

How did we calculate the amount of renewable jet fuel that can be produced from the green methane demand of Tata Steel?

Dear investor,

To phase out the fossil fuel industry, investments in green production are needed. There are numerous routes to produce biofuels that can also act as point source of CO₂ from which we can make products and fuels with the use of renewable electricity. In the Netherlands, for instance in the IJmond area, industries have large demands for carbon which needs to become green. Tata Steel serves as an example to illustrate this case. As the Dutch Platform Renewable Fuels, we do not have an opinion about green steel production in the Netherlands or elsewhere. We solely focus on the fact that the industry in its transition to renewable energy carriers brings opportunity for new renewable fuel projects to come online. For instance, when steel making turns to the use of green methane, synergies can be developed for the production of biochar, e-chemistry and e-fuels on basis of biogenic CO₂ sources.

Calculating the amount of renewable jet fuel that can be produced from Tata Steel's demand for green methane

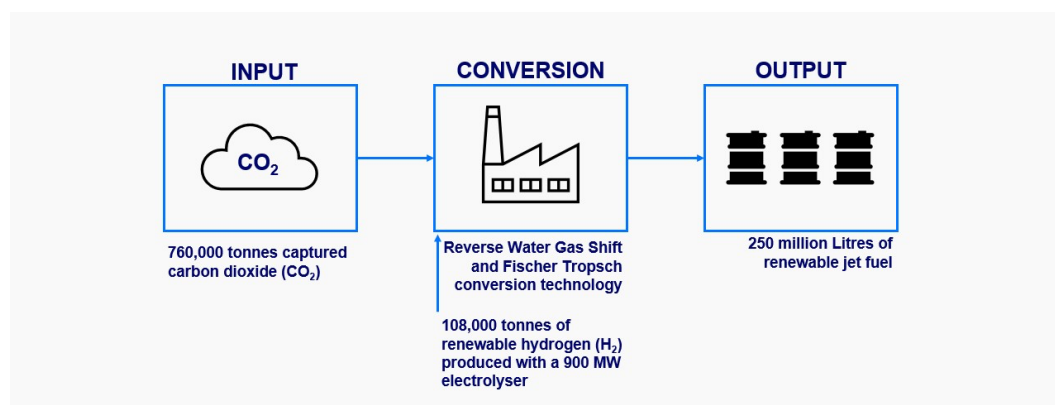


Figure 1: Schematic example of the amount of renewable jet fuel that can be produced based on Tata Steel's demand for green methane to replace natural gas. When green methane is produced, carbon dioxide is released as a by-product which can be captured and combined with green hydrogen to produce jet fuel.

In the Netherlands, the company Tata Steel plans to switch to using biomethane and or hydrogen to produce steel instead of natural gas. To green their production, 0.5 bcm

(billion cubic meters) of biomethane would be needed per year.¹ Translated into tonnes, this represents approximately 380,000 tonnes of biomethane.

In the upgrading of biogas to biomethane, CO₂ is produced as a by-product.² As such, the demand for biomethane of Tata Steel would lead to approximately 760,000 tonnes of CO₂ that can be captured and combined with renewable hydrogen to produce renewable fuels for instance jet fuel.

To produce renewable jet fuel, CO₂ has to be converted to CO using the reversed water gas shift reaction (RWGS) and combined with hydrogen (H₂) to generate a syngas that can be further processed with a Fischer-Tropsch conversion technology (Figure 1).

Therefore, an additional 108,000 tonnes of renewable hydrogen is required. This is produced using a 900 MW electrolyser and an electricity input of 4,500 GWh (= 16 PJ). In total, this can lead to the production of 250 million litres of renewable jet fuel. This amount of renewable jet fuel is enough to fuel around 4,814 flights from Amsterdam to Lima in a year.³

Looking for opportunities in regions to increase investments in renewable fuel by reaching new groups

Significant investments are required for the scale-up of the necessary renewable fuels production to reach our climate targets.

As part of this campaign, we are looking for opportunities within regions, highlighting the renewable fuels volumes that can be produced when using locally available resources. Using the raw materials that are already there, for instance with the use of the green carbon captured from the biomethane needed to green the production of Tata Steel, we want to show examples the possible renewable fuel production pathways.

By calling upon new groups, such as the investment community, we aim to emphasize that they can also participate in accelerating this production by investing in the green technologies.

¹ Tata Steel Netherlands and Tata Steel Limited (2025), [Advies concept Joint Letter of Intent met Tata Steel Nederland en Tata Steel Limited](#) (page 18)

² 1 tonne of biomethane results in the generation of approximately 2 tonnes of biogenic CO₂ (as mentioned in Sahota et al 2025, [CO₂ from biogas: valorisation, economic and environmental impacts in circular carbon systems](#))

³ We calculate this amount on basis of a flight from Amsterdam to Lima which requires 277 kg of fuel per passenger ([see KLM statistics](#)). Converted to Litres (1 kg of fuel = 1.25 L of fuel), this represents around 346,25 Litres of fuel per passenger. A commercial flight from Amsterdam to Lima transports approximately 300 passengers. This means that on average, a flight requires 103,875 Litres of fuels (346,25 [L] x 300 [people]). We take into account the current standards for blending where a maximum of 50% of sustainable aviation fuel can be mixed with fossil jet fuel (It is already technically possible in some fuel pathways to fly 100% on SAF, but the regulation asks for up to 50% SAF as maximum). From this, we can calculate that half of the plane can be fuelled with renewable jet fuel, which corresponds to 51,937.5 Litres. This means that the demand of Tata Steel for green methane could power around 4,814 flights per year (250,000,000 [l] / 51,937.5 [l/flight] = 4.813,47 flights).

