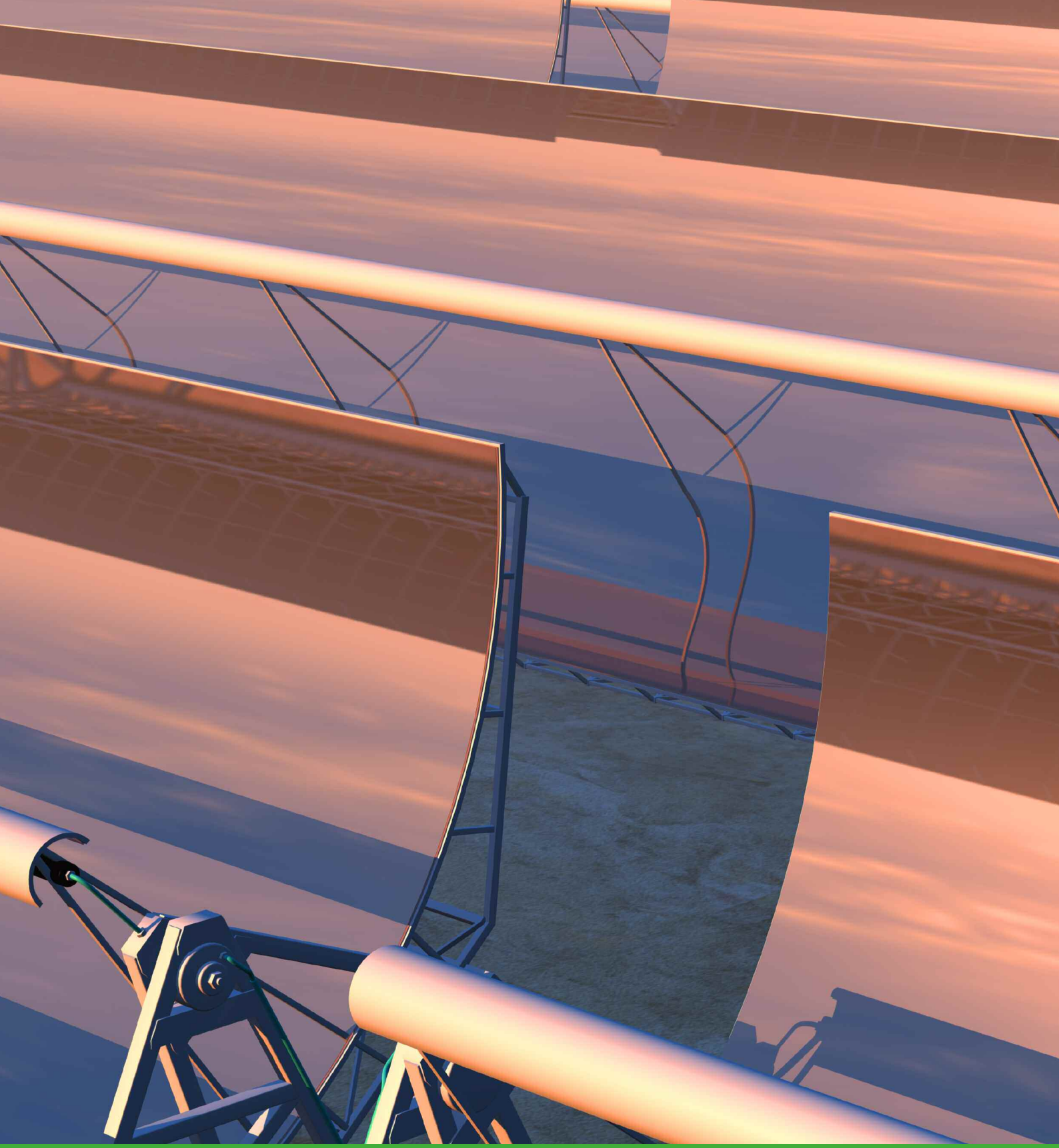

CLIFFORD
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Renewable Incentives: Looking to the future

5th Edition

Foreword

Over previous editions of this guide, we have seen a number of trends emerging through our work for sponsors and lenders to renewable projects around the world: initial growth of incentives with investors rushing to take advantage of generous tariffs; a significant rolling-back of subsidies caused by declines in technology costs and budgetary constraints; intervention from regional authorities keen to ensure incentives do not over-compensate renewable generators; and a gradual move from fixed incentives to more sophisticated mechanisms that move with changing costs and energy prices.

The Paris Agreement, dated December 2015, gives some comfort that renewable energy generation will be ever more important in years to come. However, the likely future of renewables is one where they can be competitive without subsidy. In some cases, that is already a reality but there is still a long way to go. Energy storage is likely to be a game changer in helping renewables along this road. In the introduction to this guide we look at how energy storage fits into renewable energy-focused networks of the future and some of the remaining challenges of commercialising storage facilities.

This edition of the guide now covers renewable incentives in 22 major countries with the addition of three new leading jurisdictions: China, Russia and the USA.

We hope you find the guide useful.

Nigel Howorth
Partner
Global Renewables Group
October 2016

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Energy Storage: Delivering Renewable Energy's Full Potential

The December 2015 Paris Climate Change Conference saw the conclusion of the first real global deal on actions to deal with climate change for the period after 2020. 195 countries agreed to take action to limit global temperature rises to 2°C and pursue efforts to go even further towards a 1.5°C limit. Although no specific emission limits are included in the Paris Agreement, each country committed to submit its plans for emission cuts and update these every five years. Ultimately, the Agreement aims for net zero carbon emissions in the latter half of this century. Work will continue on the detail of this Agreement and agreement of implementation mechanisms at the COP 22 meeting in Marrakech in November 2016 and beyond.

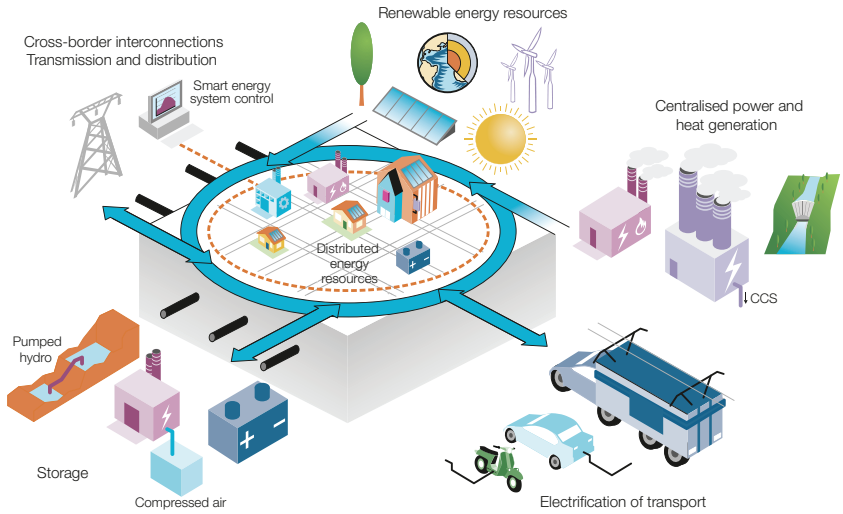
The Paris Agreement does not focus on renewable energy generation, but it is clear that a huge growth in the global renewable energy sector is absolutely crucial to meeting these emission aims: The International Energy Agency (IEA), for example, sees renewable energy contributing 32% of the effort towards the 2°C scenario between 2016 and 2050[1]. Its figures estimate that renewable electricity generation rose by 5% in 2015, accounting for 23% of all electricity generation. The IEA expects renewable electricity generation to grow by more than 30% between 2014 and 2020.

Energy storage, a crucial piece in the new technology jigsaw

Global efforts to decarbonise (including raising generation capacity) will increasingly rely on development of technology to help make the supply and use of energy more reliable, cost-efficient and flexible. The development of more *interconnector* capacity between national and regional grids[2] will allow energy to be transferred more freely across borders to manage reliable supplies, including reducing wasted energy generated from renewable energy sources and helping to ameliorate the problem of intermittent generation technologies. There will be a growing emphasis on *demand side flexibility* which uses technology and data to manage consumer demand (for example by shifting demand to off-peak periods). A *smart grid* incorporates this technology and data to manage supply and demand on a larger scale across a whole grid network (at distribution or transmission level). This allows connection of greater levels of renewable resources to the network, and control of demand and real-time pricing at commercial and domestic consumer level: This helps not only balancing supply and demand, but also encourages energy efficiency.

Although not a new concept, *energy storage* is destined to become a crucial element of the energy networks of the future, helping to ensure that energy is available when and where it is needed and is not wasted. Storage has a major role supporting centralised grids, and is also likely to be important in large-scale interconnection going forward. Increasingly, the old-style centralised grids of the past are being complemented by *distributed energy networks* or *micro-grids,* where typically smaller renewable sources produce energy for consumption at nearby locations (e.g. business parks, housing estates or factories). At this more local level, energy storage plays a key part in the development of *micro-grids* and *smart grids*. The remainder of this article focuses on issues related to energy storage (primarily issues relating to electricity storage).

Smart distribution grids at the heart of a transformed power system



1 With energy efficiency contributing 38%, carbon capture and storage and nuclear taking up 19% combined. Source: IEA Energy Technology Perspectives 2016.

2 One notable example is the Medgrid project currently being considered to link the European electricity network to Africa.

Applications of Storage and Technologies

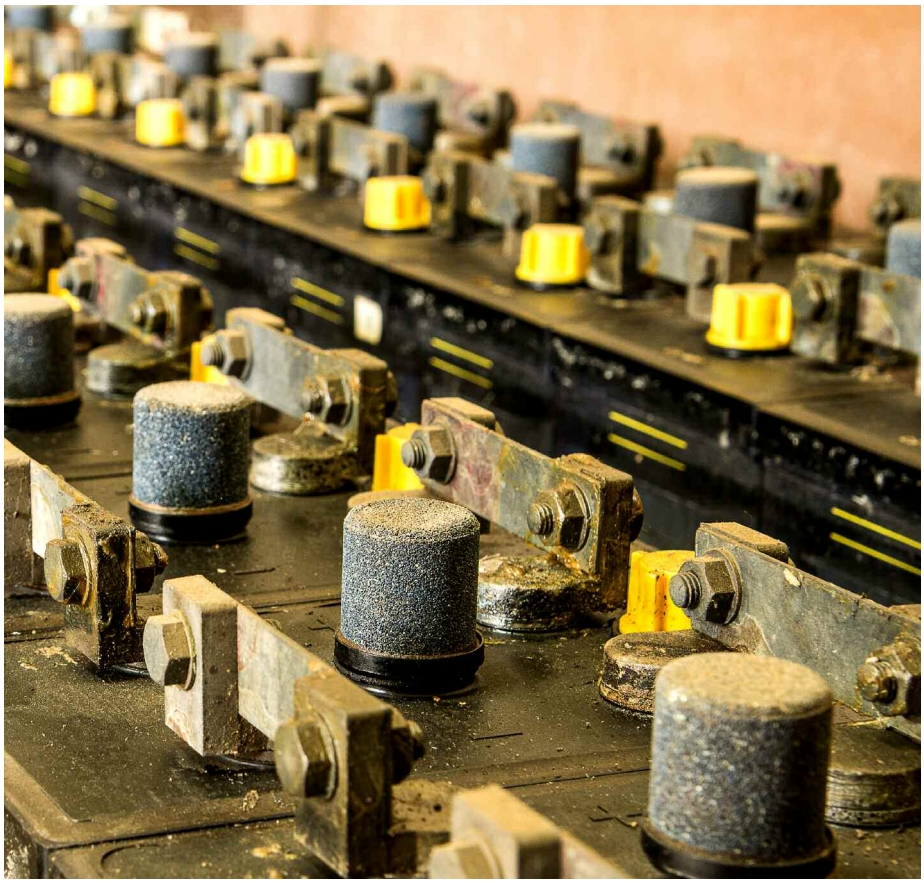
Energy storage can be used by actors in different parts of the energy supply chain for a number of broad purposes:

- Supply stage (generation): Storage systems can help in dealing with electricity demand and supply imbalances and temporary disturbance to supplies. Importantly, storage can also assist in overcoming the problems associated with the intermittency of much renewable energy generation and thereby facilitating an increase in the amount of renewable energy in the power system, and reducing the need for high levels of back-up thermal generation capacity. It can also be used to improve the prices available for sale of energy by allowing supply at higher-priced peak periods and has the potential to enable renewable generators to participate in capacity and system balancing sales.
- Transmission/distribution stage: Use of energy storage can improve the efficiency and stability of grids and reduce peak loads. In particular, it can help grid operators avoid or delay costly upgrades to major grid infrastructure. Grid networks will often procure "ancillary services" for the purposes of ensuring the reliability and stability of grids – storage, amongst other technologies can assist in providing these services.
- Demand stage (end-users): A key driver for end-users to install energy storage systems is energy management. Rather than exporting surplus power back to the network for a minimal financial benefit, energy storage systems allow end-users who also generate power, to store the energy and reduce their need to import higher priced electricity from the network. End-users may seek to use the energy storage system to export electricity to the grid (i.e. as a generating system) or import electricity from the grid (i.e. as a load) or a combination of the two. This can also assist in balancing the overall supply and demand equation.

The role storage can play at the supply, transmission/distribution and demand stages largely depends upon the length of time for which the energy can be discharged and the speed it can be released for use. Supply and Demand stage storage tends to focus on longer periods of storage and/or discharge. Transmission/distribution uses often require rapid release for short durations, in particular in relation to balancing services. It can be seen that the same storage facility can be used for different purposes, and potentially even at different stages of the generation-to-consumption cycle. Additional flexibility and value is created by the ability for storage to operate as electricity to electricity, heat to heat, electricity to heat (and vice versa). Ironically, it is the very flexibility and variety of uses of energy storage that contribute to some of the issues which can present a barrier to storage at a large scale mentioned below under the heading "*Addressing barriers to the Energy Storage market*".

Technologies

Current energy storage technologies fall broadly into six categories classified by the way in which they store energy: mechanical, thermal, electrical, chemical, electrochemical or thermochemical. Examples of the major technologies are described in the box inset.



Major Energy Storage Technologies

Mechanical

- Pumped hydropower – water is pumped from a low reservoir to a higher reservoir in off-peak periods. Water is released back down to the lower level, generating electricity. Facilities are usually limited by geography and involve major capital investment in infrastructure.
- Compressed air storage – air is compressed using off-peak electricity. When needed, electricity is generated by forcing the compressed air through a turbine.
- Flywheels – flywheels rotate at high speed storing energy which is then released by slowing the flywheel down.

Thermal

- Underground energy storage – these systems pump heated or cooled water into aquifers or boreholes so that it can be used at a subsequent time for cooling or heating. Pit storage is a similar concept using shallow dug pits which are insulated to hold the hot or cooled water.
- Molten Salt – salt, often from a concentrated solar power plant, is heated until it becomes liquid and then stored until use in generating electricity. A variant uses ice to store and release latent heat as it changes between liquid and solid.
- Water and solid media storage – a simple form of energy storage using materials or insulated vessels to store and release heat (e.g. in domestic water tanks or within bricks or other solid materials found in domestic heaters).

Electrical

- Supercapacitors – these use an electrostatic field between conductive plates to store energy.
- Super-conducting magnetic energy storage – electricity is introduced to a supercooled coil and stored for subsequent release.

Chemical

- Hydrogen storage – electricity is used to produce hydrogen and oxygen through electrolysis. Oxygen is also stored and then later recombined with the hydrogen to generate electricity, for example, using a fuel cell (or used for other purposes). This technology has the potential for very large scale/longer duration energy storage.

Electro-chemical

- Classic batteries – an electric current charges the battery by causing reactions in the chemicals in the battery, and then later releasing electricity through opposite chemical reactions. They are well suited for electricity balancing purposes, since reaction time can be very rapid.

Thermo-chemical

- Solar fuels – a development stage technology where sunlight is used to separate water into constituent chemicals.

Significantly, storage technologies are evolving and some technologies are more mature than others. For example, pumped hydropower storage (PHS) has been fully commercialised for many years, whereas large scale battery storage is largely still at demonstration and deployment stage. Other technologies such as thermochemical storage are only in the research and development phase. Innovative ideas for storage continue to emerge, such as recognition of the potential to use an expanding fleet of electrical vehicle batteries (when they are not otherwise in use on the roads) for electricity storage able to store excess generation and release it back to the grid if not otherwise required.

Current global installed electricity storage is estimated at 140GW. 99% of this is pumped hydropower storage attached to grids, with the remaining 1% made up from batteries, compressed air, flywheels and hydrogen storage[3]. While electricity storage is already widely seen off-grid at local level, potential for its application at large scale and on-grid has the potential to revolutionise energy networks around the world. The greatest potential for energy storage growth is in technologies which (unlike hydropower) do not have significant locational constraints[4], which have the flexibility to provide large scale power to the grid (i.e. acting like power stations) and also fast-response ancillary services to networks, and all with minimal environmental/safety concerns.

