

EU BUILDINGS CLIMATE TRACKER: URGENCY TO CLOSE THE BUILDINGS DECARBONISATION GAP

POLICY BRIEFING

JUNE 2022

The newly developed EU Buildings Climate Tracker finds that the EU is facing a growing gap in advancing towards climate neutrality in the sector. European decision-makers are currently in the process of negotiating the revision of the Energy Performance of Buildings Directive (EPBD), following a proposal from the European Commission at the end of 2021. Sound policymaking must build on analysis of the impact of existing policies, in order to identify their shortcomings as well as opportunities to correct them.

BPiE developed the EU Buildings Climate Tracker to inform policy debates and to assess and track progress on the decarbonisation of the European building stock over time. The Tracker index serves as a relevant benchmark and assessment tool for climate neutrality

progress of the building stock in the EU consistently, year after year. This first edition provides evidence for the urgent need for additional action that should be reflected in a transformational outcome of legislative discussions on the EPBD.



The EU must immediately, rapidly, and strongly accelerate the rate of building decarbonisation. Progress must be drastically increased if the EU is to reach climate neutrality in 2050 in the building stock.



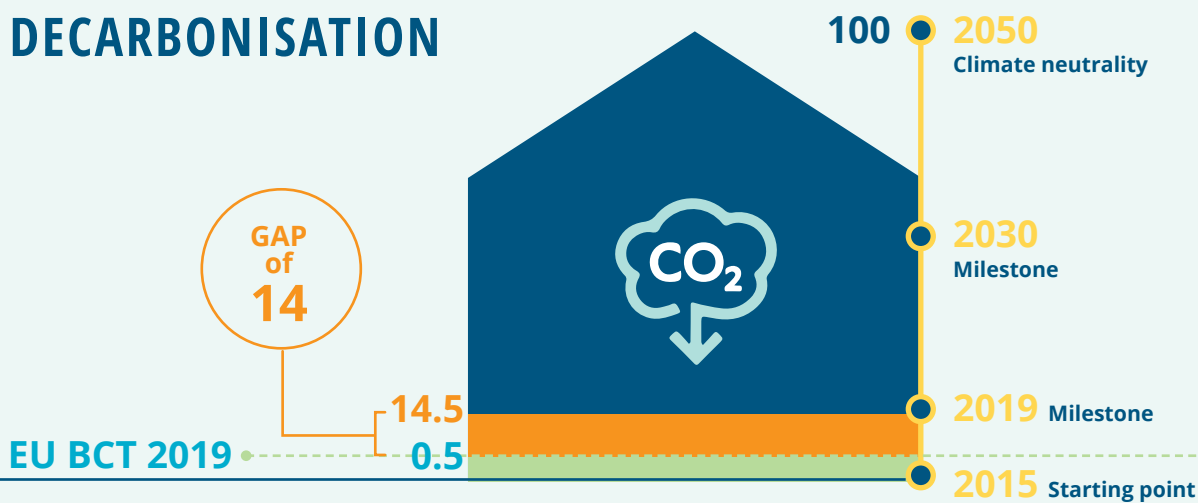
THE EU BUILDINGS CLIMATE TRACKER: A NEW TOOL TO MONITOR PROGRESS IN THE BUILDINGS SECTOR

In 2020, BPIE developed a tracker to monitor global climate change action in the buildings and construction sector for the Global Alliance for Buildings and Construction.¹ Based on this work, BPIE developed a similar tracker for the EU: a high-level index showcasing the progress of the EU building stock towards full decarbonisation by

2050 on a 0-100 scale, starting from the adoption of the Paris Agreement in 2015, until 2019, currently the last year for which indicator data is available. To keep close track of the evolution of the building stock in the EU, the index monitors progress yearly and will be updated regularly.

