENEWABLE ENERGY SPACE IN PORTUGAL? WHAT ARE THE MAIN FACTORS DRIVING DEALS?

AMARO: M&A activity in Portuguese renewable energies has, in recent times, been very much driven by the search for yield by institutional investors. With low interest rates continuing indefinitely, nameplate investors are looking on with interest at assets with both stable cash flows and a stable regulatory environment and have recently acquired several important wind energy portfolios in the country. In this market, sellers are looking to deleverage their balance sheets either by 'cashing in' such assets, capitalising on their development capabilities and rotating their assets by selling a significant, but not controlling, stake in the latter, or, in the case of big players with large portfolios, both. On the other hand, transactions involving the acquisition of 'greenfield' or 'ready-to-build' projects are becoming scarcer due to the gradual expiration of the deadlines to apply for projects with FiTs.

"Renewable energies will still be the path forward for the implementation of new generation units in Portugal."

Q LOOKING AHEAD, WHAT TRENDS DO YOU EXPECT TO SEE EMERGING IN RENEWABLE ENERGY? WHAT ISSUES ARE LIKELY TO INFLUENCE THE CONTINUED GROWTH OF THIS AREA?

AMARO: As the EU continues to seek a reduction in carbon emissions, renewable energies will still be the path forward for the implementation of new generation units in Portugal. We see two other trends contributing to this. Firstly, the development of energy storage technologies which will aid intermittency problems, further reducing the need for backup power from conventional generation sources. And secondly, increased interconnections with Europe and North Africa increasing opportunities for producers to sell energy during low consumption periods in Portugal. Alas, all of these changes require political will to divert resources into these projects and into maintaining or launching new incentives to renewable energy. This political will is lacking due to budget constraints in Portugal and the large tariff deficit which, however, is not caused exclusively by renewable energy over costs, and the current equilibria of power in the EU, now also averse to fiscal largesse. Time will tell how these opposing forces will shape renewable energy policy in the near future.



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Ricardo Andrade Amaro is a partner at MLGTS and is part of the M&A and capital markets team and energy law team. He has acted as legal adviser in several mergers, restructuring, acquisitions and sales of companies in Portugal and abroad, as well as several initial public offerings. He was also involved in the reorganisation of the national energy sector and, more recently, acted as a legal adviser in the setting up of several securitisations regarding the right to receive amounts arising from tariff adjustments. He also regularly acts as legal adviser in regulatory matters related to the energy sector.

JAPAN

AMANE KAWAMOTO
NISHIMURA & ASAHI

Q IN YOUR OPINION, WHAT KEY TRENDS HAVE DEFINED THE RENEWABLE ENERGY SPACE OVER THE PAST 12-18 MONTHS OR SO? WHAT IMPACT ARE MACROECONOMIC FACTORS, SUCH AS ENERGY PRICES, HAVING ON RENEWABLES?

KAWAMOTO: While the low energy price has been affecting the global economy in several ways, there seems to be little influence on the development of renewable projects in Japan. Almost all of the renewable projects with project finance in Japan benefit from the feed-in-tariff (FIT) policy, where renewable projects can sell all of the generated electricity at a fixed-price irrespective of the market price for 10 to 20 years – the length depends on the types of renewable sources. Meanwhile, the macroeconomic trend of low interest rates has made renewable projects relatively attractive as investment assets, and that trend is supporting a robust flow of investments in the renewable sector.

Q WHAT TYPES OF RENEWABLE ENERGY SEEM TO BE ATTRACTING THE MOST ATTENTION IN JAPAN?

KAWAMOTO: At the moment, wind and biomass seem to be attracting the most attention. Since the introduction of the FIT in 2012, solar PV had attracted most of the investment with a generous purchase price under the FIT. The price for solar PV, however, dramatically dropped in line with the rapid expansion of solar projects – in the case of solar projects of 10kW or more, the purchase price has declined by 40 percent since 2012. Accordingly, investment in renewables is shifting from less attractive solar toward wind and biomass which have some room to grow.

Q IN WHAT WAYS ARE ENERGY POLICIES AND POLITICAL AGENDAS SHAPING THE RENEWABLE ENERGY DEBATE? HOW WOULD YOU DESCRIBE THE OUTLOOK FOR THE ENERGY MIX IN JAPAN, IN TERMS OF TRADITIONAL FOSSIL FUELS VERSUS CLEAN ENERGY?

