

# EXECUTIVE SUMMARY

In its first year, the inaugural global *Climatescope* chronicled the rapid proliferation of clean energy in 55 emerging market nations over the previous five years. What drove this surge was: national pursuits for energy security, dramatically falling costs for renewable technologies, improving clean energy policy frameworks, and generally strong macroeconomic growth.

This second edition of the global survey documents important continued progress during the 2014 calendar year across these nations, which can be regarded as a proxy for emerging market countries more broadly. Once again, *Climatescope* focused its attention on the newest low-carbon emitting clean energy technologies – wind, solar, geothermal, biomass, small hydro and biofuel technologies, but not large hydro and nuclear power<sup>1</sup>.

## KEY FINDINGS

On critical metrics measuring clean energy investment, policy development, and the addition of new clean energy power generating capacity, 2014 was a success across *Climatescope* nations collectively. Indeed, the year brought further proof that the clean energy center of gravity is shifting inexorably from “north” to “south”, from developed to developing countries. Along those lines, several important milestones were achieved in 2014. Most notably:

- New investment in renewable power generation in 2014 soared in the 55 countries to hit a record annual high of \$126bn – up \$35.5bn, or 39%, from 2013 levels. For the first time, over half of all new annual investment into clean energy power generating projects globally went toward projects in emerging markets. Meanwhile, “South-South” investment (capital deployed in *Climatescope* nations from in-country sources) surged to \$79bn in 2014 from \$53bn the year prior.
- A total of 50.4 gigawatts (GW) of new clean capacity was built in *Climatescope* countries, roughly enough to provide power to 9m US homes, marking a 21% uptick from the prior year. In another first, clean energy capacity deployed in emerging markets topped that in wealthier Organization for Economic Co-operation

and Development (OECD) nations. Moreover, on a percentage basis, clean energy capacity is growing twice as quickly in *Climatescope* nations compared to OECD ones.

- While China continues to play a major part of the clean energy story globally, considerable opportunities exist elsewhere in emerging markets. The other 54 *Climatescope* nations added 15.5GW of clean capacity in 2014, up 64% from the prior year’s 9.4GW. Clean energy growth in these countries was double that seen in OECD countries as measured on a percentage basis.

- *Climatescope* countries continued to make important progress on their clean energy policy frameworks, with particularly notable developments in China, India and Mexico, but also in smaller nations such as Chile, Honduras, Tanzania and Uganda. In all, 76 new clean energy-friendly policies went into effect in 2014<sup>2</sup>.

- Markets are becoming more liberalized and open to private sector participation. The average *Climatescope* power sector score was 2.10 out of a maximum of 5, compared to a score of 1.86 last year. Countries such as Mexico and Honduras went through significant market restructurings to improve system efficiency and attract private players and investment, while that process was initiated in others like Tanzania.

- China added 35GW of new renewable power generating capacity all on its own – more than all capacity online today in sub-Saharan Africa’s 49 nations combined, excluding South Africa and Nigeria – and attracted \$89bn in all types of new clean energy capital.

- An estimated 1.3bn people continue to lack energy access but clean energy is playing a growing role in addressing that challenge. Tanzania led the countries making strides in facilitating the development of small-scale renewables or mini-grids, with Bangladesh, Kenya, Nepal and Uganda also performing well. In 2015, Haiti’s first mini grid started operation, paving the way for new strategies to increase electrification in the country.

1. *Climatescope* counts many energy technologies in its definition of “renewables” and “clean energy” but does not take into account large hydro projects (those greater than 30 megawatts in size). The study focuses exclusively on newer sources of low-carbon generation, both because they are often technologically cutting edge and because they can generally be deployed

far faster than large hydro projects, which can take years or even decades to commission. These technologies are poised to make an immediate impact on energy supply and access in the developing world. *Climatescope* seeks to assess how ready these countries are to embrace them.

## 2015 Global Climascope scores

### Overall ranking top 30



Colors show range for overall score

0.0 - 1.00

1.01 - 2.00

2.01 - 3.00

3.01 - 4.00

4.01 - 5.00

- At a smaller scale, companies selling pico-solar products in places with low or non-existent electrification are rapidly growing. To date, they have raised at least \$250m and seek further investment to grow in these new markets. A new segment of “pay-as-you-go” providers are scaling the services that off-grid solar can provide to include appliances – with some already offering televisions and refrigerators to off-grid customers.
- Solar energy became more cost-competitive in emerging markets in 2014. While power prices paid by businesses and consumers remained stubbornly high in many of the 55 *Climatescope* nations, costs associated with solar energy ticked down by as much as 10-15% year-on-year, depending on the region and technology. Wind prices have stayed roughly level, but the technology is already price competitive in many emerging markets.
- With a critical round of the UN-sponsored climate negotiations to kick off in Paris in late November 2015, *Climatescope* recorded 28 countries with declared greenhouse gas emissions reduction targets.

