DISCUSSION PAPER

Climate Alliance

Discussion Paper for Climate Alliance Members

On net-zero and carbon neutrality – pathways to a low carbon future

This paper is not a formal resolution, nor is it a Climate Alliance position paper. It is designed to bring some key, high-level and significant issues to the General Assembly meeting at the CAIC19 in Rostock for discussion with and between Climate Alliance Members. Outcomes of that discussion will be used to help formulate future positions and how we work towards and communicate on carbon reduction.

This paper will be debated in Rostock and contains questions to guide discussion. If you are not able to attend, we invite you to send your comments to Andy Deacon at ***a.deacon@climatealliance.org*** *in English or Thomas Brose at* ***t.brose@climatealliance.org*** *in German.*

PART 1: "NET-ZERO" PATHWAYS AND "NEGATIVE EMISSIONS"

The EU Long-Term Emissions Strategy

Since the adoption of the Paris Agreement with its long-term goal of keeping global warming "well below 2°C" while gradually working towards a more ambitious 1.5°C target, attention has increasingly turned to how these limits can be met.

In response to the 2018 UNFCCC Climate Summit in Katowice, the European Commission released their scenario analysis[1] for a "net-zero" Europe by the year 2050.

This is not a new legislative proposal, but some new analysis that builds on the recommendations arising from the IPCC special report on 1.5°C and sets out a range of scenarios and initiatives across Europe to reach "net-zero" emissions by mid-century. The proposed strategy does not intend to launch new policies, nor does the European Commission intend to revise 2030 targets. It is meant to set the direction for EU climate and energy policy. It thus frames what the EU considers as its long-term contribution to achieving the Paris Agreement temperature

[1] https://ec.europa.eu/clima/policies/strategies/2050_en, https://ec.europa.eu/clima/sites/clima/files/long_term_strategy_brochure_en.pdf

objectives in line with UN Sustainable Development Goals, which will further affect a wider set of EU policies. On pathways and targets, the paper notes that:

> "The IPCC report confirms that the world needs to limit climate change to 1.5°C to reduce the likelihood of extreme weather events. It also emphasises that emissions need to be reduced with far more urgency than previously anticipated. In order to limit temperature increase to 1.5°C, net-zero CO_2 emissions at global level needs to be achieved around 2050 and neutrality for all other greenhouse gases somewhat later in the century. At this point, any remaining greenhouse gas emissions in certain sectors need to be compensated for by absorption in other sectors, with a specific role for the land use sector, agriculture and forests."

A set of eight scenarios towards delivering a 1.5°C pathway were produced (in a 400 page accompanying document[2]). Various scenarios investigated the effects of substantial gains in energy efficiency or the circular economy, but only one combination scenario delivered the required levels of emissions reduction. A summary of the building blocks for these European Commission scenarios is shown below.

Perhaps expectedly, all of the eight EU Commission scenarios focus solely on CO_2 and CO_2-equivalents without taking the multifaceted benefits of biodiversity, ecosystem services and restorative land use into account. Emissions calculations are only ever estimates and aspects that are nearly impossible to reduce to numbers alone are often ignored, although they are no less important. As such, none of these scenarios can be reconciled with Climate Alliance's climate action principles[3], which call for climate action that is fair, nature-based, local, resource-saving and diverse.

[2] https://ec.europa.eu/clima/sites/clima/files/docs/pages/com_2018_733_analysis_in_support_en_0.pdf
[3] http://www.climatealliance.org/about-us/climate-action.html

