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News Round-up

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A round-up of renewable energy news from around the world.

Obama signs US stimulus package bill

In the wake of votes by both the US House of Representatives and Senate, President Obama has now signed the American Recovery and Reinvestment Act into law, including US\$70 billion in renewable energy and energy efficiency measures.

The bill contains a host of provisions that will greatly benefit the renewable energy industry, in particular an extension the production tax credit (PTC) and offering the ability for developers to take an investment tax credit (ITC) in lieu of the PTC. Allowing facilities to claim the investment tax credit in lieu of the production tax credit is estimated to cost \$285 million over 10 years.

The industry will also get a grant option from the Treasury Department, in lieu of tax credits, which will issue a grant equal to 30% of the cost of a qualifying renewable energy facility within sixty days of coming in service. Applications received by the end of September 2011 will qualify, although the amount of money available for this programme is still unknown.

In addition to those measures, manufacturers in the wind, solar, storage, efficiency and transmission spaces will be able to take advantage of a new 30% tax credit designed to benefit manufacturers of advanced energy technology. Credits are available only for projects certified by the Secretary of Treasury, in consultation with the Secretary of Energy, through a competitive bidding process. The Secretary of Treasury must establish a certification programme and may allocate up to \$2.3 billion in credits. This proposal is estimated to cost \$1.65 billion over 10 years.

Extending the placed-in-service date to qualify under the production and investment tax credits for wind facilities by three years to the end of 2012, the bill also extends the placed-in-service date by three years through to the end of 2013 for closed-loop biomass, open-loop biomass, geothermal, small irrigation, hydropower, landfill gas, waste-to-energy, and marine renewable facilities – at a total cost of US\$13.143 billion over 10 years.

Caps on the tax credits for residential solar hot water, geothermal heat and small wind systems will be removed under the new bill as well. This proposal is estimated to cost \$872 million over 10 years.

The bill authorizes an additional \$1.6 billion of new clean renewable energy bonds to finance facilities that generate electricity from wind, biomass, geothermal, hydropower, landfill gas, marine renewables and waste combustion facilities. This proposal is estimated to cost \$578 million over 10 years. There is also a provision to authorize an additional \$2.4 billion of qualified energy conservation bonds to finance state, municipal and tribal government programmes. This proposal is estimated to cost \$803 million over 10 years.

The wind industry has been calling for many of the changes to the tax credits that the bill includes, and Vestas' Group Government Relations senior vice president, Peter Brun, pointed to the stimulus package as a large step toward long-term market stability, saying: 'This is the first time in the US we have ever seen such long regulatory stability in terms of a multi-year Production Tax Credit until 31 December 2012. Previously, the PTC extensions were only one or two years constituting big risk and uncertainty for both investors and manufactures like Vestas. So we regard this development as a major positive development in the US market.'

Meanwhile, Rhone Resch, president and CEO of the Solar Energy Industries Association (SEIA), said: 'The solar industry is poised to lead the new, clean energy economy and the strong solar provisions in this legislation will help give hundreds of thousands of out of work Americans a job that they can be proud of. The solar energy provisions in this bill will help create 60,000 jobs in the solar industry in 2009 alone, and a total of 110,000 over the next two years.'

The bill is the first of three expected legislative initiatives in 2009 from the new administration to promote and expand

renewable energy development.

In related news, the proposed budget released by the White House would use \$15 billion a year, beginning in 2012, from the auctioning of carbon credits to support the development of clean-energy technologies, although Congress has not yet written a bill that would regulate greenhouse gases and collect the associated revenue.

The draft budget also calls for 'significant increases' in research into renewable energy, including into technologies related to solar, wind and geothermal sources and second generation biofuels.

First Solar breaks US\$1/W barrier

Thin-film photovoltaic module manufacturer First Solar Inc has announced that it has reduced its manufacturing costs to US\$0.98/watt, breaking the highly significant \$1/W price barrier.

Since launching full commercial operations in late 2004, costs have declined two-thirds from over \$3/W. First Solar says it is confident that further significant cost reductions are possible.

From 2004 through today, manufacturing capacity has grown to more than 500 MW and annual production capacity will double in 2009 to more than 1 GW.

Commenting on the \$1/W announcement, Ken Zweibel, director of the Institute for the Analysis of Solar Energy at The George Washington University said: 'This represents a major milestone for the solar industry.' He added: 'With this announcement, First Solar continues to demonstrate the ability of thin-film PV technology to provide an alternative to traditional fossil fuels, and for solar power to provide a meaningful contribution in addressing climate change.'