What makes 2014’s progress all the more notable is that it was achieved as a number of countries saw economic growth begin to cool. Average gross domestic product growth across *Climatescope* nations slipped to 5.7% in 2014 from 6.4% in 2013 and the slow-down was most acute in several of the largest nations in the survey. Brazil’s GDP growth slid from 2.7% in 2013 to 0.1% in 2014. South Africa’s slipped from 1.9% to 1.5%. Meanwhile, China’s fell from 7.4% to 7.1%, according to its official government statistics.

How did clean energy manage to grow at such a rapid pace in 2014 even as economic conditions were deteriorating in many *Climatescope* countries? In a number of the nations, the economic deceleration did not actually begin until the second half of 2014. Thus any potential negative impact on clean energy build for full year 2014 may have been muted as many projects

that began construction earlier in the first half of 2014, or even in 2013 or earlier, came to completion in the second half of 2014. This, of course, raises the possibility that the impact of downturn the pullback may be felt in 2015 or later.

A second, somewhat more optimistic view is that clean energy development is simply becoming more permanently accepted common practice in terms of how these countries operate and develop.

Since the start of 2015, economic conditions in Brazil, China, South Africa, and other key *Climatescope* markets have become more challenging. Time will tell if these new, more difficult times will put a crimp on further growth for clean energy – or if renewables remain resilient in the face of these new headwinds. Slower economic growth typically means slower electricity demand growth. As renewables often represent the newest capacity to get added, this weakening load growth could mean slower clean energy growth.

Calendar year 2014 saw one other macro energy trend that could have impacted clean energy’s development: lower oil prices. The benchmark price for Brent crude fell from \$110 to \$57/barrel. Clean energy as a power generation source regularly competes against incumbent generation powered by the burning of oil-based fuels. At the utility scale, this can mean plants that burn bunker oil. At the village level, it often means kerosene generators.

There was little to suggest that clean energy deployment or investment suffered in 2014 due to the oil price collapse, however. Once again, it could be a case where it will take a bit of time for the effects of cheaper oil to be felt. Indeed, *Climatescope* tracked little change in wholesale power prices across the 55 countries in 2014. Time will tell if that has changed in 2015.

On a more localized basis, however, it is far from clear that a lower global price for crude will translate into cheaper kerosene

---

2. Sub-Saharan Africa’s total power generating capacity amounted to around 87GW in 2014, of which South Africa accounts for 45GW and Nigeria 11GW.

for villages and homes. There are substantial fixed costs associated with delivering the fuel to far-flung locations and these are unlikely to be substantially impacted.

### COUNTRY RESULTS

*Climatescope* seeks to bring quantitative rigor to complex questions. At its core is a data-driven model that takes into account 53 distinct inputs or “indicators” to produce overall scores for individual nations on a zero-to-five basis. Countries are then ranked to highlight those most attractive for clean energy investment and capacity build-out.

As measured on a composite score basis, this year’s *Climatescope* tracked incremental progress among the 55 nations. The average score achieved by all nations ticked up, to 1.14 from 1.11 in last year’s survey. While 27 nations saw their overall scores improve year-on-year, 28 saw theirs decline.

Among the best scorers, there was consistency from last year’s *Climatescope* with the same nations finishing in the top five, but in a slightly different order. Once again, China scored highest overall with 2.29. Brazil again was second on the list, but did see its score dip slightly. Chile, South Africa, and India rounded out the top five.

On a regional basis, the 10 Asian nations achieved the highest overall average score of 1.40 and were clearly boosted by China’s high score as well as India’s strong performance. The 26 nations in Latin America and the Caribbean achieved an average score of 1.09 while those in Africa scored 1.06.

Overall, *Climatescope* mapped important progress in the areas of investment, capacity deployment, and policy development. Still, as the country scores suggest, much work remains to improve conditions under which clean energy can thrive.

### TOP 5 CLIMATESCOPE SCORERS

RANK	COUNTRY	2015 SCORE	2014 SCORE	COMMENT
1	China	2.29	2.23	Surging investment and new capacity build keep China top of the list
2	Brazil	2.12	2.17	Continued clean energy growth, despite a cooling economy and diminished credit availability
3	Chile	1.97	1.79	Latin America’s solar leader with 12% of all 2014 generation from renewables
4	South Africa	1.91	1.92	Continued growth in capacity and investment thanks to power contract tenders
5	India	1.81	1.85	New policy ambitions from the Modi government signal clean energy opportunities ahead

Source: Bloomberg New Energy Finance