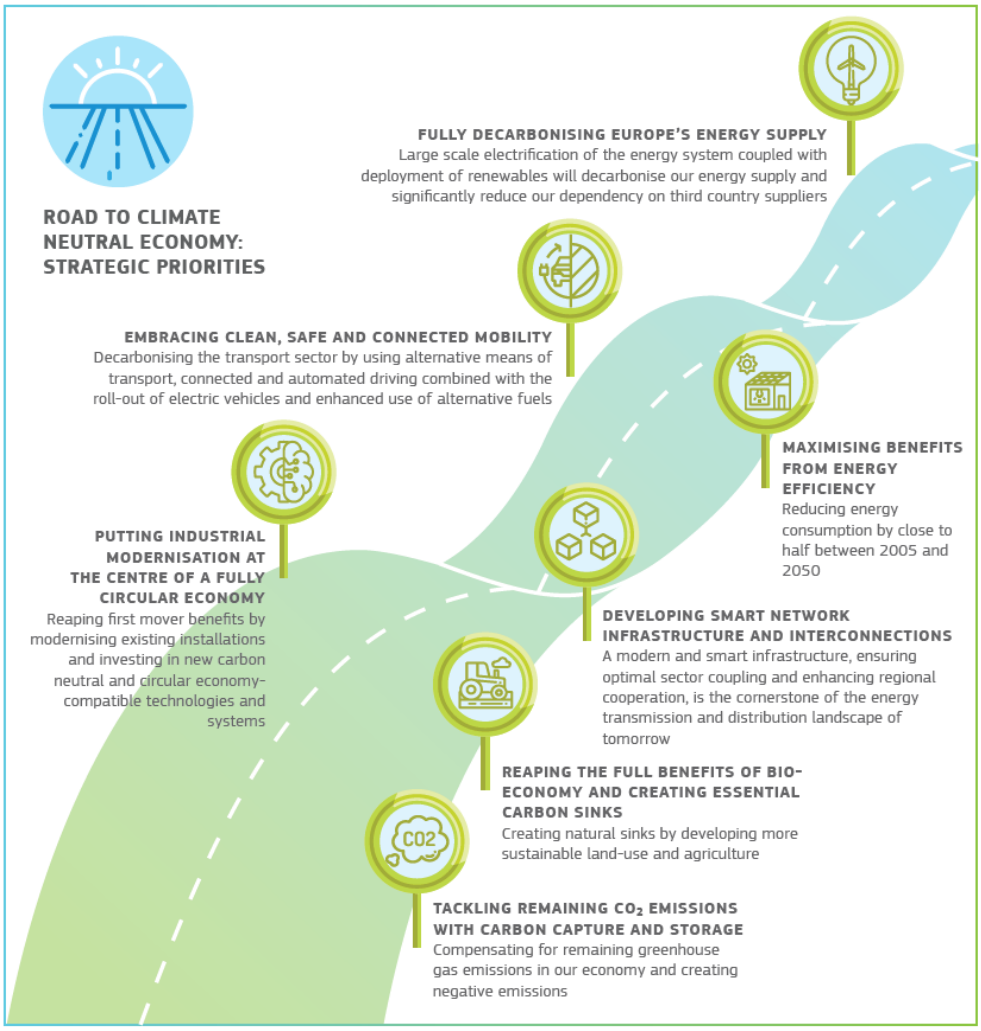


Figure: Building blocks of EU Commission Scenarios[4]

The strategies behind the wording

Today we face multiple crises – loss of biodiversity, soil degradation and environmental pollution just to name a few. The causes of these tragedies are unambiguously linked to our narrow focus on economic values and the coinciding destruction of our relationship with nature. Indigenous peoples show us that it needn't be that way – indeed, reconnecting to the natural world and strengthening our understanding of it as a provider of vital resources could do much to help us out of the many of these crises. So while greenhouse gas emission reductions are also of the essence, it remains true that the variety of crises at hand cannot be confronted with CO_2 equivalents alone. None of the scenarios suggested thus far, whether by the EU or the IPCC, take a truly holistic approach that can address climate change along with the variety of other, multi-dimensional challenges that we face.

[4] https://ec.europa.eu/clima/sites/clima/files/docs/pages/vision_1_emissions_en.pdf

In view of emissions targets alone, however, scientists agree that we need to limit warming to 1.5°C or 2°C, which translates to a targeting of zero emissions by mid-century. Since zero emissions is, by virtue of our very existence, not possible, such scenarios typically rely on the quantification of "negative emissions", extracting CO_2 from the atmosphere and storing it on land, underground or in the oceans and/or offsetting, the purchasing of carbon credits elsewhere in the world instead of reducing emissions at their source.

Several terms are often used, at times interchangeably, by the international community in this context, including "carbon neutral", "climate neutral" as well as "zero carbon" and now "net-zero". All are dangerously misleading.

