

Wind Energy 2014 Outlook: Major Markets Recover, Battling Policy and Grid Concerns



Wind energy demand in 2014 promises to be significantly better than 2013 with expectations of stabilization and growth in both the U.S. and China, and continued growth in some emerging markets.

James Montgomery, Associate Editor

Preliminary estimates suggest worldwide wind energy installations were 34-35 GW in 2013, “a substantial dropoff” from a record-setting 2012, according to Steve Sawyer, Secretary General of the Global Wind Energy Council (GWEC). In fact 2013 will have been the first time in nearly a decade where global demand contracted, almost entirely because of softness in demand in the U.S. and China, added Steen Broust Nielsen, partner with Make Consulting.

This year promises to be significantly better (though perhaps not quite as good as 2012), with expectations of stabilization



MidAmerican Energy's Highland wind project in O'Brien County, Iowa.
Credit: MidAmerican.



and growth in both the U.S. and China, and continued strength building in some emerging markets. GWEC's initial expectations for 2014 are for 45-48 GW, and with some upside. The largest variable, as has been the case for several years now, is the extent of the U.S. recovery. In Europe, Germany and the U.K. continue to drive the market, with emerging growth in countries like Sweden, Denmark, and Finland, and some



Workers at Iberdrola Renewables' 202-MW Baffin Wind Farm in Kenedy County, Texas.
Credit: Iberdrola Renewables.

eastern European countries such as Poland and Turkey. And China, like the U.S., is showing signs of reawakening as one of the bigger influences on the global industry.

Here's a look at what industry participants and analysts see happening over the next 12 months, and how this year's activity will significantly shape the sector's long-term future.

Europe: Two Major Markets and Offshore Emphasis

Expect 2014 to be "a bumpy ride" in Europe with stalled demand in some markets and countries revisiting policies and subsidies, explained Jacopo Moccia, head of political affairs at the European Wind Energy Association (EWEA). GWEC's Sawyer projects "maybe 2 GW" of offshore wind installations in 2014, mainly in Germany and Europe. Thus the march continues away from stagnant southern European markets such as Spain and Italy into the

north. This shift to northern climates also requires developers and suppliers to alter their strategies in markets with different types of wind regimes that require different technologies such as higher towers, pointed out Thibault Desclée de Maredsous, product management director for Alstom Wind Business. Smaller emerging markets such as Norway, Finland, Turkey, and France are likely to

keep growing and stay promising. Another aspect of Europe's wind energy market is its shift in focus to offshore, and "everyone wants a bit of" that swelling pipeline, said Moccia.

In both cases, though, there is some uncertainty and a need to stabilize policies. Germany's offshore wind market should have a good year in 2014 to balance a decreasing onshore sector, even though ambitions for 2020 have been scaled back from ~8 GW to 6.5 GW because of delays and grid connections, added Sawyer. The U.K. had a strong 2013 for offshore wind but energy market reform, essentially the establishment of a feed-in tariff, has caused some offshore wind developers to reanalyze their budgets: in recent weeks RWE (1.2-GW Atlantic Array), Scottish Power (1.8-GW Argyll Array), and Centrica (selling its 580-MW Race Bank stake to Dong Energy) have backed out of U.K. offshore wind projects, though they all have other projects in their pipelines. Attrition is to be expected in the U.K. with licensing up to 40 GW of potential offshore wind areas against a 2020 target of just 10-GW capacity, yet there are new concerns that financing risks and uncertainty might stall development short of that 10-GW target, which was already revised down from a 18-GW forecast in the government's 2011 renewables roadmap. Such a further pullback would carry a more muted buildout of the infrastructure that was supposed to come with it, Moccia noted.

Perhaps most importantly for the longer-term picture, 2014 marks the beginning of reviews for Europe's targets for renewable energy usage by 2020 and beyond, and the cooperative mechanisms put in place to get there. In late January the European Commission declared a preliminary target of 27 percent of energy from renewables by 2030, up from 2020 targets of 20 percent, but without laying out obligations for member states. Discussions on how they can collaborate to reach their individual goals through development or co-investment, and toward Europe's pledged commitments to renewable energy deployments and consumption as a whole, have just begun.

