

Renewable energy country attractiveness index

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Issue 47

From pledges to profits

Making the most of emerging country opportunities post-Paris

Out with the old ...

Our refreshed index sees Europe falling behind while emerging markets surge

Argentina's time to shine

The new pro-market government reveals its ambitious renewable energy plan

What happens when grid parity hits?

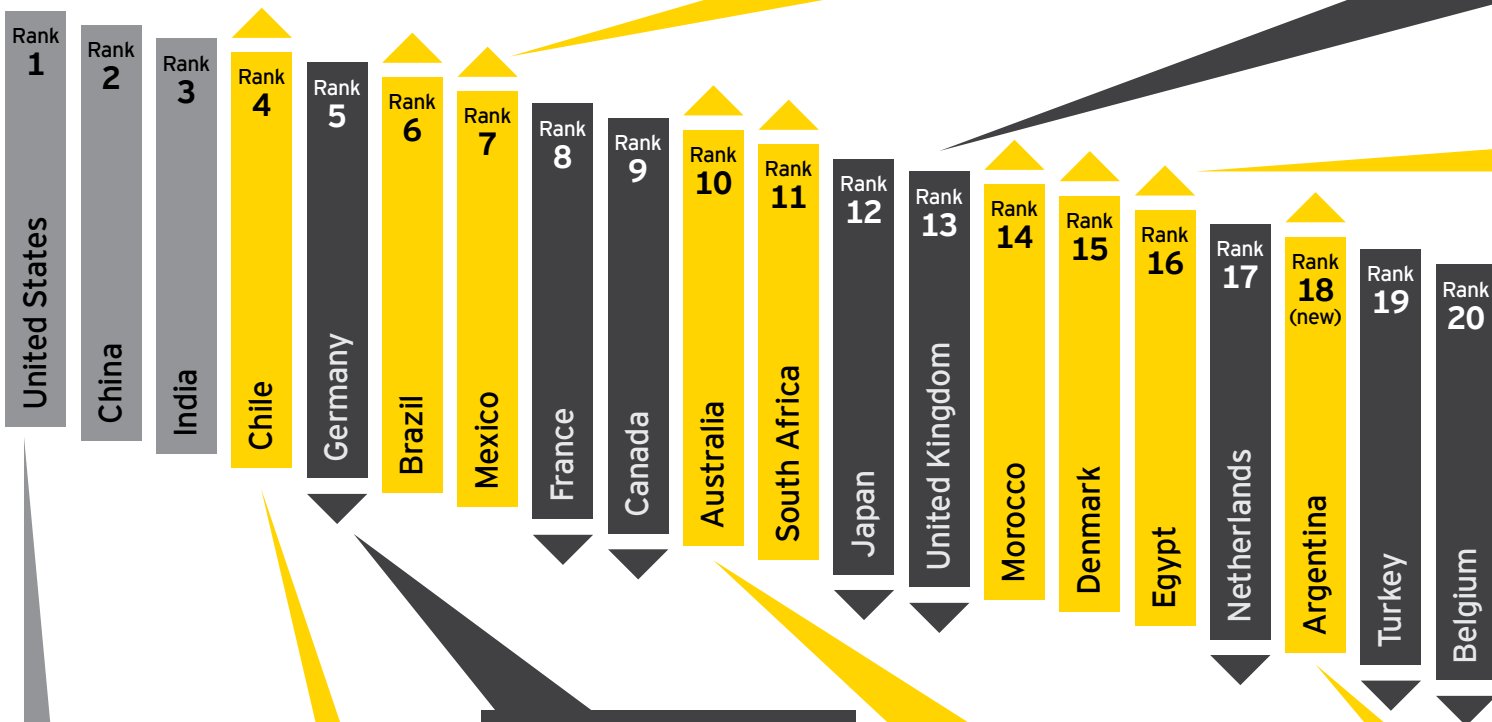


Building a better working world

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Mexico's first power auction saw more than 2GW of wind and solar PPAs awarded at highly competitive prices, building on already-strong macroeconomic conditions, a far-reaching energy reform program and a diversity imperative (see our article on page 19).



