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Renewable Energy Investment Opportunities and Challenges in Europe

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Today's Speakers



Olivier Chambord is a partner in Morgan Lewis's Business and Finance Practice. Olivier focuses on international project development, cross-border and domestic mergers and acquisitions, and private equity transactions, with an emphasis on energy petrochemical and commodities industries. He has worked on a diverse mix of upstream, midstream, and downstream oil and gas assets; petrochemicals; soft commodities projects; and mergers and acquisitions throughout Europe and Africa.



Marcus Herrmann is a partner in Morgan Lewis's Business and Finance Practice. Dr. Herrmann advises German and international corporations on mergers and acquisitions, joint ventures, restructurings, and corporate law. His industry experience includes work for energy, life sciences, technology and manufacturing companies and investors. He has advised clients in the past on various assignments in the renewable energy sector.

Today's Speakers



Roland P. Montfort is a partner in Morgan Lewis's Business and Finance Practice. Mr. Montfort focuses his practice on strategic mergers and acquisitions and related transactions, joint ventures, corporate, restructuring, and greenfield investments projects. He acts on behalf of multinational companies with substantial operations in France and in various industrial sectors such as the automobile, chemicals, electronics, semiconductors, and heavy industries.

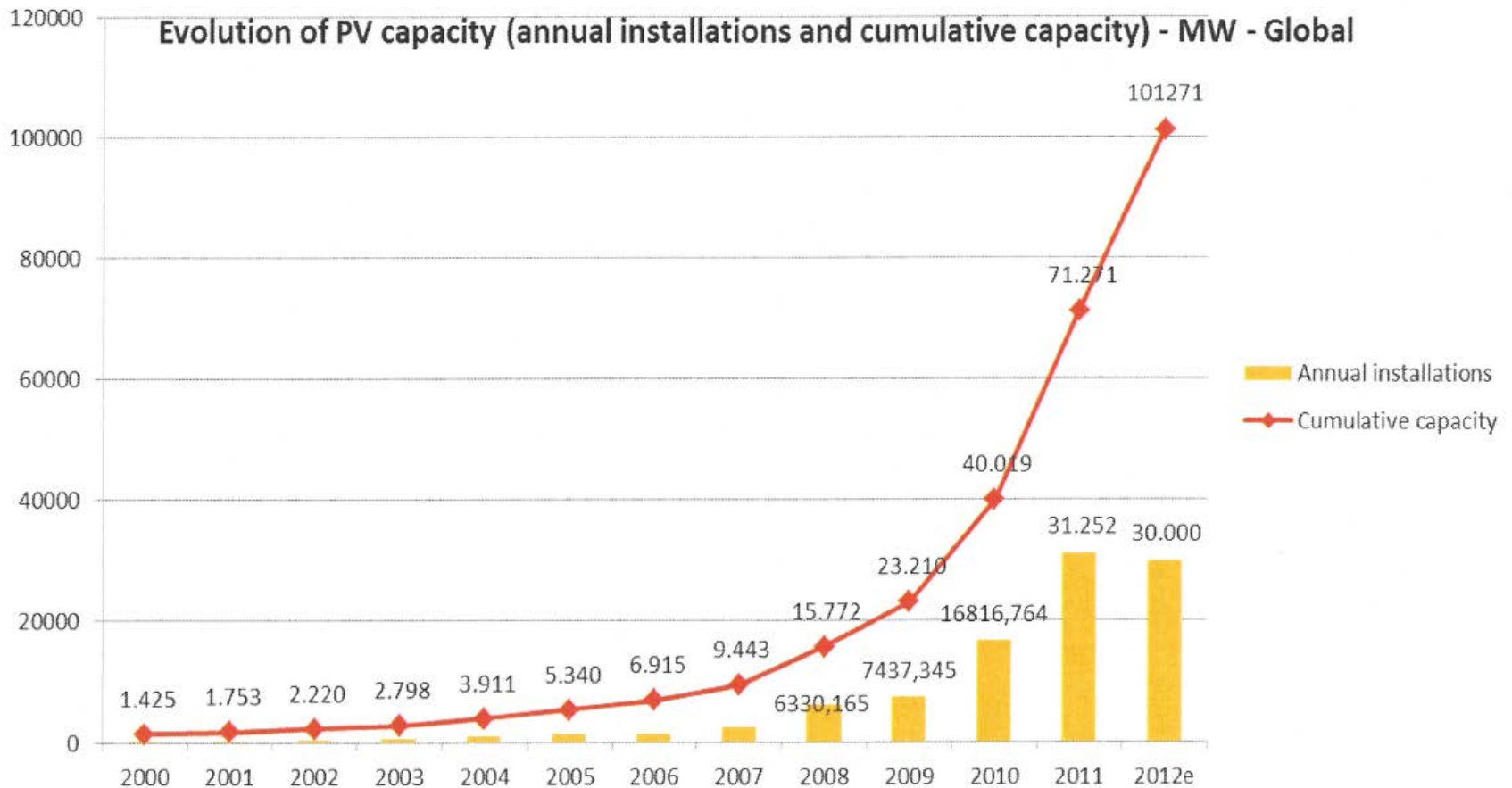


Martin C. Stewart-Smith is a partner in Morgan Lewis's Energy Transactions Practice. Martin is a transactional lawyer with more than 20 years of experience in a wide range of energy projects, ranging from upstream oil and gas developments to LNG project financings and downstream gas commercialisation. He has worked on private-to-private merger and acquisition (M&A) deals in the oil and gas, renewables, and energy services sector. Martin has also advised host governments and corporate clients on privatization transactions in the energy sector, including sector law reform, independent power producers (IPPs), and electricity transmission and distribution projects.



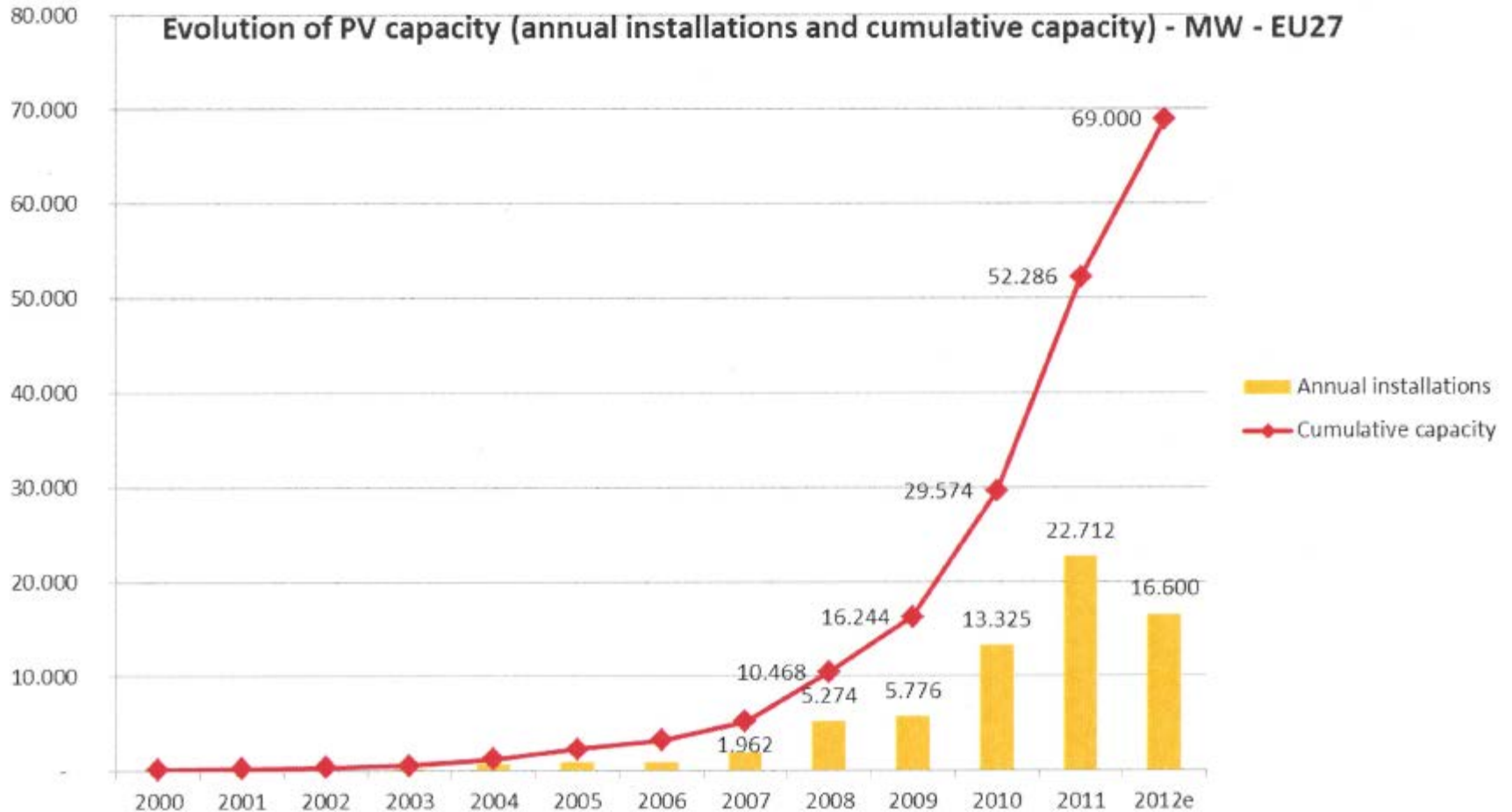
Opportunities and Challenges in the German Solar Industry

