Making the Impossible Possible: The Blueprint for Decarbonizing Industry

Sponsored by the Mission Possible Partnership
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The private sector is responsible for a significant part of total man-made carbon emissions, but the spread is far from even. Just seven sectors are responsible for nearly one third (30%) of global industry's overall carbon footprint.

In conjunction with the Mission Possible Partnership, the go-to organization for industrial decarbonization, Reuters Events Sustainable Business recently convened a panel of leading business voices from across these ‘hard-to-abate’ sectors to discuss their strategy for igniting urgent climate action.

1. SETTING THE CONTEXT: HARD-TO-ABATE INDUSTRIES

1.1 Heavy industry: industry’s highest emitters

Traditional heavy industries are typically high energy users. The majority of this energy derives from fossil fuels, which makes their operations extremely carbon intensive. Among the highest industrial emitters are the following seven sectors: concrete and cement, steel, aluminium, chemicals, transport, shipping, and aviation. Collectively, these represent 30% of total global CO2 emissions. The Mission Possible Partnership was established in January 2021 with the explicit purpose of supercharging decarbonization in these sectors and bringing them into line with the Paris Agreement over the next decade.

1.2. Industry challenge: radical carbon reduction

The 2015 Paris Agreement committed to limit the rise in global warming to well below 2 degrees. Such is the pace of climate change, however, that climate scientists are now arguing that any rise above 1.5 degrees could lead to huge ecological and economic disruption. Effectively, this requires industry to halve its carbon footprint between now and 2030, and to get to as close to zero emissions as possible by 2050.

This aggressive reduction trajectory is possible. Many businesses are now committing to net zero targets by 2050, with some even aspiring to become ‘net positive’. Most corporate climate strategies combine a mix of aggressive energy efficiency, innovative new business models, and large-scale investment in clean alternative technologies.

The problem for the seven heavy industries under discussion is that the green technologies and systems required to operate more cleanly are either not commercially proven or carry a significant green premium preventing them from scaling sufficiently quickly to have a substantive impact. Hence, the “harder to abate” label sometimes attributed to these important sectors.

2. TOWARDS A SOLUTION: PATHWAYS FOR CHANGE

2.1. Moving forwards: appetite for climate action

Inaction is not an option. In the decisive decades ahead, these sectors must demonstrate, commercialise, and scale the necessary technologies to bring them into line with a 1.5°C future. Not only do carbon-intensive industries face growing public and commercial pressures to act, but tighter regulations and escalating energy costs will severely test their future viability. On the flipside, huge business opportunities exist for those able to bring low-carbon solutions to the market.

To that end, a critical mass of leading businesses in all seven focus sectors has developed a range of success metrics and date-timed milestones for the short, medium, and long term. Achieving the Paris Agreement will require systems-level transformations in the focus industries. Individual company actions, while imperative, will not lead to the fundamental restructuring of these sectors as demanded by a 1.5-degree future. To cite Faustine Delasalle, Co-executive Director of the Mission Possible Partnership, a business-oriented non-profit: “this kind of systems change goes beyond any one company or country.”

To that end, a critical mass of leading businesses in all seven focus sectors have committed to draw up strategic blueprints to align their respective industries with a 1.5 target by 2050. The initiative is being coordinated by the Mission Possible Partnership, whose aim is to “supercharge industrial decarbonization”, as Delasalle puts it.

Detailed plans for three initial sector-wide pathways – for aviation, steel, and shipping – were released last week. The collective footprint of the three sectors is close to six gigatonnes – roughly equivalent to the total emissions of the United States.
2.2 Industry blueprints: role & content of sector pathways

Born out of extensive dialogues among key players in each respective sector, the three new industry blueprints comprise clear high ambition industry backed roadmaps for driving forward a low-carbon transition. The goal of this coordinated initiative is to align thinking and action among industry actors, thus increasing opportunities to tackle common hurdles and contribute to shared solutions.

To that end, each respective pathway contains recommendations for how policy and financial instruments can be mobilized in support of rapid change. The emphasis in all of these published plans is the advance of exponential action at scale. This marks a radical departure from the incremental, step-by-step approach that has characterised business responses to climate action so far.

Each blueprint is tailored to the climate-related needs and opportunities of the three sectors in question. In particular, they introduce industry-specific short and medium-term targets that, if achieved, will help accelerate the sector transitions required to meet a 1.5°C goal.

These include:

- The Mission Possible Partnership (MPP), in collaboration with the Net-Zero Steel Initiative, working to develop a strategy for how to achieve a critical scale of demand for low-emissions steel before 2030 and support the design of ‘green steel’ procurement initiatives, including the US Government-backed First Movers Coalition, SteelZero and the G7 Industrial Decarbonization Agenda.

