



CLIMATE SCOPE 2017

The Clean Energy Country
Competitiveness Index



Bloomberg
New Energy Finance

Climatescope 2017 - Methodology

Climatescope seeks to bring quantitative rigor to the basic question of what makes a country attractive for clean energy investment, development, and deployment. It seeks to answer this by collecting as much relevant data as possible, then organizing it in a manner that is both easy to consume and empowers users to gain key insights.

Climatescope ranks countries on their past, present, and future ability to attract investment for clean energy companies and projects. Clean energy is defined as biofuels, biomass & waste, geothermal, solar, wind and small hydro (up to 50MW). While a number of Climatescope nations have historically embraced large hydro generation to meet local power needs, this study focused 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. By comparison, wind projects can be sited and erected in as little as two to three years. Utility-scale solar photovoltaic projects can be constructed in as little as six months and distributed photovoltaic systems can be added to rooftops in a day or less. In short, these technologies are poised to make – and in many cases are already making – near immediate impact on energy supply and access in the developing world. Climatescope sought to assess how ready these countries are to embrace them.

In this 6th edition, the project includes thirteen new countries spread across Central Asia and Europe.

Climatescope's index once again consists of four overarching parameters. Beneath these parameters are 50 indicators. Some indicators consist of a single data input but many consist of multiple data points that have been synthesized into a single figure. Each indicator counts toward a country's final score but these are not weighted equally. Scores range from 0 to a maximum of 5. The final score a country receives under Climatescope is determined by a weighted combination of its four parameter scores. For 2017, the weighting of these parameters remains as it was in 2016:

- Enabling Framework Parameter I – 40%
- Clean Energy Investment and Climate Financing Parameter II – 30%
- Low-carbon Business and Clean Energy Value Chains Parameter III – 15%
- Greenhouse Gas Management Activities Parameter IV – 15%

The entire Climatescope model can be viewed at www.global-climatescope.org where users are encouraged to adjust the parameter weightings according to their priorities and download the aggregate data available.

ACCOUNTING FOR LESSER DEVELOPED NATIONS THROUGH THE “OFF-GRID FOCUS” METHODOLOGY

As in 2015 and 2016, Climatescope 2017 assessed nations ranging from lowest income to those firmly considered “middle income”. As a result, Climatescope 2017 once again includes a special, augmented “off-grid focus” methodology that includes seven special indicators, with weightings adjusted in the model accordingly. These indicators were taken into account alongside the other

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“on-grid” indicators for a sub-set of 23 Climatescope nations: 18 in Africa, one in Latin America and Caribbean, and four in Asia. The goal of the off-grid effort is to level the playing field so that all countries can be compared in the fairest possible manner against one another in a single 58-country list. In addition, visitors to www.global-climatescope.org can examine the specific off-grid focus indicators in detail if they choose and compare in isolation the 23 nations that were assessed using this methodology. To determine which countries are assessed using the off-grid focus methodology, a 0-5 scoring system was once again applied. Five factors contributed at different weightings to this score; those that score a 2.5 or higher are considered “off-grid focus countries”.

- Factor: Electrification rate Question: What percentage of a country’s population is not currently connected to the power grid? Criteria/score: A country with a low enough proportion connected received a score of 2. Data source: International Energy Agency
- Factor: Number of national power outages Question: How many power outages did the country experience in the most recent year for which there is complete data? Criteria/score: A country with a sufficiently large enough number of outages scored 1. Data source: World Bank
- Factor: Duration of outages Question: What was the average length of time a typical grid outage lasted? Criteria/score: A country where outages lasted sufficient durations scored 1. Data source: World Bank
- Factor: Power transmission losses Question: What are the typical line losses? Criteria/score: A country where transmission losses exceeded a certain threshold scored 0.5 Data source: World Bank
- Factor: Human Development Index Question: How is the country classified in the UNDP’s HDI? Criteria/score: A country classified “Low Development” scored 0.5 Data source: UNDP

The off-grid focus methodology’s additional indicators were specifically designed in consultation with outside experts to assess conditions in developing nations. These indicators fell under Climatescope’s first three parameters but had no impact on Greenhouse Gas Management Activities Parameter IV. They were:

- Distributed energy regulatory frameworks: How well does a country’s local market structure facilitate off-grid or small-scale development of projects?
- Energy access policies: What local policies exist specifically to spur off-grid activity?
- Average local kerosene and diesel prices: How high are these prices and how attractive do they make potential alternative (cleaner) sources of generation?
- Population using solid fuels for cooking: How many citizens would potentially value alternative fuel sources to cook?
- Distributed clean energy value chains: What local mini-hydro and mini-wind equipment makers, mini-photovoltaic systems providers, and other similar types of players exist in-country?
- Distributed clean energy service providers: What local retailers, pay-as-you go facilitators, insurance providers, and others specializing in off-grid and small-scale clean energy services are in-country?