Evolution of PV Capacity - Global



Source: EPIA Market Report 2012

Evolution of PV Capacity - Europe



Source: EPIA Market Report 2012

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Market Development German Solar Industry

- Largest PV-market worldwide with 32 GW total installations as of December 31, 2012 (worldwide 101 GW).
- 7.6 GW new installations in 2012 (worldwide 30 GW).
 - FIT is most important demand driver due to slow solar irradiance.
 - German government's national action plan still envisages annual growth of 5 GW to reach goal of 70 GW in 2020.

Challenges German Solar Market

- FIT Cuts: Significant reductions by January 1, 2013 and further political pressure to reduce FIT.
- Consolidation process recently accelerated due to continuing price pressure for wafers, cells and modules caused by FIT cuts and competition from low cost countries:
 - Recent insolvencies: Q-Cells, Solon and Solar Millennium
 - Industrial players currently close or reduce PV divisions
 - Force further cost reductions and investment in R&D
- Difficult financing conditions.
- Equipment manufacturers have more stable margins and more attractive growth rates as they profit from export.

Opportunities German Solar Market

- Reliable legal framework for FIT compared to other countries.
- Very good R&D environment.
- Insurance companies as new investors.
- Price pressure in mid-term likely to increase competitiveness.

FIT under Renewable Energy Act

- German Renewable Energy Act applicable for solar, wind and other renewable energy produced in Germany.
- Grid operator has to provide grid connection for renewable energy plant.
- Net operator has to acquire produced energy for FIT fixed in Renewable Energy Act.
- FIT depends on construction (e.g. roof top, ground mounted) and capacity of solar plant.
- FIT remains fixed for respective term.

Transaction Opportunities

- Solar most active renewable sector for investments.
- Increasing number of transactions can be expected.
- Conclusion.



Opportunities and Challenges in the German Wind Industry

EU Member State Market Shares Wind Energy Capacity 2012

Country	Installed 2012	Cumulative 2012
Germany	2,415	31,308
Spain	1,122	22,796
UK	1,897	8,445
Italy	1,273	8,144
France	757	7,564
Portugal	145	4,525
Denmark	217	4,162
Sweden	846	3,745
Poland	880	2,497
Netherlands	119	2,391

Source: EWEA, Wind in Power, February 2013

Market Development German Wind Industry

- Currently wind energy contributes in Germany to 40% of the electricity produced from renewable energy.
- By 2025 the share of electricity produced by wind energy shall rise from 7.5% to 25%.
- Germany intends further significant expansion of installed offshore wind capacity in the German North and Baltic Seas by 2020.

Wind Energy

- Challenges Offshore Wind Projects.
- Challenges Onshore Wind Projects.

Major Steps till Operation of Wind Park

- Application Phase
- Development Phase
- Construction Phase
- Operation Phase

Application Procedure

- Centralized application procedure (“*Planfeststellungsverfahren*“) for permits in exclusive economic zone (*ausschließliche Wirtschaftszone*) since January 2012 .
- Federal Maritime and Hydrographic Agency (“BSH”) in Hamburg responsible state agency.
 - Application for offshore wind park permit requires submission of several studies.

Permit

- Since January 2012 new rules regarding order in which the BSH decides on applications.
- Permits include restrictions and obligations.
- Expiration Date.
- Planning discretion of BSH since January 2012.

Grid Connection

- Transmission net operator has to establish grid connection of the wind park to its net.
 - Net operator has to acquire produced wind energy.
 - Requirements for grid connection.

