RECONNECT CHINA

POLICY BRIEF 29

— Dec. 2025 —

Rethinking EU–China Climate Diplomacy in a Shifting Global Landscape

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Executive summary:

The withdrawal of the United States (U.S.) from the Paris Agreement has destabilised global climate governance. This generates growing pressure on the European Union (EU) and China to assume greater responsibility for driving international climate action. Under the Paris Agreement, both remain committed to further reduce their greenhouse gases (GHGs) emissions. Yet, diverging domestic priorities, rising trade competition, and growing geo-economic tensions risk undermining their ability to cooperate effectively.

At the heart of this challenge lies a key dimension of global climate policy that remains largely neglected: non-CO_2 GHGs and short-lived climate pollutants (SLCPs), such as methane and black carbon (BC). Those pollutants are responsible for nearly half of observed global warming and cause severe health damage, yet they remain largely absent from the EU–China climate dialogue and technical cooperation. Their reduction represents one of the most effective near-term strategies to curb warming and deliver immediate health co-benefits.

This brief argues that the EU should recalibrate its climate diplomacy with China by embedding the climate–air quality nexus into its strategic approach. Doing so would strengthen Europe's credibility as a global climate leader, leverage China's domestic experience with air pollution control, and fill the geopolitical vacuum left by U.S. retrenchment.

Policy recommendations:

- Place SLCP reductions with a focus on methane and black carbon at the centre of EU–China climate diplomacy, building on existing bilateral dialogues and multilateral cooperation opportunities.
- Enhance transparency and monitoring of non-CO_2 emissions using joint EU–China scientific cooperation and satellite-based verification systems to measure more accurately progress in emissions reduction.
- The EU-China climate cooperation agenda needs a reboot with more discerning narratives re-opening the door to joint action on reducing SLCPs that affects both climate warming and public health.
- The EU and China could jointly frame action on methane and black carbon emissions reduction as

an urgent measure to protect the world's glaciers and cryosphere in the Arctic and the Himalayan Plateau (aka 'Third Pole') by adopting a coordinated action plan for which China and the EU both have a major reduction potential.

INTRODUCTION

The climate–air quality nexus, the intersection between climate mitigation and the reduction of air pollutants, has long been underappreciated in international climate diplomacy. While CO_2 dominates political discourse, key SLCPs like methane and black carbon (BC) could avoid up to 0.6°C of warming by 2050 (Sun et al., 2022).

Methane, the second most detrimental GHG, has a warming effect over 87 times greater than CO_2 over a 20-year period (Mukherji et al., 2023) and up to 36 times greater over a 100-year timeframe (Khanna et al., 2024). BC is the second most important climate-warming agent overall (Bond et al., 2013). Unlike CO_2, these pollutants remain in the atmosphere for relatively short periods, from about a week for BC to about 12 years for methane. This means their reduction yields rapid climate benefits and buys critical time to decarbonise, while simultaneously reducing air pollution-related deaths and diseases as well as biodiversity loss (Shindell et al., 2012; Shindell et al., 2021).

For the EU, whose warming rate is twice faster than the global average (van Oldenborgh et al., 2009), embedding this climate-air quality nexus into its external climate engagement with China as the world's largest emitting country is increasingly urgent. In recent years, while EU-China climate cooperation is viewed as a strategically indispensable 'oasis' that needs to be actively deepened and shielded from geopolitical rivalry and economic competition through a hybrid approach balancing cooperation with constructive competition (Tsang & Schäpe, 2023), EU-China climate cooperation has failed to yield substantive results since the post-COVID-19 resumption of high-level talks, remaining limited to symbolic dialogue due to perceptual and interest-based barriers (Pongratz & Rabe, 2025). Seizing the emerging global momentum on the need to accelerate climate and air quality synergies could help reboot the bilateral cooperation.

China, for its part, has made notable progress in air pollution control, with strong reductions in $PM_{2.5}$ concentrations since 2013 (Geng et al., 2024). Yet methane and BC still lack the regulatory depth and enforcement mechanisms seen in CO_2 and $PM_{2.5}$ control policies (Yamineva & Liu, 2019; Zhang et al., 2025). With its "dual-carbon" goals (peaking CO_2 by 2030 and reaching neutrality by 2060) and its 2022 shift towards a more synergistic approach of climate and air quality policies, China is an increasingly consequential actor in climate governance, while searching for a balancing of its developmental needs with domestic ecological constraints. The relevance of the climate-air quality nexus approach to the EU-China climate cooperation and the EU's policy goals is twofold:

1. **Global Climate Imperative**: Paris Agreement objectives cannot be met without a rapid reduction in SLCPs. The combination of the CO_2 'marathon' and the SLCP 'sprint' is necessary to keep the 1.5∘C guardrail and the well-below 2°C target in sight.
2. **Geopolitical and Green Deal Alignment**: With the U.S. having historically led bilateral methane reduction dialogues with China, the EU has an opportunity to fill the resulting diplomatic vacuum. Furthermore, integrating climate and air quality goals through more active transboundary air pollution control and coordinated regulation aligns with the EU Green Deal and Clean Industrial Deal (CID) by increasing the chances for both the EU and China to achieve their respective climate neutrality and air quality goals while co-developing global carbon market standards.

