Mapping of current practices around net zero targets

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In Spring 2020, the Oxford University Net Zero Network convened a series of online discussions between actors and networks setting "net zero" targets and scientific experts. These discussions have informed the Race to Zero campaign being led by the UNFCCC High-level Climate Champions and, more broadly, aim to promote convergence toward robust standards for net zero targets across the climate action community.

One of the principal findings of the exercise was that many organizations within the climate action community are currently engaged in individual or sectoral processes to further refine approaches to net zero (e.g. SBTi-FI, SBTi-C, RMI, ICC, AOA, Carbone 4 / Net Zero Initiative, Fashion Charter). Given the heterogeneity of actors setting net zero targets, no single approach or standard for net zero targets would be appropriate or effective. However, the large amount of active work on this subject creates a significant opportunity for greater alignment around common principles to underlay the diversity of approaches we see.

This document presents a summary of current practices, identifying areas of convergence and divergence. It is based principally on responses to a questionnaire completed by leading actors and organizations setting net zero targets (see appendix), as well as supplementary materials submitted by participants in the discussions and collected by the conveners.

1. Analytic summary: points of convergence and divergence in current net zero targets

Points of convergence and divergence in current approaches to net zero for sub- and non-state actors are summarized in Table 1 and described below. We consider seven elements related to net zero targets: scope, timing, offsetting, equity, future uncertainties, dependence on other actors, and governance.

Table 1: Points of convergence and divergence across current net zero targets

Topic	Points of greater consensus or certainty	Points of less consensus or open questions
Scope	➢ In general, targets should aim to cover all gasses and all activities and scopes, as data allows	➢ How to prioritize different activities across scopes (e.g. focus on total emissions, areas of direct control, etc.)

Timing	➢ Reach net zero by 2050 ➢ Set interim targets ➢ Act immediately	➢ For those actors or sectors that can/should reach net zero before 2050, what is an appropriate time scale? ➢ Operationalizing interim targets clearly aligned to pathways to net zero (e.g. 2025, 2030, etc.)
Offsetting	➢ Any offsets require robust standards (e.g. additionality, permanence, verifiability, etc.) ➢ Specify offsetting approach, avoided emissions, reductions, or removals	➢ Extent to which offsets external to the entity should be relied on ➢ How to determine "residual" emissions ➢ How to ensure all offsets are compatible with a global carbon budget
Equity	➢ All should move to net zero, but scope and timing may differ due to capacity, responsibility, and other factors	➢ How to operationalize differentiation around equity considerations
Future uncertainties	➢ Net zero targets strongly affected by uncertainty around technology and governance questions	➢ How actors should address such uncertainties in their target setting
Dependence on other actors	➢ Net zero targets almost always depend on other actors' behavior	➢ How actors should address such dependencies in their target setting
Governance	➢ Formal, top-level commitment ➢ Interim targets ➢ Transparency through regular reporting and tracking ➢ Clear plan with specific operational implications	➢ What are actor-specific best practices?

1.1 Scope

Scope varies in both which greenhouse gasses are included and in what activities are covered.

Nearly all net zero targets reviewed cover "all greenhouse gasses" or, more specifically, the gasses identified in the Kyoto Protocol (i.e. carbon dioxide, methane, nitrous oxide and various fluorinated gases). All actors who explicitly address this question say gasses beyond carbon dioxide should be covered, but a number leave this point unaddressed. Some net zero target-setters emphasize achieving net zero carbon dioxide as a first priority.

There is more divergence across targets in terms of the scope of activities covered. Sub-national jurisdictions typically focus on territorial emissions, following the UNFCCC model, though some note that consumption emissions should also be addressed (ICLEI, C40). For companies, a few targets do not include scope 3 emissions, though the majority do. However, within this relative consensus that all activities should be considered, there are different areas of emphasis. Some recommend focusing on those activities across all scopes that are most material to total emissions (SBTI, ACT). Others prioritize those emissions which are most directly controllable by the entity (RAMCC), or follow guidance which only partly includes some scopes (Natural Capital Partners). Data limitations around, especially, scope 3 emissions, creates further uncertainties about coverage.

1.2 Timing

There is general consensus on the need for global net zero CO2 by 2050, with many targets explicitly referring to the objectives of the Paris Agreement and the IPCC's Special Report on 1.5C to set their timelines.

The majority of targets directly apply this global goal to individual actors, aiming to achieve net zero by 2050 or "2050 at the latest." Some (e.g. B-Corps) have earlier targets, while others provide a range (between 2030 and 2050) depending on sector or organisation. One responder (2050 Pathways) indicated stretching beyond 2050 for emerging and developing countries. Several indicate that different entities (countries, sectors, organisations) would have different target dates dependent on their particular circumstances.

