# Methodology note

The State of Europe's Climate Investment Report
2025 Edition

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July 2025

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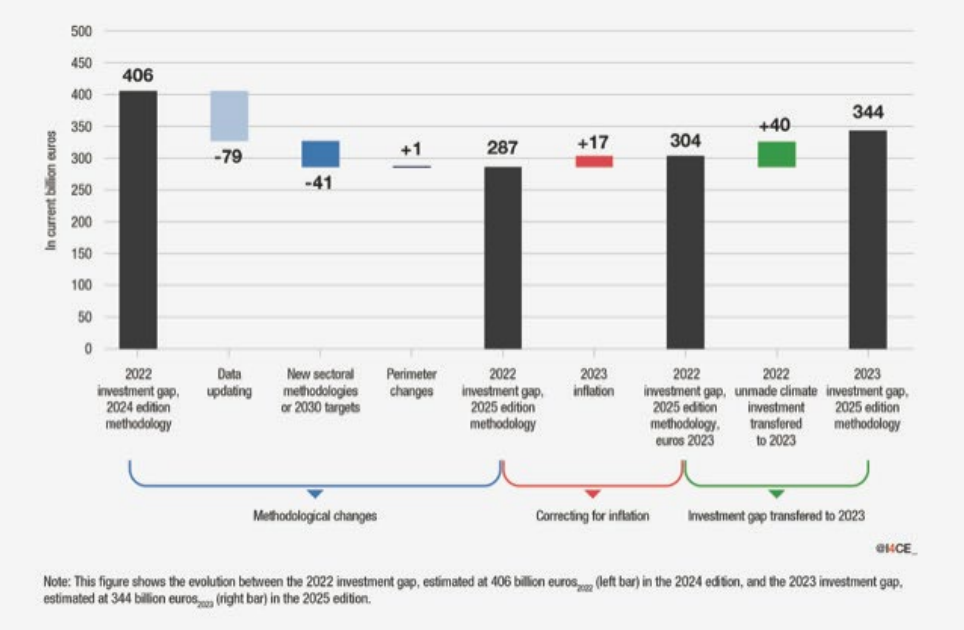
Une initiative de la Caisse des Dépôts et de l'Agence Française de Développement

# Introduction

In February 2024, I4CE published the first edition of the *European Climate Investment Deficit report*, providing an initial estimate of the climate investment gap in the EU for the year 2022. In June 2025, I4CE published a second edition, the *State of Europe's Climate Investment report*, estimating the 2023 investment gap. The methodology used in the 2025 edition has evolved, making the estimations from the first edition outdated.

This note explains the reasons behind the differences in 2022 and 2023 estimates and quantifies the volume of un-met investments in 2022 that were carried over to the 2023 investment gap. **The latter underscores that as long as yearly investment falls short of needs, future investment needs will continue to grow.**

Figure 1. Five factors explaining the variation in the climate investment gap between the 2024 and 2025 editions.




Note: This figure shows the evolution between the 2022 investment gap, estimated at 406 billion euros$_{2022}$ (left bar) in the 2024 edition, and the 2023 investment gap, estimated at 344 billion euros$_{2023}$ (right bar) in the 2025 edition.

The Figure 1 identifies and breaks down the variations into three main categories:

1. the methodological changes (data updating, new sectoral methodologies or 2030 targets, perimeter changes);
2. the inflation adjustment;
3. the transfer of unmade investment to the following year.

This note explains these three categories of variations, quantifies their effects, and identifies the sectors with the greatest impact in each category. A box at the end of the note provides a reminder of the methodology applied to calculate the climate investment gap as well.

# 1. Methodological changes in the estimation of the investment gap

## 1.1. Data updating

This category includes changes in the input data used to estimate climate investment, for both actual climate investment and climate investment needs. These data changes may involve updated CAPEX prices, updated quantifiable volumes for a given year, or other sector-specific assumptions that were revised by the original provider in between both editions.

The data update led to a **79 billion euros** reduction in the 406 billion euros$_{2022}$ investment gap, the largest change resulting from the methodological updates.

The table below shows the three main sectors affected by data updating, as well as their corresponding contribution to the overall revision. To note, 70% of the 79 billion euros reduction in the estimate is due to a revised hypothesis in the new buildings' construction estimation. In both residential and non-residential buildings, the prediction of the 2025-2030 construction rate was updated to best reflect the expected slowdown in the construction rate by 2040 from the European Commission[1]. This led to reducing significantly the investment needs in the new buildings construction sector, turning the deficit into a surplus, and reducing the overall investment deficit.