KAWAMOTO: The government's basic energy policy perspective is described as '3E + S', which represents 'energy security', 'economic efficiency', 'environment' and 'safety'. The energy policy must find the best solution to balance the trilemma of '3E' on the premise of 'safety'. Japan, as a country with limited natural resources, has benefited from renewable energy in terms of energy security and environment, but the increasing financial burden on end customers has become the biggest concern supporting the FIT system. In contrast, power projects with traditional fossil fuels, especially coal, are advantageous in terms of economic efficiency. The key point is whether the end-users of electricity are ready to continue supporting environmentally friendly renewables, and this will be profoundly affected by the economic situation surrounding our country.

Q HAVE THERE BEEN ANY SPECIFIC LEGISLATIVE OR REGULATORY DEVELOPMENTS IN JAPAN LIKELY TO AFFECT THE RENEWABLE ENERGY SPACE?

KAWAMOTO: There was an amendment to the FIT legislation in the summer of 2016, and the new FIT scheme will be in place after April 2017. The most important change is the introduction of a bidding system to determine the purchase price under the FIT. To date, details of the new bidding system have not been revealed. We expect that the new bidding system will only apply for commercial-scale solar power projects. It is unlikely that other types of renewable projects, such as wind, biomass and community-scale solar, will be subject to the bidding. On a separate note, the government has started discussions on rules for the use of the transmission network, proposing that power producers be required to pay for the use of the transmission network. This may involve additional costs for renewable projects. We need to be mindful of these trends.

"Japan lags behind European countries in the offshore wind industry today, but has the potential to lead this sector with floating wind turbine technology in the following decade."

Q COULD YOU PROVIDE AN INSIGHT INTO CURRENT ADVANCEMENTS IN RENEWABLE ENERGY? WHAT ISSUES ARE DRIVING THE FLOW OF INVESTMENT, R&D CAPITAL AND PROJECT DEVELOPMENT, FOR EXAMPLE? IS INNOVATIVE TECHNOLOGY HAVING AN IMPACT?

KAWAMOTO: Offshore wind is drawing more and more attention. At the moment there are no offshore wind farms operating on a commercial basis. However, there are several ongoing projects along the coast nationwide, and further, demonstration projects using floating wind turbines are in place. Japan lags behind European countries in the offshore wind industry today, but has the potential to lead this sector with floating wind turbine technology in the following decade.

Q HOW WOULD YOU CHARACTERISE M&A ACTIVITY IN THE RENEWABLE ENERGY SPACE IN JAPAN? WHAT ARE THE MAIN FACTORS DRIVING DEALS?

KAWAMOTO: The acquisition of operating solar projects is increasing and is expected to grow. This is in contrast to new investments in the development of greenfield solar PVs as the purchase price under the FIT gets less attractive year by year. Currently, deals are still typically made on an individual basis; however, some portfolio investments can be found where a number of renewable projects are acquired. Secondary transactions of renewable projects will explode within a couple of years as the players in the financing market become more familiar with a portfolio investment.

Q LOOKING AHEAD, WHAT TRENDS DO YOU EXPECT TO SEE EMERGING IN RENEWABLE ENERGY? WHAT ISSUES ARE LIKELY TO INFLUENCE THE CONTINUED GROWTH OF THIS AREA?

KAWAMOTO: Since the introduction of the FIT scheme, commercial-scale projects had driven the expansion of the renewable energy sector and such projects will remain important. This trend, however, leads to insufficient capacity of the transmission network and has meant that large-scale projects are finding it hard to connect to the grid. Accordingly, small-sized distributed renewable projects, such as ones with rooftop solar or small-sized wind turbines, are expected to get more attention in the coming years. In terms of solar PV, projects which do not rely on the FIT scheme such as a self-consumption solar may become more attractive since the purchase price under the FIT is no longer generous. In some regions, solar projects are exposed to the risk of unlimited curtailment without compensation. This risk will also help the trend toward self-consumption solar.