Investment in energy storage systems is also being driven by the rapidly reducing costs of technology. By way of example, the baseline costs for mature technologies including lithium-ion batteries is projected to decline by 53% by 2025 and by 68% by 2035, and the baseline costs of emerging technologies such as molten salt are projected to decline by 79% by 2025 and 85% by 2035 (*AMEC, 2015*).

3 International Energy Agency Technology Road Map – Energy Storage 2014.

4 Belgium, for example, suffers from a lack of areas in which additional pumped hydro facilities could be located, although underground mines might provide further possible sites.

Renewable Generation and Energy Storage

The cost of renewable power generation has been decreasing steadily over the last few years, and numerous examples are emerging where the levelised cost of generation from established technologies is matching or undercutting fossil or nuclear generation cost[5]. Reducing costs have been reflected in many cases by reductions in renewable energy incentive support, with pressure for such reductions driven equally by concerns about budgetary constraints. Over time it seems likely that many such subsidies will be removed or gradually phased out. Subsidies are still needed, in particular, for less established technologies, but there are growing calls for incentive support to be focused on the system benefits of renewable generation – i.e. in helping to protect the overall security of supply through assisting in balancing grids and ensuring their stability, in circumstances where network infrastructure is increasingly constrained. This is where renewable generators can take advantage of energy storage. Indeed, a number of regulatory or incentive regimes already require energy storage services to be provided as part of renewable energy projects (either formally or in practice), which is a trend likely to increase over time (See further below under "*Addressing barriers to the Energy Storage market*").

Energy storage is increasingly needed for integration of renewable energy sources to grids. The International Renewable Energy Agency has estimated that 150GW of battery storage and 325GW of pumped hydropower will be needed if it is to meet its 2030 target for 45% of power generation to come from renewable sources. Storage can perform a number of useful purposes in this regard:

- Long-term variability of output – storage can be used to store energy when it is not needed and deliver it when needed (and potentially when is more valuable), e.g. sale at peak periods of surplus wind energy generated at night, or solar energy generated before peak periods. It can also be used to deal with uncertainty over weather forecasting – i.e. not knowing whether the sun will shine or the wind will blow.
- Short-term variability of output – short-term fluctuations in renewable energy (i.e. wind speed changes and solar) require corresponding "ramping services" somewhere else on the grid to smooth the flow of electricity. These services can be provided by energy storage.
- Power quality – where significant volumes of renewable generation are introduced to grids, power quality problems affecting grid operation may be caused by significant variations in voltage. This is particularly the case where the share of renewable energy on the grid goes above 20% (see for example, Denmark, Germany and Spain) at which point the effective operation of grids can be impacted.

A number of different technologies may be used to provide one or more of the services mentioned above. In particular, currently the development of battery technology is seen as a major opportunity for renewables projects, with developers increasingly considering the co-location of battery storage and generation facilities.

Addressing barriers to the Energy Storage market

The benefits and potential of energy storage are increasingly apparent, but there are a number of barriers to the large-scale growth of storage capacity. While these differ depending on the market and jurisdiction, they tend to be either technical, market-related or regulatory.

Australia's first utility scale integrated solar and battery project

Clifford Chance has advised on the financing of Australia's first integrated solar and storage project of scale, which achieved financial close in August 2016. Located in Far North Queensland, the project comprises a 13MWp/10.8MWac solar PV array with an integrated grid-connected 1.4MW/5.4MWh lithium-ion battery. The project received a AUD17.4 million grant from the Australian Renewable Energy Agency (ARENA) and benefits from a power purchase agreement with Origin Energy which runs until 2030.

The project is aiming to be the first in the world to test a concept known as 'islanding', effectively isolating the local town of Lakeland from the main electricity grid. During the pilot, the town will be powered purely by solar and batteries for several hours. Grid-connected, utility scale batteries are likely to be a game-changer in the energy sector, assisting in solving the challenges of intermittent generation from renewable sources. The potential applications of these integrated technologies are far-reaching, including by enhancing energy reliability at the fringes of the grid as well as off-grid generation and storage.

5 See Next Generation Wind and Solar Power – from cost to value (IEA 2016). The IEA notes that reported costs for land-based wind have fallen to USD30-35/MWh in Morocco, and USD49/MWh for solar PV in Peru.

Technical issues

IJGlobal released a report in November 2015 which concluded that it was still early days for battery storage systems and that technical reliability would need to be proven and "predictability of cash flow [is] low". However, it is expected that battery chemistries and applications are likely to reach proven technology status in the next few years.

Many energy storage technologies are still technically inefficient in terms of energy losses. Some technologies (e.g. flywheels) suffer from losses due to friction in their moving parts and from contact with the air. Other systems require major cooling (e.g. SMES and supercapacitors) which affects their efficiency, or struggle to remain efficient at high temperatures (e.g. underground thermal energy storage systems).

The geography and climate of the country in which the energy storage system will be deployed may also have a detrimental impact on the lifetime estimation of the system (particularly batteries). By way of example, the higher temperatures may cause battery failure earlier than expected.

There are also safety and environmental issues in relation to some storage technologies. For example, a number of fire incidents involving battery installations have highlighted the actual or perceived risk of such installations. Concerns also remain over the environmental effects of underground thermal storage upon geology and water quality. Further research and development needs to be undertaken to refine the technologies and overcome these issues.

Market and regulatory issues

Although the costs of construction and operation of energy storage facilities are reducing, there are still economic barriers to their full commercialisation. Beyond support for research and development costs, opinions differ on whether specific subsidies are required for energy storage. However, most seem to agree that commercial deployment of energy storage needs to be achieved on a level playing field with other technologies performing similar roles in terms of support and market access. Storage also needs to receive remuneration for the varied services that it can provide.

Some subsidy systems exist for battery storage at generator level. Examples include low-interest loans and repayment subsidies for storage attached to Solar PV (under 30kWp) under the German "kfW-Programm Erneuerbare Energien "Speicher" – 275 Kredit" scheme. Australian Capital Territory has a grant scheme to encourage businesses and homes to invest in energy storage over the next five years. Other examples include tax incentives – for example a 30% investment tax credit applicable to eligible energy storage facilities in the USA. The European Association for Storage of Energy/European Energy Research Alliance have called for *capacity mechanisms*[6] to be opened up to energy storage facilities. These mechanisms can also provide financial support for renewables: An example is the UK's competition-based capacity market which is open to energy storage although, significantly, no storage project was awarded a contract under the most recent capacity market auction in 2015.

Regulatory disincentives to investment in energy storage systems are many and varied. A few significant examples include the following:

- *Negative effect of incentives and rules encouraging renewable energy generation*: Criticisms have been levelled at some existing renewable energy support mechanisms such as fixed rate feed-in tariffs (FiT) and their impact at the generator level. For example, the UK's microgeneration FiT mechanism can incentivise generators to export energy rather than store it since generators obtain the same remuneration irrespective of whether electricity is dispatched at peak time or non-peak time. In the Netherlands, rules allowing consumers to net-off electricity taken from the grid against self-generated energy are seen as disincentives to use energy storage. In any event, these types of schemes need to be reassessed to ensure a level playing field for storage, and in particular that disincentives to energy storage are removed.
- *Storage services – ownership and access*: In deregulated markets, competition rules (such as the EU so-called *unbundling rules*) require that generation asset owners do not also own or control transmission assets. Energy storage tends to be classified as "generation and/or consumption" or has no distinct classification. In this way it is not clear the extent to which grid network operators can operate storage in compliance with these rules. Whilst such rules might be useful to prevent network operators distorting competition from generators by using

6 Capacity mechanisms seek to ensure system stability and reliable electricity supplies at all times. They do this by procuring commitments to provide additional generation capacity if called upon at times of system stress during the committed period. This can be through supply of energy through additional generation or release of stored energy, or by reducing demand on the end-user side. Payment is made for maintaining capacity available.

their own storage facilities, they should not be allowed to prevent use of, or access to, storage facilities for genuine network efficiency or security purposes[7]. Also energy storage businesses often rely on the provision of different types of service in the market at the generation, transmission and consumption stages (so-called *benefits stacking*). Clarification and reform of rules that disincentivise full use of storage need to be considered[8]. In particular, there is a growing consensus that energy storage should be classified as a separate asset class to reflect its varying roles in the market.

- *Access to markets:* Rules can often affect the ability of storage owners to supply energy to the energy markets. For example, in the Netherlands, in order to supply the primary energy market, suppliers must be able to provide energy on demand on a 24/7 basis. This is clearly impossible for energy storage services. There is undoubtedly a role for regulatory regimes to assist with providing access to the market for energy storage: for example Puerto Rico introduced a regulatory requirement for renewable energy providers to provide balancing obligations. The European Association for Storage of Energy is calling for similar rules at EU level[9]. Other countries have acted to address market issues in different ways: The US State of California has introduced a mandatory requirement upon utilities to procure 1.3GW of grid storage capacity by 2020. In Morocco, IPP tenders for solar PV plant often require energy storage to help with network balancing. In certain parts of China, generators subject to curtailment restrictions during periods of low demand can store power for use in peak periods, helping to speed up their return on investment.
- *Fees and taxes:* Fees and taxes often have a discriminatory impact on energy storage. For example, there is frequently a double-tax burden on energy storage operators (e.g. in Belgium, Germany and the UK). In the UK, the *climate change levy* is applied on electricity imported to charge a storage device, and applied again later upon consumption of the electricity.

As far as ancillary services are concerned, complaints are frequently made that the true value of storage as a provider of services (and particularly its flexibility and capacity) is not recognised by the market, and revenues that can be achieved for storage services are lower than they should be as a result. It can be difficult to price services effectively, because the costs of providing these services are often not transparent. For example, in the UK, certain balancing services have historically been procured under bilateral agreements with generators. It can be difficult therefore to understand whether storage will be competitive with other technologies which could provide the same service (e.g. generation or demand flexibility). These problems will be of greatest concern for standalone energy storage businesses, although they will also affect generators providing ancillary services through their own storage facilities. A greater level of tendering for services is likely to reduce these problems by providing better price signals. Adopting a more bureaucratic "net metering" system, the Italian regulator GSE calculates the relative value of electricity fed into the grid against the costs of electricity consumed, and remunerates eligible renewable generators for any positive balance[10]; electricity storage used by generators is permitted within this calculation, and generators are therefore more fully compensated for the value that storage provides to the grid. It also allows them to understand when it is more economic to self-consume as opposed to provide electricity to the grid.

Where now?

Meeting global climate change targets through massive increases in renewable energy capacity can only happen efficiently with a major uptake of technologies like energy storage. As such, this is a very exciting time for the energy storage sector – Total's agreed €950 million acquisition of French battery manufacturer Saft, and Engie's acquisition of an 80% stake in Californian Battery Manufacturer Green Charge Networks, both in May 2016, are just two of a raft of M&A transactions in the past months highlighting the growing interest in the sector.

However, there is a huge need for continued research and development to commercialise promising technologies, as well as for market and regulatory change, if we are to realise at scale the potential benefits of energy storage. This needs to be undertaken on a whole-energy market scale and may require action across national borders. A good example is the European Union's cross-cutting initiative to integrate storage into the next stage of energy market reform through its

7 The Australian Energy Commission is currently investigating issues around control of energy storage (e.g. control by network owners over storage facilities owned by retail suppliers or customers) and the impact upon the efficient functioning of the energy market.

8 The USA has made significant efforts at federal level to amend market rules to facilitate the provision of services across the energy system by storage providers.

9 Balancing obligations are already generally required under EU State Aid rules for renewable generation projects to qualify for financial incentive support.

10 The *scambio sul posto* mechanism is available for generation plants up to 200 kW.

research programmes[11], new electricity market design, and energy efficiency and renewable energy packages. These are intended to dovetail with the EU's actions to implement its new commitments under the Paris Agreement. The USA has been at the forefront globally of energy storage development and this is continuing. In addition to legislation promoting research and development of renewable technologies including storage, in June 2016, the Obama Administration announced new executive actions and 33 state and private sector commitments designed to facilitate at least 1.3GW of additional storage procurement or deployment in the next five years.

In addition to a federal government commitment to increase its storage capacity, these announcements include state level investments in storage pilot projects and related studies, commitments from municipalities to storage capacity targets, and major plans for deployment by the private sector. Similar scale visions will be needed across the globe to make the most of this opportunity to cement energy storage within the energy networks of the future.

Although not the primary focus of COP22, the Marrakech meeting and its related side events will provide an ideal forum to discuss future renewable energy and energy storage innovation and commercialisation, in particular given the huge potential for growth in renewable energy in Africa where economic development is fundamentally reliant upon a rapid growth in electricity supply capacity. Finance for renewable energy projects in regions with developing economies will be key to these efforts, and Clifford Chance has partnered with Casablanca Finance City to sponsor, and assist in the preparations for, a Climate Finance Day in the run-up to the COP22 conference for stakeholders to discuss the challenges and identify ways forward[12].

Clifford Chance's Global Renewables Group offers depth in resource, local expertise and a long-term presence in, and commitment to, the key markets across the globe. Our market-leading team comprises acknowledged industry experts across all legal disciplines, providing top-tier renewables capability. If you would like to know more about the subjects covered in this guide, or about our Global Renewables Group, please contact any of the lawyers below or your usual Clifford Chance contact.

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11 Under the umbrella of its Horizon 2020 research and innovation programme and Strategic Energy Technology Plan.

12 For more information about the Climate Finance Day which takes place in Casablanca on 4 November 2016, see http://climatefinanceday2016.com/.

Global excellence in renewables

Philippines

Burgos Wind Farm

- **Asia Pacific Renewables Deal of the Year 2014,** PFI Awards
- **Asia Pacific Wind Deal of the Year 2014,** IJ Global Awards
- **Best Deal of 2014,** Global Trade Review
- **Asia Pacific Deal of the Year 2014**, Trade Finance Magazine

Laos

Nam Ngiep Power Plant

- **Asia Pacific Hydro Deal of the Year 2014,** IJ Global Awards

Costa Rica

Revantazón Hydroelectric Project

- **Best Infrastructure Financing 2014,** LatinFinance Infrastructure Finance Awards

Peru

Marcona and Tres Hermanas Wind Farms

- **Best Renewable Energy Financing 2015**, LatinFinance Infrastructure Finance Awards

Chaglla Hydroelectric Project

- **Best Renewable Energy Financing 2014**, LatinFinance Infrastructure Finance Awards
- **Global Power Deal of the Year 2013**, IJ Global Awards
- **Latin American Renewables Deal of the Year 2013**, PFI Awards
- **Hydroelectric Deal of the Year 2013 and Project Finance Deal of the Year 2013,** World Finance Awards.