Even though there is no official definition of "net-zero" per se, this term in particular is broadly used in the last IPCC report. While such language is related to the concept of carbon budgeting, it also borrows heavily from financial sector terminology and concepts. It would be it would be a grave misstep to let the financial system become the sole guiding principle for action on climate mitigation. Instead, science must guide our action in formulating responses to climate change.

Climate Alliance thus advises caution when using such terms, as they can leave the door open to dubious calculations and policy instruments based on large-scale technological solutions that lock-in investment often directed to other upstream solutions instead of actual reductions at their source. At a time when every one of us must act, terms like carbon neutral and net-zero can encourage business as usual thinking, normalising the comfortable belief that we can continue as we always have as long we can pay others to act on our behalf.

BOX 1: CARBON REMOVAL TECHNOLOGIES AND OFFSETTING

Carbon Removal

Even IPCC work includes scenarios that allow for a limited overshoot with temperatures temporarily going above targets and CO_2 then being removed from the atmosphere in order for temperatures to return to target levels. Bioenergy with Carbon Capture and Storage (BECCS), the process of extracting bioenergy from biomass and then capturing the resulting emissions and Direct Air Capture, separating carbon dioxide for storage from air directly, are the most prominent carbon-negative technologies. However, their effectiveness is unproven at large scale and some may carry significant risks for sustainable development (IPCC). These very costly technologies will require years of research and development before broad deployment is even possible. The millions of euros needed would be better invested in the development of renewable energies.

Carbon credits

The idea of compensating CO_2 emissions evolved from the Kyoto-Protocol. The principle: an investor carries out a project that results in a reduction of emissions as compared to what would have occurred without the project (principle of additionality). Emission credits are obtained in return that can then be purchased by large-scale emitters of CO_2 elsewhere in the world. If fewer and

fewer credits are available for purchase each year, the price of CO_2 will increase to the point at which emitting greenhouse gases becomes cost prohibitive. Unfortunately, the price for CO_2 in these schemes often stagnates as credits are not adequately removed from the market.

Offsetting

Consumers, households, SMEs and other CO_2 emitters can opt for voluntary compensation. The criteria for the projects behind carbon credits on the voluntary market are, however, not uniform. The resulting CO_2 reductions are difficult to verify as is the additionality of these reductions, making fraud and overestimated CO_2 reductions a real problem. All this places the actual contribution of such offsets to climate protection on shaky ground. Despite this, offsetting is often dangerously used to legitimise business as usual behaviour that can even lead to increased total emissions.

Climate Alliance positions relating to net-zero emissions

Given the new international and EU policy context, but also considering recent scientific findings, it is an important time for Climate Alliance to clarify its position on net-zero and with regard to the European net-zero strategy in particular.

Climate Alliance climate action principles, distilling the positions and resolutions of the network over the last quarter century, call for measures that are fair, nature-based, local, resource-saving and diverse. Climate Alliance agreed on a clear position more than 10 years ago on so-called carbon sink projects in its resolution on CO_2 emission compensation. Other stakeholders, too, share positions aligned with Climate Alliance principles. FERN, for example, more recently published a paper[5] listing the main problems with BECCS including limited actual carbon dioxide removal, technical and financial barriers, risks of over-using land needed for food production, impacts on biodiversity, etc.

Regenerative agriculture and sustainable land use both present diverse opportunities to fix atmospheric carbon via nature-based solutions that work with nature instead of against it. Reduced or no-tillage systems, agroforestry, intercropping and crop-livestock integration, cover crops and crop rotations all fall under these categories of carbon storage. Indeed, many such methods have been practiced by our indigenous partners for millennia. They not only offer a low-cost, low-tech way to approach net-zero emissions, they also offer a wide variety of other benefits including enhanced climate change adaptation, soil regeneration, biodiversity conservation and the strengthening of local (rural) economies, just to name a few. At UNFCCC COP 21, the French Government launched the most prominent carbon sequestration initiative “4 per 1000”, which set a global aspirational goal to increase soil organic carbon stock at an annual rate of 0.4% per year (or 4 per 1000) in all land covers and uses, including forests. This increase would sequester 6.2

[5] https://www.fern.org/news-resources/six-problems-with-beccs-57

Gigatonnes of carbon annually[6]. As the current annual increase of CO_2 emissions amounts to approximately 0.2 GtC globally, this sequestration rate would stand to significantly reduce the concentration of atmospheric CO_2 over time.