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Amane Kawamoto is a senior associate at Nishimura & Asahi. His practice primary focuses on project development and project finance, in particular renewable energy projects. He also advises clients at home and abroad on regulations across the power sector from generation to retail sale of electricity. Mr Kawamoto has work experience in London, serving as a project manager as well as a legal counsel at an IPP division of a major Japanese trading company.

CHINA & HONG KONG

NICHOLAS A. MOLAN
VINSON & ELKINS

Q IN YOUR OPINION, WHAT KEY TRENDS HAVE DEFINED THE RENEWABLE ENERGY SPACE OVER THE PAST 12-18 MONTHS OR SO? WHAT IMPACT ARE MACROECONOMIC FACTORS, SUCH AS ENERGY PRICES, HAVING ON RENEWABLES?

MOLAN: China continues to be a champion of renewable energy research and deployment, with renewable sector – excluding hydro – investment increasing by 17 percent in 2015 to a staggering $102.9bn. Such levels of investment, while impressive in pure fiscal terms, take on a deeper meaning relative to global trends; China's level of investment represents 36 percent of the global total for renewables, and the country is the single biggest contributor to the near-unbroken uptrend for the developing world as a whole since 2004. China's renewable energy sector, like the broader energy market, is dominated by state-owned entities and is highly regulated by central and provincial governments. In this environment, energy policy is a much stronger influence than market factors, including energy pricing and other macroeconomic factors; if anything, lower global commodity prices – notably for oil and coal – are putting pressure on the economics of many renewable and other cleantech projects.

Q WHAT TYPES OF RENEWABLE ENERGY SEEM TO BE ATTRACTING THE MOST ATTENTION IN CHINA & HONG KONG?

MOLAN: Excluding hydro-generated power, wind continues to be the biggest component of China's renewable energy mix, although solar is increasingly being used. In the wind space, offshore projects have been attracting significant attention on the back of a bumper year in 2015, where we saw investment in a number of large-scale projects – including Longyuan Haian Jiangjiasha, Datang and Jiangsu Guoxin Binhai, and Huaneng Rudong H12 Baxianjiao – with an estimated capital cost of around $850m each. Total investment in offshore wind arrays in 2015 has been estimated at $5.6bn. In onshore wind, the single biggest subset of the market, China is estimated to have commissioned 29GW of capacity in 2015 with $42bn secured. For solar, China is estimated to have installed some 16GW of new photovoltaic capacity in 2015.

Q IN WHAT WAYS ARE ENERGY POLICIES AND POLITICAL AGENDAS SHAPING THE RENEWABLE ENERGY DEBATE? HOW WOULD YOU DESCRIBE THE OUTLOOK FOR THE ENERGY MIX IN CHINA & HONG KONG, IN TERMS OF TRADITIONAL FOSSIL FUELS VERSUS CLEAN ENERGY?

MOLAN: Since publication of the State Council's Energy Development Strategy Action Plan in November 2014, China has been working to reform its electric power sector with a focus on clean, efficient, safe and sustainable energy systems. This is largely attributable to popular concern about urban pollution, which remains a significant issue for the Chinese people and their leadership. The connection between pollution and the health and wellbeing of individuals, as well as the performance of the broader economy, is a recurring theme speaking to people on the ground in China. At the same time, president Xi Jinping has called for a revolution in energy production and consumption to be guided by market factors. It is in this environment that we see record levels of spending on clean and renewable energy sources. However, it is not all a bed of roses in this space; China holds the apparently contradictory titles of being the global leader in renewable energy investment and the single largest user of coal-fired energy generation in the world. Moreover, even as China adds significant new renewable energy capacity and develops progressive government policies to improve air quality, coal is maintaining its leading position with significant additional coal-fired capacity of 50.8 GW being added in the period 2013-15.

Q HAVE THERE BEEN ANY SPECIFIC LEGISLATIVE OR REGULATORY DEVELOPMENTS IN CHINA & HONG KONG LIKELY TO AFFECT THE RENEWABLE ENERGY SPACE?