Transaction Activity Regarding Wind Energy

- Increasing number of transactions.
- Limited availability of financing.
 - KfW program for offshore wind parks.
 - Leads to joint ventures and partnerships.
- Increased number of offshore wind parks creates demand for equipment and in supporting industries.

Transaction Issues

- Asset deal or share deal?
- In case of asset deal transfer of permit, contracts, know-how, data (including environmental studies) necessary.
- Warranties / indemnities.
- Often earn-out in case certain milestones are met.



Opportunities and Challenges in the French Solar Industry

Introduction

- Electricity will continue to become an increasingly important source of energy; its price is expected to continue to climb until 2030 (... before decreasing).
- Photovoltaic (“PV”) energy is a strategic piece of the future energy mix aimed, among others, at reducing greenhouse gas emissions and cope with electricity price increases.
- Currently, PV produced energy prices are much higher than conventional production sources (currently the average price difference between PV-produced supported selling price and gross market price is 50€/MWh). Public incentives are viewed as key condition to support the development of national/EC PV industry: investing today in more intelligent electricity network (also aimed at reducing a € 1,35 Billion trade deficit in 2011 mainly composed of equipment imports).
- The development of French PV industry appears as an important component of French left-wing government energy policy, necessary to reach certain French objectives for renewable energy sources (“RES”).
- There is no technical limit today to a large-scale PV integration into the distribution networks.
- Timing is good for investors since various tender offer programs are being launched by French Energy Ministry.

Historical Framework

- Kyoto protocol 11 December 1997 (entered into force in 2005).
- EC Directives: 1996/92 EC Directive of 19 December 1996 (fixed-price purchase obligation); 2001/77 EC Directive of 27 September 2001 (21% EC-wide reduction objective for greenhouse emissions) ; 2009/28 EC Directive of 23 April 2009 (a 23% reduction objective is attributed to France – art. 3 and Annex I); there exists a more general 20-20-20 objective within the EC (reduction of primary energy consumption / greenhouse emissions/ inclusion of 20% of RES).
- French regulation (see details under section 4 below).
- French nationwide initiatives:
 - Environnement Grenelle I (2009) and II (2010) ;
 - Energy transition debate until July 2013 => new regulation / new development plan is expected in October 2013;
 - Urgent measures announced by Energy Ministry (7 January 2013): new development project objectives and new tender offers programs.

Historical Framework (cont.)

- French Objectives
 - 23% of RES in 2020 (within the EC framework);
 - Reduction from 75% to 50% by 2025 of the nuclear energy component by elected President Hollande; (not achievable solely through PV and wind energy)
 - 1,000 MW on an annual basis of new PV projects starting in 2013.
- French Characteristics
 - Centralized at State level (few regional initiatives, no regional objectives)

Market Perspectives

- Despite (i) current competitiveness disadvantages of PV compared to other energy sources (lack of flexibility, variability, dispatchability, environment performance, storage etc.) (ii) uncertainty regarding (price) assumptions and forecasts (iii) other necessary evolution (storage, infrastructure) (iv) low ROI in terms of jobs
- A few statistics:
 - Over the last 5 years, the worldwide growth of PV industry was + 49,3% as compared with 27,2% for wind energy
 - 2011: French PV investment represented € 3 Billion;
 - 2012: 262,851 PV installations connected to the public network and 28,604 installations waiting to be connected (or 3,126 MW in power and 2,323 MW in waiting);
 - French market players: modules producers (Fonroche, Solairedirect, Tenesol, Photowatt the latter is also a cells producer).

Market Perspectives (Cont.)

- Clear French objectives
 - 1,200 MW connected to the network in 2012;
 - 5,400 MW in 2020 (compared to 19,000 MW for onshore wind and 6,000 MW for offshore wind) (certain studies predict that at the current connection path, the 5,400 MW objective could be reached as early as 2015).

French Regulation

- Bills : n° 2000-108 of 10 February 2000 (fixed price purchase obligation); n° 2005-781 of 13 July 2005 (energy mix diversification); n° 2009-967 of 3 August 2009 (“Grenelle I”: 23% reduction objective – article 2, I); n° 2010-788 of 12 July 2010 (Feed-in Tariffs purchase obligation) (“Grenelle II”);
- Decree of 15 December 2009 : Pluriannual Development Plan 2009-2020: objective of 5,400 GW in 2020;
- Energy Code:
 - L 314-1 of French Energy Code : Feed-in Tariffs
Applicable for installations below 100 KWP/12 MW
 - L 311-10 and seq : tender offers.
Applicable for installations above 100 KWP
- How does that work ?
 - Customers’ tax => CSPE* => EDF => PV producers
**Contribution au service public de l’électricité (contribution to the public electricity utility)*
 - The aggregate price deficit is valued at € 4,9 Billion at the end of 2012

French Regulation (Cont.)