Table 1. Sectors affected by data updates in the 2025 edition.

| Sectors | Differences between the 2022 gap estimation – 2024 and 2025 methodology | Reason of changes |
|---|---|---|
| Construction of buildings | -55.5 billion euros | The construction rate hypothesis was changed to reflect the slowdown expected by the European Commission on the period 2025-2030. |
| Heat pumps | -14.4 billion euros | Methodological change in EHPA's heat pump sales estimation by country[2] |
| Other sectors | -9 billion euros | Including: marine energy, battery storage, railways, passenger cars BEV and PHEV, light commercial vehicles BEV and PHEV, trucks BEV, electric charging points for light and heavy vehicles. |
| **Total** | **-79 billion euros** | |

## 1.2. New sectoral methodologies or revised 2030 targets

This category includes all methodology changes excluding data updating, such as revised 2030 targets, new modelling assumptions not included in the 2024 edition or rebuilt estimation methodologies to capture more technical details.

[1] In the impact assessment report accompanying Europe's 2040 climate target and path to climate neutrality by 2050 (…), the European commission projects that total floor area in the residential sector will grow by 21% between 2015 and 2040 in the residential sector, while it will grow by 5% for the non-residential sector over the same period (p49, SWD(2024) 63 final, part 3). Based on observed construction rates from 2015 to 2021 and assumption on demolition rates between 2025 and 2030, we estimate that the residential construction rate will slow to around 0.7% per year between 2025 and 2030, compared to 1% per year in the previous period. Applying the same methodology to the non-residential sector, we project a construction rate of 0.2% per year between 2025 and 2030, down from 1.3% between 2015 and 2023. See https://eur-lex.europa.eu/resource.html?uri=cellar:6c154426-c5a6-11ee-95d9-01aa75ed71a1.0001.02/DOC_3&format=PDF

[2] See EHPA (2024): https://www.ehpa.org/air-to-air-heat-pump-correction-factor-explanation/

These revisions result in a **41 billion euros** reduction of the 406 euros$_{2022}$ investment gap estimated in the 2024 edition.

Table 2. Sectors affected by new methodologies or revised 2030 targets in the 2025 edition.

| Sectors | Differences between the 2022 gap estimation – 2024 and 2025 methodology | Reason of changes |
|---|---|---|
| Wind onshore and offshore | -27 billion euros | The 2024 edition used WindEurope's Final Investment Decision estimates for new wind power capacity[3]. The 2025 edition estimates the actual disbursement of the CAPEX funds at the given year distributed along the years prior to the commissioning of the wind farm. The model also captures the different types of offshore infrastructures commissioned (shallow, floating). |
| Electricity grids | -15.5 billion euros | The estimation of investment needs in electricity grids was reassessed in the 2025 Edition following the publication of a report commissioned by the European Commission, which reevaluated the investment requirements for this sector within the EU[4]. |
| Renovation residential buildings | -10.5 billion euros | The entire methodology for the renovation sector was rebuilt, based on a different 2030 target which sources from the 2024 EPBD[5]. |
| Renovation of non-residential buildings | +14 billion euros | The entire methodology for the renovation sector was rebuilt, based on a different 2030 target which sources from the 2024 EPBD[6]. |
| Other sectors combined | -1.8 billion euros | Including solar PVs and hydroelectricity. |
| **Total** | **-41 billion euros** | |

## 1.3. Perimeter changes

Perimeter changes refer to the inclusion of new sectors in the analysis. The 2025 edition added two new sectors: biomethane production and clean technology manufacturing.

These perimeter changes are quite limited in terms of volume variation to the total investment gap. As described in the table below, the 6 billion euros biomethane production investment gap estimated in 2022 is compensated by the 5 billion euros clean technologies manufacturing investment surplus for the same year. This results in a 1 billion euros increase to the 406 billion euros$_{2022}$ investment gap estimated in the 2024 edition.

[3] Final Investment Decisions (FID) are the formal approval from a project developer to proceed with a specific project, marking the commitment to allocate capital resources and move from the project planning stages to execution. See WindEurope (2022): https://windeurope.org/intelligence-platform/product/financing-and-investment-trends-2022/

[4] See: European Commission (2025): https://op.europa.eu/en/publication-detail/-/publication/864c619c-e386-11ef-be2a-01aa75ed71a1/language-en

[5] While the 2024 edition used the European Commission's Renovation Wave target of "*at least doubling the annual energy renovation rate by 2030 in comparison with the 2020 rate"; the* 2025 edition used the EPBD target of having a "*16% reduction of the average primary energy use across residential buildings in 2030 compared to 2020".*

[6] While the 2024 edition used the European Commission's Renovation Wave target of "*at least doubling the annual energy renovation by 2030 in comparison with the 2020 rate"*; the 2025 edition used the EPBD target of renovating "*16% of the worst performing buildings in the non-residential sector between 2020 and 2030".*

Table 3. New sectors analysed in the 2025 edition.

| Sectors | New gap added to the 2022 gap |
|---|---|
| Biomethane production | +6 billion euros |
| Clean technologies manufacturing | -5 billion euros |
| **Total** | **+1 billion euros** |

## 2. Inflation correction

To make it easier to compare past and present climate investment with future needs, and to account for the effects of inflation, we report all investment expenditure in today's currency (euro 2023), in other words in constant currency. Neutralising the effect of inflation makes it easier to measure the real financial effort required to make investments. To calculate this, we divide the current expenditure for the historical period by the chain-linked price index of gross domestic product, also known as the "GDP deflator", provided by Eurostat[7].