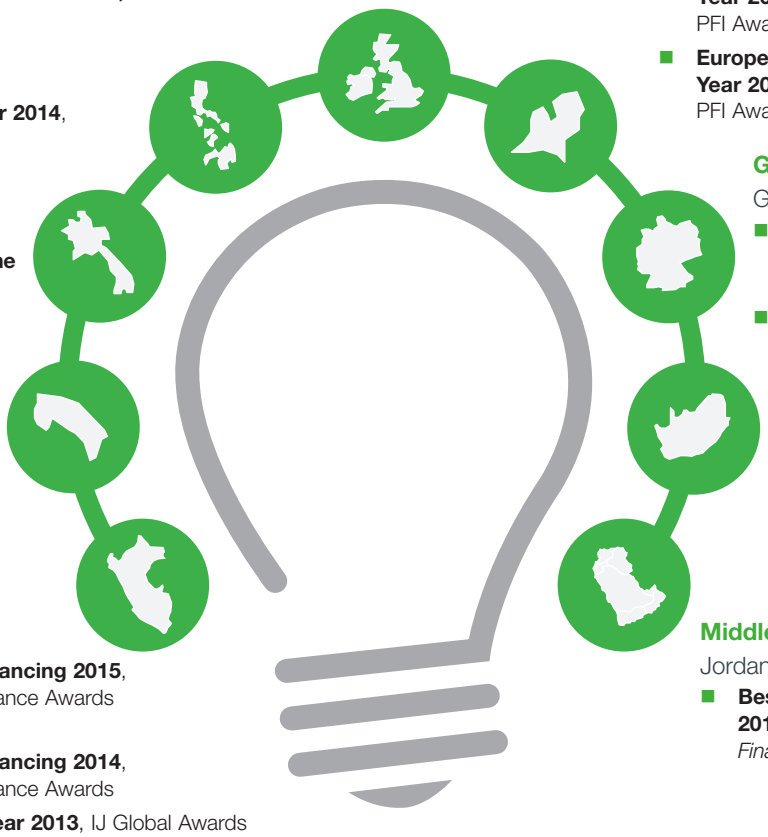
UK

Lightsource Solar Portfolio

- **European Solar Deal of the Year 2015,** IJ Global Awards

Galloper Offshore Wind Farm

- **European Wind Deal of the Year 2015,** IJ Global Awards
- **European Power Deal of the Year 2015,** PFI Awards



The Netherlands

Project Gemini Wind Farm

- **Europe & Africa Overall Deal of the Year 2014**, IJ Global Awards
- **European Wind Deal of the Year 2014**, PFI Awards
- **European Power Deal of the Year 2014**, PFI Awards

Germany

Gode Wind 1

- **European Renewables Deal of the Year 2015**, PFI Awards
- **European Project Bond Deal of the Year 2015**, IJ Global Awards

South Africa

Dorper Wind Farm

- **Africa Renewables Deal of the Year 2012,** PFI Awards

Middle East

Jordanian Solar power projects

- **Best Renewable Programme 2015,** *EMEA Finance Project Finance Awards*

2015 Full Year League Tables: #1

Renewable Energy Legal Adviser by value

IJGlobal Project Finance & Infrastructure Journal

Renewables Legal Adviser by value

InfraDeals

Renewables Legal Adviser

Trade Finance A Euromoney news and analytics service

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Australia

National Renewables Targets?	The renewable energy target for Australia is 33,000 gigawatt hours (GWh) by 2020. The Australian Government implemented the renewable energy target scheme in 2009. In June 2015, the originally mandated target was amended to reflect changes in the Australia's energy use profile.
Main Renewable Sources	Hydro, wind turbines, solar thermal, solar photovoltaic (PV), biomass, geothermal and wave and tidal energy.
Green Certificates?	Yes. The Australian Government has been supporting the deployment of renewable energy in Australia's electricity supply through the renewable energy target scheme which guaranteed a market for additional renewable energy generation using a mechanism of tradable Renewable Energy Certificates (RECs) that are akin to the Green Certificate systems used throughout a number of European countries. From 2001 to the end of 2010, RECs were the commodity in the market, but from 1 January 2011 RECs were reclassified into: ■ Large-scale generation certificates (LGCs) that fall under the large-scale renewable energy target (LRET) scheme; and ■ Small-scale technology certificates (STCs) that fall under the small-scale renewable energy scheme (SRES). The LRET creates a financial incentive for the establishment and growth of accredited renewable energy power stations. There are currently more than 15 different types of renewable energy sources being used in accredited renewable energy power stations in Australia. The LRET creates financial incentives for the accredited renewable energy power stations by legislating demand for LGCs until 2030. LGCs are created based on the amount of eligible renewable electricity produced by the renewable energy power stations, with one LGC being equivalent to 1MWh of eligible renewable electricity generated above the power station's baseline. LGCs must be correctly created and validated in the REC Registry before they can be made available for purchase and surrender. Once created and validated, LGCs can be sold or traded to renewable energy target (RET) liable entities such as electricity retailers. In addition, renewable energy power stations can also sell generated electricity to the grid. RET-liable entities have a legal obligation to buy LGCs and surrender them to the Clean Energy Regulator on an annual basis. The number of LGCs that must be obtained and surrendered is determined through a mathematical formula that considers a number of factors. The SRES creates a financial incentive for owners to install eligible small-scale installations such as solar water heaters, heat pumps, solar panel systems, small-scale wind systems, or small-scale hydro systems. It does this by legislating demand for STCs. The SRES has no legislated end date. STCs are created for these installations according to the amount of electricity they produce or displace, with one STC being equivalent to 1MWh of: ■ Renewable electricity generated by the solar panel, small-scale wind or small-scale hydro system; or ■ Electricity displaced by the installation of a solar water heater or heat pump. STCs are credited by owners directly in the online REC Registry but must be correctly created and validated in the REC Registry before they can be made available for purchase and surrender by RET-liable entities. RET-liable entities have a legal requirement to buy STCs and surrender them to the Clean Energy Regulator on a quarterly basis. The number of STCs that must be obtained and surrendered is determined through a mathematical formula that considers a number of factors.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	Australia has no national FIT programme, and each Australian State and Territory runs schemes that vary substantially between jurisdictions. Most jurisdictions have set a minimum FIT amount, with many electricity retailers offering above the minimum rate in a bid to gain further market share. A uniform federal scheme to supersede all State and Territory schemes has been proposed but not enacted. In Victoria, for example, a standard FIT is available to households, community organisations and small businesses with a solar or other renewable energy system generation capacity less than 100 kW in size with bi-directional metering. The minimum FIT rate per kWh is set at 5.0 cents for 2016. The Victorian standard FIT currently has no legislated end date and closed to new applicants on 31 December 2012. In contrast, the New South Wales "Solar Bonus" scheme is closed to new applicants that were not connected to the electricity network by 30 June 2012. Existing New South Wales customers whose systems are already connected to the electricity grid are not affected and will continue to receive the FIT until the scheme terminates on 31 December 2016, after which they can access the same market offers for unsubsidised FITs that are available to all other solar customers. However, households and businesses with solar PV units that are ineligible to participate in the Solar Bonus scheme can still earn FITs for electricity exported to the grid based on a price set by the NSW Independent Pricing and Regulatory Tribunal.
Other Incentives	As part of its Direct Action Plan for addressing Australia's carbon emissions, the Australian Government established the Solar Towns Programme. Funding of A$2.1 million (GST exclusive) is provided for the programme to support community organisations who wish to install a renewable energy system (solar PV panels or a solar hot water system only) on an existing building that provides support to the local community. Three rounds of funding have been released under this programme. The Australian Renewable Energy Agency (ARENA) was established on 1 July 2012 as a commercially oriented agency aimed at improving the competitiveness of renewable energy technologies and increasing the supply of renewable energy in Australia by 2022, with intent to provide competitive energy solutions up to 2030–2040. ARENA has approximately A$2.5 billion in funding that extends until 2022, which is legislated to provide assistance to activities that are expected to advance renewable energy technologies towards commercial readiness, improve business models or reduce overall industry costs. In March 2016, the Australian Government expanded ARENA's renewables mandate to include energy efficiency and low emissions technology and made changes to its funding as well as the types of projects in which the agency will invest as part of a new A$1 billion Clean Energy Innovation Fund jointly administered with the Clean Energy Finance Corporation.
Additional Comments	Australia's emissions trading scheme was dismantled in 2014. The current emissions reduction policy is based on encouraging the direct sequestration or reduction of emissions using approved methodologies. Australia's Clean Energy Regulator holds periodic reverse auctions to purchase accredited emissions reductions through a Federal Emissions Reductions Fund. To ensure that emissions reductions are not displaced by emissions rises in other sectors of the economy, a separate safeguard mechanism commenced on 1 July 2016 to ensure that large businesses and emitters keep their emissions to baseline levels.

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Belgium

National Renewables Targets?	The renewable energy target for Belgium is 13% by 2020.
Main Renewable Sources	Hydro, wind, solar, geothermal and biomass.
Green Certificates?	Yes. Since early 2000, there has been a Green Certificate system with a quota obligation in each of the three Belgian regions. In addition, the Belgian Federal Government has organised a Green Certificate scheme for offshore wind power production in the North Sea. The four systems are comparable, but procedures for obtaining the certificates, the conditions under which these are granted, minimum prices and fines for suppliers that do not meet the quota obligations vary. All support schemes are two-pronged. On the one hand, producers of electricity based on renewable energy sources receive Green Certificates, which they can sell to energy suppliers or the network operators. On the other hand, energy suppliers have to submit a specific number of Green Certificates to the authorities. This number is equal to a percentage of the energy supplied to the end customers. The minimum price of a Green Certificate is guaranteed through a minimum purchase price offered by the network operators. In theory, the actual price of a Green Certificate may be higher if the offer of certificates on the market is scarce. However, so far, there has been a structural oversupply of Green Certificates in the market. As a result, the actual value of the Green Certificates is far below their guaranteed minimum price. Consequently, the costs of the Green Certificate scheme were considered to be too high and major reforms of the systems have been implemented during the past few years. These reforms aim to create a link between the support granted on the one hand and the costs of renewable energy production, evolution in technology and electricity prices on the other hand: ■ *Flemish Region*: since 2013, the price of the Green Certificates is controlled by means of a banding system. This means that the amount of certificates granted varies across technologies and is based on a technology-specific banding factor calculated on the basis of a "funding gap" formula. Banding factors are updated every six months for solar photovoltaic (PV) installations and each year for other installations. Currently no more support is being given for small-scale PV installations (up to 10 kW) commissioned as from 14 June 2015. ■ *Walloon Region*: since 1 March 2014, new PV installations with power of up to 10 kW are no longer eligible for Green Certificates and have been subject to the Qualiwatt premium scheme. The Qualiwatt premium for PV installations is capacity-based and fixed in advance in order to obtain a standard eight-year return on investment. The grant may be increased or reduced each year if the electricity price changes by more than 10% and takes into account "reverse metering" savings made by small PV installations. For other types of installations the existing Green Certificate scheme still applies. The Walloon Government is steadily increasing Green Certificate quotas for suppliers in order to increase the market price. ■ *Brussels Capital Region*: in the Brussels Capital Region, a Green Certificate scheme for residential PV installations still exists. However, the number of Green Certificates for PV installations has gradually decreased over the last few years. Green Certificates are also granted to the owners of co-generation installations. ■ *Federal Government*: with regards to initial offshore wind farms, producers may sell their Green Certificates to the electricity Transmission System Operator Elia for a guaranteed minimum price per certificate which is not directly linked to the electricity price. However, for offshore installations with financial close after 1 May 2014, the minimum price is calculated on the basis of a LCOE (levelised cost of energy)-based formula whereby the amount of support is linked to the market price for electricity. This support mechanism is currently being further reformed, and as a result, the level of support for future projects will be further reduced. Green Certificates are freely transferable within the region in which they were issued but they are not recognised by other regions. The only exception is that Green Certificates issued in Wallonia may, under certain conditions, be used in Brussels.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	No, but there is a guaranteed minimum price for the purchase of Green Certificates (see above).
Other Incentives	Increased investment tax deductions are applied to certain qualifying energy saving investments. The increased investment deduction is a non-recurring tax deduction applied to the investment value of the asset. For example, for investments made during the financial year ending 31 December 2016, the deduction amounts to 13.5%. Alternatively, and provided certain conditions are complied with, Belgian companies can apply the recurrent investment deduction, which implies that the investment deduction is calculated each year as a percentage of the annual depreciations (and not on the investment value) on the assets concerned. The recurrent investment deduction is determined on the basis of the basic investment deduction and is increased by 17%. As such, for the financial year ending 31 December 2016, the recurrent investment deduction amounts to 20.5%. The recurrent investment deduction is only applicable with regard to (i) assets which are used to promote the research and development of new products and future-oriented technologies, and (ii) environmentally friendly investments.
Additional Comments	The EU has granted an exception to the 20% renewables rule due to the particular nature and geography of Belgium. Particular issues hindering the development of renewable energy in Belgium are the lack of natural resources and space; for example, Belgium only has 65 km of coastline, which reduces its ability to develop marine-based renewables on a significant scale (unlike the UK and Germany, for example). To achieve the 2020 target further significant investments will be required in the coming years. The cost of the Green Certificate schemes and the different support mechanisms in Belgium could in the future be influenced by the State Aid guidelines of the European Commission published in June 2014. As a result, the scope and nature of the support mechanisms that will be available for future projects is currently not entirely clear, which creates uncertainty within the renewables sector. For instance, the proposed amendments to the federal support scheme for offshore wind farms reducing the current level of support have been notified to the European Commission. Although the European Commission found in 2002 that the original offshore regime did not constitute state aid on the basis of a lack of transfer of state resources, it is currently assessing the proposed amendments on the basis of the 2014 state aid guidelines. A decision whether or not to open a Phase II investigation is expected in Q4 of 2016. These state aid discussions are particularly important for the Belgian offshore wind industry as two wind parks intend to complete their financial close in 2016.

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China

National Renewables Targets?	The renewable energy targets for China are: 15% by 2020 and 20% by 2030.
Main Renewable Sources	Hydro, wind, solar photovoltaic (PV), biomass, geothermal and marine energy.
Green Certificates?	No, the relevant governmental authorities are still in the process of developing and formulating regulatory regimes relating to green certificates.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	Yes. **Hydro, wind and solar (excluding distributed solar PV power generation):** In a number of areas of China, renewable electricity generation is often subject to curtailment (i.e. power output reduction) requirements imposed by grid companies, for practical reasons such as failure to comply with priority dispatch policy for renewable energy generation, or problems with lack of grid capacity or power supply quality. In areas subject to curtailment, sales of power generated by these technologies to grid companies are divided into two parts – one part is purchased on the basis of tariff rates mentioned below (the volume purchased is determined by the National Development and Reform Commission (NDRC) and the National Energy Administration). The other part is sold on the basis of market competition. In areas where there is no power curtailment, all power generated is purchased by grid companies on the basis of tariff rates mentioned below. **Biomass, geothermal, marine power and distributed solar PV:** all power generated is purchased in full by grid companies on the basis of tariff rates, since use of these technologies and resources are not yet fully developed in China. **Tariff rates** In general, the tariff rates paid by grid companies for power generated from renewable sources are determined by the NDRC depending on the type of the renewable technology and the conditions of different areas. The rates are adjusted by the NDRC periodically. For renewable energy power generation projects approved by the government via a bidding process, the tariff rate should be the rate determined in the bidding process provided that such rate cannot be higher than the NDRC-determined rate applicable to similar renewable energy power generation projects. More specifically, rates are as follows: ■ Hydro: for hydropower stations delivering power within one province, the above general description applies; for hydropower stations delivering power to more than one district or province, the tariff rate is the price applicable to the district/province receiving the power (which should be determined by the power generator and grid company through negotiation) minus the power transmission price (governmental fixed price). ■ Wind • Onshore wind: there are different tariff rates for four different wind resource areas (with the districts/provinces included in each wind resource area determined by the NDRC in accordance with local wind resources and construction conditions). These range from 0.44 Yuan/kWh to 0.60 Yuan/kWh depending on the relevant wind resource area. • Offshore wind: 0.85 Yuan/kWh for offshore wind farms put into operation before 2017 (excluding the year of 2017), and 0.75 Yuan/kWh for intertidal zone wind farms put into operation before 2017 (excluding the year of 2017). ■ Solar • PV power stations: there are different tariff rates for three different solar resource areas (with the districts/provinces included in each solar resource area determined by the NDRC in accordance with local solar resources and constructions costs and conditions) being 0.8 Yuan/kWh, 0.88 Yuan/kWh and 0.98 Yuan/kWh respectively. • Distributed PV power generation: a subsidy of 0.42 Yuan/kWh for all the power generated from this source. ■ Biomass • Agricultural and forest biomass: 0.75 Yuan/kWh. • Non-agricultural and forest biomass: tariff varies from one province to another.
Other Incentives	A renewable energy development fund (REDF) has been set up, whose sources include special funds allocated by the national public financial budget and the extra charges in relation to renewable energy power imposed on power users. REDF can be used for (1) compensating grid companies for their expenses of purchasing the power generated by renewable energies exceeding the expenses of purchasing the power generated from conventional energy resources; (2) compensating grid companies for their reasonable on-grid expenses or other reasonable expenses incurred for purchasing power generated by renewable energies, which cannot be covered by their sale of electricity to users; (3) scientific and technical research on development and utilisation of renewable energies, formulation of standards and demonstration projects; and (4) renewable energy utilisation projects in relation to the energy used in the daily life in rural and pastoral areas. Since 1999, subsidised loan finance has been granted to renewable energy power generation projects. Banks may prioritise loans for construction of these projects. Large-sized and medium-sized projects that meet certain statutory requirements (e.g., the ratio of project capital to total investment should be 35% or more) with a scale of over 3,000 kW can enjoy a subsidised loan with subsidised interest rate of 2%.
Additional Comments	Renewable energy incentives as mentioned above have been successful in driving the development and utilisation of renewable energy capacity in China. According to Global Trends in Renewable Energy Investment 2015 prepared and published by Frankfurt School – UNEP Collaborating Centre for Climate & Sustainable Energy Finance, China enjoys the largest amount of renewable energy investment around the world (US$ 83.3 billion in 2014). However, for certain districts with plenty of renewable resources, power generated by renewable energies cannot be fully consumed and large amounts of such power (mainly generated from wind, hydro and solar) are simply wasted. The average curtailment rates for wind power in 2011 and 2012 were 14.5% and 17.1% respectively, which decreased to 10.7% and 8% in 2013 and 2015. However, during the first half year of 2015, the rate rebounded to 15.17%. Moreover, in 2015 the average reduction in the output of solar power farms (i.e. “solar power curtailment”) reached 12.62%.