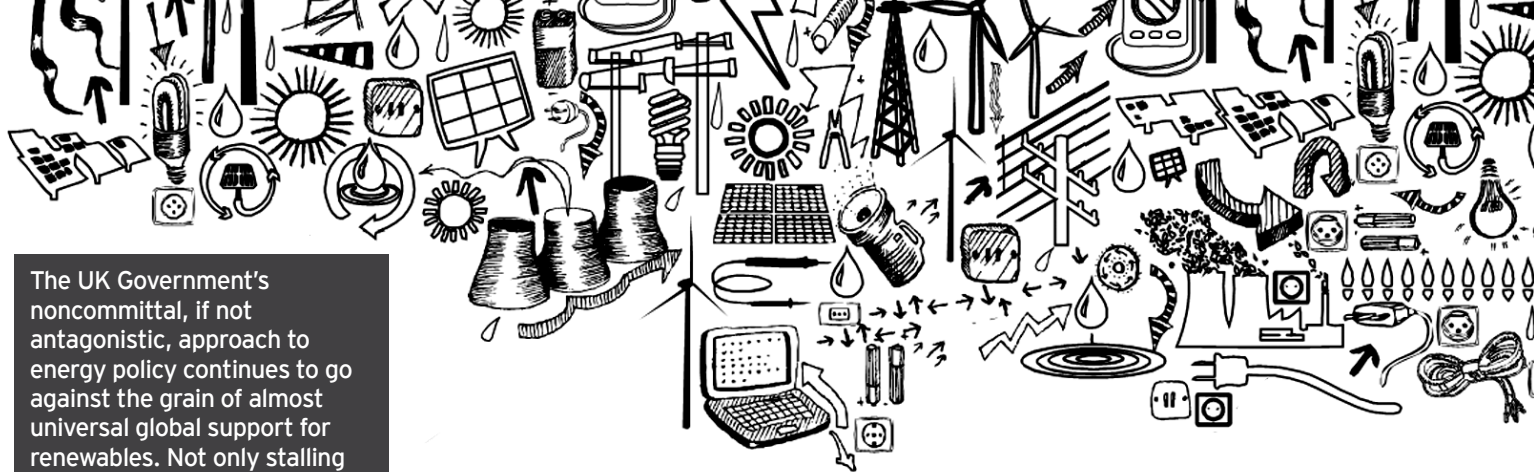
Retaining the index top spot, the US is forecast to see an additional 41GW and 56GW of wind and solar respectively through to 2021, with 18GW of each attributed directly to the recent five-year production and investment tax credit extension.

Despite being a relatively small energy market in absolute terms, Chile is continuing to attract a plethora of multi-GW projects, and is one of the first markets in the world to enable economically viable renewables projects to compete directly with all other energy sources.

Proposals to limit renewables to 40% to 45% of the total generation mix have introduced significant uncertainty about long-term demand in Germany, particularly for onshore wind, which will be the balancing technology (see our article on page 18).

Australia's renewables market is bouncing back after near-paralysis caused by several years of hostile policies. State-level tenders and corporate off-take potential will likely drive activity in the near term, given the ongoing challenge of securing long-term PPAs (see our article on page 17).

