



# TIPPING THE SCALES ON INDUSTRIAL DECARBONISATION

## 10 TAKEAWAYS FROM THE TRACKER

### THERE IS A WINDOW OF OPPORTUNITY FOR TRANSFORMING INDUSTRY

Renewables have passed a tipping point, making them plentiful, affordable, and growing exponentially. Now is the time to transform heavy industry and transport, where seven sectors account for 30% of all global emissions. There are just two-to-three years left to tip the scales and get these sectors on track for rapid transformation, or risk missing the goals of the Paris Agreement.

1

### WE KNOW THAT RAPID DECARBONISATION IS POSSIBLE AND CAN NOW TRACK ITS PROGRESS

Mission Possible Partnership (MPP) collaborated directly with leading businesses across all seven sectors - aluminium, cement, chemicals, steel, aviation, shipping, and trucking - to develop Sector Transition Strategies for reaching net-zero 2050; therefore we know that the technology and pathways exist. The state of play is now visible through the launch of the Global Project Tracker.

Mapping the global status of all commercial-scale decarbonisation projects, the Tracker shows 'announced', 'at Financial Investment Decision (FID)', and 'in operation' projects against targets that must be met by 2030. It shows where there is progress—with a wave of announcements observed in the past year, as companies turn commitments into project identification—but also where there are gaps and barriers.

2

## **INDUSTRIAL DECARBONISATION HAS STARTED BUT NEEDS TO ACCELERATE**

110 net-zero aligned industrial plants have now reached FID, with another 473 in early-stage planning. Progress is happening, but it's not fast enough, and no sector is currently on track. To reach critical mass in time, we need 700 net-zero-aligned industrial plants in operation by 2030, along with hundreds of zero-emissions trucks. We must accelerate rapidly and bring another 600 plants to investment in the next few years.

3

## **THERE ARE SHOOTS OF PROGRESS IN THE PIPELINE, WITH SOME SECTORS AND REGIONS MOVING FASTER THAN OTHERS DUE TO A SUPPORTIVE ENABLING ENVIRONMENT**

Governments are starting to create enabling environments to help solve the 'chicken and egg' supply and demand issue. Examples include subsidies such as the Inflation Reduction Act in the US and mandates like the ReFuel EU (Aviation) blending mandate. The latter has created the enabling environment for increased offtake activity in the past year for Sustainable Aviation Fuel (SAF) and is helping to make SAF projects bankable and move through to FID.

4

## **WE ARE LEARNING HOW TO DEPLOY THE LEVERS IN THE RIGHT WAY TO KICK-START NEW MARKETS AND MOVE FIRST PROJECTS TO INVESTMENT**

Along with other supportive policies, a number of innovative measures are being implemented to kick-start markets and enable new projects. These include government-backed intermediary buyers and competitive auction-based subsidies, an example of which is the EU Hydrogen Bank, which held its first auction in 2023 and was oversubscribed with requests for 15 times the available budget.

Innovative transition financing mechanisms such as equity co-investment are providing new forms of capital where lending is not feasible in the initial years. An example is LanzaJet's Freedom Pines facility, which began operations in January this year thanks to raising joint investment from Southwest and Microsoft, a 10-year offtake agreement from British Airways, grants from Breakthrough Energy, and IRA Tax credits on the per gallon price.

New insurance and financial models are helping to de-risk the commercialisation of new technologies and scale pilots to the size of decarbonisation projects needed. Businesses like New Energy Risk provide evaluations of new technology performance to allow for more bespoke risk pricing to create guarantees on novel technologies for investors.

5

**TO SCALE FROM HAVING ONE 'FIRST-OF-A-KIND' PROJECT AT INVESTMENT TO THE NEXT PROJECTS IN EACH SECTOR, WE MUST APPLY THE LEVERS, ADAPTING BY INDUSTRY AND GEOGRAPHY**

A critical challenge for industrial decarbonisation is scaling projects to reach tipping points (in the S curve) and catalyse exponential adoption of new clean technologies. Addressing the barriers to scale requires specific levers to be applied. We are seeing evidence of this starting to happen, with demand stimulation measures driving transactions between producers and offtakers.