Figure 2. Method used to correct the inflation effect of historical data.


Adjusting for this effect and as described in the graph, the investment gap in 2022 indexed at the inflation of 2023 makes the total investment gap grow by 17 billion euros.

## 3. 2022 unmade investment transferred to 2023

Every year, any unmade investment will contribute to an increase in the climate investment needs of the following year. Conversely, each year, any investment that matches or exceeds the required investment will help to reduce the climate investment deficit.

Thus, a fraction of the investment gap in year N is carried to the investment needs in year N+1. It is obtained by calculating the difference between investment needs in year N and N+1, correcting for inflation, and at constant methodology, such as:

$$Total\ investment\ gap\ reported\ YoY_{\ Year\ N+1} = averaged\ yearly\ investment\ needs_{Year\ N} - averaged\ yearly\ investment\ needs_{YearN-1} - inflation_{year\ N+1}$$

[7] See Eurostat. (2025). GDP deflator, price index (implicit deflator): https://ec.europa.eu/eurostat/databrowser/view/teina110__custom_17318718/default/table?lang=en

This estimation captures the extent to which non-achieved investments in one year increase the needs in the following year.

We estimate that 40 billion euros from the 2022 investment gap were carried over into the investment needs in 2023, increasing the total investment deficit by the same amount. As described by the table below, the sectors which contribute the most to this year-on-year investment gap transfer are the sectors whose investment gaps have increased the most year-on-year, or whose surpluses have been reduced the most. Reciprocally, the sectors whose investment gap has decreased the most year-on-year are the ones that contribute the most to offsetting the investment gap transfer year on year.

Table 4. Top contributing sectors to year-on-year investment gap transfer and offsetting.

| **Sectors** | **Volume of the 2022 investment gap transferred to the 2023 investment gap** |
|---|---|
| Buildings energy renovation | +23.6 billion euros |
| Energy performance of new buildings | +15.5 billion euros |
| Wind onshore and offshore | +14.7 billion euros |
| Solar PVs | -16 billion euros |
| Other sectors | -2.2 billion euros |
| **Total** | **-40 billion euros** |

Box 1. Calculation of the investment gap.

We define the climate investment gap in year N such as:

$$Total\ investment\ gap_{\ year\ N} = \sum_{i=1}^{n} \left( average\ annual\ \ investment\ needs\ to\ reach\ 2030\ targets_i - achieved\ investment_{i,year\ N} \right)$$

Where *i* represents a given sector among *n* sectors analysed in our study. N refers to the year for which the most recent data is available.

As described by the formula, this investment gap calculation is made for all the sectors analysed in this report. Summing up investment gaps and surpluses gives the total investment gap.

The methodological changes made in the 2025 report affect either one or both components of the above formula. Both factors are estimated such as:

- **Average annual investment needs to reach 2030 targets** are calculated by multiplying the volume of assets that need to be deployed by 2030 by the CAPEX price per unit. Depending on the sector, several assumptions based on literature may be taken on the expected evolution of the CAPEX price until 2030, the disbursement smoothing, the refurbishment needs etc.

  *E.g. to reach the 2030 target of 400 GW of onshore wind installed capacities by 2030, 211 GW of capacities remained to be commissioned between 2024 to 2030. Multiplying this volume with the estimated 2022 CAPEX prices provided by the European Commission and considering several assumptions on the renewal predictions, the CAPEX prices evolution, and the disbursement smoothing, we estimate that 276 billion euros of investment remains in total to be made between 2025 and 2030 to attain the target.*

It is important to note that the estimation of climate investment needs is based on a number of key assumptions, notably, the evolution of investment cost trajectories by 2030 or the availability of a workforce capable of delivering the required investments at costs comparable to those observed today. These assumptions largely depend on the evolution of the economic, political, and geopolitical context of the EU27.

- **Actual investments** are estimated by multiplying the assets acquired in year N with the relevant CAPEX price for the same year. As for the average investment needs, we take into consideration several assumptions depending on the sector's specificities.

  *E.g. according to Eurostat, more than 14GW of onshore wind capacities were commissioned in 2022. To calculate the achieved investment, we multiply this number with the 2022 CAPEX prices estimation for this technology. Combined with the hypothesis taken on renewal made and disbursement smoothing, we estimated that 24 billion euros investments were made in 2022.*