In related news, First Solar has recently entered into an acquisition agreement for OptiSolar's solar project pipeline. The acquisition includes a 550 MW grid-connected development under a power purchase agreement with PG&E, as well as a project pipeline of an additional 1300 MW which are in negotiation with Western region utilities. The portfolio also includes land rights to some 136,000 acres (54,000 ha) with the potential to deploy up to 19 GW of utility-scale solar.

First Solar will acquire all of OptiSolar's project development business in an all-stock transaction valued at approximately \$400 million. The transaction is expected to complete in the second quarter of 2009.

Mike Ahearn, First Solar chief executive officer said: 'As First Solar continues to drive down its manufacturing and EPC costs, OptiSolar's project pipeline and the ability of our team to continually expand our existing pipeline, will enable us to bring solar energy on-line quickly and further reduce greenhouse gas emissions from the grid.'

eSolar strikes 1.5 GW in CSP deals

Modular solar thermal power plant developer eSolar has struck a deal that will see up to 1000 MW of concentrating solar stations developed in India over the next decade.

eSolar's first international licensing agreement will see ACME build, own and operate solar thermal plants in India using eSolar's design. ACME has already signed power purchase MOUs (Memoranda of Understanding) for 250 MW, and construction will start later this year on the first 100 MW.



Under the terms of the exclusive licensing agreement ACME Group will make a US\$30 million equity investment in eSolar.

'The eSolar system ... presents a viable, cost-effective alternative that can scale quickly to meet India's growing energy needs,' said Manoj Upadhyay, chairman and CEO of the ACME Group.

The announcement comes in the wake of a 500 MW deal that eSolar recently signed with US generation group NRG Energy Inc.

NRG is to purchase multiple CSP plants over the next several years that will be developed at sites in California and the Southwest USA as well as projects currently in development



from eSolar. The independent power producing company intends to develop, build, fund, own and operate 11 plants in all. In addition, it will make an approximately \$10 million investment in eSolar for equity and associated development rights in three projects on sites in south central California and the Southwest US and a portfolio of PPAs to develop, build, own and operate generating units at these sites. NRG will also have the option to purchase land eSolar has already assembled for projects and use eSolar's technology for future power plans.

eSolar builds power plants in identical 46 MW modules on 1/4 square mile (65 ha) plots and is currently completing its first commercial demonstration CSP plant in Southern California. The first plant developed under the NRG deal is anticipated to begin production as early as 2011.

Michael Liebelson, chief development officer of Low Carbon Technology for NRG Energy said: 'By coupling NRG's construction capabilities and regional operating expertise with eSolar's innovative CSP technology, we can advance NRG's renewable energy portfolio while helping to accelerate development.'

Mitsubishi breaks PV efficiency record

Japan's Mitsubishi Electric Corporation says it has produced the world's most efficient multi-crystalline silicon photovoltaic (PV) cell. It claims to have reached a conversion efficiency rate for a 150 mm square cell of 18.9%.

The 0.3% improvement on its previous record efficiency for what it describes as a 'practical-sized' cell largely comes on the back of a 26% improvement in efficiency in utilizing infrared rays. This has been achieved through the introduction of a newly developed rear-surface reflection structure.

Mitsubishi adds that this new cell also adopts the same low-reflective honeycomb textured surface structure which it previously developed and which features very small concave depressions on the surface.

Mitsubishi Electric says it will begin introducing this multi-crystal silicon PV cell technology into mass-produced PV modules from April 2010. The company also aims to increase output of PV systems by combining the technology with its own inverters.

New 1 GW marine development

Wave and tidal generation technology company Aquamarine Power Ltd has signed a deal with Airtricity, the renewable energy development division of Scottish and Southern Energy (SSE), aimed at developing up to 1000 MW of marine energy by 2020.

With a goal to deliver marine energy sites suitable for deploying Aquamarine's Oyster Wave Energy Converter and the Neptune Tidal Device, under the terms of the agreement, the two companies will enter into a 50:50 joint venture to develop wave and tidal energy sites in the UK and Republic of Ireland. Work on the development of the first two sites has already started, with plans to roll out further sites over the next three years.

The peak power generated by each Oyster unit is 300–600 kW, depending on location and configuration, while at 2.4 MW, Neptune is a tidal stream device.

Using its in-house model of tidal and wave power resources around the coasts of the UK and Ireland, Airtricity has identified several GW of promising sites.

Aquamarine says it is simultaneously pursuing a similar contract for developments in Southern Europe.



Martin McAdam, chief executive of Aquamarine, commented: 'Fully consented offshore wind farm sites are selling to owner operators at anywhere between £150,000 and £400,000 (US\$210,000–\$560,000) per MW consented, giving a strong indication of the large potential value of this deal.'

Floating offshore wind development projects

Principle Power Inc. has signed a Memorandum of Agreement with Energias de Portugal (EDP) for the phased development of a deep-water offshore wind power project sited off the coast of Portugal, using so-called 'WindFloat' technology.