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Czech Republic

National Renewables Targets?	The renewable energy target for the Czech Republic is 13% by 2020. The 2005 baseline is 6.1%.
Main Renewable Sources	Hydro, solar photovoltaic (PV), wind, geothermal, biogas and biomass.
Green Certificates?	No, although a green bonus is available (discussed below) which is similar. It does not, however, place an obligation on any party to acquire a specific number of certificates.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	Yes. A fixed FIT payable by certain electricity traders (subsidiaries of the three main distribution system operators) is available to currently operating renewable electricity generators. As of 1 January 2013, FITs are only available for new hydro power plants with maximum output up to 10MW and for other newly commissioned facilities with an output not exceeding 100 kW. Other facilities commissioned in 2013 are entitled to a green bonus only. No incentives (whether FIT or green bonus) are available to plants commissioned after 31 December 2013, save for new hydropower plants with output not exceeding 10MW and hydro, wind, geothermal and biomass plants which were under construction as of 31 December 2013 and which were commissioned before the end of 2015. Once a generator has obtained the FIT applicable in the year of commissioning of its plant, it is entitled to benefit from such FIT for the entire expected lifetime of the plant (15 to 30 years). The duration of the entitlement to the FIT and the amount of the FIT depends on the source of renewable energy used. The FIT is increased annually by up to 2% through application of an indexation formula. The applicable FITs/green bonuses are: ■ Hydroelectricity (maximum output 10MW): depending on the type of plant, FIT ranges from €76.53/MWh to €121.88/MWh and green bonus ranges from €50.64/MWh to €95.99/MWh for plants commissioned in 2015; ■ Biomass: • Subsidies on electricity generation from biomass substantially differ according to the type and category of biomass. There are three categories of biomass; one for dedicated biomass which generally receives the highest support and two others for by-product biomass. Each category is subdivided into individual types of biomass depending on the material it is produced from, with corresponding FITs ranging from €28/MWh to €170/MWh and green bonuses ranging from €1.5/MWh to €143/MWh; • Combustion of biomass from various sources – FIT ranges from €28.48/MWh to €124.65/MWh (only indicative, no entitlement) and green bonus ranges from €1.48/MWh to €97.65/MWh for plants commissioned in 2015; • Combustion of pure biomass – FIT ranges from €46.05/MWh to €137.97/MWh and green bonus ranges from €21.45/MWh to €110.97/MWh for plants commissioned in 2015; ■ Wind: FIT €74.72/MWh or green bonus €56.22/MWh for plants commissioned in 2015; ■ Solar: • Highest subsidies are for plants commissioned in the years 2006-2010. Depending on the installed output and time of commission, FITs range from €599.00/MWh to €506.45/MWh and green bonus from €574.96/MWh to €482.41/MWh; • The subsidies fell to half for plants commissioned in the year 2011, and, as of 2012, only plants with maximum output up to 30 kW are entitled to subsidies, although in a substantially limited amount; • As mentioned above, no incentives are available for plants commissioned after 31 December 2013.
Other Incentives	Green bonuses are subsidies paid on top of the market price which are only payable if the generated electricity, heat or bio-methane is either (i) actually sold on the market for the market price, or (ii) consumed by the producer itself. Generators of electricity from renewable sources have a priority right to connect their facilities to the electricity distribution or transmission grid, and a priority right to supply electricity to the grid. In practice, this means that, where a generator opted for the FIT, it is now able to sell all the electricity it generates to the relevant electricity trader for the price set by the relevant FIT.
Additional Comments	The solar boom which lasted until the end of 2010, saw particularly generous support provided to PV plant operators (around €0.50/kWh), irrespective of the size and location of the plant. This led to an increase in the total installed capacity of PV plants in the Czech Republic from 65MW on 1 January 2009 to almost 2,000MW by the end of 2011. On 1 January 2011, the subsidies for newly commissioned PV plants were reduced to approximately €0.23/kWh, and since 1 March 2011, subsidies have only been available to PV plants with an output of less than 30 kW and only if such plants are located on the roofs or facades of buildings. Moreover, a special 26% tax has been introduced (decreased as of 1 January 2014 to 10%), reducing the revenues from electricity sales generated by PV plant operators. This tax applies to all PV plants commissioned between 1 January 2010 and 31 December 2010 with an output exceeding 30 kW. Due to these changes, no new large PV plants are currently being commissioned or likely to be commissioned until 2020. Nonetheless, the currently operating PV plants connected under the generous 2009 and 2010 FITs, combined with the priority to connect and supply, are increasingly targeted by foreign investors. Currently, there is also about 290MW of installed wind power capacity. Operational wind power plants, as well as new wind facilities are also increasingly targeted by domestic and foreign investors. The support scheme for promoting electricity production from renewable energy sources which was applicable between 1 January 2013 and 31 December 2015 has been notified to the European Commission as State aid, and on 11 June 2014 the European Commission declared it to be in line with the EU State Aid rules. Moreover, there are currently at least six other notified past or existing support schemes by the Czech Republic which the EU Commission is currently reviewing. This creates uncertainty as to the legality of the schemes as well as potential overcompensation issues. It seems likely that the Czech energy regulator will not review overcompensation based on the EU State Aid rules until it receives express statutory powers under Czech law to do so.

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France

National Renewables Targets?	The renewable energy target for France is 23% by 2020 and 32% by 2030.
Main Renewable Sources	Hydroelectricity, wind and solar.
Green Certificates?	No.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	A FIT scheme implemented in 2000 obliges EDF and other local non-nationalised operators to purchase electricity produced by renewable generators through Purchase Obligation Contracts (POCs). The POCs are entered into either upon request of the generators (subject to certain conditions), or with the generators selected via a tender process launched by the French Government (see below). In the case of voluntary POCs, the tariff rates are determined by ministerial orders for each type of renewable. Applicable tariffs for a given installation depend on several factors such as location, type, size and commissioning date; the base tariffs that are in force include: Hydroelectricity: c€6.07/kWh; Wave and Tidal: c€15/kWh; Solar: from around c€5/kWh to around c€25/kWh for built-in installations; Onshore wind: c€8.2/kWh, reducing over time, with a specific tariff of c€23/kWh in areas deemed at high risk of storms. The FITs awarded between the end of 2008 and 2014 for onshore wind electricity have been declared illegal, due to the lack of prior notification to the European Commission under the State Aid regime. The FITs were later found compatible with EU rules by the Commission in April 2014. In a ruling of April 2016, the *Conseil d'Etat* ordered the French State to recover the amount of the interest that the onshore wind generators who benefited should have paid had they had to borrow the amount of the aid illegally granted over the contested period. This must be done by the end of 2016. The scope of new renewable installations falling within the FIT scheme has recently evolved, as a result of the Energy Transition Act of 17 August 2015 which created a new "feed-in premium" scheme (please see below). New installations will now either fall within the FIT scheme or the FIP scheme, depending on the type of renewable and the installed capacity (only onshore wind energy generators will be able to benefit from either FITs or FIPs, regardless of their installed capacity). Apart from onshore wind, only a limited number of new installations will be eligible for FITs from now on, mainly smaller installations (the maximum limits being, for example, 500 kW for hydro and 100 kW for solar built-in installations), as well as "non-mature" technologies in order to support innovation and R&D. The new regulatory framework entered into force on 29 May 2016; however, for the mechanism to be fully implemented a series of orders fixing the new tariffs and conditions for the new installations are still required. Under the new FIP scheme introduced by the Energy Transition Act, generators will sell their output on the market and enter into a contract with EDF to be paid premiums in addition to the sales revenues. Such contracts will be entered into either upon request of the renewable generators (subject to certain conditions), or with the generators selected via tenders. The premiums to be paid to the generators will be calculated as the difference between (a) the "reference tariff", i.e. a level of remuneration which is set either through tenders, or by ministerial orders on the basis of the investment and operating costs of an efficient installation for contracts entered into upon the generators' request and (b) the "market reference price", based on the electricity market prices. In cases where this market reference price goes above the reference tariff, the generator must pay back the difference to EDF. A fee to cover the generators' management costs will be added to the premium. The premium will be paid on a monthly basis to the generators and adjusted at the end of each year. In case of "market failure", generators will sell their output to an "offtaker of last resort" (designated on a competitive basis by the Ministry of Energy) and receive up to 80% of their normal level of remuneration. The law provides that the generators should be entitled to a "reasonable" rate of return on capital, taking into account the risks resulting from their activities. The ministerial orders setting out the reference tariffs and the reference market prices as well as the management premium for each type of renewable have not yet been published. It is therefore too early to assess the full impact of the new FIP scheme, in particular with regards to the rates of return.
Other Incentives	N/A
Additional Comments	The French Government may launch calls for tenders in order to reach the targets set in the multiannual electricity generation programme. In this case, the applicable tariffs will be determined through the tender process. The generators selected through the tender process will from now on benefit either from a POC or from a contract to be paid premiums under the FIP scheme, depending on the conditions provided by the calls for tenders. The tenders based on the FIP scheme will now be the preferred mechanism for larger installations (mainly above 500 kW). According to an indicative schedule released by the Ministry of Energy, calls for tenders are due to be launched from 2016 to 2019 notably in relation to: solar energy (ground-based solar plants and built-in installations), biomass and hydro. Regarding offshore wind energy, six projects (for a combined capacity of 3,000MW) have already been awarded after two calls for tenders in 2012 and 2014. A third call for tenders is expected to be launched for projects to be located in the region of Dunkirk. The new FIP mechanism was notified by the French government to the European Commission under the State Aid control mechanism at the end of 2015, but the Commission has not yet published its decision on this matter. Following recent legislation, administrative requirements will be simplified and procedural delays reduced for renewable electricity generation, for example: higher thresholds triggering the obligation to obtain an authorisation to operate an electricity generation facility; single-authorisation regime for onshore wind farms and hydro, regrouping several authorisations prescribed by the Urban Planning, Environmental and Energy Codes; exclusive jurisdiction of the Administrative Court of Appeal in Nantes for claims against administrative authorisations for offshore projects, with no first instance actions admitted before the administrative tribunal; and maximum delay of 18 months for the connection of generators to the networks (with possible extensions). By the end of 2015, renewable electricity generation capacities represented 18.7% of the French electricity generation mix.

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Germany

National Renewables Targets	The renewable energy targets for Germany are: 40-45% by 2025, 55-60% in 2035 and at least 80% by 2050.
Main Renewable Sources	Onshore and offshore wind, solar photovoltaic (PV), biomass, hydro and geothermal energy.
Green Certificates	*Not applicable*
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	Since 1990, a basic FIT system with fixed FIT has been in place and still applies to many existing installations. In 2012, the legal framework was modified to implement an optional FIP system generally applicable to plants which were commissioned between 1 January 2012 and 31 July 2014. In 2014, a generally mandatory FIP system for new installations commissioned from 1 August 2014 onwards was introduced. Under this current system, known as the direct marketing system, generators sell electricity directly onto the market. In practice they sell it to specialised off-takers called "direct marketers". In addition to the sales price paid by the direct marketer, which usually reflects the monthly average exchange prices, the generators are entitled to receive a market premium from the grid operator to "top up" the sales income. The market premium is calculated by subtracting the monthly average exchange price from a fixed amount, which varies depending on the type of renewable energy (e.g. onshore wind, offshore wind, PV etc.) laid down by law (the fixed amount being the "applicable value"). The applicable value under the current regime takes into account the higher costs of electricity generation from renewable energies. It also comprises a lump-sum compensation for direct marketing costs amounting to 0.4 ct/kWh for electricity from wind and PV plants, and 0.2 ct/kWh for electricity from other renewable energy resources. In practice, the total of the market premium paid by the grid operator and the sales price paid by the direct marketer almost corresponds to the applicable value. Note that unlike some similar FIT regimes (for example that seen in the UK), where the average exchange price exceeds the applicable value there is no obligation on the generator to repay the difference. Up to now, the applicable value has been set by the German legislator. However, the existing system will soon be replaced for new installations. From 2017 onwards, the applicable values will no longer be fixed by the legislator, but will be determined via a market-based auction scheme. The new auction scheme is the core of the most recent legislative changes set out in the 2017 Renewable Energy Sources Act (*Erneuerbare-Energien-Gesetz, "EEG 2017"*) as well as the Wind Energy at Sea Act (*Windenergie-auf-See-Gesetz, "WindSeeG"*), which will enter into force on 1 January 2017. Auctions (with specific rules depending on the relevant technology) will be held for installations using: ■ Onshore wind energy; ■ Offshore wind energy; ■ Biomass; and ■ PV installations. Each year, the Federal Network Agency (*Bundesnetzagentur*) will organise several auctions designed to identify the lowest possible applicable values for (parts of) the respective auctioned capacity. Capacities will mostly be auctioned in different "technology baskets" (e.g. onshore wind, offshore wind, PV etc.). Bidders with the lowest bids will be granted corresponding applicable values ("pay-as-bid"). Renewable energy installations with a capacity of 750 KW or less, as well as onshore wind installations which have been permitted until the end of 2016 and commissioned by the end of 2018, are excluded from the auctioning scheme and are thus subject to applicable values defined by law. Separate transitional rules apply for offshore wind installations which are granted an unconditional grid connection prior to 2017; for these installations the auctioning scheme will only apply for wind installations commissioned from 2021 onwards. Additionally, under the EEG 2017, 5% of the annual newly installed generating capacity can be made available to installations that are located in other EU Member States, provided that the following conditions are met: ■ Germany and the respective EU Member State in which the installations are located must conclude a cooperation agreement; ■ the respective EU Member State must open its renewable incentive scheme to installations located in Germany; and ■ the electricity generated in the installations in the respective EU Member State must be physically imported to Germany.
Other incentives	The German Reconstruction Credit Institute (*Kreditanstalt für Wiederaufbau, "KfW"*) offers several types of credits to promote generation of electricity from renewable energies, especially project financing for offshore wind farms in the German North Sea and Baltic Sea.
Additional Comments	The aims of the EEG 2017 are to better predict the development of renewable energies and introduce more competition between generators: the new auction scheme is intended to effectively regulate future development of renewable energy generation, and so the auctioning capacities are capped as stipulated in the EEG 2017. Furthermore, with the new auction scheme, electricity from renewable energies shall only be compensated up to the amount which is necessary for an efficient operation of the installations. Currently, approximately 30% of the electricity generated in Germany derives from renewable energies.