US: Life After the PTC... For Now

Wind energy development in the U.S. literally ground to a halt for most of the first half of 2013, fallout from 2012's last-minute



Cable installation for the West of Duddon Sands project in the Irish Sea. *Credit: Iberdrola Renewables.*

extension of the production tax credit (PTC), but activity picked up later in the year thanks largely to a revision that softened the language to allow projects to meet "under construction" criteria. That caused a year-end flurry of supply-chain orders for hundreds of MW of procurements in the U.S. — and ultimately contributed to the PTC being allowed to expire at the end of the year.

And so the U.S. market enters this new year with a lot more optimism than the previous one. "2014 will definitely see growth in the U.S. market," though not quite to the boom levels of 13 GW in 2012, proclaimed Feng Zhao of Navigant Consulting. Mark Albenze, CEO of Siemens Energy Wind Power Americas, sees "a tremendous increase"

for new orders in the U.S. in 2014-2015. (Siemens' fiscal 2014 began in October, so that includes the year-end surge). "There are a lot of things in the pipeline we're hoping to come to fruition in the next 3-6 months." MidAmerican Energy aims to bring on 500 MW of wind farms in Iowa this year. Iberdrola Renewables says it has more than 500 MW in late-stage development, and its 202-MW Baffin Wind Farm in Kenedy County, Texas will be online by year's end, making the complex's combined 606-MW wind power the company's largest renewable energy facility worldwide. Acciona Energy North America, meanwhile, is starting to expand into third-party EPC services and long-term O&M for both wind and solar PV, said Chip Readling, VP of business development and EPC.

Concerns over the short-term outlook have morphed into calls to stabilize the longer-term future of U.S. wind energy, minus the boom-bust cycles fed by tax credit expirations and late extensions, so the industry can be confident in committing to invest in the domestic market. When investing hundreds of millions or billions of dollars in the domestic industry, "to continue to invest in the long-term we need some type of certainty," Albenze said. Proposed energy tax reforms laid out by the Senate Finance Committee would streamline the "existing patchwork" of energy tax incentives, but given broader tax reform discussions and the upcoming Congressional elections don't expect much traction maybe until 2015. (One potential side-effect of the PTC's

softened language: developers might push off some activity into 2015 to buy time for more funding, suggested Bruce Hamilton, director of Navigant Consulting's energy practice.)

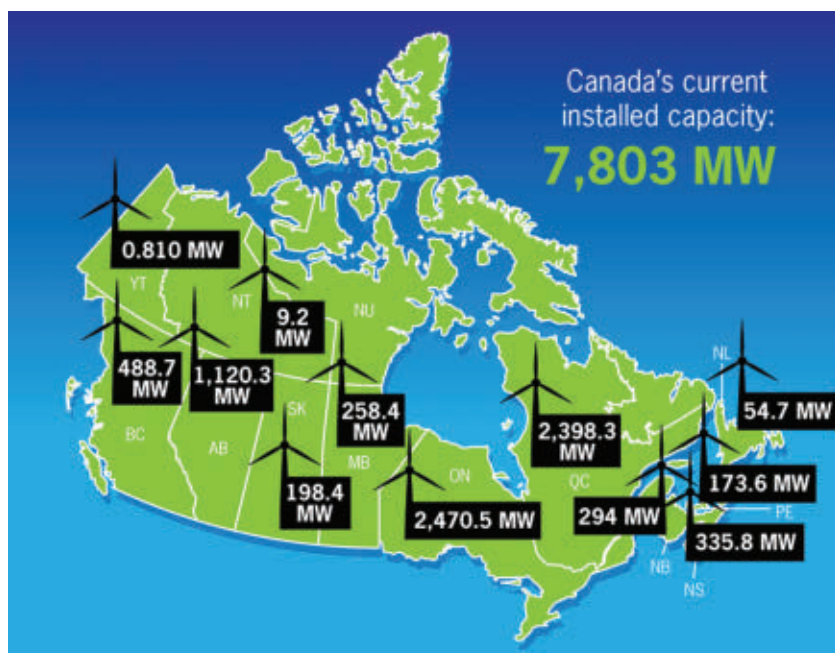
While acknowledging the PTC as a capital driver, Readling thinks what will truly continue to drive renewables in the U.S. are state renewable portfolio standards (RPS), from states with already strong policies (like California) to others that are up and coming like Michigan, Minnesota, and New York. The proposed tax extender package is "good to see," he said, "we can't lose focus on the long-term benefits of a strong RPS."