This policy brief explores how the EU-China climate cooperation, as one of the most consequential relationships shaping global climate futures, can be recalibrated by integrating the climate-air quality nexus to help deepen and sustain bilateral climate cooperation despite geo-economic tensions while securing continuing progress towards the Paris Agreement goals.

The SLCP Mitigation Sprint: A Policy Priority for Near-Term Warming

A key challenge in this early twenty-first century for the EU-China climate cooperation is to figure out how to combine the SLCP 'sprint' with the CO_2 'marathon' in optimal ways to make climate warming mitigation and adaptation capacities more resilient and to avoid irreversible tipping points. This requires rapid and synchronised action across both short-lived climate pollutants (SLCPs) and long-lived gases like CO_2 which must involve massive increases in clean energy investment as well as international cooperation which is essential to align mitigation efforts across sectors and pollutants (IEA, 2023b). For decades, SLCPs have been largely overlooked in international climate negotiations, overshadowed by CO_2, and often regulated solely through $PM_{2.5}$ air quality standards. This is a massive, missed opportunity for rapid climate mitigation.

Methane is responsible for approximately 0.5°C global temperature increase (Shindell et al., 2021). The International Energy Agency (IEA) estimates that methane is responsible for around 30% of the rise in global temperatures since the Industrial Revolution, second only to carbon dioxide, and that the energy sector (oil, gas, coal) accounts for over a third of methane emissions from human activity (IEA, 2024).

China is the world's largest methane emitter, accounting for nearly one-fifth of total annual anthropogenic emissions in recent years (Shindell et al., 2021). A study shows that China's coal sector alone accounts for 22% to 43% of its methane emissions (Liu & Teng, 2025). The IEA estimates that over 75% of methane emissions from oil and gas operations can be reduced using existing technologies, and for coal mining over 50% of emissions could be cut through methane utilisation or flaring (IEA, 2023a). While the Global Methane Pledge has 160 participating countries, China is not among them (GMP, 2021). But China's 14th Five-Year Plan (2021–2025) mentioned tightening methane control in the energy sectors with the greatest reduction necessary from coal mines and agriculture in particular (Zhu et al., 2025). And in November 2023, the Methane Emission Control Action Plan was issued, aiming to establish a methane supervision system to effectively and systematically control emissions (Zhu, 2024).

As the international community increasingly focuses on methane emission reduction, strengthening international exchanges and cooperation becomes more crucial. With the EU's prior commitment to finance global methane emissions reduction (Lorenzato et al., 2022), a portion could now be redirected towards greater bilateral and global action with China. For example, both sides could cooperate on setting quantitative methane reduction targets of at least 30% non-CO_2 reduction by 2035 for the coming decade through their Nationally Determined Contributions to the United Nations Framework Convention on Climate Change (UNFCCC). They could also jointly develop action plans for closing mines with highest mitigation potential, deepen scientific collaboration on satellite monitoring and data sharing, and use the EU Methane Regulation as a model to require from importers higher reporting and data transparency levels.

Another key part of the SLCP mitigation sprint is the continuing reduction of BC emissions in the EU and China. BC, a major component of fine particulate matter ($PM_{2.5}$), is the second-largest contributor to global warming after CO_2 and significantly accelerates ice and snow melt in sensitive regions like the Arctic and the Tibetan Plateau (Bond et al., 2013).

In China, the world's largest BC emitter, its emissions mainly come from residential coal and biomass burning for cooking and heating, diesel-powered heavy-duty trucks, and industrial processes (iGDP & WEF, 2024). While China has made significant progress in reducing $PM_{2.5}$ pollution levels since 2013 through policy optimisation, industrial transformation, and regional coordination, it needs to further strengthen its air quality standards to keep moving toward the annual average PM 2.5 concentration of 25 micrograms per cubic meter, which is the second interim target of the World Health Organization (WHO) that would mark a significant step in protecting public and environmental health (Qiu, 2025).