MOLAN: In addition to the general legislative and regulatory framework, the most significant recent regulatory development in the renewable energy space was the release by the National Development and Reform Commission (NDRC) of the 'Administrative Methods of Guaranteed Acquisition on Renewable Energy Power Generation', commonly known as Document 625. The key feature of the new regime is an obligation for grid companies to purchase at least an annual allocated number of hours of energy from renewable resources annually. Responsibility for setting and monitoring annual allocations for each type of renewable generation will now rest with the NDRC and the National Energy Administration; mandatory hours under the Renewable Energy Law, enacted in 2005, had

been set by provincial governments, and had failed to address recurrent curtailment issues. Document 625 also encourages participation in the mid-long term trading and spot markets by renewable energy generators at a negotiated market price, plus the difference between the renewable feed-in-tariff and the coal benchmark price.

Q COULD YOU PROVIDE AN INSIGHT INTO CURRENT ADVANCEMENTS IN RENEWABLE ENERGY? WHAT ISSUES ARE DRIVING THE FLOW OF INVESTMENT, R&D CAPITAL AND PROJECT DEVELOPMENT, FOR EXAMPLE? IS INNOVATIVE TECHNOLOGY HAVING AN IMPACT?

MOLAN: Advancements in renewable energy technology and scalability continue to push down the project cost of renewable and cleantech projects in China. The combination of a lower per-megawatt price and the surge in investment should be expected to lead to an exponential growth in renewable power generation in the next five years, provided that grid expansion and congestion can be addressed over the same period of time.

Q HOW WOULD YOU CHARACTERISE M&A ACTIVITY IN THE RENEWABLE ENERGY SPACE IN CHINA & HONG KONG? WHAT ARE THE MAIN FACTORS DRIVING DEALS?

MOLAN: M&A activity in China generally has continued to be active, driven by a range of macro factors, including the pursuit of long-term and sustainable growth and consumption by the rising middle class, against the backdrop of a favourable financing environment and strong regulatory support. For a time, the renewable energy and cleantech space lagged behind the market generally, however M&A deal activity has been increasing, albeit focused on domestic deals rather than outbound transactions. According to recent data published by PwC, China's broader renewable sector saw 27 M&A deals in the second quarter of 2016, of which only four were outbound, in Germany, Italy, Austria and the UK. Furthermore, while the deal volume was up on the previous three quarters, the total value of deals at approximately $700m was slightly down compared to the first quarter of 2016. Interestingly, when looking at the nature of the target companies and assets, these are, for the most part, enterprises with established operations and proven technologies.

"Advancements in renewable energy technology and scalability continue to push down the project cost of renewable and cleantech projects in China."

Q LOOKING AHEAD, WHAT TRENDS DO YOU EXPECT TO SEE EMERGING IN RENEWABLE ENERGY? WHAT ISSUES ARE LIKELY TO INFLUENCE THE CONTINUED GROWTH OF THIS AREA?

MOLAN: Governments in China have set aggressive targets for the renewable power sector in the coming years. They are supported in these endeavours by project developers and financiers, as well as grid companies and end-users. That said, there remain powerful voices within industry and government who support traditional power generation, including clean coal projects as well as cleaner energy sources like natural gas. Based on China's anticipated power demand forecasts, the country will likely need to generate power from all of these sources moving forward. The single biggest determinant in the growth rate of renewables will continue to be government policy, including the setting of relevant tariffs. Beyond government policy, however, further reductions in the unit price of renewables, coupled with forecast increases in oil and natural gas prices, should create a favourable environment for renewables and other cleantech initiatives.

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Nicholas A. Molan is counsel with Vinson & Elkins and focuses on project development, project finance, and mergers and acquisitions (with a particular focus on the energy sector). Mr Molan acts for project developers, private energy companies, national oil companies, financiers, and other entities (both private and public sector) in a number of jurisdictions. He has significant experience in relation to petroleum and natural gas (including LNG) projects, and regularly advises clients on joint venture and shareholder arrangements, construction and development, operation and maintenance, and trading (both long-term and spot basis) in this area.

SINGAPORE

KARTHIK KUMAR
JONES DAY

Q IN YOUR OPINION, WHAT KEY TRENDS HAVE DEFINED THE RENEWABLE ENERGY SPACE OVER THE PAST 12-18 MONTHS OR SO? WHAT IMPACT ARE MACROECONOMIC FACTORS, SUCH AS ENERGY PRICES, HAVING ON RENEWABLES?