WindFloat, originally developed by Marine Innovation and Technology and owned by Principle Power, is a patent-pending floating foundation for offshore wind turbines. The technology, which the company says dampens wave and turbine induced motion, could allow wind turbines to be sited in areas previously considered inaccessible – in water depth exceeding 50 metres and stronger wind conditions.

Under the terms of the deal, Principle Power and EDP are to co-develop a three-phased offshore wind power project. The first phase will include the fabrication and installation of a single WindFloat for technology demonstration purposes. Second and third phases will include a pre-commercial and commercial deployment respectively.



‘Offshore wind is one of our key innovation priorities,’ said Antonio Mexia, CEO of EDP, adding: ‘The development of floating foundations for wind turbines is a pre-requisite to the development of offshore wind farms worldwide – as areas in which the sea bed is less than 50 metres deep are scarce and fixed structures in deeper waters are economically not feasible. We believe the WindFloat may be the correct approach to deep-water offshore wind farms.’

Meanwhile, in related news, Blue H’s GEOMA Project has been selected by Italian government as one of 30 recipients of public funding under the ‘Industria 2015’ programme.

As well as Blue H, the consortium consists of Ansaldo Sistemi Industriali, Cesi Ricerca, EADS Astrium, Progeco, Societ  Gomma Antivibrante, TRE Tozzi Renewable Energy and Universit  Federico II di Napoli. The project plans to develop a hybrid concrete/steel 3.5 MW floating wind turbine ideal for the

deep waters of the Mediterranean Sea.

Blue H installed the world’s first floating wind turbine prototype in the summer of 2008 in the Strait of Otranto, opposite the municipality of Tricase in Puglia, Southern Italy. The company is currently building the first operational 2 MW unit in Brindisi, which it expects to deploy at the same site in the Southern Adriatic Sea in 2009, the first in the planned 90 MW Tricase offshore wind farm, located more than 20 km offshore.

The development follows news that another Blue-led consortium, including BAE Systems, EDF Energy, CEFAS, SLP Energy and Romax, has been selected by the UK’s Energy Technology Institute (ETI) as one of the first projects to receive funds as part of its £1.1 billion (US\$154 billion) initiative. This UK based project aims at developing an integrated solution for a 5 MW floating turbine deployed offshore in waters between 30 and 300 metres deep.

Gamesa in blade R&D

Spanish wind technology company Gamesa Corporaci n Tecnol gica and M.Torres Dise os Industriales, are to share a €100 million research and development project focusing on a new concept for wind turbine blade design, as well an automated blade manufacturing process.

The new production process will provide significant improvements to blade manufacturing cycle times, along with consequent manufacturing unit cost reductions, the company says in a statement. In addition, the new blades will reduce environmental noise emissions.

The first prototype units of this new automated process are expected to be available in the first quarter of 2010 and the first mass-produced blades will be assembled onto the mainstream segment of Gamesa wind turbines from 2010.

M. Torres Dise os Industriales will take part in the project as the process’ capital goods manufacturer and will apply its own technology – used in the aeronautics sector – in the production of turbine blades.

Jos  Antonio Malumbres, Gamesa’s managing director of Technology, noted: ‘In addition to the manufacturing process, Gamesa will make significant aerodynamic and acoustic improvements to this new family of blades.’

Ontario’s Green bill

A two part plan to bolster renewables in the Canadian province of Ontario has been unveiled with the Green Energy and Green Economy Act.

The bills aim to bring in more renewables, foster energy efficiency and support a new green economy by giving organizations and local communities more opportunities to develop distributed renewable energy generation projects.

If passed into law, the Green Energy Act would enact a feed-in tariff (FIT). In addition, the bill streamlines the approvals process and provides service guarantees for them. It also establishes a 'right to connect' to the grid. The approvals process for transmission projects would also be streamlined.

Homeowners would also have access to incentives to develop small-scale renewables, such as low- or no-interest loans.

BP and Verenium's cellulosic ethanol JV

A 50:50 joint venture to develop and commercialize cellulosic ethanol from non-food feedstocks has been forged by BP and Verenium Corp.

The company will act as the commercial entity for the deployment technology being developed under the first phase of an existing BP-Verenium partnership.

Together the companies have agreed to commit US\$45 million in funding and assets to the joint venture, intended to progress the development of one of the first commercial-scale cellulosic ethanol facilities in the US.

The joint venture company will initially focus on developing and securing financing for a facility located in Highlands County, Florida, and expects to break ground on that site in 2010, and production is expected to begin in 2012.

Estimated construction cost for the 137 million litre per year facility is \$250-\$300 million and with plans to add additional capacity, the joint venture company also intends to develop a second site in the Gulf Coast region.