A few respondents (SEI and Carbone 4) highlighted the importance of reductions at a broader societal or system level rather than at an organisational level. They prefer an approach that is descriptive of the intended outcome of limiting temperature rises to less than 1.5C above pre-Industrial level, rather than a timeline that some organisations /sectors might achieve and yet society as a whole might not.

In addition to mid-century targets, there is strong consensus that actors setting net zero targets should include interim targets and that all actors will need to take immediate action to move toward those targets. However, not all targets currently include specific interim targets or specify what immediate actions are required.

1.3 Offsetting

The role of offsetting--avoided emissions, reductions or removals outside an actors' own activities--within net zero targets likely requires further discussion and alignment across the climate action community.

Some organizations highlight the role of high-quality offsetting, especially in the form of emissions reductions and removals, as a tool to allow organizations to contribute to rapid emissions reductions, especially in the short-term (EDF, WBCSD). Other net zero target setting actors do not include provision for any "external" emissions reductions or removals (Fashion Charter) and oppose reliance on such measures (Carbone 4, SBTi, RMI).

There is more consensus, however, around the idea that net zero target-setters should prioritize reducing internal emissions over offsetting. Focusing on decarbonization of an organizations' activities should come first (CDP, ACT, SIE, B-Corps, SBTi). Several respondents suggest more specific conditions, arguing that, to the extent offsetting is incorporated, it should be reserved for hard-to-abate sectors (Carbon Trust), not exceed 10% of baseline emissions (Exponential Roadmap), or be focused on nature-based solutions within the same jurisdiction (ICLEI). Furthermore, a number of responders made clear that they see a qualitative difference between avoided emissions and removals (UNSW, UCS, WBCSD)[1], and suggested that targets should be divided to specify emissions reductions and removals separately (WRI, Carbone 4). Ensuring that any offsets are "like for like" in terms of permanence is essential to ensuring net zero (Oxford).

Finally, there was robust consensus on the need for proper accounting, transparency, and certification of any offsets used, detailing standards, certifiers and the ICROA Code of Best Practice (IETA, B-Corps, Natural Capital Partners, RAMCC, SEI).

1.4 Equity

There is broad agreement that all actors should pursue net zero, but also that various factors may lead various actors to adopt targets differentiated by timing and scope. One, there is wide consensus that capacity should be a key factor in determining the scope and timing of commitments, with those with higher capacity (e.g. developed jurisdictions, larger companies) taking more aggressive and expansive targets. Two, several respondents submitted that historical responsibility and past behavior should also be a relevant consideration (Carbone 4, UCS, RAMCC, UNSW, RMI, UCS). Such divisions, however, are not always clear cut. For example, many global companies have worldwide operations and supply chains (ACT). Three, respondents also noted that larger emitters should be required to meet more stringent standards than smaller entities (ICC). Four respondents noted that not all actors have the same control over their emissions (Fashion Charter).

Despite this broad consensus, few targets explicitly operationalize equity by providing differentiated guidance on net zero targets to different actors. In one case, a global network of actors calculated their aggregate carbon budget and then allocated individual targets according to level of development and expected future growth in population (C40). In another case, the global carbon budget is divided into sectoral allocation which are then apportioned to individual companies based on their emissions footprint (SBTi). Others have suggested that cumulative emissions form the basis of equity considerations (Yale). How to effectively operationalize equity considerations remains an open question for the climate action community.

1.5 Future uncertainties

There is broad consensus that uncertainties around the pace and scale of innovation and cost-effective commercial deployment of certain technologies strongly affects net zero targets. Particularly critical areas of uncertainty include zero- or low-carbon hydrogen (RMI, 2050 Pathways) and commercial scale permanent carbon removal technologies like CCS and BECCS (ACT, CDP, SEI). Furthermore, there are a number of more specific technologies that will be critical in key

[1] Removals (e.g. through tree planting, or carbon storage coupled to bioenergy or air capture) can be achieved in some cases within the supply chain of actors. Hence, they are not equivalent to offsets. It is likely however that many actors who use removals as part of achieving net zero will do so through external offsetting.

sectors (UN Fashion Charter). Several target-setters also noted uncertainty around policy frameworks and government support (Exponential Roadmap, ICC, Fashion Charter), and the permanence of terrestrial carbon reservoirs (SEI) as key unknowns.

Despite this broad recognition of uncertainty, few net zero targets include specific features that address these issues. Some argued that plans should be grounded in available technologies, or, if they depend on innovation, should specify how actors intend to contribute to development of the required technology and what level of uncertainty is attached to the required innovation (UCS, WBCSD). Innovation particularly requires collaboration and cooperation between different actors (WBCSD, see below).

1.6 Dependence on other actors

There is broad consensus that achieving net zero for any actor will almost always depend to varying degrees on the actions of other actors. These interlinkages are operationalized in different ways. Net zero is a collective goal, and so cooperation between different actors is essential.