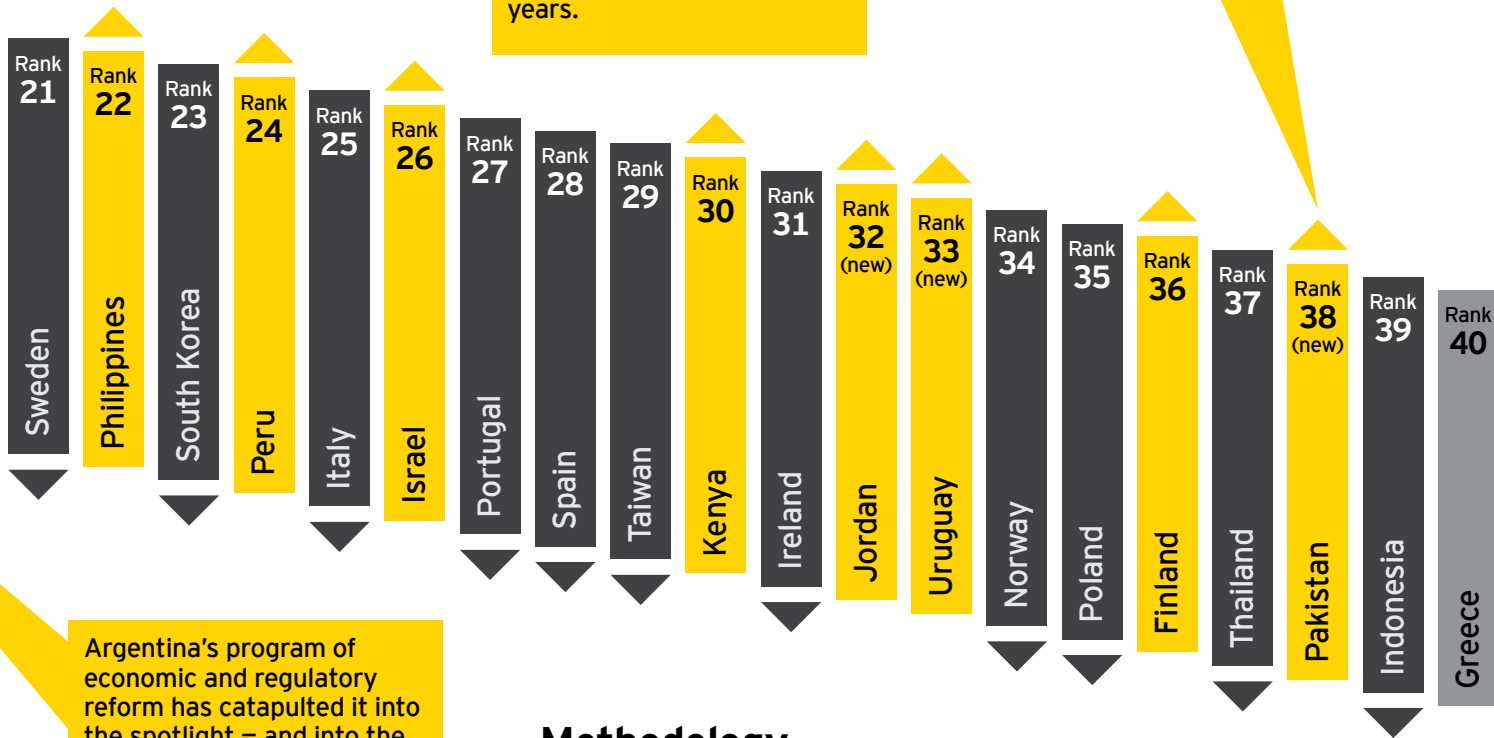




The UK Government's noncommittal, if not antagonistic, approach to energy policy continues to go against the grain of almost universal global support for renewables. Not only stalling project development and investment inflows, this is arguably jeopardizing UK energy security.

Interest in Egypt's resource-abundant renewables market continues to grow, with a mix of tendered projects and multi-GW bilateral agreements contributing to the estimated 13GW of additional capacity required to meet soaring domestic demand over the next five years.

A robust policy framework and reported US\$3b of foreign renewables investment in 2015 sees Pakistan enter the index for the first time, already boasting mega projects such as the 1GW Quaid-e-Azam PV Solar Park and 1GW of proposed wind capacity in Punjab.



Argentina's program of economic and regulatory reform has catapulted it into the spotlight – and into the index – as a raft of targets, fiscal incentives and tender announcements provide the market with strong visibility over the country's long-term energy strategy (see our article on page 14).

Methodology

The index has been refreshed, with the measures driving all scores recalibrated to match the new reality of imminent grid parity. To see these measures and the background to our methodology please go to ey.com/recal.

Legend

- ▲ Increased attractiveness compared to previous index
- ▼ Decreased attractiveness compared to previous index





Into the light

Argentina's new Government has made energy market competition a core pillar of its economic transformation, but laying the foundations of a robust regulatory framework will still be key to success.

Sebastian Kind and **Mauro Soares**, architects of the country's ambitious new renewables program, revealed to EY's Klair White why they think they're off to a good start.

Less than five months since taking office, Argentina's new pro-market government, led by President Mauricio Macri, has already liberated the foreign exchange market, cut export taxes and renegotiated foreign debt, after a major US\$100b default in the early 2000s effectively locked the country out of the international market.

Tackling crippling high inflation and interest rates are next on the list, but energy sector reform is also firmly in the spotlight. Argentina boasts one of Latin America's most competitive electricity markets; yet heavily subsidized retail power prices have distorted the market and cost the Government an estimated US\$51b over the last 13 years. Further, despite one of the largest shale gas reserves in the world, the country remains a net energy importer, a fact that becomes all the more worrying given 5% annual electricity demand growth projections.