'This collaboration represents a critical next step in positioning Verenium and BP at the forefront of commercializing cellulosic biofuels in the United States', said Carlos Riva, president and CEO of Verenium.

Ocean alliances grow

Utilities have been joining forces with ocean energy technology companies.

Voith Hydro and RWE Innogy have announced the formation of a joint venture to accelerate the development, manufacture and marketing of ocean current generation technologies.

Under the terms of the alliance, 20% of the new company – Voith Hydro Ocean Current Technologies – will be held by RWE Innogy, which will make a 'significant capital investment.' Voith Hydro will hold the remaining equity, with the total investment guaranteed by both partners over the next few years, totalling more than €30 million.

By the end of this year, Voith says, the first of its 110 kW prototype subsea gearless turbine generators are due to be deployed and tested off the South Korean coast. This initial test plant will form part of a planned power station project that – in the medium term – will generate electricity from ocean currents to produce several hundred megawatts. Further test plants in Europe will follow, they add.

'We are absolutely convinced: ocean current power stations and hence renewable energy from the seas, will be an important building block within the energy mix of the future', said Dr Hubert Lienhard, CEO of Voith AG, adding: 'Our common goal is to make ocean current technology competitive, as quickly as possible. This is why the close partnership between project developer and plant operator is of special importance to us.'

More recently, Swedish utility group Vattenfall acquired 51% of the Irish ocean energy site development company, Pandion Ltd, in a partnership deal with wave technology group Wavebob Ltd. Vattenfall bought its majority stake for €500,000, Wavebob will hold the remaining 49%.

US solar thermal plans

Nevada Energy, Solar Millennium and MAN Ferrostaal are to co-operate in the development of solar-thermal power plant projects with a capacity of 250 MW thermal storage technology, and an investment volume of over US\$1 billion in Nevada, USA.

The companies have signed a memorandum of understanding for the joint development of projects in the Amargosa Desert.

A first step will be the design of a parabolic trough power plant with a capacity of 250 MW and thermal storage technology, already used by Solar Millennium in the Andasol 1 and 2 projects in Southern Spain.

The parties also plan to co-operate in the development and implementation of further solar-thermal power plants in Southern Nevada.

Uwe T Schmidt, CEO of MAN Ferrostaal Inc. said: 'We are convinced that the plant will set a new benchmark for such power plants. In the future, such power plants will turn Nevada from an energy importer into an energy exporter.'

Meanwhile, Southern California Edison (SCE) and BrightSource Energy have reached agreement on a series of contracts for 1300 MW of solar thermal power.

The agreement, which now requires approval from the California Public Utilities Commission, calls for a series of seven projects. The first of these, a 100 MW installation, is to be located in Ivanpah, in California. It could be operating in early 2013 and is expected to produce 286 GWh annually. BrightSource Energy will be using its proprietary Luz Power Tower 550 system.

Jatropha as animal feed

The research arm of D1 Oils plc says it has developed and is patenting, a process that expels crude biodiesel oil from Jatropha seeds and at the same time purifies the seedcake (meal) left after oil extraction to produce high protein animal feed.

The residual Jatropha seedcake more typically left after oil extraction is currently burnt or used as fertilizer, but D1 has developed a purification process to make it suitable for animal feed – which adds little to the cost of conventional oil extraction.

The purified meal produced through D1's process has been demonstrated to contain more digestible protein than soya bean meal, and has an energy and amino acid composition competitive with the best available protein sources for animal feed production, the company says.

Having proved technical feasibility in phase one of its programme, D1 is now scaling up the process to produce sufficient quantities of purified seedcake for animal feed trials during 2009. Second phase trials will include tests for palatability, digestibility, animal growth and other performance indicators. In phase three of the project, the results of trials will be used to complete regulatory approvals to determine market entry strategies.

Subject to approvals, a commercial release of the technology could be available as early as 2010.

'Producing material that can be used as feed will transform the economics of Jatropha planting', said Ben Good, chief executive officer of D1 Oils. He added: 'Untreated jatropha seedcake is presently a low value by-product, but treated meal that is suitable for animal feed could have a market value around £300 (US\$420) per tonne.'

Interest in UK Round 3 offshore wind sites

Europe's top ranking energy players are forging alliances as they prepare to bid in the third round of auctions for up to 25 GW of offshore wind development sites by the UK's Crown Estate, which own development rights to the UK's seabed out to 320 km.

Forewind, a consortium of Airtricity, RWE npower renewables, and two Norwegian energy groups Statkraft and StatoilHydro has been created in a bid to win exclusive rights to develop the sites.

Meanwhile, DONG Energy, E.ON and Fred Olsen Renewables are also forming a consortium to bid for some of the offshore development capacity available.