Figure 1: Progress in building decarbonisation towards climate neutrality by 2050, based on the EU Building Climate Tracker

DECARBONISATION



DECARBONISATION PROGRESS: INSUFFICIENT TO DATE, STRONG CATCH UP NEEDED

Figure 2: EU Buildings Climate Tracker compared to path to climate neutrality 2050 with milestones

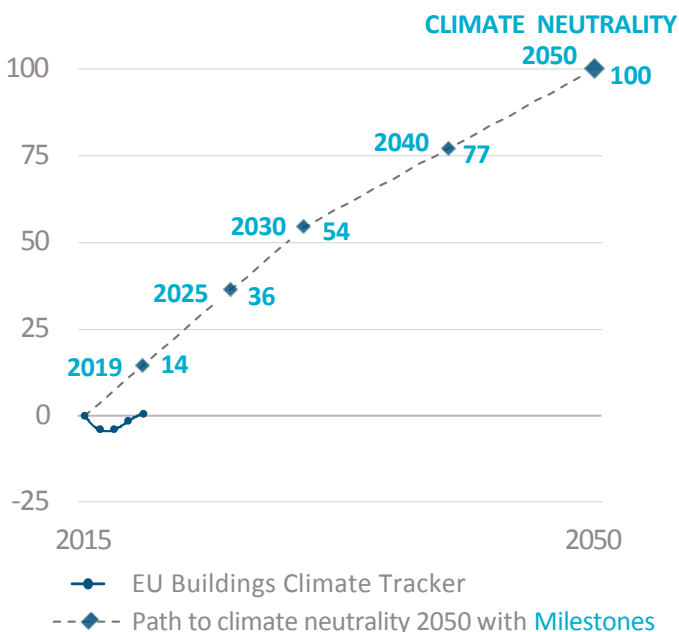


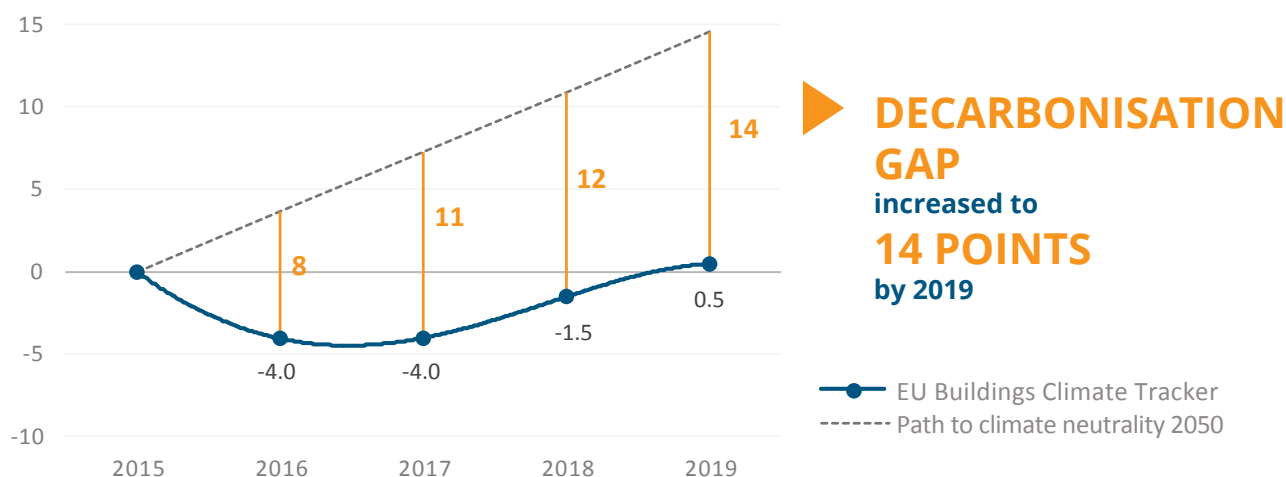
Figure 2 shows the necessary pathway to 2050 in relation to the situation in 2015. The EU Buildings Climate Tracker 2022 shows that the sector is not on track to achieve climate neutrality in 2050.

For 2019, the index has a calculated value of 0.5 on a scale between 0 (reference situation in 2015) and 100 (climate neutrality in 2050). This means **that building decarbonisation is off track and much behind the path to climate neutrality by 2050**. While the index should have been at 14 points in 2019, it is barely above 0, thus at almost the same level in 2019 as in 2015.

This means that four years of potential progress towards climate neutrality by 2050 have been lost.