Coordination across different stages of the value chain is helping to prove that a market for clean industrial products exists. FertigHy is aligning different players in different industries across the value chain (Ric Energy, MAIRE, Siemens Financial Services, InVivo and Heineken) to accelerate development on a low-carbon fertiliser plant in Spain.

The role of voluntary buyer groups is also important. The First Movers Coalition (FMC) agrees to buy low-carbon products before they become available and already represents a significant demand for hydrogen by 2030.

6

**A HIGH 'GREEN PREMIUM' IN PRODUCTION CASCADES THROUGH THE VALUE CHAIN, MAKING LOW-CARBON INDUSTRY MORE AFFORDABLE TO CONSUMERS THAN WE THINK**

The 'green premium' – or the extra cost for producing decarbonised products today – varies across sectors and locations. Taking the current cost of producing ammonia with green hydrogen vs grey, the upfront costs in Europe can be 50-100% more. However, MPP research and modelling shows that over the fertiliser value chain, this extra cost significantly decreases, meaning the price impact for the end consumer on products made with green fertiliser would be affordable if they were available in the market today:

Green ammonia for fertiliser in household groceries adds 50-100% at production (in Europe) yet would add 0.01 Euro on a loaf of bread, 0.04 Euro per kg of cheese, or 0.004 Euro on a 6-pack of beer.

Similarly, although green steel and green aluminium add significantly to production costs today, the impact on consumer goods is relatively small – 2% on a washing machine and 1.5% on a car. But this is not universal - the cost of flying is more affected by the higher price of sustainable aviation fuel as fuel cost is a larger share of an airline ticket price.

7

## THERE IS A HUGE OPPORTUNITY FOR DOWNSTREAM BUSINESSES TO STEP IN AND CONTRACT GREEN PRODUCTS, REDUCING THEIR SCOPE 3 EMISSIONS AND DRIVING PRODUCTION GROWTH

Given the scope to cascade costs, there is both opportunity and necessity to orchestrate across different parts of the value chain to contract green products and drive the production growth needed by 2030.

There is an opening for downstream businesses - consumer goods and FMCG companies - to reduce their own scope 3 emissions and drive the growth of the low-carbon economy without impacting their customer base.

New ways of proving bankability for clean industrial goods are needed to drive investment in production.

8

## TRANSFORMATION IN ONE SECTOR HAS A RIPPLE EFFECT ON OTHERS – DEVELOPING THE LEARNING CURVE AND DRIVING COSTS DOWN IN THE WIDER SYSTEM

Bringing down the barriers in one sector can create a ripple effect in others. An uptick in the demand and use of green ammonia (for agricultural fertiliser) produced using green hydrogen could kick-start the green hydrogen economy helping the decarbonising of steel and shipping.

Scaling up green ammonia to fulfil commercial-scale fertiliser needs will lead to cost reductions and will decrease the green premium to a point where other sectors will reach cost parity as well (source: The Breakthrough Effect, 2023)

- Ammonia will reach a tipping point when the green hydrogen price is ~\$2.2/kg H<sub>2</sub>, estimated in ~6 years (IEA NZE 2050 scenario).
- Shipping fuel will reach a tipping point when the green hydrogen price ~\$1.6/kg H<sub>2</sub> (estimated in 15-20 years).
- eSAF (aviation) will reach a tipping point when the green hydrogen price ~\$1/kg H<sub>2</sub> (estimated in 25 years).

9

## EVERYONE HAS A ROLE IN GETTING THIS DONE

[tracker.missionpossiblepartnership.org](https://tracker.missionpossiblepartnership.org)

The Global Project Tracker is already helping governments, industry and financial institutions map the contours of what is happening in different regions and across sectors to inform future decision-making and help drive actions in the right direction.

Creating early demand is key and requires collaboration. It can be achieved through various means such as target setting, mandates combined with subsidies, market seeding, increased scope 3 pressure and public procurement.

MPP is working to mobilise players to reduce costs, spread the green premium and accelerate markets current projects including EU PtX – Ammonia & Methanol, and a CEO e-SAF Alliance (Project SkyPower). The Industrial Transition Accelerator (ITA), which is hosted by MPP, has several workstreams underway, including catalysing more rapid and widespread uptake of effective policies to drive demand creation for green industrial products.

10