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Electrification, fossil fuels, methane and carbon capture: four key debates around the energy transition at COP31

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Electrification, methane abatement, the transition away from fossil fuels and carbon capture, utilization and storage all featured prominently in negotiations in Antalya. Yet the heated exchanges and repeated disagreements masked very different debates, shaped by a mix of technical, political and tactical considerations. This blog post unpacks what happened at COP31 in relation to energy-related topics, the political dynamics that shaped it and contextualizes this in relation to what climate science says.

In the run-up to COP31, the Turkish Presidency had proposed a collective global goal to increase the share of final energy demand met by electricity from just over 20% today to 35% by 2035. This was seen as a key opportunity for the summit to send a clear political signal in support of electrification, backed by a package of practical measures to accelerate action amid an unprecedented energy crisis.1 The electrification target and an accompanying package received broad support at COP31, however, governments failed to reach consensus on a final cover decision, including reference to this goal. Disagreements over the inclusion–or omission–of energy-related language on issues such as carbon capture, utilisation and storage (CCUS), the transition away from fossil fuels (TAFF) and methane (notably from oil & gas extraction) were among the factors that prevented its adoption.

Electrification, methane and carbon capture utilization and storage: what does the science says

COP31 successfully put in the global agenda the need to accelerate electrification. Electrification of final demand uses is a major pillar for the energy transition and through agreed investments in grids and storage, a necessary step to enhance energy access and decarbonize buildings, transportation and industries. The IEA found that 33% of electrification can be achieved by 2035 in a cost-efficient manner. It could also cut fossil fuel-import dependence for many countries, bring more predictable supply and prices. With 35% of electrification by 2035, energy import bills could fall by more than $400 billion by 2035 compared with 2025 levels.2 And it complements existing policy and support mechanisms for the production and supply of renewable and clean electricity.

Action on methane emissions abatement was a priority for several countries, including for France, as key action in response to the overshoot of the 1.5°C temperature goal, and was featured in the draft cover decision, building on existing efforts such as the Global Methane Pledge. It matters because methane traps more heat than CO_2 but remains in the atmosphere for much less time. As a result, cutting methane emissions is critical to slow the increase of global temperatures, and has been getting renewed political attention, in the context of rapidly rising global temperatures. In addition, many cost-effective solutions already exist to do so, especially in the oil and gas production sector.

Finally, a CCUS global target was introduced in the cover decision in the final days of the negotiations and became a central point of debate, especially whether this inclusion meant back-tracking on existing TAFF language. The IPCC considers CCS alongside renewables and demand-side measures in modeled pathways to net zero, but is also clear that it cannot substitute for immediate and deep emission cuts, nor for a substantial reduction in fossil fuels.3 The controversial CCUS global target in fact comes from the recent IEA's net-zero emission scenarios, which highlight that CO_2 emissions captured annually will have to grow rapidly over the next decade to 2.2 $GtCO_2$ by 2035.4 While most net-zero scenarios contain carbon storage abatement, it is also understood that further analysis is needed to better estimate geological, technological, spatial and economic barriers related to the CCS deployment in countries.5

The four debates around the energy transition: what were COP31 negotiations about ?

Political decisions do not always align with the pathways indicated by climate science and technical assessments. This tension has long been part of COP negotiations, but it does not make the evidence any less relevant. The challenge is to translate these pathways into political choices and practical cooperation, balancing different priorities, national circumstances and the conditions needed to accelerate the transition.

Against this backdrop, countries sought to agree on what accelerating the global energy transition means in practice for international cooperation: which technologies and pathways should be prioritized, how the transition can be financed and how its benefits and costs can be shared fairly. The discussions in Antalya brought these tensions into sharp focus, particularly in the negotiation on a cover decision. From the role of electrification and carbon capture to the support needed to turn global targets into action, building on previous commitments, four key debates illustrate both the points of contention and the opportunities to move forward on the different levers of the energy transition.

1. **Will the electrification target risk locking-in further fossil-based electricity?**

In the first week of COP31, one of the main concerns, raised by the European Union and many civil society representatives among others, was the absence of an explicit reference to ‘clean’ electricity–i.e., made from nuclear or renewable sources–in the proposed target. The fear was that electricity demand growth to meet the 35x35 target might be satisfied using fossil-generated electricity, and potentially support new investment in fossil capacity.