- The MPP aviation transition strategy showing an ambitious trajectory for aviation with Sustainable Aviation Fuel potentially reaching up to 25%-30% of the sector’s energy demand in 2030

- The MPP-supported Getting to Zero Coalition announcing the Call to Action for shipping decarbonization by 2050

Moving ahead to develop the technologies and business models needed to 2030, while urging governments to work together with industry to unlock the scale-up of clean solutions. It’s also arguing that a minimum of 5% of the sector’s final energy demand needs to be met by scalable zero-emissions fuels (most likely ammonia or methanol) in 2030 for the sector to be on the right trajectory to meet its 2050 target.

Despite their sector-specific focus, all three pathways also share a range of core themes, such as: (i) a vision for radical collaboration, (ii) a belief in ambitious policy making, (iii) a strategy for increasing financial flows, and (iv) a commitment to openness and disclosure.

i. Radical collaboration: A common theme throughout the panel discussion was the need for a radical new approach to industry cooperation.

Anthony Hobley, Co-Executive Director at MPP said: “To get systemic change across these carbon intensive sectors we need to work together. MPP together with their partners is building the infrastructure to help these sectors come together, understand where they are and mobilize behind a plan to get to net zero with action this decade. Public private partnership and finance are critical to the success of this infrastructure.”

This runs contrary to the competitive instincts of many businesses yet the ability to work together in pre-competitive areas is judged as essential to galvanising rapid change. As Aditya Mittal conceded, the willingness to collaborate may sometimes result in pioneer firms losing the full benefits of their early-mover advantage. By the same token, however, it “forces other firms to catch up”, unleashing a race to the top that advances good practice across entire sectors.

Collaboration also opens the door to technological breakthroughs that would be impossible by a single company, at least in the time available. A classic case in point is the development of Sustainable Aviation Fuels, which relies on extensive research and development efforts from a range of players, including both the aviation and chemical sectors. United Airlines is involved in number of alternative fuel initiatives, oftentimes with fellow airlines such as Lufthansa, Air New Zealand, and Qantas. As the company’s CEO Scott Kirby noted: “There are a lot of people in our industry [aviation] who think, ‘Well, if Exxon and Chevron would just produce a sustainable aviation fuel … then I’ll buy it, but otherwise leave me alone. I’m pitching to them that instead we have to partner with other companies to commit to buying these fuels.”

Finally, radical collaboration can also serve as a market signal to legislators. The fact that a critical mass of companies in the steel, aviation and shipping sectors have gone public with ambitious carbon reduction plans, for instance, give a powerful impetus to discussions at the political level. This so-called “ambition loop” is seen as especially important in the run up to major international policy summits, such as the Conference of the Parties (COP 26) in Glasgow in early November. To quote Anne Finucane at Bank of America: “We won't have solved the problem, but we now have a
number of partnerships in place [and] there is cohesion around these. The next step will be shining a very bright light on them at COP 26.”

ii. **Policy intervention.** Contrary to common perceptions of business as antipathetic to government intervention, climate leaders in heavy industry actively endorse the need for clear regulations and progressive fiscal frameworks. It is important that policy interventions work with the grain of business and in step with market drivers, thus incentivising the active participation of as many industry actors as possible, the panellists uniformly agreed. In an ideal scenario, policies would be co-designed in a transparent and democratic manner between industry and government.

Anthony Hobley, Co-Executive Director of the Mission Possible Partnership, went further, stating that business leaders committed to the cause of climate action are “not waiting for governments to act.” This does not suggest that a clear political steer or robust regulatory framework is either unnecessary or unwanted. Both remain imperative. Instead, it signals the desire of climate leaders in the private sector to push forward with rapid decarbonization. By acting proactively, business can also send a strong signal to legislators of market demand for ambitious policy intervention, Hobley added.

Policymakers are uniquely placed to remove barriers to the low-carbon transition and to give investors the long-term security required to direct large-scale capital towards emerging climate solutions. Rasmus Bach Nielsen, Global Head of Fuel Decarbonization at shipping company Trafigura gave the example of green ammonia, which, by calorific content, currently costs more than twice the price of conventional shipping fuels. The price gap is so significant, he argued, that without intervention from legislators to create price parity, “it is not realistic to expect a rapid transition.”

The consistent message across all panellists was that legislative interventions must be consistent across markets, ensuring a level playing field. A case in point is a carbon price or equivalent fiscal mechanism, such as the EU’s proposed Carbon Border Adjustment Mechanism. Aditya Mittal, CEO of India-based steelmaker ArcelorMittal, highlighted the market implications for the steel sector of a piecemeal regulatory approach. He imagined a scenario where North American and European regulators imposed a mandatory carbon tax but authorities elsewhere did not. The result: “We will end up not having a steel industry in the developed world and end up importing pollution.”

iii. **Financial flows.** Without the large-scale mobilisation of capital for low/zero-carbon solutions, the possibility of heavy industry delivering on the goals of the Paris Agreement is negligible. In shipping alone, for example, an estimated $2 trillion is needed over the next three decades to achieve the requisite production of zero-emission fuels and vessels. Given the nascent nature of many emerging clean technologies, financial markets are understandably reticent about investing. Fiscal incentives and other regulatory ‘carrots’ can play a valuable role in this respect, providing the long-term assurances that investors need. The reform of covenants that currently prevent private banks from ambitious investments in high-risk climate solutions would also help unlock commercial capital, said Bank of America’s Anne Finucane.