For 2016, the Climatescope methodology for off-grid countries was refined, building on the experience acquire in the previous editions of the index. In addition, six barriers specific to off-grid countries focusing on the challenges to the importing and retailing of off-grid renewable technology products were introduced.

SCORING APPROACHES

Scoring approaches employed in the first five editions of Climatescope were also used for this 2017 edition. These include:

- Indexing – The Climatescope index is based entirely on a 0-5 scoring system, with 5 representing the highest possible score. Using the indexing approach, the country with the maximum output for a given indicator, after levelization in most cases, received the highest score in the index (5).

All other countries' outputs were mapped relative to the maximum score. This approach was employed on quantitative indicators such as clean energy installed capacity, clean energy investment and electrification rate. For growth rates, benchmark maximum high score scores were capped at 150% to avoid extremely high rates (e.g. where a small country has added a single, significant project onto a very low base) impacting all nations unfairly.

- Tiering – In other cases, country indicator scores were tiered into predefined quintiles. For example, in the case of the clean energy policies indicator, tiering was used and countries were placed in different quintiles depending on the perceived policy ambition or effectiveness of their clean energy policy framework.

This methodology is better suited than indexing for qualitative assessments such as rating the ease of carbon offset project development. Tiering was also used in cases when the quantitative outputs are based on limited data.

- Simple counting – Some indicators were simply binary and thus countable. In such cases, the country either received a 0 or a 5 score. For instance, one indicator simply sought to take into account whether countries have rural electrification programs using clean energy sources. Those that did received scores of 5. Those that did not received scores of zero.

1. ENABLING FRAMEWORK

The Enabling Framework parameter encompasses fundamental structures and market conditions typically required for a given country to attract investment and interest from financiers, project developers, or independent power producers looking to develop new low-carbon projects, companies or manufacturing facilities. It also takes into account how amenable such structures are to the deployment of distributed generation capacity, such as mini-grids, or residential wind or solar systems.

A welcoming enabling framework is one where: a comprehensive, effective and stable set of rules are in place; the power market structure encourages and adequately rewards new market entrants; the private and public sectors foster universal access to clean and sustainable energy in rural or isolated communities; clean energy penetration of the power and primary energy matrices is ever increasing; adequate price signals are available; and growing demand for power and rapid electrification combine to create a substantial market.

A total of 22 indicators serve as the inputs into Parameter I. These fall into four categories: Policy and Regulation, Clean Energy Penetration, Price Attractiveness, and Market Size Expectation. Each category contributed with varying weights to the overall Enabling Framework parameter score. Scoring for Parameter I is completed with 5 indicators applied exclusively to countries which were assessed under the off-grid focus methodology.

POLICY & REGULATION

The Policy and Regulation category includes four specific indicators for all nations in the survey: clean energy policies, power sector structure, clean energy rural electrification, and policy barriers. For nations assessed under the off-grid focus methodology, the scope of the policy barriers was extended and two additional indicators were taken into account: distributed regulatory framework and energy access policies.

Clean energy policies

For the 2016 Climatescope, a comprehensive search for relevant policies was undertaken by examining primary source documents and conducting interviews with local policy-makers. In the end, the number of policies being tracked by BNEF for these nations in its online database expanded to 838 from 599 (all are accessible via www.global-climatescope.org). Policies were then divided by type: (1) energy target (2) feed-in-tariff/price premium, (3) auctions, (4) biofuels blending mandate, (5) debt/equity incentive, (6) tax incentive, (7) utility regulation and (8) net metering.