KUMAR: Historically and conventionally, energy prices have been high, and due to emissions from fossil fuels there is an increased interest in alternative sources of energy to supplement traditional sources. In Asia Pacific, fossil fuel costs such as thermal coal prices have been plummeting at a faster pace than tariff rates have been cut. For example, Datang International Power Generation recently announced that it expected to report a 50 to 60 percent increase in net profit this year, due to a lower cost of fuel arising from low energy prices, reduced expenses and lowered financing costs after refinancing debt. A number of large gas companies have recently monetised their Asia geothermal assets due to low commodity prices. However, the cost of renewable energy technologies increasingly makes it a less expensive alternative to traditional energy sources. Moreover, renewable energy sources are evergreen and abundant, and allow countries to meet their emissions targets.

Q WHAT TYPES OF RENEWABLE ENERGY SEEM TO BE ATTRACTING THE MOST ATTENTION IN SINGAPORE?

KUMAR: Wind, solar and hydropower are the most active renewable energy sectors this quarter, with interest in India and continued investment by Chinese firms. Chinese firms are also actively transitioning into sponsor rather than project company roles. Offshore wind projects are active in Korea, Japan, Taiwan and Vietnam. Taiwan's government has commenced releasing 10,000 hectares of agricultural land for solar projects. In China, Banpu acquired a 78.5MW capacity solar investment. Meanwhile, Hong Kong's CLP Holdings entered into India's solar market by acquiring a 49 percent stake from Suzlon in a 100MW capacity projects under development. Indonesia introduced a new feed-in tariff regime and Vietnam is working on its solar decree.

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Q IN WHAT WAYS ARE ENERGY POLICIES AND POLITICAL AGENDAS SHAPING THE RENEWABLE ENERGY DEBATE? HOW WOULD YOU DESCRIBE THE OUTLOOK FOR THE ENERGY MIX IN SINGAPORE, IN TERMS OF TRADITIONAL FOSSIL FUELS VERSUS CLEAN ENERGY?

KUMAR: While fossil fuels have traditionally dominated the energy market, global investment in renewables has outpaced that of other energy sources since 2012. Notably, global investment in renewable power capacity hit $265.8bn, more than double the dollar allocations to new coal and gas generation, which was estimated at $130bn in 2015. In Asia Pacific, we continue to see this uptick of interest in renewable energy, and particularly in solar and wind energy initiatives. The renewable energy sector has been the most active sector this year, and this is in line with the global push toward a low carbon economy. This can be seen with COP21 and the development of funds committed to COP21, such as the Green Climate Fund and the Global Environment Facility's Least Developed Countries Fund. The September 2016 ADB study estimates that between 2015 and 2050, US$17 trillion is required for additional investments in clean and renewable energy for the region.

Q HAVE THERE BEEN ANY SPECIFIC LEGISLATIVE OR REGULATORY DEVELOPMENTS IN SINGAPORE LIKELY TO AFFECT THE RENEWABLE ENERGY SPACE?

KUMAR: Indonesia recently introduced a new feed-in tariff scheme, which is expected to fuel growth in its solar market. Published figures are 14.5-25 $cents/kWh FIT, with rates and capacity quotas to be determined by PLN's operational regions. The new scheme provides support mechanisms directed at utility scale solar photovoltaic systems, and promises to register project developers on the occurrence of specified milestones. Further, instead of COD being the lead condition for approval, Indonesia's regulators will instead refer to feasibility studies and approval of the project as the lead milestone for the PPA award. India is focusing on increasing its renewable energy capacity to serve at least 40 percent of the country's electric power generation capacity, in order to reduce emissions to 35 percent by 2030. Following COP21, India has also publicly committed to its target of an additional 17GW of

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"The support available for green projects and in particular solar energy means that such projects stand to benefit from green bonds."

new renewable energy capacity by 2022. China currently emits the most carbon dioxide in the world, and has set an aggressive target of reducing its emissions by 60 to 65 percent below 2005 levels.

Q COULD YOU PROVIDE AN INSIGHT INTO CURRENT ADVANCEMENTS IN RENEWABLE ENERGY? WHAT ISSUES ARE DRIVING THE FLOW OF INVESTMENT, R&D CAPITAL AND PROJECT DEVELOPMENT, FOR EXAMPLE? IS INNOVATIVE TECHNOLOGY HAVING AN IMPACT?