- Fixed prices:
 - Applicable for installations below 100 KWP
 - Automatic contractually-guaranteed selling prices for a period of 20 years ;
 - Certain premium may apply (L 314-7 of the Energy Code), including upon EC produced modules (up to 5-10%).
 - Periodic adjustments; (last one ? Decree of 7 January 2013)/ contractual price-adjustment provision
 - Fixed prices programs has raised various criticisms (mainly, after-the-fact adjustment and lack of active monitoring by French Government due to automaticity) => possible phase out of new fixed-price programs over a period of 5 years
- Tender offers:
 - Aimed at developing new PV production capacities
 - Applicable for installations above 100 KWP
 - Available for “all persons operating or wishing to build or operate a production installation ...”; the applicant must be the operator of the future installation (in case of a consortium, a common agent must be appointed);
 - We are not aware of any nationality requirement
 - This is the recommended scheme going forward, viewed as giving predictability to investors while enabling the French government to secure job creation and local development technology ; indeed

French Regulation (Cont.)

- Tender offers (cont.)
 - The associated specifications (*cahier des charges*) can be tailored made to enhance local jobs, local value-added (e.g., assembly of panels, engineering, installation, maintenance in France v production of cells in China/Asia), specific technical means etc.
 - The contract term is usually of 20 years with embodied price indexation provision. Certain production cap may apply
 - Two different types: for both types, tender offers are processed by the *Commission de régulation de l'énergie* (advisory role to the Energy Ministry).
 - (i) *From 100 to 250 KWP (between 1,000 and 2,500 square meters)*
 - The initial program was divided into 7 tranches up to 2014 for an aggregate power production of 300 MW (120 MW for the first tranche and 30 MW for each of the successive tranches).
 - The first 5 tranches have been completed.
 - A new tranche (replacing former future tranches 6 and 7) is being launched. Associated specifications are not yet published. The new tranche will have an annual volume 120 MW (divided into 3 sub-tranches of 40 MW each).
 - The tender offer is simplified or “accelerated” with on-line application.”
 - Evidence of adequate financial means is required.
 - The installation may be built on existing buildings.
 - The best price is the main selection criteria. However, the recently issued tranche also integrates some carbon performance criterion for the production of PV modules.

French Regulation (Cont.)

- (ii) > 250 KWP (more than 2,500 square meters):