Canada: The Future Begins Now

Wind energy in Canada continues to chug along, adding a record 1.6 GW of new capacity in 2013 and bringing total installed capacity to 7.8 GW on a path to 12 GW total installed capacity by 2016, according to the Canadian Wind Energy Association (CanWEA). Ontario and Quebec are by far the two biggest markets, each making up about 2.5 GW of that installed capacity. Ontario could add another 1.5 GW of new wind capacity in 2014, with Quebec on track for



Turbines at an offshore wind project in the Irish Sea, slated to be fully operational in 2014. *Credit: Iberdrola Renewables*



Canada's current installed wind energy capacity. *Credit: Canadian Wind Energy Association.*

nearly 1 GW in 2014 and 2015. Alberta potentially could add ~400 MW this year to its 1.1 GW installed capacity and has a pipeline of over 4 GW, though grid-integration remains a challenge. British Columbia could rise from currently 488 MW of installed capacity to nearly 700 MW by 2016.

Albenze from Siemens sees a “pretty strong pipeline” for Canadian wind projects in 2014-2015, with expectations of new business in Ontario and a recent order in Alberta. Canada's new installations “will remain strong — until the project pipeline dries up,” said Navigant's Zhao. And that's the concern: fewer than 400 MW of contracts were signed in 2012 and likely zero in 2013, according to CanWEA. Long-term energy plans are being drawn up in all four of those major provinces to meet demand in the next decade after 2015, but meeting existing wind energy targets would result in an average of 400-600 MW annually from 2012-2016, barely a third of the pace from the previous five years. Thus, the group proclaims, Canada's future in wind energy “will be determined in the next 18 months.”

Latin America: Brazil, Mexico, and Everyone Else

In five years Brazil has gone from a fledgling wind market to one of the biggest opportunities for growth, with more than twice

the amount of grid-connected wind energy capacity than all the other Latin American countries combined. Navigant's Zhao foresees Brazil staying at 1 GW of new installations in 2014. “We see huge potential in the Brazil market,” confirmed Alstom's Maredsous.

Here, too, the rapid pace of development is a challenge to the grid, but likely more of a temporary issue than in other countries (see China, at right). Siemens is implementing six projects over the next six months, having established facilities there to qualify for strong domestic content requirements — yet “we're evaluating our position in Brazil after we do these six” to revisit project economics, Albenze said, as they and others did with similar content requirements in Ontario.

The rest of the Latin America wind story is in Mexico, and then a basket of smaller emerging markets: Chile, Uruguay, Venezuela, Puerto Rico, Argentina, through the rest of the decade. Mexico should surpass 500 MW this year, Zhao predicts. Siemens recently received a follow-on order in Peru, and is implementing a project in Chile. Maredsous likewise is bullish on growth opportunities in Uruguay, Peru, and

Chile. Such markets often take more time to develop and come to fruition, Albenze said, “but we’re investing time and resources down there.”

Asia: Awaiting China’s Reawakening

China likely ended 2013 with about 16.1 GW of new wind capacity and 1,290 TWh of production, according to Yu Guiyong from the China Wind Energy Association; he expects another 18 GW to be added this year. Only about 7.8 GW was integrated into the grid last year, though, while the pipeline of approved capacity has swelled to more than 134 GW, as development expands beyond the traditional wind bases out into the southern regions of the country. (China’s total installed wind capacity stands at roughly 90 GW, toward aggressive targets of 100 GW of cumulative wind capacity by 2015 and 200 GW by 2020.)

Thus China’s biggest problem is figuring out how to manage the over-installments of projects over the past couple of years that have outpaced grid connections, leading to large-scale curtailment of wind power in the major wind centers, and pave the way for the new wave of projects in the pipeline. That means investing in new infrastructure as well as power market reform. Planning and permitting of new wind projects had ground to a halt because of centralized government approvals required to obtain tariffs; now provincial governments have been authorized to approve projects, decentralizing the process and hopefully speeding things up, while also promoting job creation. The need for interconnection and transmission buildout is being addressed through another new policy being pushed by the national congress; Navigant’s Zhao sees China’s market reenergizing literally as more HVDC lines get commissioned in the coming year.