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Italy

National Renewables Targets?	The renewable energy target for Italy by 2020 is 17%, and by 2014 this had already been met. The Italian National Energy Strategy expects a 19-20% share of renewable energy in gross final consumption by 2020.
Main Renewable Sources	Onshore wind, hydro, solar and biomass.
Green Certificates?	No. Starting from 1 January 2016, renewable energy plants (other than solar photovoltaic (PV) plants) which were eligible to benefit from the green certificates incentive system receive a FIT equivalent to the price of the green certificates until the end of the applicable incentive period (which varies depending on the type of power source and on the date the plant commenced operations).
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	**Renewable energy plants (other than PV plants)** The Decree of the Minister of Economic Development of 23 June 2016 (the RES Decree) sets out incentive schemes for renewable energy plants (other than PV plants) for the year 2016. These incentive schemes consist of FIT payments which are made by the GSE (*Gestore dei Servizi Elettrici S.p.A.*). The GSE is the state-run entity in charge of the implementation of incentive systems to promote the use of renewable energy sources in Italy. The RES Decree classifies plants by source and power class, and provides the following admission procedures: ■ Micro plants (i.e. capacity equal to or lower than 60 kW), which have direct access to an all-inclusive incentive tariff system; ■ Small-medium plants (i.e. capacity of over 60 kW to 5MW), which must first be enrolled in a dedicated register; and ■ Large plants (i.e. capacity of more than 5MW), which must go through a reverse auction process to access the incentive system and are subject to an annual cap on capacity. Pursuant to the RES Decree, the electricity produced by renewable plants with capacity of up to 500 kW is purchased by the GSE, upon request of the relevant plant operator, while plants with a capacity of more than 500 kW sell the electricity produced on the electricity stock exchange or by contract. As provided for under the RES Decree, on 20 August 2016 the GSE published a call to tender for the award of the incentives. On 30 August 2016 the tender period commenced, and operators have until 28 October 2016 to submit their offers under the registration procedure (which applies to small-medium plants as described above), and until 27 November 2016 under the reverse auction process (which applies to large plants). The RES Decree does not provide for any other tenders. The scope of application of the RES Decree will terminate on 31 December 2016. No information is yet publicly available regarding the allocation of incentives starting from 1 January 2017. **PV plants** An incentive system known as "Conto Energia" has been available for photovoltaic plants in Italy since 2005, consisting of the payment by the GSE of a FIT for twenty years starting from the date the plant commenced operations. The amount of incentive varies depending on the relevant Conto Energia programme, the commissioning date, the installed capacity and other features of the plants. No incentive system is currently available in Italy for new PV plants that have started operations following the expiration of the Fifth Conto Energia (which was the latest incentive scheme available with respect to the PV sector) on 6 July 2013.
Other Incentives	Italian legislation provides that electricity produced from renewable energy sources has priority access to the grid system, and the transmission grid operator has to give dispatch priority accordingly. Italian legislation grants the option to sell the electricity produced under the mandatory purchase regime (*ritiro dedicato*), rather than on the market to producers of electricity from (i) intermittent renewable sources of energy (including, therefore, electricity from solar and wind plants), or (ii) other sources (in this case for up to a nominal power of 10MW). Under the mandatory purchase regime, the GSE must draw and purchase all the energy produced by a plant, net of any energy used for in-plant consumption, paying to the producer the "hourly zone price". Under the net metering service (*scambio sul posto*), producers/users at small power plants (up to 200 kW) may either from time to time consume the electricity generated or feed any electricity generated, and not immediately consumed, into the grid. VAT at a reduced rate of 10% is provided for the acquisition and construction of renewable plants and subsidies – and benefits are available in connection with the sale or purchase of the land on which renewable plants are installed.
Additional Comments	So far, the most successful technologies in the renewable energy sector have been those related to the PV sector (with an overall installed capacity of more than 18,000MW), mainly due to the (once) generous FITs granted to producers and the relatively limited construction costs of PV plants (compared to those regarding hydroelectric or wind plants). During the last few years several measures have affected renewable energy incentives already granted under the incentive schemes as mentioned in the FIT section above. These measures amended the legislative framework governing incentives for renewable energy sources with the aim of reducing the costs of renewable energy charged to final consumers in the electricity bill including, in particular: ■ The provisions relating to the "voluntary" extension of incentives for renewable energy sources (other than PV plants) introduced by the so called "Destinazione Italia" Decree at the beginning of 2014, pursuant to which operators were asked to decide whether to maintain the current regime of incentives, but losing the right to other incentives (including incentives for refitting and repowering) for a period of 10 years, or to agree on a re-modulation of the incentives, composed of a reduction of the yearly amount of incentives with a related extension of the applicable incentive period. ■ The provisions affecting solar energy incentives already granted to PV plants introduced by the so called "Spalma incentivi" Decree in August 2014, which required PV plants operators to agree to a re-modulation or an extension of the applicable period of application of the incentives (with related reduction of the yearly amount of incentives) or to suffer an immediate tariff reduction. Several legal claims challenging the lawfulness of the above measures are currently pending in various legal proceedings. Despite this continuously evolving and complex legal framework which is causing uncertainty in the Italian market, further measures affecting previously granted incentives seem unlikely in the short term given the success that existing measures have had in reducing renewable energy incentive costs. Italian renewable energy plants that are already operating and that receive incentives, therefore, still represent a good prospect for investment. The unavailability of new FITs for PV plants, the delayed publication of the new RES Decree as well as the uncertainty which surrounds the allocation of incentives for other renewable energy plants from 2017 have, however, inevitably led to a decrease in the interest of investors for the development of new renewable energy plants.

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Japan

National Renewables Targets?	The renewable energy target for Japan is 22-24% by 2030.
Main Renewable Sources	Solar, wind, geothermal, hydro and biomass.
Green Certificates?	Yes. There are green certificates available in Japan although they have been practically and commercially superseded by the Japanese FIT (as explained below).
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	Yes. The Renewable Energy Act introduced a FIT in Japan as of 1 July 2012. The Japanese FIT applies to electricity generated from solar, wind, geothermal, mid/small sized hydro power plants, and biomass. A reform of the FIT regime is expected in April 2017, which is summarised in the "Additional Comments" section below. The operator of a renewable power plant is entitled to sell all of the electricity generated by that plant to a utility company during a fixed period at a fixed price, which is determined by the Ministry of Economy, Trade and Industry of Japan (METI) in respect of permits granted in each fiscal year in Japan (i.e. 1 April to 31 March). There has been a downward trend in terms of the sales price of solar power while the sales prices of other types of renewable energy have generally been maintained. In order to boost power generation by offshore wind farms, the sales price of offshore wind power was increased in 2014. The sales prices under permits granted from 2012 to 2016 (and the periods for which the price is fixed following the commencement of power generation) are as follows: ■ Solar (10kW or more): the prices have been gradually reduced from JPY 40.00 per kWh (in 2012) to JPY24.00 per kWh (in 2016). The FIT period is 20 years. ■ Onshore Wind (20kW or more): JPY 22.00 per kWh (from 2012 to 2016) for 20 years. ■ Offshore Wind: JPY 22.00 per kWh (from 2012 and 2013) and JPY 36.00 per kWh (from 2014 to 2016) for 20 years. ■ Geothermal (15,000kW or more): JPY 26.00 per kWh (from 2012 to 2016) for 15 years. Due to the drop in the sale price of solar power and new stringent rules introduced in January 2015, new market players currently tend to purchase existing solar power plants accredited in the fiscal years from 2012 to 2014, rather than purchasing those accredited after this period or developing brand-new solar power plants. However, METI has been revoking existing METI approvals unless the project operator can prove that (i) the relevant project sites have been procured and (ii) the specification details of the solar power plant equipment have been determined. As such, investors intending to purchase any accredited projects in the secondary market will need to be aware of the potential revocation risk and ensure that the relevant project is able to satisfy the criteria in a timely manner by conducting thorough due diligence. The relevant purchasing utility company is obliged to enter into a power purchase agreement and a grid connection agreement with the operator unless one of the justifiable reasons set out in the Renewable Energy Act (such as the amount of electricity generated exceeds the available transmission and distribution capacity of the utility company) applies. In order to benefit from the Japanese FIT, the operator must have: ■ obtained approval from METI for the construction of the power plant; and ■ applied to a utility company for permanent approval of a grid connection before the plant commenced electricity generation. It typically takes a few months to obtain such approvals.
Other Incentives	Not applicable
Additional Comments	The following reforms of the FIT regime are expected: ■ A new METI approval regime will be introduced under which project sponsors will have to demonstrate, among other things, that their project is likely to be realised and is likely to produce an efficient and stable electricity supply. In particular, for solar PV projects (10kW or more), the project sponsor must demonstrate that commercial operation will be achieved within three years of the date of the approval. Details of the requirements for such new approval are set out in METI's regulations. ■ For geothermal, wind and biomass projects, which require a long development period, METI can determine the sales prices for the next few years so that project sponsors can estimate their return on investment for such projects. Under the current regime, sales prices for each fiscal year are published by METI in February or March of the previous fiscal year and project sponsors take a risk of price reduction during the development phase before the sales price is fixed. ■ METI will be able to introduce new procedures to determine sales prices through a bidding process. METI intends to reduce the sales prices for large scale solar PV projects by using a bidding process. The new FIT regime will become effective on 1 April 2017.

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Korea

National Renewables Targets?	The renewable energy target for Korea is 10% by 2020.
Main Renewable Sources	Solar thermal, solar photovoltaic (PV), wind, bioenergy, hydro, geothermal, marine and waste.
Green Certificates?	Yes. Renewable Energy Certificates (RECs) are issued as part of the Renewable Portfolio Standard (RPS) programme which was introduced in 2012. The RECs require generation companies to comply with the RPS requirement in accordance with section 5 of Article 12 of the Act on the Promotion of Development, Use, and Dissemination of New and Renewable Energy. Only eligible renewable energy facilities are allowed to trade RECs. In order for generation companies to qualify, they must apply for certification to the Korean New and Renewable Energy Centre (KNRE). The issuance of the certificates is determined on a weighted basis, based on electricity generated from renewable sources for electricity distributors (REC = MWh x weighted points). Licensed electricity distributors are KEPCO (Korea Electric Power Corporation) and Korea Power Exchange. The RECs are weighted as follows: ■ Photovoltaic Energy: four weighted points (0.7,1.0,1.2,1.5) – the allocation of points takes into account whether the facility uses existing buildings or structures, the location of the land on which the facility is located and whether capacity exceeds 30kW; and ■ Other energy sources: five weighted points (0.25, 0.5, 1.0, 1.5, 2.0) – for example, the lowest point of 0.25 is assigned to IGCC or offshore gas, whereas the highest point is assigned to offshore wind, tidal power without dams and fuel cells. Application for REC issuance must be made within 90 days after the end of a month during which the generator supplied electricity generated from renewable energy. The fee for issuing a REC is KRW 50 per REC. RECs are valid for three years from the issuance date. As from 2012, FITs have recently been replaced by the RPS programme. Under the RPS programme, power generation companies with more than 500MW capacity are required to generate a certain amount of their total power supply from renewable sources. 18 power generation companies currently receive subsidies under this programme. As of March 2016, the REC market for PV energy, which had been subject to a separate obligatory supply, has been combined with the non-PV obligations. The average price of a REC has increased following the combination of the two markets, from an average price of KRW 85,000 in 2015 to KRW 100,000 in 2016.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	The Korean FIT scheme has ended as of 2012, and now only applies to existing recipients. The standard prices for new and renewable energy (NRE) were initially formulated in 2002: wind farms with a capacity of over 10kW have a standard price of KRW107.29/kWh, which is reduced annually by 2%, and PV has a standard price of KRW484.52/kWh for installations under 30 kW, and KRW462.69/kWh for installations over 30kW, with changes to the price announced every year. After the FIT scheme was announced, PV installed capacity increased dramatically from 200kW in 2004 to 498MW in 2011. Before the RPS scheme was introduced, FITs guaranteed 15 to 20 years of support for all NRE electricity facilities. As a result of RPS replacing FIT, NRE facility capacity increased approximately 10 times throughout the past three years.
Other Incentives	The government supports a loan and tax incentive programme which provides long-term, low-interest loan terms with a five-year grace period and 10-year repayment period. It is intended for customers and power generation companies of the NRE scheme. Installation loans are provided for customers that install NRE systems, and operation loans are provided for power generation companies with NRE facilities. Loans can be made for up to 90% of the total cost and up to 50% for large corporations. As an additional incentive, customers and generation companies under the NRE scheme can deduct up to 10% of the total cost of system installation from their income tax/corporate income tax. There are now 18 publicly-owned and privately-owned power generation companies who have obligations under the RPS programme. The obligatory supply amount of NRE for 2016 is 15,084,497MWh, which is a 23% increase compared to 2014.
Additional Comments	**Government Subsidy programmes** A home subsidy programme was introduced in 2004 to facilitate installing NRE facilities in residential areas such as private houses, multi-family houses and public rental houses. The programme supports a certain portion of the total installation cost of the facilities and focuses on a variety of resources such as PV, solar thermal, geothermal, and small wind. Moreover, there is a building subsidy programme and regional deployment subsidy programme to accelerate NRE deployment of the NRE facility users by providing financial support in the form of subsidies covering up to 80% of installation costs.

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Morocco

National Renewables Targets?	The renewable energy targets for Morocco are: ■ Total solar capacity of 2000MW by 2020, which will increase the role of solar energy in total electricity capacity by 14% under the "Moroccan Project of Solar Energy". ■ Total wind capacity of 2000MW by 2020, which will increase the share of wind power in the national energy balance to 14% under the "Moroccan Integrated Wind Energy Project". ■ Total hydro power capacity of 2000MW by 2020. Taken together, these three targets would result in a total share of 42% of installed power capacity from renewable energy in 2020.
Main Renewable Sources	Wind, solar and hydro power.
Green Certificates?	No.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	No.
Other Incentives	There are no specific financial incentives. Historically, the *Office National de* l'*Electricité et de l'Eau Potable* (ONEE), which is the state-owned utility in charge of the production, transport and distribution of electricity in Morocco, had a monopoly over access to the electricity market. Law 13-09 in relation to renewable energy now permits electricity from renewable sources to be produced, sold and exported by private operators to public and private consumers, subject to a preliminary statement/authorisation regime, depending on the capacity of the installation. As a result, private generators now have the potential to enter this market, where they have the ability to negotiate the price with their customers. This law also provides for the right for any power producer to be connected to the low, medium, high and very high voltage national electricity grid. Wind farms and solar plant projects above 2MW must be developed on designated areas determined by the local government entity. Since a recent amendment, the law now clearly provides for the possibility to sell the surplus electricity to ONEE, within the limit of 20% of the annual production.
Additional Comments	Law 13-09 provides that each operator may sell to ONEE the annual surplus electricity not sold to private consumers within the limit of 20% of the annual production. The conditions of such sale to ONEE will be set out by regulations (which are yet to be adopted). The Moroccan Minister of Energy and Mining announced in late 2013 that a new independent regulator will be set up to supervise the energy sector, maintain competition between operators in the gas and electricity sectors and define the tariffs and conditions to be imposed upon users of the national electricity grid and interconnection facilities. Law 47-09 on energy efficiency, dated 29 September 2011, sets clear objectives and lays the foundation for future Moroccan thermal regulation (RTBM). The aims of Law 47-09 are to: ■ Increase the efficiency of energy resource consumption; ■ Reduce energy costs on the national economy; and ■ Contribute to sustainable development. Law 47-09 requires energy audits for companies and institutions in the production, transmission and distribution of energy, as well as the performance of an energy impact study for new construction and urban projects. The Moroccan Government has set an objective of achieving a 12% improvement in energy efficiency by 2020 (15% by 2030).

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The Netherlands

National Renewables Targets?	The renewable energy target for The Netherlands is 14% by 2020, 16% by 2023 and 100% in 2050.
Main Renewable Sources	Onshore and offshore wind, biomass, solar and geothermal, with a smaller role foreseen for residual heat and tidal wave energy.
Green Certificates?	Yes, the so-called "Guarantees of Origin" (*Garanties van Oorsprong*). For each MW of generated renewable energy, one Guarantee of Origin is produced (with a validity of one year). Guarantees of Origin can be separately traded by the producer.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	Strictly speaking, the Dutch system is a subsidy system, rather than a FIT. However, the commercial effect is quite similar to a FIT.
Other Incentives	The SDE+ 2016 (*Stimulering Duurzame Energieproductie*/Encouraging Sustainable Energy Production) is a generation subsidy. Producers receive financial compensation for the renewable energy they generate. SDE+ is based on the Regulation Encouraging Sustainable Energy Production ("*Besluit Stimulering Duurzame Energieproductie*"). It compensates producers for the unprofitable component (i.e. difference in the cost price of producing renewable energy as against the costs of conventional energy generation) for a fixed number of years (8, 12 or 15 years), depending on the technology used. The SDE+ is available for the production of: ■ renewable electricity; ■ renewable gas; and ■ renewable heat or a combination of renewable heat and electricity (CHP), which is generated by making use of: (a) biomass; (b) geothermal; (c) water; (d) wind; (e) solar energy; (f) a "free" category. The primary target groups for SDE+ are companies, institutions and non-profit organisations. The project must be realised in The Netherlands. The national government is excluded from participation. Other local or national incentive regulations sometimes apply. Given the huge interest for renewable energy in the market, the State increased the 2016 total SDE+ budget (excluding offshore wind) from EUR 4 to EUR 5 billion and subsidies are granted on a first-come-first-served basis. On top of the general SDE+ budget, SDE+ subsidy is made available for offshore wind (as detailed in the following paragraph). Once a project has been granted a subsidy, it will continue to receive it at the same level during the term of the grant. As of the date renewable energy is produced, 80% of the SDE+ subsidy is paid in advance each year. The final determination will be made at the end of the subsidy period. The SDE+ subsidy eligible for the offshore wind category is covered by the Offshore Wind Energy Act (*Wet windenergie op zee*) and underlying regulations, and for each wind farm project a separate subsidy cap is determined. The Minister of Economic Affairs has indicated that an amount of up to EUR 18 billion could be required for the entire SDE+ subsidy for offshore wind energy. For each new wind farm project, the party that has submitted a technically and financially feasible bid and is able to produce electricity at the lowest costs (determined on the basis of the "tender amount" in EUR per kWh included in its bid), will be awarded the SDE+ subsidy as well as a permit to construct and operate the wind farm. In broad terms, the SDE+ subsidy is determined by multiplying the electricity produced in the relevant year by the difference between the average electricity price (subject to an applicable minimum floor price) and the tender amount referred to above. If the average electricity price in a certain year is less than the floor price included in the SDE+ regulations, which is a fixed price for each project (e.g. EUR 0.029/kWh for the Borssele I&II wind farm), only the difference between the tender amount and the floor price will be compensated. The SDE+ subsidy is furthermore capped with a maximum annual number of full load hours which are eligible for SDE+ subsidy. If, in a certain year, there are periods of more than six consecutive hours where the electricity price is negative, electricity produced during these periods will not receive a subsidy and the final SDE contribution will be reduced accordingly.
Additional Comments	A number of parties, including Government industry bodies, trade unions and nature/environmental organisations, reached an energy agreement for renewable growth in September 2013 (*Energieakkoord voor duurzame groei*) ("Energy Agreement"). Over 40 parties discussed how to offer incentives to save energy and to increase the portion of renewable energy four-fold in The Netherlands. Although there is widespread support to realise the agreed targets for 14% in 2020 and 16% for 2023, The Netherlands still has a lot of progress to make before it will be able to reach its target. Based on Eurostat & CBS numbers (dated 31 March 2016), in 2014 only 5.5% of total Dutch electricity production came from renewable sources, compared to the national target of 8.5%. This number puts The Netherlands at the back-end of the EU Member States. The Dutch government is focusing primarily on offshore wind development to increase the level of renewable energy in the coming years. Based on the Energy Agreement, The Netherlands aims to increase the current 1000MW capacity in offshore wind energy (both in operation as well as under construction) to 4500MW in 2023. To that effect the SDE+ subsidy was awarded in July 2016 for the Borssele wind energy areas I & II (700MW). Further tenders are expected to be launched in respect of wind energy areas Borssele III & IV (680MW) in 2016, Hollandse Kust Zuid (700MW) in 2017, Hollandse Kust Zuid (700MW) in 2018 and Hollandse Kust Noord (700MW) in 2019.