Many responders note companies' active work in encouraging and incentivizing action across value chains (Carbon Trust, SBTi, UNSW, Fashion Charter). For targets with broad scope, decarbonizing inputs and outputs requires changing the behavior of suppliers and consumers (SBTi). Cities and other subnational jurisdictions, in turn, typically do not consider "imported" emissions, following the territorial model used in the UNFCCC process. For investors and financial institutions, whose emissions come mainly from the companies and projects in which they invest, creating effective leverage on other organizations is the primary decarbonization challenge. Many financial institutions setting net zero targets are still exploring how best to operationalize this unique feature in their targets.

Another key question is how sub- and non-state actors' net zero targets relate to national policy frameworks (Alliances for Climate Action). For many cities, states, and regions, achievement of net zero may be highly contingent on national policies (RAMCC). The private sector is also often dependent on national frameworks (CDP, Fashion Charter). For this reason, some actors emphasize that actors setting net zero targets should also align or advocate for national policy frameworks that will allow them to successfully meet their targets. (RMI, UCS, Fashion Charter, SEI). Accounting systems that track how emissions can be assigned to different actors (e.g. a business, operating in a city, in a province, in a country) can avoid double-counting and also foster cooperation between different actors (WBCSD).

1.7 Governance

There is general agreement that strong governance practices around net zero targets are critical, though also wide recognition that strong governance naturally varies significantly across different actor groups. For subnational jurisdictions, a law or formal policy document provides the strongest form of commitment. For private organizations, a strong commitment should come from the head of organization (e.g. CEO) and/or top governance body (e.g. corporate board). Such commitments should be mainstreamed into the organization's work (ICC) with clear and specific plans that have concrete operational implications. Furthermore, there is strong consensus that regular reporting of progress toward net zero is a key tool for ensuring accountability, including via the platforms that

feed into the UNFCCC's Global Climate Action Platform (RAMCC for the Global Covenant of Mayors and UNFCCC Fashion, CDP, ICLEI). Given the uncertainties round long-term strategies, robust short and medium-term targets are key (SBTi). More generally, many noted how sub- and non-state actors' targets can complement and feed into national targets and implementation (Alliances for Climate Action).

2. Converging toward leading practices

In a number of areas, there is a relatively high degree of consensus on valuable practices around which the climate action community can converge. The following suggestions represent immediate opportunities for greater alignment across current net zero targets.

Scope

- Specify exactly what gasses and activities (scopes) are covered or not covered by a target. Explain the rationale for any exclusions
- While targets should cover all emissions, it is reasonable to prioritize a) the biggest sources, b) those that are most controllable by the actor, c) those for which data are available
- Given that halting warming on multi-decadal time scales requires "reaching and sustaining net zero global anthropogenic CO2 emissions and declining net non-CO2 radiative forcing" (IPCC Special Report on 1.5°C), targets should aim to reach and sustain (over decades) net zero CO2 as part of their broader net zero GHG targets. Reaching net zero by leaving CO2 emissions high but while offsetting them with lots of CH4 reduction, for instance, would not help stabilise temperature

Timing

- A net-zero target implies not just an outcome in 2050 but a commitment to a multi-decade pathway of emissions reductions
- Interim targets are important complements to long-term net zero targets
- Immediate action is needed on all net zero targets

Equity

- Net zero targets should be justifiable with regard to equity considerations, which may include capacity, historical emissions, current emissions footprint, and other factors

Future uncertainties

- Actors should make explicit how achieving their targets depend on future technologies or governance arrangements

Dependence on other actors

- Actors should make explicit in what ways achieving their targets depends on other actors' behavior and consider how to proactively engage with such actors

3. What next steps are needed to address divergences and open questions?

The areas of divergence noted above represent important areas for future work in the community of actors setting net zero targets. Below we identify some of the key areas where further work toward future alignment could be especially helpful.

1. **Defining net zero.** While global net zero can be defined as a permanent balance between sources and sinks of greenhouse gasses, further discussion is needed around what it means for a specific entity to be "net zero," and how this relates to related conceptualizations such a "climate neutrality," "climate positive," "net negative," etc.
2. **Offsetting.** Going forward, actors can further align on a) how to determine what emissions can be offset, b) what form offsets should take, c) what standards and processes are required to make such offsets robust, including how all offsets will transition to permanent "like for like" equivalence once net zero is achieved
3. **Future uncertainties.** To the extent actors are relying on future technologies to achieve net zero, how should they be expected to contribute to the development of such technologies? Moreover, how should they plan for uncertainties around, e.g., socio-economic and demographic trends?
4. **Dependence on other actors.** To the extent actors depend on others' behavior to achieve net zero targets (including national governments), how should net zero plans include collaboration and/or advocacy vis-a-vis these other actors?