The other major Asia wind market is India, which has become fairly stable at around 1.5-2.0 GW per year. And yet “it’s tough to do business there now, it’s a highly competitive market,” said GWEC’s Sawyer. It’s “a pretty good place for an investor, and as an OEM, but [it’s] tough for a project developer.”

International Markets: Placing Bets On Growth

Asked what three countries should enjoy the best growth in 2014, GWEC’s Sawyer said he expects to see “significant growth” in Mexico, Brazil, and South Africa: “they’re all competitive, a crowded field, but nowhere as crowded as the U.S. or Europe, and without the same degree of difficulty to get into as China,” he

said. On the flip side, so many regions with overcapacity and oversupplies mean downward pressure on OEM prices, which in turn will help project developers. Sawyer doesn’t see that cycle changing much in 2014, or even the next couple of years out.

Navigant’s Zhao highlighted South Africa as a market to watch, as construction gets underway for projects under the Renewable Energy Independent Power Producer Procurement Program (REIPPP) I and II, more than half of which will come online in 2014.

Keith Longtin, general manager of wind products for GE, pointed to Brazil, Germany, Turkey, the U.K., and India. Broadly speaking, “it’s challenging to invest in countries for the long-term when a stable energy policy is not in place,” he said.

Acciona’s Readling sees opportunities in Canada, Mexico, Costa Rica, and South Africa, as capital that once flowed to the U.S. market is being somewhat redirected to other areas, at least temporarily.

Alstom is keen to launch new service packages and turbine and tower upgrades in the coming months, both for onshore and offshore wind, according to

Maredsous. The company aims to explore floating offshore work in Europe and Japan and expand partnerships for larger projects, such as it's done with Renova in Brazil and with EDF in France.

New Offshore Wind Markets Accelerate

After the two major existing markets for offshore wind (Germany and the U.K.), China is quickly ramping up to complete “hundreds of MW” of offshore wind farms in the coming year, even though the fixed tariff for offshore is not yet established, said Yu. GWEC’s Sawyer echoed that eventually China’s offshore market will accelerate with rapid growth, once it sorts out regulatory issues and overlapping jurisdictions.

Meanwhile the U.S. offshore wind market is still proverbially testing the offshore waters. Cape Wind in Massachusetts and Deepwater Block Island off Rhode Island reportedly qualified for the PTC before it expired; for both projects “this will be the year” to begin the transformation from planning to reality, according

Fara Courtney, executive director of the U.S. Offshore Wind Collaborative. Both Siemens’ Albenze and Acciona’s Readling echoed that these projects need to prove the technology and economics of scale do indeed work as hoped. Later this spring the DoE will cull its handful of small-scale pilot projects down to three, each of which will receive up to \$47 million in funding to push through design, manufacturing, and installations, and some of those developers are eyeing expansion to hundreds

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of MW. Meanwhile, the Interior Department and Bureau of Ocean Energy Management are preparing more auctions for offshore territories in Maryland, New Jersey, Massachusetts, and North Carolina, and possibly Oregon, following successful lease auctions held in 2013 for Rhode Island and Virginia. Construction is several years off for any offshore wind projects to come out of those lease sales, but at least now “we can start talking about an industry, not just individual projects,” said Courtney.

Perhaps the offshore wind market that bears most watching is Japan. The first installed and commissioned floating offshore wind farm (a 2-MW turbine) and the first floating offshore substation are near Fukushima, all achieved less than two years from budget approval to commissioning, points out Annette Bossler, head of wind energy consultancy Main(e) International Consulting. This year should see more progress at that site with a 7-MW semisubmersible and 7-MW floating spar, with commissioning planned for this year or next, more build-up of domestic offshore wind O&M capabilities and the supporting supply

chain, and serial fabrication of floating foundations. Many of Japan’s shipyards are hurting from business lost to regional competition (China, Korea, others in Southeast Asia) so offshore wind is an attractive opportunity if port-side infrastructure and serial fabrication can be built up, and assuming investments and policy remain on course. “With regards to floating offshore wind, Japan is the market to watch — a fact that may have caught many in the industry by surprise,” she said. ●



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