This risk needs to be considered alongside the dynamics already shaping electricity markets. In the past decade, the vast majority of new electricity demand was met with clean power, an average addition of 560 TWh/year with an acceleration in the past years[6] and this trend is expected to continue and strengthen at the global level. However, the main technical bottlenecks for higher inclusion of renewable production in the coming decades increasingly relate to increasing investments in grid infrastructures and system flexibility including storage.

These supply-side dynamics are quite independent from the sectoral demand-side dynamics in buildings, transport, and industry, suggesting that additional electricity demand growth is not likely to push for new fossil-fuel assets.

Moreover, electrification can deliver energy efficiency gains even when the electricity mix is not yet fully clean. For example, an electric vehicle is two-to-four times more efficient than an internal combustion engine one. Transport fuel demand represents today about half of the global oil demand, making the electrification of vehicles, alongside structural changes such as avoiding demand and shifting towards collective modes, a critical mitigation strategy. Electric vehicles, wherever the electricity used is made from, still emits less over its lifetime than conventional fossil fuel-based vehicles. Therefore, the IEA finds that end-use electrification can generate significant emissions reductions even under the least optimistic scenarios for clean electricity supply, under existing policy and technology trends, with further gains possible with additional ambition. Finally, and

perhaps most importantly, electrification and support to grids and storage development is an important signal to ensure energy access for households and for industries, which is at the heart of many countries' development pathways.

Benefits of accelerating electrification are likely to outweigh potential risks of locking-in further fossil fuel-based electricity generation, while providing a positive signal for demand-side policies for the energy transition. Europe ultimately saw an opportunity to prioritise progress on electrification and accepted the proposed wording without an explicit reference to "clean" electricity, in order to facilitate consensus.

2. Why was a carbon capture, storage and utilization (CCUS) target included, without apparent support from a group of countries?

"CCUS" is used to describe various technologies which capture CO_2 emissions from industrial processes or energy generation using fossil fuels or directly from the air; then store it underground (CCS) or re-use it in other industrial transformation (CCU), making these processes CO_2-neutral or CO_2-negative. Most such technologies are pre-commercial and little capacity is deployed worldwide.

In the last draft of the cover decision, the Presidency included a target to "increasing carbon capture, utilization and storage deployment with an aim to achieve gigatonne scale globally by 2035".

Unlike the electrification target, which had been launched in September as one of the key priorities of the COP31 Presidency, and was supported by the Electrify Now campaign, bringing together governments together with business, industry, civil society and finance to accelerate clean electrification, the CCUS target had not been supported publicly by a coalition of countries, nor proposed by a campaign of non-state actors. The process by which it was inserted in the text had happened behind closed doors, without opportunities for Parties to openly discuss it, and was deemed untransparent.

Fossil-fuel producing countries have long sought to promote CCUS technologies in international negotiations, as it would have the potential to decrease GHG emissions while allowing much of the existing fossil-fuel infrastructure to remain in use, and can also be used to enhance fossil fuel production today. CCUS and carbon removal may also be needed in the longer term to address overshoot and residual emissions. However, many of these technologies remain at an early stage of development or deployment compared with some other mitigation options, including electrification. This makes the timing crucial: ambitious assumptions about their future availability and scale should not come at the expense of accelerating proven mitigation options in the near term..

In cover decision negotiations, inserting a CCUS target could have been a bargaining chip, to counterbalance the electrification target. This was compounded by the absence of any clear link to the broader transition away from fossil fuels, raising serious concerns that the target could open the door to using CCUS to prolong dependence on fossil fuels, instead of driving the structural changes needed to phase out fossil fuel-based energy production.

3. How to ensure global targets are credibly implemented and how to finance them?

Reaching consensus on specific targets of the energy transition in international negotiations has become harder without progress on climate finance and support to least developed countries. While global targets can help establish direction and facilitate assessment of global progress, they are derived from top-down and global assessments that do not automatically address different country circumstances.