A review panel consisting of 42 external energy policy experts was then convened to assess the policies. Each expert was assigned the task of examining and scoring a set number of policies of specific types across multiple countries. At no point were panelists asked to assess a country's overall policy framework. This was intended to reduce any potential national bias a panelist might have toward a certain country.

External experts were assigned to review policies for each of the eight clean energy policy types. The experts were asked to take into account six cross-cutting factors when judging a specific clean energy policy. Each panelist was assigned to a specific policy type based on his or her area of expertise, and the panelist then reviewed and scored those policies. For each policy they reviewed, expert panelists assigned "high", "medium" or "low" scores corresponding to the six cross-cutting factors. The high, medium, and low scores were then translated into numerical values of five, three and one, respectively. Participation was done remotely and all scores were submitted electronically. In the end, each of the policies was reviewed by at least three expert panelists. Each policy then received a "raw" policy score – the average score for each of the cross-cutting factors given by all experts assigned to judging the policy in question. From these scores, an overall raw clean energy policy score per country was derived by adding the scores assigned by panelists.

In cases where a country did not have a specific type of policy, it received no score. For instance, 18 Climatescope nations have net metering laws and thus received scores for those. The other 40 nations without such policies received no net metering score. Thus countries that have established policies in a given area were rewarded while those that have not were, in effect, penalized. A policy "equalizer" consisting of two subcomponents – comprehensiveness and political risk – was included in the methodology. Comprehensiveness was defined as the level of completeness of a country's overall policy framework – the number of different policy types it has vis-à-vis its peers. The comprehensiveness metric was obtained by assigning each country a relative score based on how many policies were available in that country out of a possible maximum of eight. Scores were then benchmarked against one.

The World Bank's Worldwide Governance Indicators (WGI) 2015 index was used to address the question of political risk. This index covers six overarching political and country risk-related factors – voice and accountability, political stability and absence of violence, governance effectiveness, regulatory quality, rule of law, and control of corruption. The six components of the WGI score

were averaged to obtain the final political risk metric. The political risk subcomponent score was then added to the comprehensiveness score rank to derive a final policy equalizer per country. A nation's equalizer was then multiplied by its raw country policy score to derive a final clean energy policy score. It should be noted that in the cases of the Indian states, the overall policy scores for India was applied.

Power sector structure

A fundamental assumption underlies the power sector structure indicator: a liberalized power market is more conducive to attracting investment in renewable energy development than a tightly controlled market. This indicator seeks to gauge the degree of liberalization in a country's power market.

To derive the power sector score, 16 specific questions were asked about a country's power market, with possible scores of low, medium, and high per question with a maximum possible score for any country of 5. As these questions were relatively non-qualitative, Bloomberg New Energy Finance conducted primary research on the power market structures for all 71 countries on each question for each.

Distributed energy regulatory framework

Climatescope examined some of the core regulatory characteristics related to enabling off-grid, mini-grid and small power project activity. This was done through a series of 17 questions posed about each off-grid focus country. These were answered by BNEF analysts after consultations with local officials and private market players. Countries received a score on each question. The total score was benchmarked among the off-grid focus countries to derive a score for this indicator.

Clean energy rural electrification

The third indicator in the Policy & Regulation category of Parameter I assesses the efforts of nations to expand access to power to the rural poor using clean energy technologies. This also applied to previous years and thus formed part of the score for all countries. Scoring on this indicator was binary: countries with rural electrification programs that promote clean energy received a 1 while others received a 0.

Energy access policies

The energy access policies indicator was applied only to countries analyzed under the off-grid focus methodology. Like the distributed energy regulatory framework indicator discussed above, this indicator relied on a series of 13 questions BNEF analysts asked about individual nations and answered after local consultation. All but three of these were scored in a manner similar to the approach used for the distributed energy regulatory framework indicator. Two questions simply looked at the amount an individual government has budgeted for its rural electrification program and one of question looked at the base upfront cost for a new grid connection for a household near the grid.

Policy barriers

The trade barrier indicator for all countries was based on data from the World Trade Organization on the average import duties levied by each Climatescope country on a range of clean energy products. These covered nine categories of products across the solar, wind and hydro value chains: inverters, solar lanterns, PV cells and modules, wind towers (of iron or steel), wind turbine

blades, wind gearboxes, wind and hydro generators, hydraulic turbine parts. The duties were averaged by sector and then benchmarked against the other countries on the index. Lower overall duties achieved higher scores on the indicator, as higher duties raise the cost of bringing clean technology into the country and contribute to making growth in these sectors harder. In 2016, the barrier indicator was expanded for off-grid countries with six new elements: the presence of diesel or kerosene subsidies; the import duty and VAT rate charged for off-grid products and how they compare to those for other energy carriers; and the presence of other barriers to the retail and import of off-grid products.