Questions for discussion on net-zero emissions and potential ways forward

1) **Do we want to use the term net-zero at all?**

    a. No, we should try to avoid it where possible and use another term instead (near zero, virtually zero...)
    b. Yes, but we need to define what it means for us in accordance with our principles

2) **What are the implications of using the term "net-zero" for the Climate Alliance network and individual member cities?**

    a. We should note the discussion amongst members, publish a position paper and share it among Climate Alliance cities and beyond
    b. The European Secretariat should meet with the European Commission and Parliament to raise concerns about the focus on large scale centralised technology at the expense of local action and pitch solutions in line with Climate Alliance principles
    c. Municipal policies in the member cities and towns on emissions reduction and offsetting need to be revised, in line with the latest science and the Climate Alliance position

PART 2: CLIMATE ALLIANCE EMISSIONS REDUCTION TARGETS

If we are to propose an alternative to the use of the term "net-zero" or redefine it in line with Climate Alliance principles, then we also need to show the way forward to achievement of Paris Agreement goals. We must thus ask ourselves if there is a need to reassess existing commitments in order to ensure that they are compatible and compliant with Paris Agreement pathways and can demonstrate the strength of local ambition and action.

Climate Alliance was founded more than 25 years ago as a city network with ambitious targets. As such, Climate Alliance municipalities were pioneers in municipal climate protection, paving the way for other important initiatives on the European and national levels that support cities in their climate strategies.

Since then, carbon reduction targets have become commonplace in many sectors of society. The targets set by governments at all levels, companies, schools, hospitals, universities and community groups as well as other institutions and actors have helped increase awareness that climate protection is a task for society as a whole.

[6] https://unepgrid.ch/storage/app/media/legacy/Foresight013.pdf

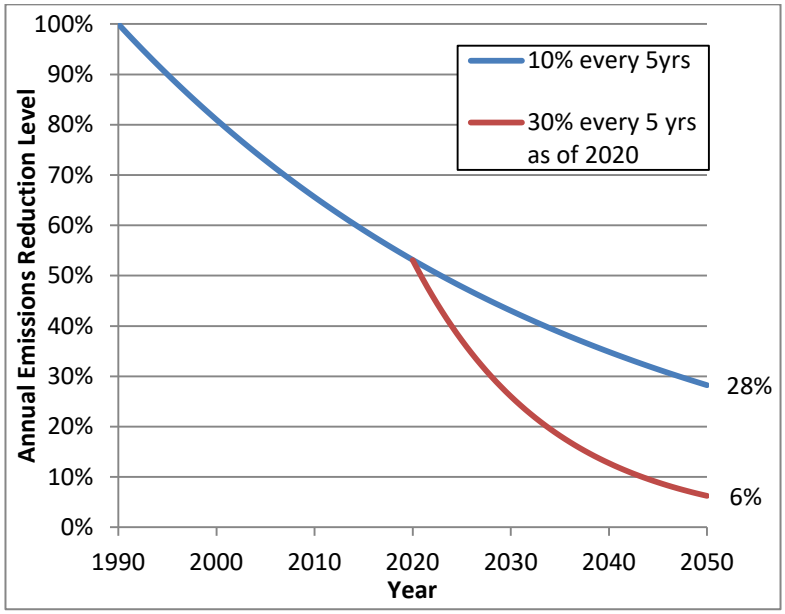
Yet setting climate protection targets is not an end in itself; it is the starting point for change. At the moment there is no lack of targets, but there is a lack of action. The Fridays for Future movement and Climate Emergency declarations are signs of the dissatisfaction many across society are feeling with the progress being made.

Climate Alliance commitments have evolved throughout the years and members now commit themselves to the continuous reduction of their greenhouse gas emissions, pledging to cut emissions by ten percent every five years, halving the per capita emissions by 2030 from 1990 levels. Each member also signs up to the long term goal of levelling off per capita emissions at 2.5 tonnes CO_2 annually.