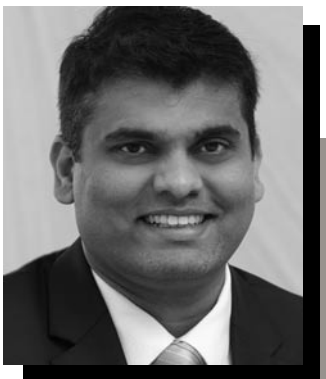
KUMAR: Innovative technology has a significant impact in the renewable energy sector, particularly for solar projects. The state of the technology adopted directly affects the cost of power. A cost efficient system translates into lower total project costs and, in turn, higher returns on capital investment. As a result of innovation, the cost of renewable energy generation continues to fall, particularly in the case of solar photovoltaics. As of late 2015, the global average levelised cost of electricity for crystalline silicon PV in 2015 was $122/mWh, down from $315/mWh in 2009. Over the past 10 years, geothermal systems have also become more efficient from the development of binary cycle power plants and drilling and extraction technology. Examples of recent innovation include advancements in solar cell technology, such as the development of light sensitive nanoparticles known as colloidal quantum dots.

Q HOW WOULD YOU CHARACTERISE M&A ACTIVITY IN THE RENEWABLE ENERGY SPACE IN SINGAPORE? WHAT ARE THE MAIN FACTORS DRIVING DEALS?

KUMAR: Generally, the attractiveness of smaller investment sizes and simple structures that renewable energy investments involve have seen deal flow into Asia shift from core infrastructure to renewable energy this year. In August 2016, KEPCO acquired a 30MW solar farm from Carlyle, and this month KHNP expects to take on the main sponsor role in the 496MW Lower Spat Gah hydropower project. China has also been active in this sphere, due to its high emissions per capita and the need to meet low carbon targets. While the move toward renewable energy requires additional investment, China and many other countries recognise that the cost will be largely offset by investment that would no longer be needed in fossil fuel extraction. It would also mitigate the costs of a future reversal from a high carbon development path. India continues to see significant small to mid-market M&A activity in the renewable energy sector. We expect this trend to continue for the next year or two.

Q LOOKING AHEAD, WHAT TRENDS DO YOU EXPECT TO SEE EMERGING IN RENEWABLE ENERGY? WHAT ISSUES ARE LIKELY TO INFLUENCE THE CONTINUED GROWTH OF THIS AREA?

KUMAR: The commercial need for increased return on capital has resulted, over the past 12 to 18 months, in a push for debt funding beyond export credit agencies or traditional bank financings to project bonds and specifically, green bonds. Notwithstanding the low interest rate environment, this trend is largely fuelled by yield compression and Asian banks recalibrating their balance sheets to price in the effects of rising regulatory capital requirements, and US money market rules that have made US dollar fundraising more costly. Regulators have also imposed more stringent single borrower limits. In Asia Pacific, while bank loans dominate the infrastructure funding scene, there is increasing interest in project bonds and they currently account for 7 percent of project financing across the region. The support available for green projects and in particular solar energy means that such projects stand to benefit from green bonds. The recent launch of the Terrawatt initiative at COP21 highlights this trend. Likewise, the multilateral agency Credit Guarantee and Investment Facility announced that it is working on ASEAN's first solar bonds, involving securitisation of rooftop solar panels.



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NIGERIA

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Q IN YOUR OPINION, WHAT KEY TRENDS HAVE DEFINED THE RENEWABLE ENERGY SPACE OVER THE PAST 12-18 MONTHS OR SO? WHAT IMPACT ARE MACROECONOMIC FACTORS, SUCH AS ENERGY PRICES, HAVING ON RENEWABLES?

SIPASI: The Nigerian power sector is plagued with a supply deficit. This is due mainly to the fact that most of Nigeria's generation capacity depends on a single fuel – gas. However, gas infrastructure is inadequate. Equally, gas pricing is not competitive, which discourages gas producers from selling gas to power generation companies. Also, increased militancy in the country is causing repeated vandalism of gas pipelines. In response, the government is fast-tracking the pace of diversifying Nigeria's energy sources by increasing the percentage of renewables in the energy mix. As such, steps are being taken to aid long term contracts for the sale of renewable energy. Also, wholesale tariffs that would allow renewable energy producers to recoup their costs are being implemented. Recently, the government-owned bulk electricity trader in Nigeria has entered into 14 solar power purchase agreements (PPAs) to aid the addition of over 1000MW of solar-generated energy into the national grid.