CLEAN ENERGY PENETRATION

This category consists of six distinct indicators that seek to measure shares of clean energy installed capacity, shares of clean energy generation and levels of biofuels production, as well as the associated growth rates for each. Again, note that our definition of clean energy here does not include large hydro (50MW or greater), nor does it include nuclear power. These indicators are: clean energy installed capacity, growth rate of clean energy installed capacity, clean energy electricity generation, growth rate of clean energy electricity generation, biofuels production capacity, and growth rate of biofuels production capacity.

Each of the three Indicators related to growth rates contributed 20% to the Clean Energy Penetration category score, and had a net weight of 3.2% toward the overall Climatescope score. Each non-growth energy indicator held a 15% weighting of the category score, with a 2.4% net weight, while the biofuels production indicator held a 10% category weighting, with a 1.6% net weight for the overall Climatescope index.

In 2015, the method for calculating a country's final clean energy capacity rate score was tweaked slightly. Until 2014, this score was derived using the indexing approach (with the highest scorer receiving a 5 and all other nations scored against that country on a graduated basis). Last year, however, the high scorer benchmark was capped at 150%. There was a simple reason for this: one country that prior to 2014 had virtually no clean energy capacity saw a jump in one year of 289%. Having all other countries benchmarked against this 289% would have badly hurt the scores of them all (even nations that had posted otherwise remarkable growth rates of 100% or more). As a result, a cap of 150% was used for this particular benchmarking/indexing exercise. A similar 150% cap on the benchmark was placed on the clean energy electricity generation for the same reason.

Data for all six indicators comprising the clean energy penetration category were derived from primary sources, including websites and publications from energy ministries, power market regulators, system operators and utilities. Whenever possible, 2015 data were employed for Climatescope. Growth rates were calculated based on changes between the latest two years for which data were available.

PRICE ATTRACTIVENESS

The price attractiveness category of indicators takes an accounting of local electricity prices and, in the case of countries being analyzed under the off-grid focus methodology, the price of fuels used to power small-scale generators. The general principle: higher priced energy markets are generally more attractive for clean energy development and deployment as clean energy is all the more cost-competitive. In all, BNEF collected data on the following four classes of electricity tariff in every country where it was available:

Spot – The average price paid in 2015 (or last year when data was available) in the country's liberalized market where electricity is traded

Residential – The average price paid by citizens

Commercial – The average paid by “commercial” users as classified locally by regulators

Industrial – The average paid by “industrial” users as classified locally by regulators

The final price attractiveness score was derived in one of two ways depending on whether a country was assessed under the off-grid focus methodology or not. In the case of those that were not, a combination of the above electricity prices was used to determine a score. In the case of the off-grid focus countries, electricity prices plus the prices of two other sources of fuel were taken into account.

First, for the on-grid focus countries, two electricity prices were used to determine a price attractiveness score: the average spot price in the country and a composite “average retail price”. The spot price was derived simply by taking the average seen over the course of a year (all times of day and year included) in a given market. The second was derived by taking the average of the residential, commercial, and industrial prices seen in that country over the prior year to determine the retail price. Each of these scores were then given equal weighting toward the final price attractiveness score. Many countries do not have spot markets for electricity trading, however. In those countries, the retail price alone was used to determine the price attractiveness score. Finally, for off-grid focus countries, additional fuel sources for distributed power generation and lighting were taken into account: kerosene and diesel. BNEF collected average prices for these fuels on a US dollar per liter basis in 2015. Again, the guiding principle was that higher priced fuel makes a market more attractive for investors as renewables become all the more cost-competitive. BNEF then used the indexing approach to determine 0-5 scores. The country with the highest prices received the highest score (5). All other nations were then benchmarked against that nation.