¹ 2020 GLOBAL STATUS REPORT FOR BUILDINGS AND CONSTRUCTION -Towards a zero-emissions, efficient and resilient buildings, and construction sector

Figure 3: EU Buildings Climate Tracker with increased gap to climate neutrality 2050 path

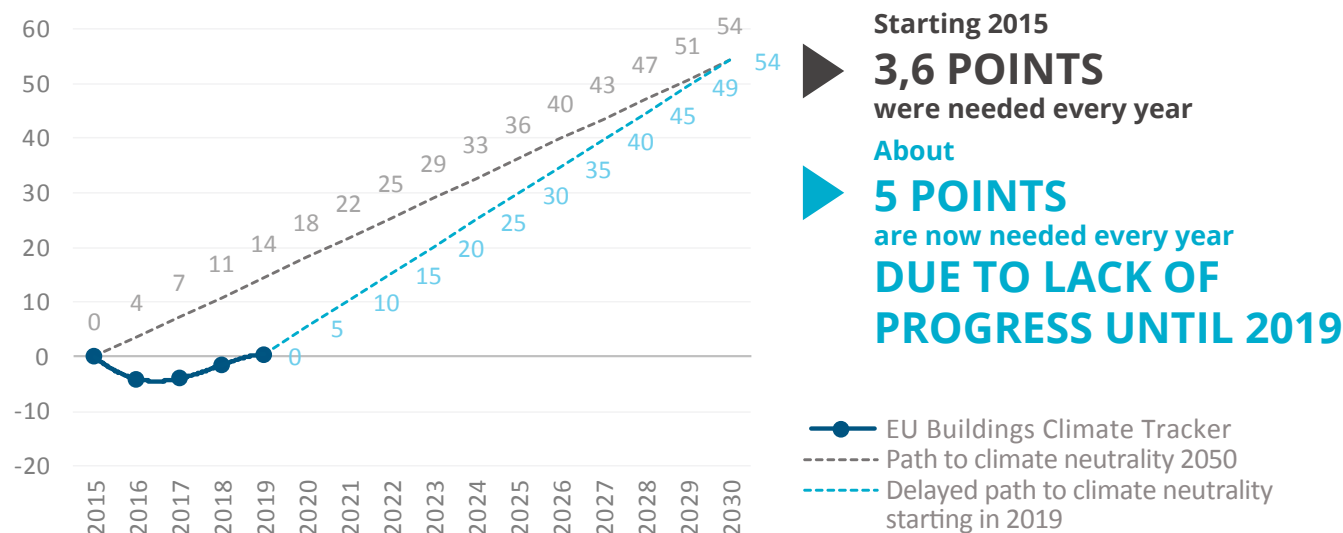


The Tracker also indicates that building decarbonisation is far from progressing at the speed needed, as the growing gap between the index and the pathway to climate neutrality in Figure 3 shows.

The decarbonisation gap, i.e., the difference between observed values (dark blue line in Figure 3) and

the path to climate neutrality 2050 (dashed grey line) has almost doubled between 2016 (8 points gap) and 2019 (14 points gap). **This increase of the decarbonisation gap is due to a decline in decarbonisation between 2015 and 2017, and slow and insufficient progress since 2017.**

Figure 4: Due to the lack of progress (dark blue line) between 2015 and 2019, the path to climate neutrality until the 2030 milestone becomes steeper as of 2019 (light blue line compared to grey line)



The annual improvement rate of the EU Buildings Climate Tracker index between 2015 and 2030, in line with climate neutrality by 2050 (dotted grey line in Figure 4), should have been 3.6. However, the recorded annual average rate between 2015 and 2019 equates 0.12 point (dark blue line in Figure 4).

To get on track and catch up on the delayed path to climate neutrality starting in 2019 (light blue line in Figure 4), the EU needs to pick up speed in the annual improvement rate of the EU Buildings Climate Tracker.

To reach the 2030 milestone, the annual rate of decarbonisation ambition now needs to be at about 5 points. This increased objective is needed to compensate for the slow (almost non-existing) progress between 2015 and 2019.