Dave Rogers, regional director for Renewables at E.ON, said: 'In Round 3 we'll see wind farms being built further offshore and in much more challenging environments than ever before. That's why we have, as a consortium, brought together companies with the financial ability and the experience of working on major on and offshore wind projects, as well as working in difficult offshore conditions in the oil and gas industry, to make this a success.'

Meanwhile, Niels Bergh-Hansen, executive VP of DONG Energy observed: 'Round 3 represents a challenge to both developers and the wider industry. Nothing on this scale has been done before.'

In related news, DONG Energy and Siemens have announced the largest offshore wind turbine supply agreement in history, with the Germany engineering major to supply up to 500 offshore machines for projects in Northern Europe.

The 3.6 MW machines to be delivered under the supply agreement have a combined total capacity of some 1800 MW.

René Umlauf, CEO of the Renewable Energy Division of Siemens Energy noted: 'Together we have taken a big step towards 'industrialization' of the offshore wind business which is one of the fastest growing renewable energy technologies.'

E.ON waves on Pelamis

Wave energy technology company Pelamis Wave Power Ltd (PWP) has secured an order from utility group E.ON UK for the next generation of its Pelamis Wave Energy Converter, known as the P-2.

The 180 metre-long machine will be built at PWP's new Leith Docks facility in Edinburgh and put through its paces at the European Marine Energy Centre (EMEC) in Orkney.

Including a range of features to improve performance and ease manufacture, the new machine offers major improvements in efficiency, survivability, operability, maintainability and overall cost effectiveness, Pelamis says.

This will be the first time a major utility has ordered a wave energy converter for installation in the UK and the first time the P-2 machine will be tested anywhere in the world, they add.



Thin-film ramping up

A number of thin-film production lines have gone on-line of late, as equipment manufacturers accelerate their roll out of virtually off-the-shelf plants.

In the latest, Oerlikon Solar and Sun Well Solar, a subsidiary of CMC Magnetics, has announced that ramp-up of a 40 MW amorphous thin-film line in Taiwan is complete.

Meanwhile, using a SunFab Thin Film Line supplied by Applied Materials Inc, T-Solar Global S.A. has begun production of 5.7 m² thin-film solar PV modules.

Suited for large-scale solar farm applications, T-Solar is expected to produce 700,000 m² of the modules annually, up to 45 MW. T-Solar plans to eventually expand the line by 40% and expects to gain further production efficiencies and reduced material costs.

Finally, Centrotherm photovoltaics AG has also received an order to construct a thin-film plant. Illies Renewables GmbH, Hamburg, has ordered a 50 MW production line for thin-film modules based on CIGS technology for its site at Magdeburg-Rothensee, in Germany.

US PV costs fall significantly over a decade

A new study on the installed costs of solar photovoltaic (PV) power systems in the US shows that the average cost of these systems declined significantly from 1998 to 2007, but remained relatively flat during the last two years of this period.

Researchers at the Department of Energy's Lawrence Berkeley National Laboratory said the overall decline in the installed cost of solar PV systems is mostly the result of decreases in non-module costs, such as labour, marketing, overheads, inverters and balance of systems.

The study examined 37,000 grid-connected PV systems installed across 12 states, and found that average installed costs, in terms of real 2007 dollars, declined from US\$10.50/W in 1998 to \$7.60/W in 2007. This is equivalent to an average annual reduction of \$0.30/W, or 3.5% annually.

The cost reduction was largest for smaller PV systems, the report concludes, adding that installed costs also show significant economies of scale. Systems completed in 2006 or 2007 that were less than 2 kW averaged \$9.00/W,

while systems larger than 750 kW averaged \$6.80/W.

Installed costs were also found to vary widely between states, from a low of \$7.60/W in Arizona, followed by California and New Jersey, with \$8.10/W and \$8.40/W, respectively.

The study also found that as a result of the increase in the federal ITC for commercial systems in 2006, total after-tax incentives for commercial PV were \$3.90/W in 2007, a near-record high based on the data analyzed in the report. Total after-tax incentives for residential systems, on the other hand, averaged \$3.1/W in 2007, their lowest level since 2001.

RWE IN Biomass co-operation

RWE Innogy and the Westphalia-Lippe Agricultural Association (WLV) have signed a biogas co-operation agreement in Münster, Germany.

The aim of the deal is to construct and operate biogas plants, which are run almost entirely on locally-sourced liquid manure.

Fermentation residues created during the production of biogas will be fully processed in a newly developed system to produce a high quality fertilizer and purified water. The biogas will be fed into the gas grid and sold by RWE Energy.