Finally, the sector blueprints also recognize the need for novel approaches to the provision of climate finance. One example cited is the ‘blending’ of financing between private and public providers, which can help de-risk investment in climate solutions for the former. According to Anne Finucane, an “incentive pool” is also required to stimulate investor interest in providing climate finance. This could be derived from concessionary capital or supported by first-loss guarantees from multilateral lenders or other investors that have a green mandate. “We need governments to embrace the market dynamics,” she said. “That way, we could step up and create scale much more quickly.”

iv. **Openness and disclosure.** The twin themes of transparency and accountability are seen as essential building blocks for achieving the pathways’ overall objectives. It is no secret that ambitious climate pledges by companies are often followed by opaque reporting about real-world implementation. This failure to disclose leads to public distrust and charges of greenwashing.

To ensure the credibility of their commitments, each of the participating sectors has developed a range of success metrics and date-timed milestones for the short, medium, and long term. Developing a common set of targets “compels everyone to get their act together”, said Anne Finucane, Vice Chairman of Bank of America. Disclosure against these targets will also “show to our international and external audiences the difference we are making,” added Faustine Delasalle of the Mission Possible Partnership.
3. NEXT STEPS: SCALING SOLUTIONS

3.1. Scaling low-carbon technologies

As stated initially, many of the technologies to achieve the rapid decarbonization of hard-to-abate sectors are either in development or in the early stages of commercial roll-out. As-yet-undiscovered breakthroughs will almost certainly make up part of the mix of a successful zero/low-carbon transition and these ‘moon-shot’ solutions require ongoing industry support. However, the immediate focus of the hard-to-abate sectors marshalled by the Mission Possible Partnership is to accelerate technologies that are already proven but lack commercial scale.

Many factors feed into the mainstreaming of such technologies, not least of which is boldness on the part of company backers. The recent inauguration of a second-generation bioethanol plant in Romania by Swiss chemicals manufacturer Clariant conforms to this description. With a focus on achieving scale at pace, the company is opting to license its new technology rather than retain proprietary rights. Conrad Keijzer, CEO of Clariant, explained the logic of the decision in the following terms: “We could build 100 factories of second-generation bioethanol [but instead] we decided to use it as a proof point for the technology as well as to show its commercial viability … Licensing this technology now allows it to scale up much faster than we ever could [scale it] ourselves.”

3.2. Adopting a ‘change’ mindset

Kickstarting the exponential change required to halve emissions in hard-to-abate sectors over the next decade demands a fresh way of thinking both at current problems and at future solutions. This shift in mindsets begins with a willingness to interrogate and, if necessary, challenge dominant logics.

Remaining optimistic about the future represents another key mode of thinking if hard-to-abate sectors are to deliver on the goals of the Paris Agreement. The barriers to transition are multiple, yet reasons for hope can also be found. The fact that the shipping industry has laid aside its habitual differences and found a “united voice” behind the cause of decarbonization marks a major turning-point, according to Trafigura’s Rasmus Bach Nielsen.

Aditya Mittal of ArcelorMittal shares the same optimistic view of the future. He takes hope from the success of his company’s first green steel product, for instance, which generated rapid sales and evidenced “massive amounts of appetite” among business consumers. As he concluded: “I’m hopeful because of the amount of progress we have seen over the last few years – the momentum, the feedback loop, all of that is pointing in the right direction.”

A second wave of announcements planned for 2022 will establish industry-backed carbon reduction pathways for the cement, aluminium, trucking, and chemical industries.

This White Paper is based on a discussion event facilitated by Reuters Events Sustainable Business to mark the launch of three sector pathways for the decarbonization of the steel, aviation, and shipping industries.

Industry panelists at the event, which was held on 14 October 2021 under the title “Making the Impossible Possible: The Blueprint for Decarbonizing Industry”, included:

Aditya Mittal, CEO ArcelorMittal
Anne M. Finucane, Vice Chairman, Bank of America
Anthony Hobley, Co-executive Director Mission Possible Partnership
Conrad Keijzer, CEO, Clariant
Faustine Delasalle, Co-executive Director Mission Possible Partnership
Rasmus Bach Nielsen, Global Head of Fuel Decarbonization, Trafigura
Scott Kirby, CEO United Airlines

Note: More information on the Mission Possible Partnership is available at:
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