This analysis also shows that **the more the EU postpones or undertakes insufficient action, the more difficult it will be to catch up.**

DEVELOPMENT OF THE EU BUILDINGS CLIMATE TRACKER

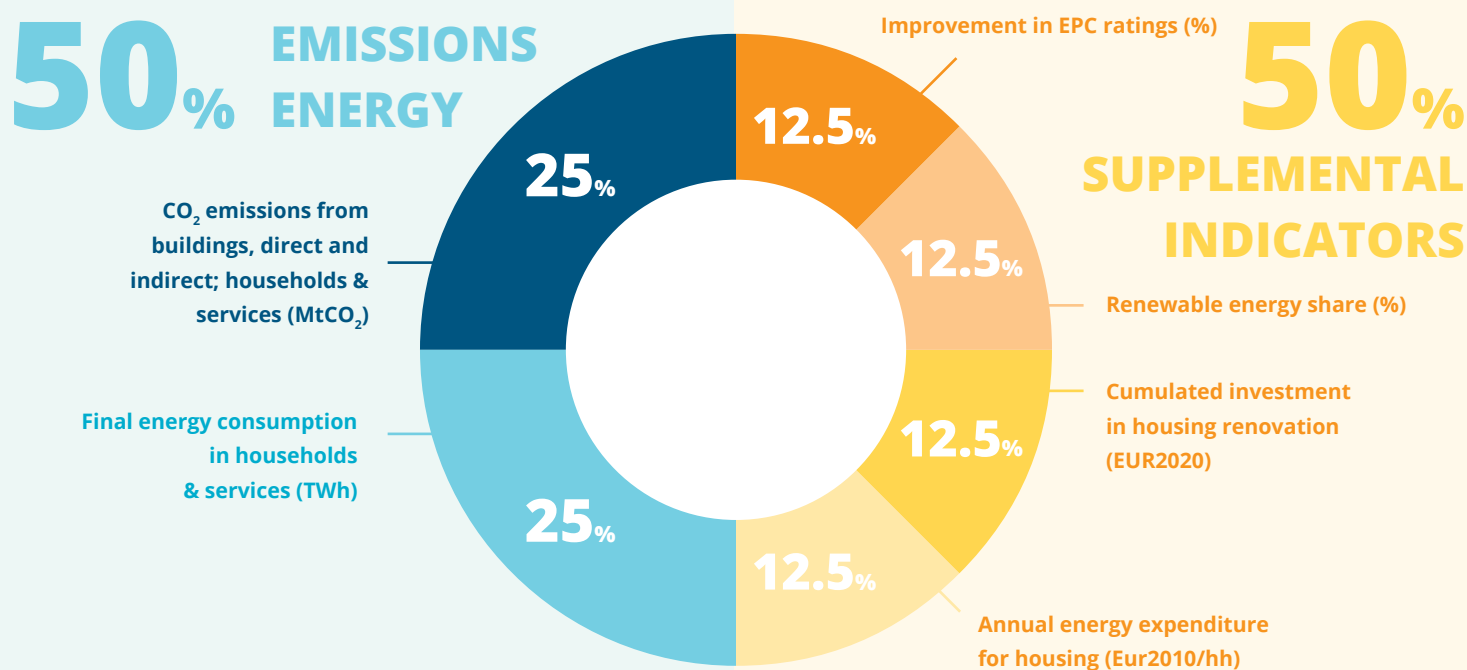
The EU Buildings Climate Tracker is based on a set of 6 indicators chosen by applying the following selection criteria: EU coverage, reliability, consistency over time and across countries, continuity since 2015 and likely data availability in the future. The absolute data provided by the chosen data sources have been transformed into an index, with the value expressed in points.

1. CO₂ emissions from energy use in buildings (direct and indirect) for households and services²
2. Final energy consumption for households and services
3. Improvement in EPC ratings of the building stock
4. Renewable energy share in heating and cooling and for gross electricity consumption
 - A. Share of energy from renewable sources for heating and cooling
 - B. Share of energy from renewable sources in gross electricity consumption
5. Cumulated investment in housing renovation in real terms
6. Annual energy expenditure for housing per household in real terms³

See the annex for more details about the indicators.

The EU Buildings Climate Tracker index consists of an aggregation of all 6 indicators. However, it assumes a different weight for the selected indicators (Figure 5).

