

Metadata on climate and renewable electricity targets (Version 1, February 2025)

General information

This dataset was developed by Aksornchan Chaianong and Puru Malhotra (Sustainability Transition Policy Group, Friedrich-Alexander-Universität Erlangen-Nürnberg) from 2024 to February 2025. Aksornchan Chaianong led the work, which was supported by Ioannis Milioritsas, Silvia Weko, and Johan Lilliestam (Sustainability Transition Policy Group, Friedrich-Alexander-Universität Erlangen-Nürnberg).

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Chaianong, A., Malhotra P., Milioritsas, I., Weko, S., and Lilliestam, J. (2025): Data on climate targets (Version 1, February 2025). Sustainability Transition Policy Group, Friedrich-Alexander-Universität Erlangen-Nürnberg. DOI: 10.5281/zenodo.15476049

Chaianong, A., Malhotra P., Milioritsas, I., Weko, S., and Lilliestam, J. (2025): Data on renewable electricity targets (Version 1, February 2025). Sustainability Transition Policy Group, Friedrich-Alexander-Universität Erlangen-Nürnberg. DOI: 10.5281/zenodo.15476149

If you are interested in contributing further to this dataset, please contact Johan Lilliestam (johan.lilliestam@fau.de).

Dataset

We manually gathered the decarbonization (climate and renewable electricity) target data drawing on primary (e.g., the original Nationally Determined Contributions (NDCs) from the NDC registry of the United Nations Framework Convention on Climate Change) and secondary data sources (e.g., existing but not machine-readable datasets, published analyses) to ensure that the dataset is both correct and up to date with the latest target announcement and to ensure completeness to the extent possible.

In each target dataset, we focused only on country-based and economy-wide targets, excluding certain target types, such as sector-specific targets. We also only focused on targets that already decided, not just only unofficially announced. Moreover, we recorded the original targets in a raw dataset and developed a consistent dataset to enable comparison of targets across countries. Consequently, there are two distinct datasets for each target. We published our dataset in four .csv files, namely: Climate_target_raw_ver1_feb25, Climate_target_consistent_ver1_feb25, RE_target_raw_ver1_feb25, and RE_target_consistent_ver1_feb25.

Also, if the target year is provided as a range (such as country A aims to achieve 100% renewable electricity “between 2050 and 2060”), we recorded the latest year in a range as the target year. Some countries announced the targets with a range. The targets' lower (minimum) and upper limit (maximum) were reported in these cases.

Focusing on climate targets, we recorded GHG emission reduction targets compared to a base year. These targets can be either conditional or unconditional. Sectoral targets (such as those for Emission Trading System (ETS) sectors) and targets without a target and base year were ignored. Climate targets can be categorized into four main types, as shown below. The baseline and trajectory targets have a high level of transparency in target setting because they directly imply the emissions level in a target

year. On the other hand, business-as-usual (BAU) and intensity targets are less transparent because they depend on different factors, such as economic development

- Baseline target (emission reductions in percentage, compared to a base year, often 1990)
- Trajectory target (emission reductions in X MtCO_{2eq} or a similar unit, compared to a base year)
- BAU target (emission reductions compared to a BAU scenario without (additional) policy action)
- Intensity target (emission reductions in MtCO_{2eq}/GDP, compared to a base year)

We recorded all target types in the raw dataset. For countries that have already announced net-zero or carbon neutrality or climate neutrality targets, we assume there will be 100 percent GHG emission reductions in a target year, compared to 1990. We are aware that carbon and climate neutrality, for example, are not identical terms and may differ strongly in reality. In most cases, governments do not specify exactly what they mean, so for this purpose and for the time being, we see it as justified to assume that all such targets de facto mean net-zero emissions; in cases where the government specifies exactly what they mean with a “neutrality” target, we use that definition in the data.

In the second step, we normalized all climate targets to the 1990 level as a base year for the consistent dataset. We used the 1990 GHG emissions from the Emissions Database for Global Atmospheric Research (EDGAR; version 2024). If the announcement has a minimum and a maximum target, we took an average for the consistent dataset

For renewable electricity targets, we reported only renewable electricity generation targets (ignoring renewable energy consumption targets at this moment). Renewable electricity targets were reported in different formats, most commonly as either a percent share of electricity generation or in generation units (such as TWh), for all renewable or specific technologies. Similar to the climate targets, we recorded all target types in the raw dataset. Unlike the climate targets, all renewable electricity targets in the EU are already comparable because all of them are in percent share of electricity generation for all renewables. As a result, in the consistent dataset, we only report the average value (for reported targets in a range) without further calculations (both the minimum and maximum targets are in the raw dataset).

In our dataset, each column contains specific information, as summarized in Table 1.

Table 1 List of column entries.

| Column name | Target | Description |
|---------------------|--------------------------|--|
| ISO_code | Both | The ISO country code (Alpha-3 code) |
| Country | Both | The country name |
| Year_decision | Both | The decision year is the year when the responsible authority made the decision to enact the target. |
| Year_first_decision | Both | The first target decision year |
| Year_target | Both | The target year (when the country aims to achieve the target). |
| Year_base | Only climate targets | The base year to compare emission reductions |
| Target_minimum | Both (only raw datasets) | The minimum target value. The negative value refers to the reduction, while the positive value refers to the addition. |
| Target_maximum | Both (only raw datasets) | The maximum target value. The negative value refers to the reduction, while the positive value refers to the addition. |

| | | |
|-------------------|-------------------------------------|---|
| Target_consistent | Both (only for consistent datasets) | The consistent target value. If the announcement has a minimum and a maximum target, we take the average for the conversion to consistent base year data. |
| Target_unit | Both | The target unit (such as in the percent share of electricity generation, MtCO _{2eq} , etc.), depending on the target types |
| Conditionality | Only climate targets | The conditionality of the target (unconditional targets vs. targets conditional on some further event, such as the target setting of other countries) |
| Target_type | Both | The target type <ul style="list-style-type: none"> - Climate targets are baseline, trajectory, business-as-usual, or intensity targets. - Renewable electricity targets are all generation targets (as we did not include the renewable energy consumption targets at this moment). |
| RE_technology | Only renewable electricity targets | The renewable electricity technologies included for each target |
| Miscellaneous | Both | The general remarks of the regulation (if any) |
| Source | Both | The source of each target |

Remarks

Correctness and completeness of data

We have done everything we can to ensure the accuracy and completeness of our dataset, including multiple review rounds with several FAU STP group members. Yet, we cannot guarantee that all information is correct and complete. It is, to the best of our knowledge. Not all data points are readily available; although we cite them correctly, documents may hold incorrect data. In some cases, interpreting regulations is a non-trivial task, especially in different languages, and we do not always know each country's energy-political context and tradition. We refuse any liability for any errors or inaccuracies.

Source of data

This dataset came from desk research. The source columns include links or references to each row's specific policy/target documents. All source links in our dataset are live as of February 2025.