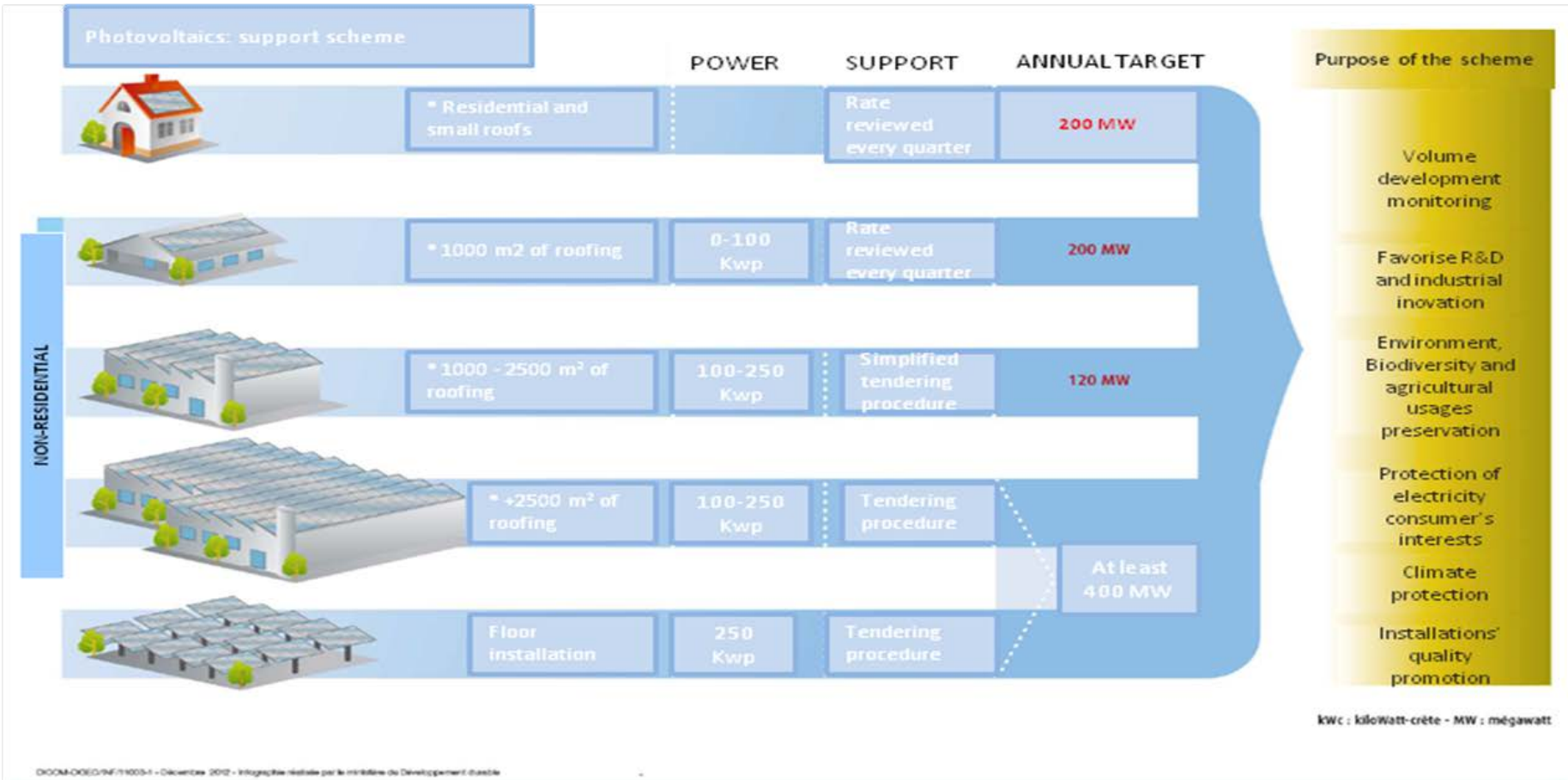
Recent past:

- The objective was to reach an aggregate production power of 450 MW by 2014.
- 7 categories have been created:
 - installation on buildings with aggregate power of 50 MW;
 - on the ground thermodynamic installation for an aggregate power of 37,5 MW;
 - on the ground installation using PV technology by concentration with aggregate power of 50 MW;
 - on the ground installation with capacity to follow the solar curve on at least one axis, with aggregate power of 100 MW;
 - installation in Corsica or overseas territories (whether on buildings or on the ground) with aggregate power of 50 MW with storage feature;
 - on the ground or parking lot roof installation with an aggregate power of 125 MW;
 - on the ground or parking lot roof installation with an aggregate power of 37,5 MW.
- All corresponding tranches have been completed.

French Regulation (Cont.)

Current:

- The Energy ministry is launching a new 400 MW tender offer program with 200 MW reserved to innovative technologies and 200 MW for mature technologies. Specifications' publication is expected by the end of March and the deadline to submit offers is set at August / September 2013. A second wave of tender offer program is expected to be launched in the course of 2013.
- The selection will be made on various criteria (innovative technology, competitiveness etc.) with defined proportional weight given to certain criteria.
- The application file must contain various components, among others: detailed environment and risk prevention studies, justification of the necessary zoning permits, local public bodies' acceptability, R&D contribution, technical expertise, legal structure and adequate financials means (including business plan, solvency, performance bond, disassembly bond ...) , carbon performance, target production date, storage, and connection to public utility network.



* Non-residential

Timing and Opportunities

- Prices and ROI
- Good timing to benefit from new French government initiatives through the launch of new tender offers programs
- Consolidation opportunities



Opportunities and Challenges in the French Wind Industry

Ambitious Wind Targets

- 2020 EU goals translate into 23% renewable energy in energy mix for France
- Translates into stated objectives, by 2020 of:
 - 19000 MW generated onshore
 - 6000 MW generated offshore
 - Compared to 5400 MW for PV

French Regulation – Historical Milestones

- After Grenelle I passed in 2009, Grenelle II passed in 2010 (Act n° 2010-788 of 12 July 2010)
- Grenelle II criticized by industry as adds a layer of complexity to an already complex regulatory framework essentially by treating turbines as classified installations, i.e. dangerous installations (see discussions further)