Figure 5: indicators and their weighted contribution to the EU Buildings Climate Tracker index



² Direct emissions occur when fossil fuels are burned directly in the building. Indirect emissions occur when district heating and electricity are used.

³ Cumulated investments and annual energy expenditures are inflation-corrected, this means that price increases will largely not affect the indicators.

To compare the observed impacts for the different indicators between 2015 and 2019 in relation to the objective to reach climate neutrality by 2050, goal values have been determined for each indicator. These goal values are based (apart from one) on the MIX scenario used in different Impact Assessments^{4,5} undertaken by the European Commission in the framework of the EU Green Deal legislative work. While the MIX scenario could be called into question regarding its level of ambition and alignment with climate neutrality by 2050, it has been selected as benchmark as it guides the setting of energy and climate objectives at EU level, as well as the adoption and implementation of policy measures.

The Tracker therefore assesses progress between the real situation compared to commonly agreed goals at EU level. The goal value related to the improvement in EPC ratings is not based on the MIX scenario but on existing BPIE research with the idea of fully decarbonising the building stock by 2050.

Further information on the results for each indicator compared to their goal values can be found in a forthcoming paper detailing the EU Buildings Climate Tracker methodology.

POLICY RECOMMENDATIONS FOR THE EPBD REVISION IN THE CONTEXT OF FIT FOR 55 AND REPowerEU

Despite the overall negative performance thus far, decarbonisation of the building stock has started to improve after 2017, albeit not at all at the speed needed. The COVID-19 pandemic in 2020-2022 is expected to be reflected in a decreased energy demand in buildings (mostly non-residential) and connected emissions. **These temporary savings, due to an extraordinary event, do not reflect a structural improvement in the building stock,** only a lower energy use due to reduced economic activity, and a probable shift in the buildings sector from the non-residential to the residential segment. This temporary improvement does not reduce the urgency to act. In fact, it has become even more pressing, as recalled in the latest IPCC report.⁶ The results of the EU Buildings Climate Tracker clearly

show that there is no time to spare: **the EU must immediately, rapidly, and strongly accelerate the rate of building decarbonisation. Progress (especially until 2030) must be drastically increased if the EU is to reach climate neutrality in 2050 in the building stock.**

The EPBD is the main legislative instrument at EU level to advance the decarbonisation of buildings. Its revision offers several opportunities to introduce measures to that end: first, by reducing the energy demand of the stock, and second, by supplying the remaining energy needs with renewable energy. Some of these measures are already introduced in the Commission EPBD proposal, but **their entry into force should be brought forward and their overall ambition level increased.**



To get on track and catch up on the delayed path to climate neutrality, the EU needs to pick up speed in the annual improvement rate of the EU Buildings Climate Tracker.



⁴ *EUR-Lex - 52021SC0611 - EN - EUR-Lex (europa.eu)* (Impact Assessment accompanying Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement)

⁵ *EUR-Lex - 52020SC0176 - EN - EUR-Lex (europa.eu)* (Impact assessment accompanying the Communication 'Stepping up Europe's 2030 climate ambition')

⁶ IPCC, 2022: Summary for Policymakers [H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Lösche, V. Möller, A. Okem (eds.)]. In: *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Lösche, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press



WHAT CAN BE DONE IN THE EPBD MORE SPECIFICALLY TO ACCELERATE THE DECARBONISATION OF THE BUILDING STOCK?