In the EU, residential heating and transport remain the key contributors (Klimont et al., 2017). Because its atmospheric lifetime is about a week, reducing BC delivers immediate public health gains and near-term climate benefits. Globally, BC exposure contributes to over 4 million premature deaths annually (Amann et al., 2011). Both the EU and China have made progress

through their air quality policy responses that have driven down $PM_{2.5}$ levels, but targeted BC measures remain limited. Enhanced EU-China cooperation and constructive competition could help increase adoption of clean cooking and heating technologies, tighten vehicle emission standards, and promote cross-border BC monitoring networks. Jointly integrating BC mitigation into their Nationally Determined Contributions (NDCs) and aligning with the Climate and Clean Air Coalition's framework would amplify co-benefits for climate resilience and health.

Engaging China through SLCP mitigation, with a focus on methane and black carbon as low-hanging fruits, could help reframe the EU-China climate discussion from a purely global obligation to a shared public health imperative whose resolution could benefit both parties and the world.

Diverging Narratives, Converging Interests

As the EU and China navigate the complexities of climate cooperation, particularly around the air quality-climate nexus, the narratives shaping public and diplomatic perceptions matter as much as the policies themselves. While China still has significant domestic homework to complete the phase-out of its coal-based power generation and industries, its rapid emergence as a global cleantech provider is reshaping geo-economic relations, especially against the backdrop of backsliding among some major fossil fuels exporters. This means that narratives emphasising China's strategic goals and its cleantech dominance have increasingly obscured the mutual, non-competitive benefits of continuing and deepening collaboration on shared goals like SLCP mitigation.

While it is a fact that China's massive investments in clean energy technologies and industrial decarbonisation are tightly linked to domestic priorities such as energy security, economic competitiveness, and public health, this does not preclude climate commitment. The inclusion of ever-stricter emissions targets and synergistic approaches in national planning documents, and the gradual tightening of methane controls, suggest that Chinese policymakers are not indifferent to climate risks if only out of national self-interest. Rather, they appear to navigate a balancing act seeking to advance climate goals without compromising domestic economic imperatives.

This duality, self-interest intertwined with climate ambition, is also increasingly visible in the EU's recent policy agenda, notably with the rebranding of the Green Deal as a Clean Industrial Deal.

The EU must adopt a strategy of discerning engagement with China, actively collaborating to accelerate the reduction of GHGs and SLCPs globally, while simultaneously mitigating security risks and economic dependencies associated with Chinese cleantech imports. This approach must be intrinsically linked to a robust Made in Europe industrial strategy focused on scaling up domestic cleantech manufacturing, which will generate public support through job creation and retraining, deliver public health co-benefits (reducing healthcare costs), and lessen reliance on volatile fossil fuel imports. To meet legally binding climate targets and provide a tangible answer to the key criticism in the 2024 Draghi Report (Draghi, 2024) that the EU's climate ambition lacked a matching industrial strategy, the EU must strategically leverage readily available cleantech (like solar, wind, or electric trains) to temporarily compensate for current production shortfalls and budget limitations.

In short, by recognising the mutual interests of the EU and China at the climate-air quality interface, it could unlock new momentum for making progress not only on carbon neutrality goals, but also concerning air and water quality, public health, agricultural resilience, and biodiversity protection and regeneration.

Conclusion

The EU's climate diplomacy with China stands at a crossroads. U.S. disengagement has created both a vacuum and a responsibility: without proactive EU-China cooperation, the Paris Agreement targets risk slipping permanently out of reach. Yet continued rivalry in clean technology, combined with geo-economic tensions, complicates cooperation.

By recalibrating its approach, the EU can transform these tensions into opportunities. Placing the climate-air quality nexus with a sharp focus on methane and SLCPs at the centre of its strategy offers a fast, effective, and politically viable pathway to curb near-term warming, reduce health costs, and reinforce Europe's global climate leadership. Failure to prioritise the SLCP 'sprint' risks not

only global climate objectives but also a missed opportunity for the EU to cement its role as a decisive climate and clean industry leader in a fragmented world.

Such kind of leadership requires pragmatism by acknowledging interdependence in low-carbon technologies, and narrative adaptation by speaking to China's priorities, while advancing the competitiveness of the EU's low-carbon industry.

In summary, by aligning with China's "dual-carbon" and air pollution goals, the EU can tap into a powerful lever for more decisive action on non-CO_2 climate warming pollutants. This approach, if managed with clear conditions and strategic intent, offers a path to accelerate global climate action while reinforcing, rather than compromising, European autonomy and climate stability.

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Funded by the European Union

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