Construction for the first pilot plant in Münsterland in the district of Borken is scheduled for September 2009, with commissioning envisaged in spring 2010. The plant is designed for 9 MWth and could feed an annual 60 GWh of biogas and 8 GWh of electricity into the gas grid. In addition, direct electricity generation in the form of combined heat and power is also planned at the site. Liquid manure and manure solids will be used as 90% of the fuel substrates, amounting to a total of 200,000 tonnes annually. The remaining 10% is to be comprised of so-called agricultural cover crops, for example sunflowers or grass.

The agricultural association will be taking over the procurement of the substrates, the processing of the fermentation residues and the sale of the fertilizer that is produced. Together, RWE Innogy and WLV will be further optimizing the technological development of the new process, for converting the fermentation residues into high quality fertilizer. If the operation of the pilot plant is successful, further plants are planned in the region, the groups say. RWE Innogy also intends to expand the concept to other regions in Germany and Europe.

Professor Fritz Vahrenholt, CEO of RWE Innogy, explains: 'We want to take the development of biogas one large step forward. The conditions in this region are ideal, as it is possible to feed in the biogas, even in sparsely populated areas, thanks to the density of the gas grid.'

WLV president, Franz Josef Möllers said: 'In regions with intensive keeping of livestock, we are reducing excess nutrients. For farmers, we are creating additional sources of income with the production of biogas and the sale of fertilizers. In future, the main task of our agricultural industry will continue to be the production of high quality foodstuffs. With this new co-operation, however, we are also meeting the expectations of society.'

US utilities plan solar moves

California's Pacific Gas and Electric Company (PG&E) has announced plans for a five-year programme to develop up to 500 MW of solar PV capacity in its northern and central California service area.

Consisting of up to 250 MW of utility-owned PV generation, and an additional 250 MW to be built and owned by independent developers under a streamlined regulatory process, PG&E has submitted its plan to the California Public Utilities Commission for approval.



All the projects are anticipated to be running by 2015 and are expected to deliver some 1 TWh annually, near 1.3% of PG&E's demand.

The scheme targets mid-sized projects, typically 1–20 MW, and ground or roof-mounted.

Meanwhile, New Jersey utility group Public Service Electric and Gas Company (PSEG) has called for regulators to approve a US\$773 million proposal to install 120 MW of PV installations throughout its service territory.

Under the terms of its proposal, PSEG will invest in, own and operate the grid-connected solar systems.

Ralph LaRossa, president and COO of PSEG said: 'The programme strongly supports New Jersey's aggressive renewable energy and environmental goals and helps to strengthen the competitive solar industry in the state.'

The plan will supply nearly 7% of state renewable portfolio standard requirements through to 2020.

Each investment will be recovered over 15 to 20 years, offset by the value of the electricity and Solar Renewable Energy Certificates (SRECs) produced by the systems as well as federal tax credits.

Installation costs are expected to be \$6.44/W and the impact on a typical residential customer is forecast to be 10 cents per month in the first full year of the programme, rising to 35 cents in 2013.

PSEG's Solar 4 All Program includes four segments:

Neighbourhood Solar – \$264 million investment, producing 40 MW, installed on nearly 200,000 utility poles and street lights.

Local Government Solar – \$273 million investment producing 43 MW, by offering every municipality and public school district the opportunity to install roof-mounted solar systems on their property.

Centralized Solar – \$221 million investment producing 35 MW. PSEG will contract for the design and manufacture of 25 MW of ground- or roof-mounted solar systems on land or buildings it owns. In addition, the company will work with developers to install 10 MW of larger solar energy farms on brownfields, non-profit-owned real estate, and underdeveloped real estate.

HMFA/Affordable Housing Solar – \$15 million producing 2 MW from roof-mounted systems at New Jersey Housing and Mortgage Finance Agency (HMFA)-financed, or other affordable housing communities.

Given regulatory approval PSEG hopes to start installation in 2009 with the entire programme rolling out over a five year period.

The Solar Electric Power Association's (SEPA) Mike Taylor, said: 'In 2008, Southern California Edison, San Diego Gas & Electric, and Duke Energy, all announced similar programmes focusing on utility ownership of distributed photovoltaics.'

Scottish offshore sites awarded

The UK Crown Estate is offering exclusivity agreements to nine companies and consortia for 10 sites – for development of offshore wind farms within Scottish waters. The sites have the potential to generate more than 6 GW in all.

Designed to allow developers to begin initial survey and consultation processes for their sites, while the Scottish government conducts a Strategic Environmental Assessment (SEA), under the terms of the agreements fees will not be payable until site leases are signed in 2010. The option fees will then be used to address generic research and development issues faced by offshore wind developers in Scotland.

In addition, the Aberdeen Renewable Energy Group (AREG) has proposed an offshore wind technology demonstration centre off the coast of Aberdeen, which the government is likely to support as part of a programme to advance the industry in Scotland.