MARKET SIZE EXPECTATIONS CATEGORY

Markets poised for growth are attractive to clean energy investors. Recent strong growth in power demand, a high percentage of the population without access to reliable electricity, or a high number of citizens reliant on solid fuels for cooking all potential opportunities for clean energy deployment. The Market Size Expectations category sought to measure countries with such characteristics through three indicators, two of which applied to all nations surveyed and one specifically intended to take into account conditions in lesser developed countries.

The clean energy electrification indicator assessed electrification levels in a country. The nation with the lowest such rate was considered the benchmark and received a mark of 5, with all others then receiving scores mapped relative to the maximum. The power demand growth rate indicator examined the last five years of growth in electricity demand in a country, again with countries benchmarked against a high scorer of 5.

Finally, for the off-grid focus countries, the population using solid fuels for cooking indicator employed data collected by the Alliance for Clean Cook Stoves to determine what percentage of a country's population could potentially be served with clean cook stoves or other technology that could allow them to cook using cleaner fuels instead of solid fuels.

2. CLEAN ENERGY INVESTMENT & CLIMATE FINANCING

Few investors are comfortable with being the first to invest in a new technology or a new region. To rank a country's ability to attract low carbon investment, it is important to assess its achievements in that regard to date. The Clean Energy Investment and Climate Financing parameter tracks historic investment activity in a given country while laying out financing conditions for future commitments. In all, Parameter II comprises 9 indicators distributed across three categories: Amount Invested, Fund Sources and Cost of Debt. Each of these three categories contributed with varying weights to the overall Clean Energy Investment and Climate Financing parameter score. The green microfinance indicator which was part of the Climatescope methodology in the past was removed in 2016.

AMOUNT INVESTED

The Amount Invested category consists of two indicators related to historic financial commitments to low-carbon companies and projects: cumulative clean energy investment and clean energy investment growth rate. The timeframe used was 2011 to 2015. The category contributes to 51% of the score for this parameter. Data sources employed in the category were drawn from BNEF's proprietary Industry Intelligence database – the world's most accurate database of clean energy and carbon investment activity. The database contains detailed information on funds invested in clean energy projects larger than 1MW and technologies, grants, venture, private equity and corporate finance transactions, and project financing. The Amount Invested methodology follows that employed in Climatescope 2016.

Cumulative clean energy investment

The clean energy investment indicator of the Amount Invested category includes four metrics related to the investment type: asset finance, corporate finance, venture capital and private equity investment. All three investment-type metrics were aggregated to derive the total cumulative clean energy investment figure. Data points underlying these metrics are available online for the purpose of external analysis.

Note that the total clean energy investment indicator accounts for cumulative commitments from 2012 through 2016. Investment commitments follow different orders of magnitude because of the variation in the size of the 58 Climatescope countries. Thus, countries were ranked for this indicator based on the value of total clean energy investments as a percentage of GDP to ensure standardization. Once investments were benchmarked by the size of the economy, countries were ranked using the indexing approach. The country with the highest share of cumulative clean energy investment relative to the size of its economy was set as the benchmark with a score of 5; all other country scores were derived based on their relative position to 5.

Clean energy investment growth rate

Similarly, the growth rate for the clean energy investment indicator took into account the same five-year period and was based on compound annual growth rates. Scoring was also derived by using the index approach with the country with the highest compound six-year annual growth rate receiving the maximum score of 5. Since 2015, the maximum growth rate used in the indexing is capped at 150%. There was a simple reason for this: one country that prior to 2014 had seen virtually zero clean investment technically saw its growth rate hit 583% in 2014 thanks to a small level of investment in the year. Having all other countries benchmarked against this 583% would have badly hurt them all (even nations that had posted otherwise remarkable growth rates of

100% or more). As a result, a cap of 150% was used for this particular benchmarking/indexing exercise.

FUND SOURCES

The sources of funds category contributed 26% to the Parameter II score. Its two unique indicators – loans grants and local investment by local players – each made up half of the parameter weight and contributed 3% apiece to the overall Climatescope score.

Loans and grants

The methodology employed to track loan and grants commitments remained the same as employed in the first four editions of Climatescope. Data were gathered using primary sources and BNEF's proprietary Industry Intelligence database. Standardization was achieved by comparing fund source commitments to GDP. Scoring was determined based on the index approach.