French Regulations – Onshore

- Development Phase: Choice of Site is Key. Necessity to implant wind turbines in a Wind Turbine Development Zones (“*Zone de Développement Eolien*”, i.e. ZDEs) to be entitled to benefit from offtaker’s (EDF) obligation to purchase electricity under FIT scheme. Also need to comply with SREs (“*Schéma Régional Eolien*”, i.e. Regional Wind Schemes) set by French regions. Limited number of Regional Wind Scheme to date.
- Construction Phase: A construction permit is required for turbines that are 12 meters high and above. Further permits can be required for specific types of works not covered by construction permit.
- Operations Phase: A prior authorization from Minister is required to install and operate “an electricity production installation” if power above 30 MW.

French Regulations – Onshore (Cont.)

- Operation phase: Since Grenelle II, turbines are “classified installations” (i.e. dangerous installations) under French law. As a result, if
 - turbines are (i) 50 meters high or above or if (ii) they are of a height 12 to 50 meter and produce 20 MW or above, they are then subject to prior authorization regime;
 - if turbines are of a height of 12 to 50 meters and produce less than 20 MW a simple declaration must be made to the Minister but prior authorization is not required; and
 - If the turbines are less than 12 meters, no authorization or declaration is required.

French Regulations (Cont.)

- Power Purchase Certificate: granted by the Prefect (local State representative) for wind turbines to qualify under the FIT mechanism, i.e. those in a ZDE
- Power Purchase Agreement: A purchase agreement is signed by EDF (or local distributor) and operator of turbines whereby EDF (or local distributor) has an obligation to purchase electricity at FIT price.

French Regulations- Offshore

- General Principle: application of regulations applicable onshore but with substantial exceptions
- As offshore turbines are installed in the maritime public domain of the State, an authorization to occupy is required and granted by an occupation concession
- Other specific regimes apply: declarations or authorizations under water Act, environment code rules (need for impact study)

French Regulations- Offshore

- Exemption from construction permit requirement and various urban regulations
- Exemption from classified installations regime
- Exemption from ZDE requirement
- Note that turbine installations prohibited in certain areas (specifically protected areas and band of 100 meters from shore)

Feed in tariff mechanism

- Feed in tariff: EDF obliged to purchase electricity of requesting operator under long term PPA with FIT built in with operator subject to certain technical conditions
- Paid for by contribution to public electricity utility (*“contribution au service public de l’électricité”*) known as CSPE financed by tax on end consumer
- Wind turbine must be connected in ZDE to benefit from purchase obligation
- Exception for offshore in maritime public domain or exclusive economic zone

Feed in tariffs

- Onshore : for duration of 15 years - 82EUR/MWh for 10 years then decreasing between range of 82 to 28 EUR for 5 years
- Offshore (outside of bid processes) : for duration of 20 years – 130 EUR/MWh for 10 years then decreasing between 130 to 30 EUR/MWh for 10 years
- Bids: Minister in charge of Energy can proceed with bids to develop new production capacities. Purchase price is then determined based on offers accepted. For the year 2011, 3000 MW of offshore, offers accepted for almost 2000 MW with purchase price at 200 EUR/MWh (instead of maximum of 130 EUR/MWh under FIT mechanism)

Feed in Tarrif risks

- FIT set in “*Arrêté*” (i.e. ministerial decision) dated 2008 contested by several anti-wind associations before the *Conseil d’Etat*, highest administrative court in France
- Conseil d’Etat in turn initiated proceedings (“*question préjudicielle*”) before the ECJ to check if tariff “*arrêté*” is a state aid – which could lead to cancellation as French state had not notified it as a state aid to the European Commission
- FIT criticized in recent report dated September 2012 by various experts to Minister of Ecology, Sustained Development and Energy as potentially creating speculative bubbles and as shielding operators from competition

Opportunities in spite of complex environment

- Tariff risk addressed: the Minister issued a press release on 14 June 2012 stating that, whatever the decision of the ECJ, the Government will make sure that the purchase agreements currently in force (governed by the 2008 *Arrêté*) are not challenged and that the legal framework is not weakened
- Offshore bidding rounds:
 - First launched in July 2011, 4 lots subscribed for almost 2000 MW. Projects selected based on various factors (proposed electricity purchase price, quality of project from an industrial and social standpoint, insertion of projects in maritime habitat).
 - New bid round launched in January 2013 for total capacity of 1000 MW.
 - According to International Energy Agency, potential of offshore wind production in France for 2020 estimated to 30 TWh, i.e. domestic consumption of 13 million French.