As things now stand, Climate Alliance commitments are no longer compatible with either the Paris Agreement and IPCC science (below 2°C/1.5 °C) or the new EU Long-Term Strategy, which calls for a "net-zero" Europe by 2050 and sets out pathways to achieving this.

BOX 2: CLIMATE ALLIANCE EMISSIONS REDUCTIONS COMMITMENTS TOWARDS ZERO EMISSIONS

As the graph below shows, a municipality that reduces CO_2 emissions by 10% every five years until 2050 compared to 1990 levels would have only reduced emissions by 72%. This would not be net-zero compatible. Only by increasing reductions levels to 30% as of 2020 would we get to a near 95% CO_2 reduction commitment (for example, the target defined by German Masterplan municipalities[7]), which would be in line with the European and Paris Agreement reduction goals.



[7] https://de.wikipedia.org/wiki/Masterplan-Kommune

In line with the Paris Agreement and the IPCC SR1.5 report, limiting global warming to no more than 1.5°C means doing everything possible to reduce greenhouse gas emissions. Taking into account that a ten percent CO_2 reduction every five years is not sufficient to be in line with latest climate science, it will be necessary to go further to achieve the necessary reduction.

Questions to Guide Discussion on Climate Alliance Emissions Targets

3) **What impact should this discussion and current events have on Climate Alliance goals and what should we do about it?**

    a. This discussion should have no impact on Climate Alliance – nothing needs to be done at the moment
    b. The discussion impacts Climate Alliance quite a bit but let's leave it to members to pursue more ambitious goals, such as the following (not mutually exclusive):
        i. **Aiming for 100% renewables or going fossil free:** Completely renewable power, heat and transport would reduce emissions by at least 75% by 2050[8] yet the EU analysis for the Long Term Strategy does not yet include a 100% renewable scenario.
        ii. **Declaring a climate emergency:** Climate Alliance members are already joining the international movement to declare climate emergencies. These declarations can provide a means to examine all local authority decision-making from a climate change perspective and make clear the severity and seriousness of the issues being faced. Declarations should be supported by enhanced planning at local level to accelerate action and bring about a suitable emergency response to the climate crisis.
        iii. **Committing to 100% regenerative agriculture and land use:** A focus on regenerative agriculture from predominantly local production in combination with the sustainable use of land (forests, grasslands, wetlands, etc.) could bring manifold positive benefits for biodiversity, the building of healthy soils, local economies and much more while sequestering some 6.2 Gigatonnes of carbon annually.
    c. The discussion impacts Climate Alliance quite a bit so we have to reevaluate Climate Alliance goals, for example, by (not mutually exclusive):
        iv. **Doubling Climate Alliance reduction goals**: A reduction of 30% CO_2 every five years as of 2020 would result in an average annual reduction since 1990 of 20% every five years. This is in line with the IPCC national reduction goals

[8] https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Apr/IRENA_Global_Energy_Transformation_2019.pdf

for EU countries and the European Long Term Strategy for 2050 and

v. **Reducing CO_2 emissions by 95% by 2050** (with intermediate time period targets): these are equivalent to the national and IPCC reduction goals for EU countries and equal to a 20% reduction every five years.
vi. **Aiming for 100% renewable or going fossil free** (see "i"above)

No matter what the membership decides in terms of the use of "net-zero" and its impact on Climate Alliance targets, it is essential to maintain a focus on real and meaningful action while raising awareness of what is already being achieved. Considerations for the future include how best to support and share successful examples and good practice and how these examples should be framed in the context of the EU Long Term Strategy and net-zero debates.

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THE CLIMATE ALLIANCE

For more than 25 years, Climate Alliance member municipalities have been acting in partnership with indigenous rainforest peoples for the benefit of the global climate. With some 1,700 members spread across 26 European countries, Climate Alliance is the world's largest city network dedicated to climate action and the only one to set tangible targets: each member city, town and district has committed itself to reducing greenhouse gas emissions by 10 percent every 5 years. Recognising the impact our lifestyles can have on the world's most vulnerable people and places, Climate Alliance pairs local action with global responsibility. **climatealliance.org**