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Poland

National Renewables Targets?	Poland's annual renewable energy target has been increasing on a linear basis until 2016 and has reached 15% of electricity from renewable energy sources (RES) of overall electricity sold to final off-takers. The target will become fixed at the level of 20% as from 2017 (with separate sub-targets of 0.65% for biogas, and 19.35% for all other RES), however, with a likely discount to be adopted on an annual basis through secondary legislation.
Main Renewable Sources	Onshore wind, biomass (clean and co-fired with fossil fuels).
Green Certificates?	Yes. However, the system was closed to new installations producing energy for the first time after 1 July 2016. These new installations no longer qualify for Green Certificates. Installations brought into operation before that date will continue to receive Green Certificates until the expiry of the applicable 15-year support period, calculated individually for each installation, unless they migrate earlier to a new auction-based support system (described below). Businesses which generate or trade in electricity and sell to a final off-taker as well as, in certain circumstances, so-called "industrial off-takers", final off-takers and brokerage houses trading in energy at the commodity exchange, are required to acquire Green Certificates (or pay compensation). They must then present a certain number of certificates on an annual basis, to the energy regulatory authority for redemption. The required number is calculated as a percentage (equal to the annual renewable energy target mentioned above) of the total annual sales to end users or, in the case of an industrial off-taker, by reference to the volumes of electricity bought for its own needs. Green Certificates are issued by the Polish energy regulatory authority to RES generators (with respect to RES installations brought into operation before 1 July 2016) to confirm that they have produced a certain amount of renewable energy over a certain period of time. They are issued on the application of a given energy generator and on the basis of data provided by the operators of the grid transmission or distribution system to which the given renewable energy generator is physically connected. As from 1 January 2016, Green Certificates are no longer issued to large hydroelectric power plants over 5MW. Certain biomass co-incineration plants are subject to limitations regarding the volume of energy for which Green Certificates may be issued and they are also subject to corrective coefficients decreasing the value of Green Certificates issued for the renewable energy portion of the energy generated by such plants. As from 1 July 2016, a separate category of certificates has been established for biogas plants (which are subject to a separate redemption obligation). Obligated entities that fail to present certificates for redemption in the required number or pay compensation are subject to a financial penalty imposed by the energy regulatory authority.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	No.
Other Incentives	The operator of the electricity system is obliged to ensure that electricity generated from RES has priority of transmission. Also, electricity generated from RES is exempt from excise duty. RES installations that were brought into operation before 1 July 2016 also benefit from a guaranteed off-take regime. "Obliged suppliers" (energy traders with the biggest number of customers within a given territory) are obliged to purchase electricity generated from RES which is offered to them. These purchases are made at the average price on the competitive market for the preceding calendar quarter determined by the energy regulatory authority. The energy regulatory authority is obliged to announce the average price by the end of following quarter. Any entity not meeting its obligation to purchase electricity from renewable energy sources is subject to a financial penalty. The guaranteed off-take will continue to apply only until the end of 2017. A new auction-based support system has been introduced as from 1 July 2016, under which RES support in the form of quasi-contract for difference model will be granted to those projects which are successful in a competitive auction. The energy regulatory authority will organise auctions at least once a year, separately for new installations and "old" installations (covered by the Green Certificates scheme which have the possibility to migrate to the auction system provided they win the auction). In the auctions, investors will compete for the volumes of electricity put to auction, with the lowest prices offered winning the auction (until the volume auctioned is exhausted). The electricity prices offered in the auction cannot exceed maximum prices set by the regulator on an annual basis, separately for each technology. Auction winners will be free to sell the electricity on the market (based on bilateral power purchase agreements or via commodity exchange), with the difference between market energy price, as published by the power exchange, and the price from the winning bid being paid by the nominated state entity. Support granted through auctions will be available for each installation for 15 years. Separate technological auction baskets are provided to allow regulation of the increase of capacities between different renewable technologies (in particular "stable" energy installations generating for more than 40% of the time during a year). If the market price exceeds the reference price, the generator must pay the difference back to the State. The first auction is expected to take place by the end of 2016 for a limited number of technologies.
Additional Comments	The new rules for support of RES came into force on 1 July 2016 through the amendment of the Act on Renewable Energy Sources. The Amendment was not notified to the European Commission although some commentators have argued that it should have been. As a result, implementation of the support scheme in Poland remains controversial. During the first years when the Green Certificates scheme was in place, a rapid development of onshore wind and co-fired biomass projects has been observed, which contributed most to the overall progress in meeting the targets in Poland. However, there is currently a freeze in investment in new wind farm projects because of the switch to auction system in 2016 and the introduction of certain new legislation limiting the possibility to locate new wind farm projects in the proximity of households and natural protected areas. It seems unlikely that the sector will develop unless the law is changed. In parallel, a significant oversupply of Green Certificates caused by rapid growth of capacity in previous years, has caused a collapse of prices of Green Certificates on the market. This has adversely impacted the liquidity of operating installations. With the lack of visibility concerning future prices of Green Certificates, investors are turning towards the new auction regime hoping to be able to migrate to a more stable support system. However, the volumes offered in the auctions as well as fierce competition may force the investors to cut their expectations concerning expected returns.

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Romania

National Renewables Targets?	The renewable energy target for Romania is 24% by 2020.
Main Renewable Sources	Hydro energy, onshore wind, solar photovoltaic (PV), biomass.
Green Certificates?	Yes. Electricity suppliers are obliged to acquire a minimum number of Green Certificates based on the quantity of electricity supplied to consumers each year. The regulatory authority establishes the quota of Green Certificates to be acquired by electricity suppliers. In 2016, this was set at 0.317 Green Certificates/MWh. Suppliers that do not meet this mandatory quota are bound to pay a fine for each Green Certificate that is not delivered. This fine is increased annually (€119.8 per Green Certificate in 2016). For 2016, the value of a Green Certificate was set between €29.4 and €59.9. The values are indexed every year. Producers of electricity from renewable sources receive a different number of Green Certificates per MWh of electricity generated, depending on the type of renewable source. Thus, the number of Green Certificates per MWh is between 0.5 and 3 for certain types of micro hydro power plants (which have an installed power of up to 10MW); 2 until 2017 and 1 from 2018 for wind power plants; 2 for biomass; and up to 6 for solar energy. The receipt of a portion of the Green Certificates given to certain renewable electricity producers will be deferred until 31 March 2017 or 1 January 2018, depending on the relevant technology, as follows: ■ receipt of one Green Certificate per MWh will be deferred for wind projects and new hydro projects below 10MW; and ■ receipt of two Green Certificates per MWh will be deferred for PV projects. The deferred Green Certificates will be granted gradually starting from 1 April 2017, for PV projects and for new hydro projects below 10MW and from 1 January 2018, for wind projects, with 31 December 2020 as a long-stop date for granting all deferred Green Certificates. No Green Certificates will be granted for energy produced through PV panels placed on agricultural land. Producers and suppliers of electricity from renewable sources can only trade Green Certificates on an internal centralised market, which is organised and operated by OPCOM. For renewable power plants having an installed capacity exceeding 125MW, the aid will have to be notified individually to the European Commission, in order to be accredited as a renewable project and hence receive Green Certificates. In addition, following an overcompensation analysis performed by the regulatory authority, the promotion system has been revised starting from January 2014. The reduced quotas of Green Certificates, applicable from 1 January 2014 for projects accredited after 1 January 2014, are as follows: ■ 2.3 Green Certificates for each MWh (instead of 3 Green Certificates), for new micro hydro power plants, having an installed power of maximum 10MW; ■ 1.5 Green Certificates until 2017 and 1.25 Green Certificates from 2018 for each MWh (instead of 2 and 1 Green Certificates, respectively), for wind power plants; and ■ 3 Green Certificates for each MWh (instead of 6 Green Certificates), for PV power plants. Other technologies (e.g. biomass, geothermal, etc) have not been affected by this revision. Also, the reduction does not affect existing projects which, as of 1 January 2014, are already accredited to receive Green Certificates. Such projects continue to receive the number of Green Certificates as established prior to the reduction.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	Only for projects having an installed power of maximum 500kW. However, although the law was passed in May 2015, the secondary legislation regarding the FIT has not yet been implemented and, consequently, this is not yet applicable.
Other Incentives	The default suppliers are obliged to purchase electricity produced from renewable sources in plants with an installed capacity of maximum 1MW and biomass co-generation plants with an installed capacity of maximum 2MW at regulated prices, but, as mentioned above, this is not yet applicable, due to the lack of the secondary legislation. Producers of electricity from renewable sources have priority access to the transport/distribution network, subject to the safety of the National Energy System.
Additional Comments	According to the Energy Department of the Ministry of Economy, the national renewables target of 24% has already been achieved; as of 2015 Romania has reached a renewable electricity share of 27%. Initially, fixed incremental targets were provided until 2020. However, certain amendments provide that, for the period 2014-2020, ANRE (the national regulator) will monitor on an annual basis the fulfilment of such targets and will propose to the Government an actual target for the relevant year. After 2020, the targets will be approved through Government Decision and cannot be lower than the 2020 figure. The consequence of this provision is that, depending on ANRE analysis in a given year, mandatory quotas imposed to meet the targets might actually be lower than the total electricity produced from renewable sources. If that were the case, the aggregated purchase obligations of the electricity traders would not cover all the Green Certificates on the market at that moment. Since Green Certificates are valid for only 12 months since their issuance, there is a risk that generators may have difficulties in selling them. Only limited wind energy capacity can currently be connected to the grid due to imbalance risks and poor grid infrastructure. The permitting procedure overseen by local authorities can be lengthy and bureaucratic. Power purchase agreements and Green Certificate agreements can only be concluded on the centralised electricity market if they are concluded by: ■ entities operating renewable energy power plants with an aggregate installed capacity of up to 1MW or up to 2MW for high efficiency cogeneration biomass power plants; or ■ small and medium enterprises operating renewable energy power plants with an aggregate installed capacity between 1MW and 3MW and between 2MW and 3MW for high efficiency cogeneration biomass power plants. As of March 2016, according to Transelectrica (the Romanian transmission operator), the total installed capacity of renewable projects benefiting from the renewable scheme is approximately 5,163MW (of which approximately 4,472MW is from wind and PV power plants).

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Russia

National Renewables Targets?	The renewable energy target for Russia is 4.5% by 2024.
Main Renewable Sources	Solar, wind, hydro, tidal, wave, geothermal, biomass, waste and biogas.
Green Certificates?	No.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	No. An incentive mechanism analogous to a FIT exists only within the retail energy market. See below.
Other Incentives	The incentive mechanisms for generators of renewable energy in Russia were developed in 2013-2015. There are three main mechanisms described below. **1. Wholesale Energy Market** This regime involves the sale of renewable energy to grid companies under long term energy sale and purchase contracts (ESPC), the terms of which are regulated by the law. It applies to wind, sun and hydro energy facilities (5MW and above), up to a maximum of 25MW for hydro-power plants. Generators participate in a tender process held by the "*Non-profit Partnership Council for Organising Efficient System of Trading at Wholesale and Retail Electricity and Capacity Market*" (the "Market Council"). The winners conclude ESPCs with the Market Council and other counterparties, including the purchasers (grid companies). An ESPC has the following key features: a fixed term of energy supply payable per month for a term of 15 years; a return on investment equal to 14% for projects selected prior to 1 January 2016 and 12% for projects selected after 1 January 2016; and the pricing, CAPEX and OPEX levels are determined by the Russian government. The wholesale energy market regime only applies to "qualified" power plants (i.e. the generator must obtain a qualifying certificate from the Market Council). Key conditions for qualification are: the power plant is constructed, commissioned and connected to the grid; the volume of generated renewable energy meets required minimum levels; the power plant is included in the list of Renewable Energy Generation Facilities, as maintained by the Russian Ministry of Energy; and the required amount of domestically produced equipment is used. The requirement to use Russian equipment, which varies between technology basket, is intended to encourage Russian manufacturers to produce more equipment for installation in power projects. Relevant targets of Russian equipment to be used are as follows: ■ Wind projects: 25% in 2016; 40% in 2017; 55% in 2018; and 65% during the period from 2019 to 2024. ■ Solar projects: 70% during the period from 2016 to 2024. ■ Hydro power projects: 45% during the period from 2016 to 2017; and 65% from 2018 to 2024. **2. The Retail Energy Market** This mechanism involves an obligation upon grid companies (which sell energy directly on the retail market to end-users, e.g. individuals or entities) to purchase renewable energy from generators under regulated tariffs for a fixed term. The retail market supporting mechanism has the following key features: it is applicable to solar, wind, hydro, biomass, biogas and landfill gas energy; the power plant must be included in a so-called electrical energy development scheme approved by the relevant regional authority of the Russian Federation. The key features of the scheme are: generators participate in a tender organised by local authorities, and the volume of the purchased renewable energy from the generator may not exceed 5% of the estimated electrical energy network losses incurred by the grid companies (i.e. losses of electrical energy which occur in transmission and distribution networks; usually the losses are calculated as the difference between the electrical energy supplied to the network and the net electrical consumption). The regulated tariff is payable for 15 years, and is set to represent a return on investment equal to 14% for projects selected prior to 1 January 2017 and 12% for projects selected after 1 January 2017. The regime only applies to "qualified" power plant (i.e. the generator must obtain a qualifying certificate from the Market Council). The qualifying requirements are similar to the Wholesale Energy Market, which means the wholesale market conditions referred to above also apply including similar local sourcing of equipment requirements. **3. Compensation of costs** This mechanism works by compensating the generator for the direct costs of connecting renewable energy power plants to power grids (whether within the retail or wholesale energy market schemes), and was introduced in 2010 and 2013. It provides for the following key features: ■ it applies to power plants with a maximum power threshold of 25MW; ■ compensation (subsidies) from the federal budget will amount to a maximum of 50% of costs properly incurred by the generator for the connection of a single renewable energy power plant to power grids, but in any case may not be more than RUB 30 000 000 (approx. US$470,000); and ■ the power plant must have the status of "qualified plant" (qualifying requirements are similar to the Wholesale Energy Market, (see above);
Additional Comments	The impact of incentive mechanisms on the development of renewables in Russia is said to be controversial. One of the main drawbacks is the local sourcing of equipment requirement, given that currently Russia lacks 'local' technologies and sufficient equipment to meet the relevant requirements. According to Mr. Novak, head of the Ministry of Energy of the Russian Federation, the share of energy generation from renewable sources as compared with total power generation capacity in Russia in 2015 (over 1 billion kWh) was less than 0.1%.