The Macri administration has already started to remove energy subsidies by enabling significant increases in both power prices and natural gas prices. This is a staggering first step as the country embarks on its plan to fade out subsidies and strengthen the economics of its energy sector. However, it is the entrenching of ambitious renewables targets into legislation that is really expected to galvanize a major energy shift. Reforms to the 2006 renewable energy law, approved in September 2015 with overwhelming cross-party support, mandate the country to source 8% of its electricity from renewables by 2017, increasing to 20% by 2025.

Given renewables currently account for just 1.8% of power demand, meeting these targets will certainly be a challenge. Despite boasting world-class wind resource that could supply the entire continent's electricity demand, with an estimated



Pucara de Tilcara national monument, Argentina

2,000GW of potential and capacity factors exceeding 45% in some regions, the country still only has 223MW of installed wind capacity. Similarly, only 8MW of solar capacity has been deployed despite impressive irradiation levels.

PPAs and tenders

With the full support of the Minister of Energy and Mining, Juan José Aranguren, responsibility for designing and executing a program to achieve these ambitious goals has fallen to Sebastian Kind, the Ministry's Undersecretary for Renewable Energy, and Mauro Soares, National Director for Renewable Energy.

Achieving the initial 8% target alone will require 2GW to 3GW of new renewables capacity, which Kind confirms will be mostly procured centrally through long-term PPAs in a competitive tender process. The obligation to meet the country's new targets will fall upon all consumers, with the new regulations clearly establishing a mandatory pass-through of PPA costs via electricity bills.

He adds, however, that the new legislation also empowers large unbundled power users (with average demand greater than 300kW) to opt out of contributions to the tendered PPAs by sourcing renewable energy directly from IPPs, utilities, traders or self-generation projects, with prices set freely between the parties. Consumers that opt out but then subsequently fail to meet the mandated annual renewable energy quota will be subject to penalties that will be set based on the cost of diesel-based power produced.

The regulations supporting the revised renewables law are currently being drafted, including details of the proposed tender process, and are expected in the second quarter of this year, with the first auction potentially launched as early as mid-May. According to Soares, the initial tender will allocate between 800MW and 1,000MW of

capacity, rather than the full requirement, so that the Government can assess the outcome of the first round and refine the process as required. However, a tender schedule may emerge in due course, given as much as 10GW of capacity could be procured over the next decade.

Soares also notes that the first tender will prioritize projects in a more advanced development stage to help accelerate capacity deployment, with technology quotas initially based on the Government's assessment of the project pipeline. Despite the low level of capacity deployment over the last decade there has still been sizable investment in project development, resulting in a 2GW to 3GW pipeline of fully and almost fully permitted projects, mainly wind. This figure increases to around 6GW to 7GW when accounting for more recent activity that has established a pipeline of earlier-stage developments, double that required for the 2017 target. As such, achieving sufficient competitive tension early on is unlikely to be an issue.

Getting the auctions right

In a similar model to South Africa, the Government will implement a two-stage sealed bid auction process that evaluates projects on both price and non-price criteria, as well as on the strength of the bidding entities. Further, in recognizing the potential impact of natural resource on pricing, separate auctions may be held for projects in high-resource areas, such as the windy Patagonia region.

The Government is also undoubtedly expecting to see highly competitive pricing, given the record low prices emerging from recent auctions in Mexico and Peru. On the now often-cited challenge of whether such low prices are sustainable, Kind notes that the benefit of markets developing later is that prices can reflect lower technology risks, cheaper cost of capital and more reliable resource forecasting.

Sebastian Kind

Undersecretary for Renewable Energy, Ministry of Energy and Mining



Before joining the Macri administration, Kind was part of the team that drafted Argentina's renewable energy

legislation, and is an advisor to the nation's Senate. A mechanical engineer, he spent 15 years in the renewable energy sector, holding executive positions in various commercial organizations, and set up and directed the renewable energy Masters program at UTN, Argentina's National Technological University.

Mauro Soares

National Director for Renewable Energy, Ministry of Energy and Mining



Soares leads the Ministry's multidisciplinary team that is overhauling the legal framework for Argentina's renewable energy sector.

He is a Board member of CADER, the country's Chamber of Renewable Energy. Prior experience includes senior roles in unconventional resources at Tecpetrol S.A. An economist, he is also Professor of Energy Markets at UTN.