- 1. DEEP RENOVATION SHOULD BE THE DEFAULT APPROACH TO EPBD MEASURES AND BE PRIORITISED AND INTEGRATED INTO THE DESIGN OF FINANCING PROGRAMS**
- 2. MINIMUM ENERGY PERFORMANCE STANDARDS SHOULD BE APPLIED TO THE WHOLE BUILDING STOCK, IN ORDER TO BRING BUILDINGS UP TO A HIGHER LEVEL OF ENERGY PERFORMANCE THAN IN THE COMMISSION PROPOSAL, AND TO OUTLINE A PATH WITH CLEARLY INDICATED MILESTONES BETWEEN 2030 AND 2050 FOR THE ENTIRE STOCK TO BE ZERO EMISSION BUILDINGS (ZEB) BY 2050**
- 3. ZEB STANDARDS FOR ALL NEW BUILDINGS SHOULD BE APPLICABLE AS OF 2025, WITH NO FOSSIL FUEL HEATING ALLOWED**
- 4. SUBSIDIES TO FOSSIL FUEL HEATING SYSTEMS SHOULD BE STOPPED AS SOON AS POSSIBLE AND FUNDING STREAMS SHOULD BE RE-DIRECTED TOWARDS THE INSTALLATION OF RENEWABLE BASED EQUIPMENT, IN LINE WITH A COHERENT AND COMPREHENSIVE RENOVATION ROADMAP**
- 5. FOSSIL FUEL SYSTEMS IN EXISTING BUILDINGS SHOULD BE PHASED OUT BY 2035 AT THE LATEST**
- 6. SOLAR ROOFTOP OBLIGATIONS STEMMING FROM THE REPOWEREU PLAN SHOULD BE COMBINED WITH ATTIC AND ROOF INSULATION ⁷**
- 7. SERIAL RENOVATION PROJECTS ON INDUSTRIAL SCALE, AS WELL AS ADVISORY SERVICES SUCH AS ONE-STOP-SHOPS AND RENOVATION PASSPORTS TO ACHIEVE DEEP RENOVATION, SHOULD BE BOOSTED BY USING AVAILABLE MONEY FROM THE RECOVERY & RESILIENCE FACILITY, COHESION FUNDING, AND ETS REVENUES**

⁷ Adding 20 cm of insulation there can save up to 14% of residential heating energy (around 25 bcm/year): https://www.bpie.eu/wp-content/uploads/2022/05/BPIE_Briefing-EU-Energy-Savings-Plan_Final_HQ.pdf

ANNEX: DETAILED DESCRIPTIONS OF THE INDICATORS

INDICATOR	DESCRIPTION	SOURCE	
1	CO ₂ emissions from energy use in buildings for households and services, expressed in MtCO ₂	CO ₂ emissions from the direct use of fossil fuel energy in buildings and from the production of electricity and heat used in buildings.	ODYSSEE USING DATA FROM THE EEA
2	Final energy consumption for households and services, expressed in TWh	Energy consumption of end-users in households and services sector, excluding consumption of the energy sector itself and losses occurring during transformation and distribution of energy.	EUROSTAT
3	Improvement in EPC ratings, expressed in percentages	Increase in the share of high energy performance classes such as A, B and C and decrease in the share of low energy performance classes such as D, E, F and G.	BPIE OWN ANALYSIS
4	Renewable energy share		
A	Share of energy from renewable sources for heating and cooling, expressed in percentages	Share of renewable energy used for heating and cooling, including solar thermal, geothermal energy, ambient heat captured by heat pumps, solid, liquid, and gaseous biofuels, and the renewable part of waste.	EUROSTAT
B	Share of energy from renewable sources in gross electricity consumption, expressed in percentages	Share of electricity produced from the renewable energy sources including wind power, solar power, hydro power, tidal power, geothermal energy, ambient heat captured by heat pumps, biofuels, and the renewable part of waste.	EUROSTAT
5	Cumulated investment in renovation in real terms (housing), expressed in 2020 Euro	Cumulation of the total investments in renovation of the residential building stock excluding the inflation, i.e., expressed in real terms. It includes the investments that Member States have allocated to renovation activity in their recovery programmes.	FIEC
6	Annual energy expenditure per household for housing in real terms, expressed in 2010 Euro	Annual expenditure spent per household on energy (electricity, heating, and gas) for end uses, such as space and water heating, space cooling, electrical appliances, cooking, lighting.	ODYSSEE

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Funding

This briefing has been made possible thanks to the support of the European Climate Foundation.

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How to cite this briefing: BPIE (Buildings Performance Institute Europe) (2022). EU Buildings Climate Tracker: Urgency to close the buildings decarbonisation gap. Available at: <https://www.bpie.eu/publication/eu-buildings-climate-tracker-urgency-to-close-the-buildings-decarbonisation-gap/>.



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