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Saudi Arabia

National Renewables Targets?	The renewable energy target for Saudi Arabia is a capacity of 3,450MW together with a percentage of renewable energy to total energy consumption of 4% by 2020, and capacity of 9500MW by 2023. There is also a strategic objective of a reduction in CO2 emissions to 26 billion standard cubic feet per day by 2020.
Main Renewable Sources	Primarily solar and wind.
Green Certificates?	No.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	No. The Saudi government has, however, studied FIT schemes.
Other Incentives	No.
Additional Comments	In 2010, the King Abdullah City for Atomic and Renewable Energy (KA Care) was set up with the mandate of contributing to the production and utilisation of atomic and renewable energy in Saudi Arabia, and with a vision of a Saudi Arabia in which 50% of electricity generation in 2032 would be from non-fossil fuels. However, due to various factors this plan was not actively implemented, with the main movement in the renewable sector being the initiation by the majority state owned and state controlled Saudi Electricity Company (SEC) of two integrated solar combined cycle (ISCC) plants i.e. Waad Al Shamal and Duba 1, which are under construction. A third ISCC is currently in the bid phase. In April 2016, the Vision 2030 plan was launched by the Saudi government. It sets out: ■ An "initial target" of generating 9.5GW of renewable energy by a certain date (later clarified to be 2023); ■ A goal that a significant portion of the renewable energy value chain, including research, development and manufacturing, will be based in Saudi Arabia; ■ An announcement of the forthcoming launch of a new initiative called the King Salman Renewable Energy Initiative; ■ A plan to review the existing legal and regulatory landscape with the aim of encouraging private sector investment in the power sector, including through public-private partnerships; and ■ A determination gradually to liberalise the Saudi fuels market so as to guarantee the competitiveness of renewable energy. In June 2016, the National Transformation Program 2020 (NTP) was launched. It sets out strategic objectives to be met by various governmental entities by 2020. Strategic objectives were set for KA Care, including the launch of the King Salman Renewable Energy Initiative and the preparation of legislation for the renewables sector. This indicates that the Saudi government sees KA Care, earmarked in the NTP to receive a budget of over SAR5 billion for the role, as being an important part of its renewable energy plan. It is expected that additional details will be released in due course in order to outline the timeline of the proposed renewable projects and the technology/energy type mix that the Kingdom will look to achieve. It is clear that SEC will also be a key player in the renewables plan. In June 2016, it invited expressions of interest in the potential development of two solar photovoltaic independent power plants each of up to 50MW, in Al Jouf and Rafha, with SEC to be the sole offtaker under a long-term power purchase agreement. It has also expressed interest in establishing a wind-powered plant at Umiju. Another key recent development is the creation of a new ministry, the Ministry of Energy, Industry and Mineral Resources. It is anticipated that bodies such as KA Care and other key players in the renewable sector may perhaps be brought under the oversight of this ministry, enabling the ministry to provide the coordination and leadership needed in the implementation of the renewables plan. The Vision 2030 plan to reduce and redirect subsidies in the conventional energy sector is another key development, in that the resulting increase in the prices paid for conventional energy will make renewable energy more competitive in the market. It is clear that, after a period of calm in this sector, the government of Saudi Arabia is newly committed to the development of renewable energy in the country albeit on a smaller scale than originally contemplated when KA Care was first established.

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Slovakia

National Renewables Targets?	The renewable energy targets for Slovakia are 14% by 2020, and 20% by 2030. The 2005 baseline is 6.7%.
Main Renewable Sources	Solar photovoltaic (PV), hydro, wind, geothermal, biomass, biogas and biomethane (including gas emissions from metallurgical production as of 1 January 2014), hydrothermal, aerothermal.
Green Certificates?	No, although a 'green bonus' is available (discussed below).
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	A fixed FIT payable by electricity distribution system operators (DSO) is available to renewable electricity generators. Once a generator obtains the FIT applicable in the year of commissioning of its plant, it is entitled to receive such FIT for 15 years from the date the facility was put into operation. The amount of the FIT depends on the source of renewable energy used. FIT rates have been continually reduced ever since the end of 2010, when the following support was available to PV plant operators: ■ €430.72/MWh up to 100 kW PV; and ■ €425.12/MWh above 100 kW PV and up to 10MWh. As of 1 January 2011, support for newly accredited PV plants was reduced to; (i) €387.65/MWh up to 100 kW PV; (ii) €382.61/MWh above 100 kW PV. As from 1 July 2011, the support (which was further reduced to €259.17/MWh) was limited to PV plants with an output of less than 100 kW, located on the roofs or facades of buildings. For the period between 1 January 2012 and 30 June 2012, the FIT rate was €194.54/MWh for PV plants. The FIT rate was further decreased to €119.11/MWh from 1 July 2012 until 31 December 2013. From 1 January 2014 to 31 December 2015 the FIT rate was decreased to €98.94/MWh for PV plants with an output of less than 30 kW. The latest reduction of the FIT rate for PV plants occurred in January 2015 when the FIT rate was decreased to €88.89/MWh, and this rate is also applicable for the 2016 calendar year. While no special tax has been introduced yet, discussions were held in 2013 within the Slovak Ministry of Finance regarding taxation of PV energy. However, none of these discussions resulted in a bill being submitted into legislative proceedings. The FIT available for plants commissioned before 1 February 2011 can only be reduced by a maximum of 10% in 2012 as compared to the FIT available to them in 2011. As of 1 February 2011, this rule no longer applies to new wind and PV plants, i.e. the FIT may be reduced for subsequent years without limitation.
Other Incentives	**Green bonus** Although the green bonus is not formally established under Slovak law, a generator of renewable electricity can opt for a "green bonus" (instead of, or along with, the FIT) if it consumes all or the majority of the electricity produced. The green bonus is slightly lower than the FIT. Priority to connect and supply: generators of electricity from renewable sources have a priority right to connect their facilities to the electricity distribution or transmission grid, and a priority right to distribute and supply electricity to the grid. In practice, this means that if a generator opts for the FIT only, it will be able to sell all of the electricity it generates to the DSO for the price set by the relevant FIT. Indexation: the FIT is indexed by a formula reflecting core inflation (i.e. price level increase based on a trimmed consumer basket) as announced by the Slovak Statistics Office. Please note that use of the indexation is at the discretion of the regulatory body.
Additional Comments	The current FIT scheme has been particularly successful in relation to PV plants. The relatively high FIT, together with falling technology prices, caused a boom in the PV sector in 2010. As a result, the total installed capacity of PV plants in the Slovak Republic increased from 31MW in 1 January 2010 to approximately 492MW in November 2011. This boom caused concerns about; (i) electricity prices for end customers; and (ii) the stability and safety of the entire electricity grid. As a result, the above-mentioned reduction of PV support was introduced. On the other hand, there are no comparable significant restrictions relating to other renewable energy sources. There is an ongoing investigation of Slovakia by the European Commission with regards to the possible violation of EU law. The investigation began following the annual evaluation of Slovakia and its inclusion in the EU "Pilot" system (the official EU scheme designed to resolve compliance problems without having to resort to infringement proceedings). The investigation relates to the following three areas: (i) the introduction of G-component (a fee which the energy producers must pay to the regional distribution system operators); (ii) the withdrawal of support to energy producers; and (iii) non-transparent regulation, in particular prohibition of the connection of new generation sources into the distribution system.

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Spain

National Renewables Targets?	The target for 2020 is 20%.
Main Renewable Sources	Wind, solar photovoltaic, hydroelectric, thermosolar, biomass.
Green Certificates?	No.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	The remuneration regime for renewable energy installations has recently undergone extensive reform which started in 2013 and was completed in 2014. The new remuneration system is applicable to all renewable energy generation facilities. It involves the payment to owners of energy renewable facilities of additional amounts on top of their notional operational revenue from the sale of power on the competitive wholesale markets. The intention is that these payments cover the higher investment and/or operating costs of renewable energy producers compared with non-renewable energy producers, which are unlikely to be fully recovered on the competitive Spanish wholesale power market. This additional regulated remuneration is paid by the Spanish Power System through the CNMC (Comisión Nacional de los Mercados y la Competencia), the Spanish regulatory body for markets and antitrust matters. The basis for calculation of the payments is to provide relevant producers an operating revenue that equals their investment and operating costs (which are standardised for each type of installation) plus a reasonable rate of return. Standard parameters are set to enable calculation of the payment including the reasonable rate of return by the Government for successive six year periods. Certain parameters (for example those related to the evolution of the market, such as the estimated electricity price) may be revised every three years. On the basis of the above, the new remuneration system operates differently for; (i) installations that were already entitled to the privileged remuneration scheme prior to the entry into force of the reform (existing installations); and (ii) new installations accredited after the new remuneration system entered into force on 14 July 2013. For existing installations, the reasonable rate of return in the first regulatory period (namely until 31 December 2019) was determined as equal to the average yield on Spanish government 10-year bonds on the secondary market in the 10 years preceding 14 July 2013 plus 300 basis points (i.e. 7.398%). New installations will only be entitled to receive remuneration via a tender process. The Government has confirmed that it will only call for tenders for the purposes of complying with EU law, or in order to reduce the cost of electricity or the dependency on foreign electricity sources. The relevant parameters for remuneration will be set by the Government at the time of each tender call.
Other Incentives	For non-mainland installations (i.e., those located in the Canary and Balearic Islands, Ceuta and Melilla), the remuneration can also include an incentive for investment and completion within a given period where their installation entails a significant reduction in costs.
Additional Comments	The new legislation on renewable energy installations, particularly the new remuneration scheme, has accomplished its main objective of removing the so-called “tariff deficit”. The deficit firstly arose in the early 2000s due (among other factors) to political decisions to no longer increase regulated revenues of the electricity system (largely deriving from access tariffs paid by consumers and producers) by a sufficient degree to cover all the costs that regulations specify must be addressed by the system (including renewable subsidies, and remuneration for distribution and transmission activities). The last renewable energy progress report issued by the European Commission on 15 June 2015 questioned whether Spain would comply with the 20% renewable energy target (stating that “Spain needs to assess whether its policies and tools are sufficient and effective in meeting their renewable energy objectives”). According to the Renewables 2016 Global Status Report, issued by the Renewable Energy Policy Network for the 21st Century, current renewable capacity in Spain amounts to approximately 32GW) without taking into consideration the capacity of hydropower installations).

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Thailand

National Renewables Targets?	The target for renewable energy in Thailand is 20% of the total domestic electricity generation, equal to 19,634.4MW, by 2036. This will be made up of the following energy sources: 6,000MW of solar, 3,002MW of wind, 3,282.4MW of hydro, 500MW of energy from waste, 5,570MW of biomass, 600MW of biogas and 680MW of energy crops.
Main Renewable Sources	Solar photovoltaic (PV), biomass, biogas, wind, small hydro power and municipal solid waste.
Green Certificates?	No.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	Yes. FITs have been used for renewable energy since 2014. FIT rates vary depending upon the type of renewable sources (i.e. solar, biomass, biogas, wind, hydro and municipal solid waste) and also upon the installed capacity, technology used and locations, as can be seen from the FIT rates listed below: ■ Solar Power: ranging from 5.66 Baht/kWh (for ground-mounted solar farms and ground-mounted solar farms for government offices and agricultural co-operatives) to 6.16 – 6.85 Baht/kWh (for rooftop PV farms); ■ Biomass: ranging from 4.24, 4.82 and 5.34 Baht/kWh for installed capacity of > 3MW, > 1 – ≤ 3MW and ≤ 1MW, respectively; ■ Biogas: 3.76 Baht/kWh (if the biogas is derived from polluted water/waste) and 5.34 Baht/kWh (if the biogas is derived from energy crops); ■ Wind: 6.06 Baht/kWh; ■ Hydropower: 4.90 Baht/kWh but only for projects with installed capacity of ≤ 200kW; and ■ Waste: ranging from 5.08, 5.82 and 6.34 Baht/kWh for installed capacity of > 3MW, > 1-3MW and ≤ 1MW, respectively for electricity generated from integrated waste management and 5.60 Baht/kWh for electricity generated from landfill. There are also FIT premiums (Baht 0.30 – 0.70 in addition to the FITs) for projects using bio-fuel (only for the first eight years of the project) and for those located in Southern border provinces (namely Yala, Pattanee and Narathiwas) and four districts in Songkhla (namely Jana, Tepa, Sabayoi and Natawee). The FITs are also subject to amendment due to future inflation and government policy change.
Other Incentives	Tax/non-tax incentives: the Thailand Board of Investment provides additional incentives such as exemptions or reduction of import duties on machinery and raw materials and corporate income tax, and permission for the hiring of foreign workers and ownership of land. Exemption from licence requirements: in 2015 the Ministry of Industry issued ministerial regulations permitting electricity to be produced (i) from rooftop PV installations with capacity of no more than 1MW; (ii) from hydro power plants with capacity of no more than 15MW; and (iii) from wind turbines, each without any requirement to obtain a factory licence.
Additional Comments	The National Council for Peace and Order (NCPO) announced an Order in January 2016 stating that construction of approved power plants specified in the Thailand Power Development Plan 2015-2036 (PDP 2015) will not be subject to town-zoning laws. This means that such approved power plants can technically be established in any area of Thailand, subject to other approvals (such as construction permits and factory licences). Having implemented EPPO's policy of applying FITs to new power projects, since January 2015 the Metropolitan Electricity Authority, the Provincial Electricity and the Electricity Generating Authority of Thailand have not purchased electricity from the Adder scheme (Adders are extra purchase prices applied on top of the regular prices of electricity based on the source of the renewable energy). Therefore, all new PPAs for renewable energy granted from January 2015 are based on the FIT structure while those which had already received the Adders incentive under their current PPAs are still eligible for those Adders throughout the terms of their PPAs. There has been an increase in the use of renewable energy from 10.94% of Thailand's energy use in 2013 to 11.91% in 2014, with the largest proportion being generated by biomass. In 2013, the amount of electricity generated from renewable energy was 3,788.46MW and in 2014 the amount of electricity generated from renewable energy increased to 4,494MW. This increase stemmed mainly from biomass and solar energy. Thailand was one of the first Asian countries to promote a switch to renewable energy by implementing policy incentives. Its particular strength of a sunny climate together with the FITs makes Thailand a very attractive location for solar energy investors.

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Turkey

National Renewables Targets?	The renewable energy target for Turkey is a minimum of 30% by 2023. Specific targets include the commissioning of 20,000MW wind capacity and 600MW geothermal capacity by 2023 and 10,000MW hydroelectric capacity by 2018.
Main Renewable Sources	Hydro, wind, solar photovoltaic (PV), geothermal and biomass.
Green Certificates?	No. However, a "renewable energy resource certificate" can be issued by the regulatory authority upon request of the generation licence holder in order to identify and monitor the renewable source in terms of sale and purchase of electricity energy in domestic and international markets and emissions trading, and to benefit from the renewable energy support mechanism (as explained below). A generation licence based on a renewable energy resource can also be used as the renewable energy resource certificate. Renewable energy resource certificates can help generators seeking to benefit from various incentives to prove the source of the electricity. A legal framework which would provide for tradable Green Certificates is expected to be enacted; however, no firm timetable for implementation has been published.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	Electricity suppliers are required to purchase a certain amount of electricity from renewable energy generators who have signed up to the renewable energy support mechanism (RES Mechanism). Previously, generators were not allowed to sell electricity outside the RES Mechanism during the year of their participation, but changes in the legislation which entered into force in May 2016 now enable generators to sell electricity freely in the market through bilateral arrangements whilst still benefiting from the FITs. The current FIT system guarantees that generators participating in the RES Mechanism will receive the relevant amounts set administratively under the applicable legislation for its power output (as set out below). If the reference price (the price calculated by multiplying the market set-off price determined in the day-ahead market with the figure initially set as 0.98 by the Energy Market Regulatory Authority) is lower than this guaranteed amount, the generator receives a top-up payment from the system operator equal to the difference between the guaranteed amount and the reference price. However, if the reference price is higher than the guaranteed amount then it is the generator who pays the surplus to the market operator. To be eligible to benefit from the RES Mechanism in a given year, generators must: (i) hold a renewable energy resource certificate; (ii) have commenced/will commence their operations within the period from 18 May 2005 to 31 December 2020; and (iii) apply to the regulatory authority by the end of October of the year preceding their participation in the RES Mechanism. Generators can only benefit from the purchase guarantee under the RES Mechanism and the FITs for ten years from the relevant facility's commercial operation date. There is also a domestic equipment incentive which allows generators to benefit from higher FITs for five years following a facility's commercial operation date. The FITs payable are as follows: ■ Hydro: US$0.073/kWh (commercial incentive), with a maximum additional incentive of US$0.023/kWh for domestic equipment; ■ Wind: US$0.073/kWh (commercial incentive), with a maximum additional incentive of US$0.037/kWh for domestic equipment; ■ Geothermal: US$0.105/kWh (commercial incentive), with a maximum additional incentive of US$0.027/kWh for domestic equipment; ■ Biomass: US$0.133/kWh (commercial incentive), with a maximum additional incentive of US$0.056/kWh for domestic equipment; and ■ Solar energy (PV): US$0.133/kWh (commercial incentive), with a maximum additional incentive of US$0.067/kWh for domestic equipment and solar energy (condensed): US$0.133/kWh (commercial incentive), with a maximum additional incentive of US$0.092/kWh for domestic equipment.
Other Incentives	Other incentives include: (i) Priority in connecting to the national grid and discounts in applicable licence application fees and exemption from annual licence fees for eight years following the commencement of commercial operations; (ii) Facilitation in use of state-owned lands (including in protected regions such as national parks) and discounts or exemptions from payment of applicable charges; (iii) Incentives that may be granted by the Council of Ministers for investments in renewable generation facilities, procurement of domestically-manufactured electro-mechanical systems to be used in renewable generation facilities, research and development and manufacturing investments on solar batteries and concentrated collectors, and investments in research and development facilities for generation of electricity or fuel by utilising biomass resources; and (iv) Generation of electricity for self-consumption without a generation licence by, among others, renewable energy generation facilities with an installed capacity of up to 1MW (which can be increased by the Council of Ministers) and ability to sell the excess electricity to authorised supply companies via the FITs.
Additional Comments	The share of renewables in the electricity generation mix is steadily increasing as evidenced by the increase in the participation in the RES Mechanism of approximately 137% in 2016 (compared to 2015). However, the effects of recent changes to the RES Mechanism remain to be seen. In particular, introduction of the dual payment system where generators may end up making payments to the system operator and removal of the exemption from balancing liabilities and resulting costs are considered to be material changes. Additional changes were introduced in June 2016 to the domestic equipment incentive regulation, and unlicensed electricity generation facilities can no longer benefit from this incentive. There are also changes to the calculation method of incentives for domestic equipment which would require the projects benefiting from this incentive to re-evaluate their returns. Hydro is the leading renewable resource, although wind and solar have increased their market share with solar being more active on the unlicensed generation side. However, such activity may be curbed to a degree because in March 2016 the regulatory authority imposed restrictions on unlicensed generation to ensure it is used mainly for self-consumption and not to circumvent the licence requirement. In general this would not affect existing projects but could limit further investments in this area. Limited grid capacity is another important barrier to increasing wind and solar capacity, and network expansions are necessary to integrate more wind and solar resources into the market. Turkey participated in the COP21 conference, confirmed that it is aiming to reduce its level of the greenhouse gas emission growth by 21% by 2030 and signed the Paris Agreement. The Turkish parliament has not yet ratified the Paris Agreement and accordingly no local legislation has been enacted to implement the requirements of the Paris Agreement yet. This step may not be straightforward for Turkey since some of these requirements conflict with the energy policies adopted by the Turkish government, such as increasing electricity generation from local coal sources.