Launched in late January, the Scottish government has committed to completing the SEA process within a year, following which The Crown Estate can lease suitable sites. Leases enabling developers to begin construction will only be granted by The Crown Estate once statutory consents and permissions are obtained.

Utilities and developers pepper the line up, with Scottish and Southern Energy's (SSE) offshore development arm Airtricity particularly active. The company has been granted permission to develop at four sites: Beatrice, Bell Rock, Islay and Kintyre, with a combined capacity of up to 2.7 GW. Two of the sites are being pursued in consortia with specialist developers. In announcing the development, Ian Marchant, chief executive of SSE, said: 'One of the key aims of our acquisition of Airtricity a year ago was to build up a major offshore wind farm capability in northern Europe.'

Not to be outdone, local competitor ScottishPower Renewables is to investigate a site west of Argyll and the island of Tiree, which it believes could generate anywhere between 500–1800 MW.

Commenting on the deal, Keith Anderson, director of ScottishPower Renewables said: 'Offshore wind power has massive potential, and the UK government has already outlined ambitions to generate up to 33,000 MW of power off the UK coastline.' He added: 'Scotland has the best onshore wind resources in Europe, and now it is taking its first steps towards harnessing its offshore potential.'

Jason Ormiston, chief executive of trade body Scottish Renewables, noted that: 'The combined capacity of these projects will make a massive contribution to Scotland's efforts in tackling climate change, helping to deliver reliable and affordable supplies of electricity to consumers and, very importantly, the Scottish economy. Now the industry, government, The Crown Estate, [regulatory authority] Ofgem and the wide range of interests which use the sea, must work together to deliver this exciting potential.'

In related news, The Crown Estate has also recently announced that the first stage of the process to allocate sites for wave and tidal renewable energy in the Pentland Firth strategic area off Scotland is complete, with 38 individual companies and consortia now invited to tender.

NEWS IN BRIEF

Torresol Energy and Masdar, Abu Dhabi's multi-faceted renewable energy initiative, has announced a €171 million financing deal which will allow construction to commence on the Gemasolar CSP project. A solar tower with molten salt technology, the plant will produce 17 MWe and is to be located in Fuentes de Andalucía, in Seville. It is due to be operational in 2011.

Originally announced in November 2008 as a 1.6 MW deployment between SolFocus and Samaras Group, a new agreement increases the size of the project to 10 MW in recognition of the distinct financial and energy generation advantages for concentrating PV technology in the region. The project will use the SolFocus 1100S system.

Silicon Genesis (SiGen) says it has produced its first ever 20 micron thickness flexible solar-cell foils. Neither a thin-film nor a wafer, the 125 mm square monocrystalline silicon (mono c-Si) foils were so named to better describe its unique physical characteristics as a thin, flexible, yet free-standing material, the company said. The material combines the advantages of thin-film with the high efficiency potential of mono crystalline Si, they add.

Scheuten Solar and Aehlios have signed a multi-million euro contract for the supply of solar modules. Aehlios will install photovoltaic solar roofs fitted with Scheuten Solar crystalline PV modules over the next few years, up to a total of nearly 10 MWp.

Raser Technologies Inc. has completed final preparations to transmit power to the city of Anaheim from its new geothermal plant in Utah. The system has already been supplying about 3.5 MW to the local utility while final preparations for commercial operations were completed; this will be ramped to up to the net of 10–11 MW shortly.

A new fast-track process allows Australian homeowners to immediately apply for a rebate on the installation of solar hot water systems. Through the government's A\$3.9 billion (US\$2.5 billion) Energy Efficient Homes Package, households can now apply for rebates of up to A\$1600 (US\$1000) for solar hot water systems.

Airtricity has obtained consent from the Dutch Ministry of Transport, Public Works and Water Management for the Breeveertien II offshore wind farm in the North Sea, 60 km off the coast of IJmuiden. It is the largest consented wind farm in the Netherlands and will consist of up to 97 wind turbines with a total capacity of around 350 MW.

Renewable energy leaders have called for the UK's Low Carbon Building Programme (LCBP) to continue until a renewable feed-in tariff incentive is launched in April 2010. Current indications are that there will be a minimum of 10 months where no support will be available to the sector when the LCBP ends in June.

Gamesa Corporacion Tecnologica has received several wind turbine orders from China's Longyuan Electric Power Group Corp. The orders represent a total of 295 MW destined for four different farms in several provinces. To be supplied in 2009, the 347 units of the G5X-850 kW platform will be manufactured in production facilities in Tianjin, China

Nexterra Energy plans to commercialize small-scale combined heat and power systems in a new application for its biomass gasification technology. The 2–10 MW systems will directly use syngas in Jenbacher gas engines. The move follows two years of work by Nexterra to meet GE Jenbacher fuel specifications. Over the next 24 months, Nexterra and GE will test and demonstrate the new application in two phases. The total cost will be approximately

US\$30 million.