Local investment by local players

Only total new investments were used in the analysis of this indicator. Investment into small distributed projects was not considered. The total investment data for each country was then filtered by investor domicile to derive the dollar amount committed in any given country by investors domiciled in the same country. The score for this indicator was obtained by taking the ratio of dollar amount committed by local players for local projects over total clean energy investment at a national level. The country with the highest ratio received the maximum score of 5 and was considered the benchmark.

Investors were classified by the country in which they are registered in all instances except where a non-governmental agency was deemed to hold a stake of 50% or greater in the ownership structure of the investor. In such cases, the majority stakeholder's domicile was applied. In cases where specific investors in a project could not be identified, the value of the deal was considered to be "unknown" for the purpose of this analysis.

To illustrate the methodology, consider the 2012 \$130m financing of the 100.8MW Satara wind farm in Panama. In this specific transaction only \$41.42m – not the entire financial commitment to the project – was recorded toward the total value of investments by local players for Panama.

COST OF DEBT

Financing conditions in a given country are fundamental for developers and investors alike. The cost of debt category is made up of two indicators related to financing conditions for utility-scale renewable projects or investments into low-carbon manufacturing capacity or firms. These indicators are average cost of debt and average swap rate by country; each contributed equally to the overall category score. Each indicator had a 2.6% net weight toward the overall Climatescope score. Data on the average cost of debt available to project was sourced from the lending interest rate dataset from the World Bank and from information gathered from developers. Where data was not available, the country's central bank rate was used.

This category also included an indicator reflecting swap rates in each of the countries. A swap rate is the borrowing rate between financial institutions and was deemed to be the closest proxy for the cost of debt per country. The country with the lowest swap rate was assigned a score of 5 and all other country scores were determined by indexing their rate to that of the benchmark country. Swap rate data per country were taken directly from the Bloomberg terminal.

3. LOW-CARBON BUSINESS & CLEAN ENERGY VALUE CHAINS

A nation's ability to attract capital and accelerate low-carbon energy deployment is partly contingent on how many segments of key value chains it has in place. Parameter III sought to take this into account. It included three indicators, with an additional two indicators related to distributed energy companies for the off-grid focus countries.

SERVICE PROVIDERS

A well-developed local presence of service providers for the low-carbon economy, including firms involved in legal and marketing services, project development and ancillary services is imperative to propel and sustain the development of clean energy. Points were given if the country had at least one provider in each sub-sector. For the off-grid focus countries, a separate indicator for those service providers specifically related to distributed clean energy is taken into consideration.

SECTOR VALUE CHAINS

The clean energy sector value chains indicator tracked the presence of six distinct sector value chains – and their subsectors – in each country, biofuels, biomass & waste, geothermal, small hydro, solar and wind. Combining all segments yielded a maximum possible score of 40 points per country. Nations were awarded 1 point per segment they had in place. A strong manufacturing base is imperative for attracting investment and producing the necessary equipment to help expand clean energy capacity. For the off-grid focus countries, we added a separate indicator for those companies that operate within the distributed clean energy sectors.

FINANCIAL INSTITUTIONS

The financial institutions indicator tracked how many types of financial service providers such as banks, corporate finance institutions, investment funds, impact funds and private equity and venture capital funds invested in the low-carbon sector. Primary research was conducted to assess if at least one of these four types of financial institutions was active in a given country. Each type of lender could receive at most 1 point. Thus 5 points were the maximum for this indicator – a sign that the country has the ability to supply funds needed for the industry to grow. This indicator contributes 25% to the overall Parameter III score.

4. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Climatescope's parameter IV methodology was updated in 2017 to account for the commitments made by over 200 nations at the COP21 UNFCCC meeting held in Paris in December 2015. A total of 14 unique indicators now serve as inputs to calculate the score for this Parameter. These are arranged into three categories: National Determined Contributions (NDC), Domestic Policy and Corporate Awareness.

National Determined Contributions (NDC)

The NDC category accounts for 40% of the Parameter IV score. It focuses on the ambition of each country's international emissions reduction pledges made under the Paris Agreement. It includes five distinct indicators. Each indicator contributes with varying weights in turn to the category, parameter and overall score.