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United Arab Emirates

National Renewables Targets?	The renewable energy targets for the UAE are as follows: 7% for the UAE and 7% for Dubai by 2020; 30% for Abu Dhabi and 15% for Dubai by 2030. The Dubai Clean Energy Strategy 2050 also targets achieving 75% of Dubai's energy through clean energy sources by 2050.
Main Renewable Sources	Mainly solar and wind and, to a lesser extent, geothermal and waste-to-energy.
Green Certificates?	No.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	No. However, Abu Dhabi and Dubai are studying FIT schemes.
Other Incentives	**Green Payment**: A one-time subsidy can be granted on a discretionary basis by the Abu Dhabi Government for each renewable energy project. Many believe that, rather than setting a long-term FIT that would need adjustment over time because of the changing cost of renewable and conventional energy, the UAE Government could tailor a subsidy to each project at the time of installation. For example, the Abu Dhabi Ministry of Finance compensated the Abu Dhabi Water and Electricity Company for the difference between the average domestic power generation cost and the generation cost for the Shams 1 project (see below).
Additional Comments	The UAE Government has taken a number of steps in recent years in a bid to diversify the economy and actively encourage investment in renewable energy, however, there are still a number of barriers to the development of renewable energy projects in the UAE: ■ the UAE has no regulatory regimes akin to the United Kingdom's Climate Change Programme (i.e. imposition of a Climate Change Levy (or similar) on energy delivered to non-domestic users) and has not introduced a FIT, investment tax credits or renewable portfolio standards. However, an energy policy is being developed which would establish subsidies for renewable energy; ■ subsidised fossil fuel prices in the UAE have traditionally put renewable projects at an economic disadvantage compared with fossil fuel-driven plants, however, the UAE Government has recently removed subsidies on petrol and diesel which has assisted in levelling out the playing field; ■ the cost advantages of gas-generated power and the UAE Government's willingness to subsidise it have also made UAE renewable electricity ventures a comparatively costly investment. However, the Government is actively considering reforms to remove remaining subsidies on gas sold to power generators; and ■ there have also been problems in negotiating CO2 pricing. Despite the above challenges, the UAE is pursuing a number of flagship projects (in addition to carbon capture and storage projects): ■ Shams 1: this is one of the largest concentrated solar power plants in the Middle East and is valued at US$700 million. CSP generates electricity from the heat of the sun rather than sunlight. Shams 1 will avoid approximately 175,000 tonnes of CO2 per year. ■ Masdar City Solar PV Plant: this US$50.3 million solar photovoltaic (PV) plant has a capacity of 10MW. The PV plant produces around 17,500MWh of clean electricity annually and offsets 15,000 tonnes of carbon emissions per year. ■ Masdar geothermal energy facility: this US$11 billion project is used to power Masdar city's 5MW air conditioning system. ■ Noor 1: This US$740 million project to be located near Al Ain in the Emirate of Abu Dhabi has a planned capacity of 100MW. ■ Sir Bani Yas: this 30MW onshore wind farm, valued at US$80 million, is a joint initiative between Masdar and the Tourism Development and Investment Company. ■ Mohamed bin Rashid Al Maktoum Solar Park: this 1000MW solar power park is funded by the Supreme Council of Energy and managed and operated by Dubai Electricity and Water Authority. The 13MW Phase 1 of the project was completed in 2013. The 200MW Phase II of the project is scheduled to become operational in 2017. The 800MW third phase is currently at the tender stage. ■ Solar Rooftop Programmes (SRP): In Abu Dhabi, Masdar and ADDC will initiate the set-up of a SRP, which aims to encourage residents and owners of commercial buildings and government buildings (collectively "Investors") to install PV panels on their roofs to generate green electricity. The SRP is a government-sponsored financial incentive programme designed to make the use of solar PV on rooftops more affordable to consumers. The SRP is based on a financial incentive scheme consisting of: (i) a rebate payment of approximately 35-40% payable to investors at the time of installation; and (ii) a premium FIT paid per kWh produced and fed into the grid over 20 years (approx US$0.25-0.28 per kWh). Likewise in Dubai, DEWA has established a similar rooftop adoption programme known as Shams Dubai which operates on a net metering basis, allowing commercial and residential users to offset energy taken from the grid with energy produced by rooftop PV panels. ■ Sweihan solar park: this 350MW PV Independent Power Project is the first to be developed by ADWEA and is to be located in Sweihan in the Emirate of Abu Dhabi. ■ Sharjah Waste-to-Energy Plant: this $505 million waste-to-energy plant to be constructed in the Emirate of Sharjah is forecast to achieve 100 per cent diversion from the landfill and convert 400,000 tonnes of waste per year into 80MW of electricity, contributing to the UAE Government's Vision 2021 which aims to divert 75% of all waste generated from landfills.

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United Kingdom

National Renewables Targets?	The renewable energy target for the UK is 15% by 2020.
Main Renewable Sources	Bioenergy (biomass and landfill gas), wind (both onshore and offshore), solar and hydro.
Green Certificates?	Yes. The Renewables Obligation (RO) was introduced in 2002, and provides support for most renewable technologies, although it is in the process of being phased out (see below). The RO requires electricity suppliers to source a certain proportion of the electricity they supply from renewable sources. Electricity suppliers meet this obligation by purchasing Renewables Obligation Certificates (ROCs) from generators of qualifying renewable electricity and presenting them to the regulator (Ofgem) or by paying money into a "buyout" fund (or a combination of these). The buyout price is £44.77 per ROC for the period 1 April 2016 to 31 March 2017. Money paid into the buyout fund is distributed on a pro-rata basis to electricity suppliers that have presented ROCs to Ofgem. For the period 1 April 2016 to 31 March 2017, electricity suppliers must present to Ofgem 0.348 ROCs per MWh of electricity supplied (or make equivalent payments to the buyout fund). ROCs are awarded by Ofgem to newly accredited projects on a banded basis for a period of 20 years subject to a hard stop in 2037. For period from 1 April 2016 to 31 March 2017, the bands range from 0.2 ROCs/MWh for closed landfill gas to 1.8 ROCs/MWh for offshore wind.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	Yes. There are two types of FIT, one for small scale renewable electricity generation (5MW and below) known as the "FIT scheme" and one for large scale renewable electricity generation (over 5MW) known as the Contracts for Difference (CfD) scheme. Both of these schemes are open to most forms of renewable technology. The CfD scheme works as follows: a renewable generator will typically enter into a contract with an electricity supplier for the sale of the electricity generated (known as a power purchase agreement (PPA)), and will be paid for that electricity according to the commercial deal that it negotiates. In addition to this revenue, the CfD, which takes the form of a bilateral contract between the generator and a Government-owned counterparty, allows the generator to receive additional payments for a period of 15 years. If the CfD "market reference price" for energy is lower than the "strike price", the generator receives a top-up payment under the CfD equal to the difference between the strike price and the market reference price. If the market reference price is higher than the strike price then the generator pays the difference to the CfD counterparty. The strike price is intended to reflect the higher costs of investing in renewable technologies. CfDs for most established technologies (e.g offshore wind) are allocated to generators in auction rounds run by the Government which determine the applicable strike prices for each technology; the next auction is expected to take place late in 2016. By way of example, the first round CfD auction which concluded in early 2015 resulted in a strike price of £119.89/MWh for an offshore wind project (for project delivery in 2017/2018). Other strike prices for less established technologies (e.g. large tidal) are negotiated directly with the Government. The FIT scheme works as follows: accredited generators that have entered into "FIT terms" with an electricity supplier are paid a set tariff for the electricity generated (the "generation tariff") and a set tariff for electricity exported to the grid (the "export tariff"). The generation tariff and the export tariff are paid for a period of 20 years. The tariffs for new projects decrease over time in accordance with the Government's policy of "degression". The export tariff is currently 4.91p/kWh, while the generation tariff depends on the size of the generating station and the technology. Examples of the generation tariffs from 1 July 2016 to 30 September 2016 are as follows: depending on total installed capacity, the tariff for solar photovoltaic (PV) ranges from 0.61p/kWh to 4.46p/kWh and the tariff for wind ranges from 0.85p/kWh to 8.39p/kWh.
Other Incentives	A carbon price floor was introduced on 1 April 2013. It is designed to complement the European Union Emissions Trading System by preventing the price of carbon in the UK falling below target levels. It is achieved through the Climate Change Levy and the fuel duty regime. In November 2011, the Renewable Heat Incentive ("RHI") was launched. Initially, it only related to non-domestic buildings but has since been extended to domestic buildings. It is similar to the FIT scheme in that it involves payments for the use of renewable technologies, although the payments are made by Ofgem rather than an electricity supplier.
Additional Comments	For the most part, once a project is eligible for any of these incentive schemes, that project receives the same level of support for the relevant period (i.e it is "grandfathered"). However, there has been a gradual decrease in the level of support to new projects over the last few years. The RO is being phased out for new capacity in favour of the CfD scheme. It closes to new accreditations on 1 April 2017 subject to grace periods and particular rules for certain technologies. Until that date, applicants are generally able to choose between obtaining support for their new projects under the RO or under the CfD scheme. However, the RO scheme has already been closed to new large scale PV and onshore wind schemes (again subject to grace periods). To ensure that there is ongoing demand for ROCs between the closure of the RO to new capacity in 2017 and the end of the scheme in 2037, the Government currently intends that, from 2027, ROCs will be replaced with fixed price certificates (to be purchased by a Government purchasing body rather than electricity suppliers), with certain projects being eligible for grace periods. These factors, together with doubt as to the timing of CfD auction rounds and the availability of funding for those auctions, have created uncertainty for investors. In 2015, renewable energy represented only 8.3% of the UK's total energy mix (far below the target of 15% by 2020). The UK's recent vote to leave the EU means that there is some uncertainty about future climate change and renewables policy. Depending on the model of "Brexit" the UK adopts, the UK may have more flexibility to alter its targets or implementing policies and this may have a significant impact on renewable incentives in the future.

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United States

National Renewables Targets?	A March 2015 executive order set a target for the amount of renewable energy consumed by the federal government: 30% by 2025. Nationally, however, the US currently has no uniform, specific renewables targets. Instead, many states have their own mandatory (29 states and the District of Columbia) or voluntary (7 states) renewable energy targets under state regulatory policies, including renewable portfolio standards (RPS). These targets are generally imposed on utilities and other electricity providers and require them to source a certain minimum percentage of their electricity from renewable resources. State level renewable energy targets, including target percentages, target dates, compliance mechanisms and other terms of the RPS programme structure, vary from state to state pursuant to each state's RPS programme. Some examples of state-level renewable targets include the following: ■ California and New York: 50% by 2030. ■ Vermont: 55% by 2017, and 75% by 2032. ■ Hawaii: 100% by 2045. ■ Texas: 10,000MW by 2025 (target surpassed in 2009).
Main Renewable Sources	Hydro, wind, biomass, solar and geothermal.
Green Certificates?	RPS programmes are generally implemented through a trading scheme of certificates or credits (referred to as renewable energy certificates, renewable energy credits, green certificates, green tags or tradable renewable certificates; together RECs) depending on the environmental attributes of the electricity generated by eligible renewable energy resources. Renewable energy generators may sell their RECs, and the entities subject to RPS mandates may purchase such RECs to meet their RPS requirements. Non-compliance may result in penalty payments or alternative compliance payments (amounts vary from state to state and depend on the type of resource) into the relevant state fund.
Feed-In Tariff (FIT)/ Feed-In Premium (FIP)?	The ability to introduce FITs originated in the US in 1978 with the implementation of the federal Public Utilities Regulatory Policies Act (PURPA). However, the US currently has no national FIT programme. Instead, several states and regional utilities have created mandatory and voluntary FIT programmes that vary substantially. The states which currently operate a mandatory FIT or similar programme include Washington, Oregon, California, Hawaii, Maine, Rhode Island and Vermont. Utilities in approximately 16 states operate a voluntary FIT or similar programme, including, for example, California, the states bordering the Tennessee Valley, Michigan, Wisconsin, Florida and New York.
Other Incentives	In December 2015, the US Congress passed legislation extending renewable energy tax incentives. The solar 30% investment tax credit (for utilities and commercial and residential investments) was extended until the end of 2019, after which it will begin to drop. It will reach 10% in 2022 and will continue thereafter at 10%. Newly built wind turbines can continue to claim a production tax credit of 2.3 cents/kWh until the end of 2016. This credit will drop after 2016 and will expire in 2020. Geothermal, marine energy and small hydropower received one-year extensions for 30% investment tax credits. Many states also have renewable energy incentive programs for individual homeowners, primarily for solar. Several states, however, including Nevada and Hawaii, have cut their solar subsidies, and additional states have proposed legislation to cut solar subsidies.
Additional Comments	The main renewable sources in order of percent share of total US electricity generation in 2015 were the following: hydro (6%), wind (4.7%), biomass (1.6%), solar (0.6%) and geothermal (0.4%). The capacity figures for these renewable sources as of the end of February 2016 were the following: hydro (79,777.4MW), wind (73,339.2MW), biomass (13,621.1MW), solar (13,850.6MW) and geothermal (2,525.3MW). In 2009, the US Congress considered setting a national renewables target by implementing a federal RPS programme with a target of 20% by 2020, but the initiative failed to garner the necessary votes. Since then, the federal government has pursued an "All-of-the-Above Energy Strategy" to increase the rate of electricity generated by clean energy sources, including efficient natural gas, clean coal and renewables, in order to increase energy self-sufficiency and to further reduce dependence on foreign oil. In August 2015, the Environmental Protection Agency (EPA) announced the implementation of the federal Clean Power Plan (CPP) designed to reduce CO2 emissions from power plants nationwide by 32% from 2005 levels by 2030. The CPP has faced stiff opposition from a coalition of 27 states, which have filed lawsuits against the plan. The US Chamber of Commerce, other business groups and organisations, and several fossil fuel companies have also filed lawsuits against the plan. As a result of these lawsuits, the Supreme Court has stayed the implementation of the CPP pending judicial review of the merits of the lawsuits. Some states, including Colorado, are nevertheless moving forward with initiatives to be in compliance with the CPP. The first set of CPP state compliance deadlines take effect in 2022, and some states will see reduction requirements as high as 45 to 47%. Both chambers of the US Congress, the House and Senate, have passed separate energy policy modernisation bills. The two chambers must now negotiate and pass a final bill, which would be the first comprehensive energy legislation since 2007. Since 2016 is a presidential election year, it is possible that a final energy bill and any new federal level renewable energy policy initiatives might be tabled until after the inauguration of a new president in January 2017 and will depend on the outcome of the election. There has also been some backlash against mandatory RPS at the state level – some states have recently even enacted laws weakening (e.g., changing mandatory requirements to voluntary targets) or repealing their RPS programmes. The environment for renewable incentives at the state level, therefore, will also be subject to each state's developing political circumstances and the availability of renewable resources. Until the implementation of the CPP, the main engine for the expansion of renewable sources of electricity will continue to be federal tax incentives and the mandatory and voluntary RPS programmes of individual states.

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