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Construction at the El Torcillo Wind Farm in Chubut Province, Argentina

However, he also comments that, notwithstanding the overwhelming time pressure to meet these targets, ensuring project deliverability via a well-designed, transparent and robust tender process remains the top priority, in order to minimize the risk of attrition between project award and financial close. Although there needs to be trust in the market to set prices and deliver them, Kind affirms that the Government is still seeking to leverage tools and resources that enhance the deliverability of its renewables program and bring forward the right projects.

This focus on deliverability has therefore prompted the Government to also establish a sector-specific trust fund – Fondo para el Desarrollo de Energías Renovables, or FODER –comprising two discrete accounts. A guarantee account will support payment and termination guarantees for all PPAs in the event of off-taker default, and will be funded by specific charges on consumer electricity bills. Further, the Government is seeking a World Bank AAA-rated solvency guarantee over FODER, which Kind says should provide investors with an extra shot of confidence over this PPA protection.

FODER will also establish a project finance account to enable co-lending of up to 50% of a project's debt requirement, itself funded by a combination of treasury funds, public offerings, pension funds and

multilateral/climate fund contributions. In particular, the fund will receive at least 50% of the savings on fuel imports resulting from the switch to renewables, expected to exceed US\$25b by 2025. Critically, in acknowledging the time required to build up the fund, the treasury has already committed an initial US\$800m to support the first wave of projects.

However, Kind also notes that, while FODER funding will be made available to all tendered projects to ensure capital availability is not a hindrance to project delivery, those requiring limited or no co-financing will be preferred. The amount of FODER financing will therefore be assessed alongside other non-price evaluation criteria, such as local content integration and time to reach commercial operations.

Going local

On the often controversial issue of local content obligations, Kind emphasizes that the initial tender will not mandate a specific proportion; instead, projects using more local resources will score better and secure priority access to FODER project financing. This should allow the market to both determine and drive the maturity of the domestic supply chain, and avoid the risk of bottlenecks from setting prescribed requirements too high or missing local economic development opportunities if too low.

Soares confirms, however, that the Government will still introduce various incentives to accelerate development of the domestic supply chain, including a FODER sector-specific development credit line for local suppliers and manufacturers, import duty exemptions for equipment and components, and a 20% tax credit on locally supplied capex. These are part of a broader package of fiscal and tax incentives that will be available to all projects, regardless of whether they are allocated via tender, though Soares notes such benefits are strongest for projects starting construction before the end of 2017, and will decrease gradually over time through to 2025, as set out in the amendment to the renewable

energy law passed last September 2015 (Law 27191).

Despite reforms still being rolled out, the country's shifting energy focus is already spurring significant international interest, with major energy companies including Enel, Vestas, Gamesa, ENI, Iberdrola, NRG Systems and Mainstream Renewables all participating in recent political and trade delegations to scope out the prospects of a burgeoning renewables market. Global development finance institutions, commercial banks, sovereign and private funds are also revisiting opportunities in the country as the investment climate improves.

Even large energy consumers are already stepping up; the Argentinean unit of US chemical group Dow, for example, is investing US\$123m in a 65MW wind farm in Rio Negro province to both power its industrial operations and meet its 8% renewables obligation.

Healthy skepticism

The growing interest in Argentina's renewable energy market is therefore already evident, but also perhaps unsurprising. In addition to its enviable natural resources, Argentina is Latin America's third largest power market, boasts the most educated population in the region and is the second most industrialized country after Brazil, establishing strong energy demand and economic growth fundamentals.

And yet some skepticism is also to be expected. With the country trying to throw off the shackles of a decade in political and economic isolation, the success of the latest reforms will depend heavily on the Government winning back credibility across both domestic and international communities. Yet Kind notes that, far from reinventing the wheel, the Government is simply trying to make Argentina a "normal" market-driven economy open to trade, competition and investment.

The first five months have arguably already delivered in laying the initial foundations for Argentina to re-enter the global arena, but it has also created high expectations. What matters now is results. And so, when challenged on whether the country can possibly achieve the highly ambitious renewable energy targets it has set for itself, Kind's response is very simple – the rule of law now requires it, therefore we must achieve it.

Well, it's difficult to argue with that. ■

“The Government is trying to make Argentina a ‘normal’ market-driven economy open to trade, competition and investment.”