Opportunities in spite of complex environment

- Current president's promise to reduce Nuclear to 50% of energy mix – ongoing debate in 2013 about energy transition remains favorable to wind power and need to comply with stated EU goals
- Industry consolidation: happening now. One of many recent examples: EDF EN just announced acquisition from S echilienne Sidec of six wind farms (56.5 MW) and 5 projects in the course of development (60 MW) for 59 million EUR.



UK Renewable Energy: Electricity Market Reform

“This is a durable agreement across the Coalition against which companies can invest and support jobs and our economic recovery”
– Ed Davey

Electricity Market Reform (“EMR”)

- Enshrined in Energy Bill 2012
- 3 main objectives:
 1. Ensure Security of Supply
 2. Ensure Sufficient Investment
 3. Maximise Benefits / Minimise costs

EMR (1) : Security of Supply

- Government will introduce a “capacity market”
- No immediate risk to security of supply, aim is to have backup
- EMR hoped to encourage long-term PPAs

Capacity Market

- Constructed from a forecast of future peak demand
- Total capacity required to ensure security of supply will be contracted through a competitive auction (expected 2014, for delivery winter 2018/19), with secondary auctions if additional capacity is required nearer delivery
- Successful bidders (providers) will enter into capacity agreements in return for steady capacity payments (but would face penalties for under-supply)
- Government is minded to exclude plants in receipt of FiTCfD to prevent overcompensation (*“double dipping”*)

Capacity Market: Points to Note

- As yet unclear whether interconnected capacity will be considered
- Proposed length of supply contract is 1 year for existing capacity, and up to 10 years for new (constructed post-May 2012) capacity
- Applicable to Great Britain only, as Ireland already has a capacity mechanism for its single electricity market
- Payment will be under a settlement agency model for coordinating and making the capacity payment – single set of rules, to be enforced by Ofgem

EMR (2) : Sufficient Investment

- Aimed at supporting £110bn investment in infrastructure
- FiT CFDs (Feed-In Tariff Contracts for Difference)
- Interim powers to grant FiT CFDs prior to 2014 (“investment contracts”)

Feed in Tariff Contracts for Difference (FiT CfDs)

- Main principles:
 - Will be a long-term de-risking mechanism to allow for stable revenue and encourage investment
 - A company will be designated and mandated by the Secretary of State as the CfD Counterparty for the bilateral contracts
 - Generator will receive sale price of its electricity plus any lowside difference between the strike price (set by Government) and the reference price (market price)
 - Expected to be available by H2 2014
 - Expected to be based on a 15-year duration

Accessibility to FiTCfDs

- Eligible projects:
 - Nuclear and types of generation already eligible under the Renewables Obligation (also CCS)
 - Generation situated *outside* the UK, although note that projects able to connect directly to UK networks will be preferred
- Notable exclusions from eligibility:
 - Projects supported under small scale FITs
 - Energy generation already under RO (although note ability to nominate undesignated wind turbines for FiTCfDs even if others under RO)

FiTCfDs: Points to Note

- To demonstrate a level of commitment to a CfD, the developer will have to:
 - show substantive financial commitment
 - set target commissioning window
 - commissioning prior to long-stop date
- The CfD Counterparty will be obliged to make payment to the developer (where the strike price is below the reference price) only once it has received payment under the Supplier Obligation, and only to the same level

EMR (3) : Maximise Benefits / Minimise Costs

- End-goal is mix of renewable power and minimal rise in household bills
- Govt hopes that revenue certainty with FiT CFDs will reduce cost of finance, crucial given heavy front-loading of capital costs in renewables projects
- Example of efficiency: offshore wind generators to be allowed to commission transmission infrastructure without a licence prior to transfer to OFTO (Offshore Transmission Owner)

Delivery milestones to look out for...

March 2013	Govt consultation on transition from RO to CFD
May 2013	Capacity Market final proposals published
July 2013	FiT CFD final contract published Draft delivery plan, including CFD strike prices
End 2013	Royal Assent for Energy Bill (hoped) Delivery plan, including final CFD strike prices
2014	EMR delivery mechanisms up and running

Questions that remain

- Impact of potential UK shale gas / lifted moratorium on fracking (“dash for gas”)
- Strike price for FiT CFDs
- Extent to which investors will value FiT CFDs
- Potential impact of Scottish independence referendum on UK onshore/offshore wind industry



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Questions



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