SunPower Corp. is to design and build a 2.2 MW tracking PV power plant in Tolentino, Italy, for a subsidiary of Api Nova Energia S.r.l. The project is the first phase of a planned 7.1 MW development expected to be completed this year. The company also recently completed a 305 kW system on the roof of the Crowne Plaza Hotel in Alice Springs, in Australia's Northern Territory.

enXco, an EDF Energies Nouvelles company, and MidAmerican Energy Company have announced the commissioning of the 102 turbines at the 153 MW Walnut Wind Farm in Pottawattamie County, Iowa. The project, owned by MidAmerican, was earlier expanded from 100 MW.

Spain's National Energy Commission (CNE) has received 392 applications from new solar projects to qualify for the country's new feed-in tariff. The rate will be €0.34/kWh. CNE said that close to 3 GW of solar projects were connected to the country's grid between January and November of last year.

An Andritz Hydro-led consortium has received an order for two pumped storage hydro plants in Portugal from Electricidade de Portugal (EDP). The total contract for the Baixo Sabor hydropower project is worth approximately €111 million, of which some €90 million will go to Andritz for two reversible pump turbines, motor generators, governors, hydraulic structures, automation, and balance of plant.

Sanyo Electric Co. plans to build a new solar cell manufacturing facility in Osaka, Japan. The company said that it will start construction on the facility, in Kaizuka, as early as this month and the plant could be completed late next year. Sanyo's annual production capacity of HIT solar cells is expected to grow to a total of 600 MW following the opening of the new factory.

China Wind Systems Inc, which supplies forged rolled rings to the wind power industry, has begun producing forged products at its new manufacturing facility in Wuxi City. China Wind has already delivered sample products to Wuxi Lida Gear Manufacturing Co. Ltd., Gansu Keyao Electrical Power Co. Ltd., and Hangzhou Advance Gearbox Group Ltd. all of which have inspected and approved the product prototypes, it says.

Range Fuels says it has formed a strategic relationship with Emerson Process Management to allow it to meet its production goal of more than 380 million litres of ethanol and methanol annually from a new plant in Soperton, Georgia, USA. The plant, which will use non-edible biomass such as timber and wood waste generated by nearby forest industry operations, is due to begin production in 2010.

Suzlon Energy Limited is to deliver 54 of its S88 2.1 MW wind turbine under the terms of a contract with Australia's AGL. The 113.4 MW of capacity, for delivery this year, will be used in AGL's pipeline of projects in Australia.

SunPower Corp, GE Energy Financial Services, California's Lake County and the Lake County Sanitation District, have announced the completion of a 2.2 MW PV system on three sites, including the county jail and two wastewater treatment plants. Combined with an existing 1 MW PV installation, solar produces the equivalent of 94% of the facilities' electricity requirements.

German utility company Energie Baden-Württemberg AG has acquired three onshore wind farms in Lower Saxony and Brandenburg, with a total of 26 Vestas 2 MW turbines. The wind farms – Buchholz (36 MW), Schwienu II (10 MW), and Alt Zeschdorf (6 MW) – are being sold by Plambeck Neue Energien AG (Cuxhaven), a project development company.

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Suzlon has established the first wind farm site to utilize solar energy to power site operations in Adwadi, Nasik. The company has undertaken a pilot PV project to power a project site office using 20 Tata BP Solar panels.

Renewable Energy Holdings plc has announced in a market update that it now expects to move forwards with development of a 2 MW CETO test site in Bermuida in 2010. This is likely to be followed by a roll-out to a 20 MW installation of the wave generation technology.

Wacker Chemie AG has revealed mid-term plans to construct a new polycrystalline silicon facility in the US and has purchased land in Tennessee, for this purpose. The land in Bradley County covers some 220 ha and cost almost US\$20 million. An investment of around \$1 billion is required to set up the new plant.

Xantrex Technology Inc. has signed an agreement with BP Solar to supply residential grid tie (GT) solar power inverters for use throughout North America.

Ingeteam supplied 70 Ingecon Sun 500 kW inverters for the Acciona 46 MW solar park at Moura in Portugal. The supply comprises an inverter built into a prefabricated concrete housing, together with medium voltage transformers, protection cells, electric panels for the auxiliaries, and a thermal dissipation system – all used to generate a medium voltage output.

UpWind Solutions, Inc. has signed a multi-year operations and maintenance agreement with Enel North America for their Smoky Hills II project in Kansas. The project consists of 99 GE 1.5 MW wind turbines which UpWind Solutions will begin operating immediately.

<http://www.renewableenergyworld.com/rea/news/article/2009/04/news-round-up1>

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