Q WHAT TYPES OF RENEWABLE ENERGY SEEM TO BE ATTRACTING THE MOST ATTENTION IN NIGERIA?

SIPASI: The key renewable energy currently gaining traction in Nigeria is solar energy. However, apart from solar energy, the Nigerian Electricity Regulatory Commission (NERC) has developed feed-in-tariffs for other sources of renewable energy, namely biomass and biodiesel, small hydro producing less than 30MW and wind power.

Q IN WHAT WAYS ARE ENERGY POLICIES AND POLITICAL AGENDAS SHAPING THE RENEWABLE ENERGY DEBATE? HOW WOULD YOU DESCRIBE THE OUTLOOK FOR THE ENERGY MIX IN NIGERIA, IN TERMS OF TRADITIONAL FOSSIL FUELS VERSUS CLEAN ENERGY?

SIPASI: Because of the high cost of renewable energy, the NERC has set a cap that energy generated from renewable sources should not exceed 10 percent of total energy sent to the national grid. This is to aid effective management of feed-in-tariffs applicable to renewable energy generators. The renewed interest in the procurement of renewable energy in Nigeria is caused by the repeated vandalism of the country's gas and power infrastructure. There is also the desire to achieve energy security through the diversification of energy supply sources.

Q HAVE THERE BEEN ANY SPECIFIC LEGISLATIVE OR REGULATORY DEVELOPMENTS IN NIGERIA LIKELY TO AFFECT THE RENEWABLE ENERGY SPACE?

SIPASI: In 2015, the NERC approved the feed-in tariff for renewable energy. The regulation seeks to ensure that renewable energy produces 1000MW to the national grid by 2018 and 2000MW by 2020, with 50 percent of the projected power to be purchased directly by distribution companies and the remaining 50 percent purchased by the Nigeria Bulk Electricity Trader. The tariff structure under the regulation also enables producers of renewable energy up to a stated limit – 10MW for wind, 5MW for solar, 30MW for hydro and 5MW for biomass – to sell their power to the grid at considerably higher prices than other conventional power producers.

"If these challenges are not resolved, they may stall the continued growth of renewable energy generation in Nigeria."

Q COULD YOU PROVIDE AN INSIGHT INTO CURRENT ADVANCEMENTS IN RENEWABLE ENERGY? WHAT ISSUES ARE DRIVING THE FLOW OF INVESTMENT, R&D CAPITAL AND PROJECT DEVELOPMENT, FOR EXAMPLE? IS INNOVATIVE TECHNOLOGY HAVING AN IMPACT?

SIPASI: Investments in renewable energy projects in Nigeria are largely driven by the electricity supply deficit.

Q HOW WOULD YOU CHARACTERISE M&A ACTIVITY IN THE RENEWABLE ENERGY SPACE IN NIGERIA? WHAT ARE THE MAIN FACTORS DRIVING DEALS?

SIPASI: The recent signing of 14 solar PPAs has spurred a number of M&A activities in respect of some of the solar projects. There are ongoing discussions which are likely to lead to mergers between different project sponsors in order to enable the merging entities to meet the deadline for commercial operation and other obligations under the PPAs. Some other projects sponsors are seeking additional funding for their project by offering equity to interested investors.

Q LOOKING AHEAD, WHAT TRENDS DO YOU EXPECT TO SEE EMERGING IN RENEWABLE ENERGY? WHAT ISSUES ARE LIKELY TO INFLUENCE THE CONTINUED GROWTH OF THIS AREA?

SIPASI: The renewable energy sector in Nigeria is likely to grow if the current project sponsors are able to recoup their cost and profit under the current PPAs. However, there are challenges. Firstly, the fact that they have an inflexible tariff structure for the duration of their PPAs, which is 20 years, may mean that their tariff may be lower than tariffs charged by conventional generators in the next few years. Secondly, major challenges relate to their ability to recoup their complete payment for power generated due to the current inability of distribution companies to collect more than 30 percent of the power they distribute to their customers. If these challenges are not resolved, they may stall the continued growth of renewable energy generation in Nigeria.

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