NDC - type of target

Every country's NDC is built around a headline goal. The Paris Agreement does not specify what a country must include in its NDC, and a number of different types of NDC targets have emerged. This sub-indicator scores the countries on the type of targets that they have submitted. The highest score goes to countries that have adopted an absolute target, followed by Business as usual (BAU) targets, peak targets, and intensity targets. If the country's NDC does not include a specific emissions related target it scores 0.

NDC - target coverage

This indicator scores the emissions coverage of each country's NDC target. Coverage is determined by the combination of sectorial coverage and coverage across the six 'Kyoto' greenhouse gases. Sectors include energy, industrial process and product use, agriculture, waste and Land use, land-use change and forestry (LULUCF). Gases include CO₂, CH₄, N₂O, PFC, HFC and S₆F.

Long term strategy

Article 4 of the Paris Agreement asks that countries communicate a 'long-term low greenhouse gas emission development strategy'. These strategies should be submitted by 2020. A number of countries have already made their submissions, which shows notable effort to comply with the spirit of the Paris Agreement. Countries that have communicated a long-term strategy to UNFCCC received 1 while others received 0.

Ambition of NDC: intensity & absolute emissions

The 2030 ambition of each country's NDC emissions reduction pledges was measured against trends in emissions over the last 15 years, and in absolute amounts. The more a country's target take him below the trend the higher the score and inversely.

Domestic Policy

The Domestic Policy category accounts for 30% of Parameter IV and scores countries for the domestic policies they have put in place to reduce greenhouse gas emissions. It covers five policy and regulation types.

Climate change policy

The score awarded for this indicator was binary. Countries that have an explicit domestic climate change law received 1 while others received a 0.

Scope of domestic policy

This indicator measures the coverage of domestic policy in terms of share of total emissions.

Climate change regulations

This indicator measures whether the country has the following regulations in force. The score awarded for each of the sub-indicators below is binary and regulations must explicitly target emissions reduction.

- Fuel standards;
- Emission standards for power plants;
- Industrial emissions standards;

- Vehicle emissions standards;
- Buildings emissions standards;
- Product emissions standards;
- Appliance emissions standards;
- Emissions disclosure requirements for products and/or businesses.

Climate change incentives

This indicator measures whether the country has the following climate change incentives in force. The score awarded for each of the sub-indicators below is binary and incentives must explicitly target emissions reduction.

- Carbon pricing
- Carbon linked taxation;
- Subsidies of funding programs for emissions reductions.

Climate change prioritization

This indicator measures to what extent climate actions is a priority for the current government.

Corporate Awareness

Accounting for 30% of the Parameter IV score, the Corporate Awareness category evaluates the level of environmental awareness among companies in a given country. It covers four independent indicators pertaining to voluntary corporate actions, each of which was equally weighted at 25%.

Global Reporting Initiative

The GHG Global Reporting Initiative indicator investigated whether companies in a country voluntarily reported their emissions to the Global Reporting Initiative (GRI), using the initiative's online database. The number of companies in Bloomberg's Environmental, Social and Governance (ESG) database was used as a proxy for the total number of companies in a given country. The indicator score was derived by dividing the number of companies reporting to the GRI by the total number of companies in a given country (i.e., those listed in the ESG database). The maximum ratio for the region was obtained by compiling the same dataset across all countries. If the country ratio was greater than the maximum ratio for all, the country received 1 point; if it was lower, it received 0.

Principle of Responsive Investment

The Principles of Responsible Investment indicator assessed how many asset owners in a given country are represented among the signatories of the UN's Principles for Responsible Investment (PRI) – a network of investors working to put into practice the six voluntary and aspirational principles. The PRI database was used to count the number of asset owners, investment managers and professional service partners who signed up to the initiative. The same scoring method used in the GRI indicator was applied to the Principles indicator. The maximum point a country received was 1 if its maximum ratio fell above the maximum ratio for all countries.

Energy Efficiency Initiatives & Emission Reduction Policies

The Principles of Responsible Investment indicator assessed how many asset owners in a given country are represented among the signatories of the UN's Principles for Responsible Investment (PRI) – a network of investors working to put into practice the six voluntary and aspirational principles. The PRI database was used to count the number of asset owners, investment managers and professional service partners who signed up to the initiative. The same scoring method used in the GRI indicator was applied to the Principles indicator. The maximum point a country received was 1 if its maximum ratio fell above the maximum ratio for all countries. Spread across Central Asia and Europe

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