For some emerging economies, the proposed 35% global target may imply a particularly significant acceleration and overcoming significant implementation obstacles. According to the Council on Energy, Environment and Water (CEEW), India, for example, would reach an electrification share of around 27% by 2035 under current trends. And for some African countries, high cost of capital remains an obstacle to deploy more renewable energy and close the energy access gap. Some fear new targets are ineffective in the face of a widening implementation gap for existing commitments.

Without additional policies, infrastructure and investment, there is a risk that global benchmarks will remain easier to achieve for countries that already have relatively high electrification rates and greater financial and institutional capacities. The delivery package adopted under the Global Climate Action Agenda aims to bridge this gap. However, without progress on aligning finance flows with climate goals, the perceived risk that the burden of delivering global mitigation targets will increasingly fall on developing countries is politically unacceptable for these countries without adequate financial support.

4. Was the final cover decision a stepback from previous commitments?

The failure to reiterate language on transitioning away from fossil fuel was portrayed as one of the main reasons the European Union, Panama and other countries rejected the final deal presented by the COP31 Presidencies. On the one hand, outcomes agreed on energy in the UAE Consensus, including transitioning away from fossil fuels, still stand and it would not be useful to use cover decisions at subsequent COPs to re-negotiate these commitments, but rather cover decisions can be leveraged to identify new actions to accelerate their implementation.

On the other hand, the COP30 Presidency published before COP31, as a voluntary initiative, its Global Roadmap to Transition Away from Fossil Fuel, which brought new elements on specific implementation pathways and unpacking types of country circumstances. This is an example of actions aiming to bridge the gap between what the science says, implementation on the ground, and political decisions taken at COP and would need better recognition in the COP process to give it more weight. Without the cover decision, countries can still continue to be encouraged to implement the Roadmap and assess what the transition away from fossil fuel means in their own national contexts, integrate it into their domestic energy planning and submit such assessments, including country-specific barriers and enablers, in the run-up to the second Global Stocktake. This includes aligning it with existing long-term low-emissions development strategies or developing dedicated national roadmaps for transitioning away from fossil fuels.[7]

Conclusion and next steps

The disruption of fossil fuel supplies linked to the Strait of Hormuz crisis has once again exposed the vulnerability of fossil-fuel dependent countries, especially net importers. The shock has accelerated policies

towards electrification and will continue to drive the energy transition because of economics and energy security concerns, but additional efforts are needed to meet the goals of the Paris Climate Agreement. Even without a formal agreement on a cover decision, COP31 comes out with an ambitious pledge[8] and delivery package[9] by at least 80 countries, alongside 260 businesses, 37 cities and other non-state actors[10] which could implement 33% of global electrification, from under 30% before COP.[11]

COP31 will stand out as “the electrification COP” and has successfully surfaced useful political debates and technical discussions about policy options to accelerate the transition away from fossil fuel. It raised political attention to the enabling conditions for electrification, particularly grids, storage and system flexibility, while creating stronger demand for renewable electricity and strengthening the business case for its further deployment. This momentum, fed by a broad coalition of governments, businesses and civil society actors, will continue–including in energy forums, coalitions of the willing and other news forms of international climate cooperation–providing what could be a pragmatic reset for climate diplomacy (IDDRI, 2026).

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1 https://www.iddri.org/en/publications-and-events/blog-post/cop31-electrifying-breakthrough-or-geopolitical-blackout

2 https://www.iea.org/reports/electrification

3 IPCC AR6 SPM

4 IEA, World Energy Outlook 2026.

5 Deep Decarbonization Pathway Annual Report 2024, part 1.2. CCS, countries covered: Argentina, Brazil, China, India, Indonesia, Mexico, Nigeria, South Africa, United States.

6 https://www.iea.org/reports/electrification

7 https://www.iddri.org/en/publications-and-events/blog-post/transitioning-away-fossil-fuels-what-cop30-presidency-roadmap-and

8 https://zerocarbon-analytics.org/energy/progress-clean-energy-electrification-cop31/

9 https://unfccc.int/sites/default/files/resource/Electrify%20the%20World%20The%20COP31%20Action%20Agenda%20Electrification%20Delivery%20Package_

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https://unfccc.int/sites/default/files/resource/Electrify%20the%20World%20The%20COP31%20Action%20Agenda%20Electrification%20Delivery%20Package_

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