Bio-SAF & RFNBO in refineries

Implementation of RED III and entry into force of the RefuelEU Aviation

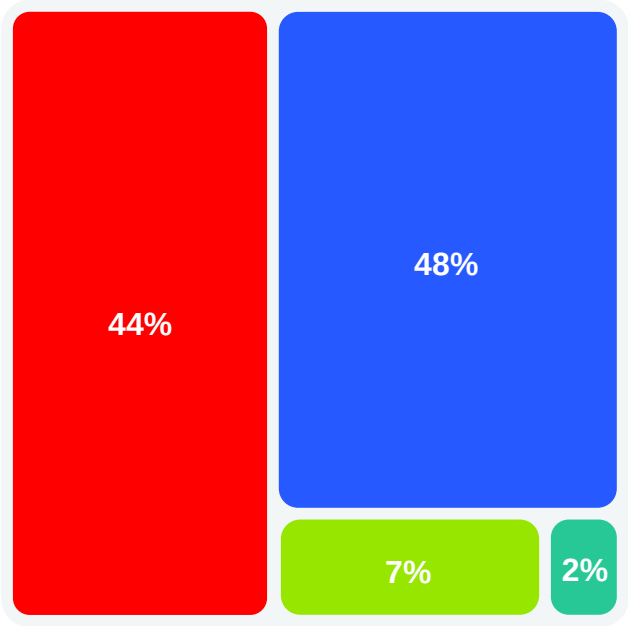
TotalEnergies

21 January 2025

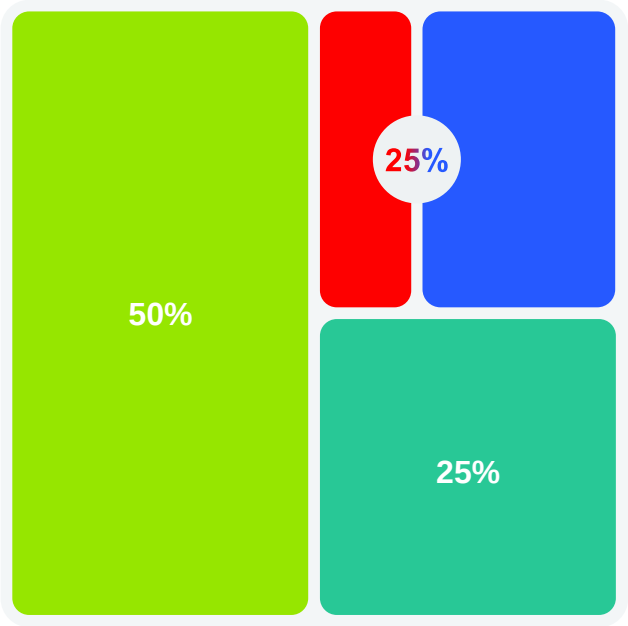
Unsere Vision für TotalEnergies im Jahr 2050

Das Ziel von TotalEnergies: Kohlenstoffneutralität bis 2050

2021
Energie Mix



2050
Energie Mix



CCS: 50–100 Mt CO_2e

ÖL | LNG & Gas | Erneuerbare Energien & Strom | Neue Moleküle

TotalEnergies

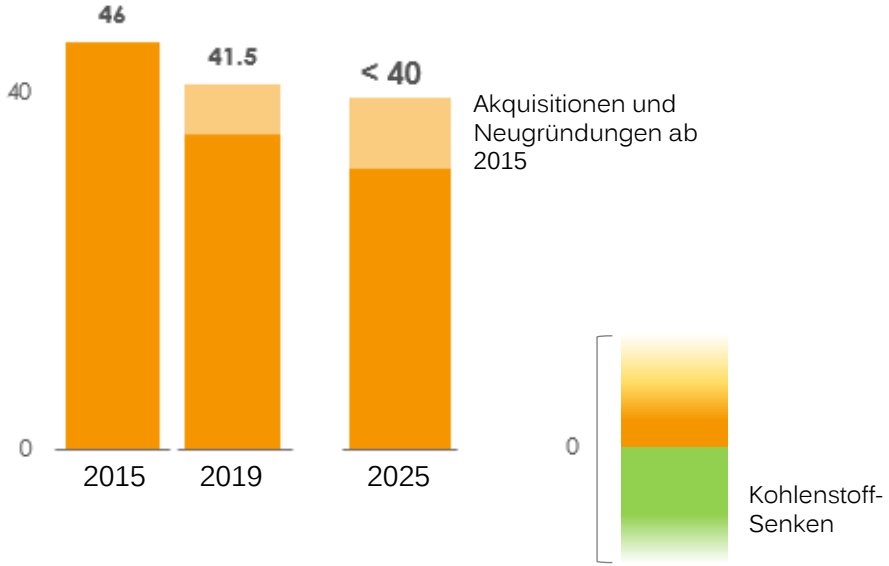
01.

Our refinery in Leuna

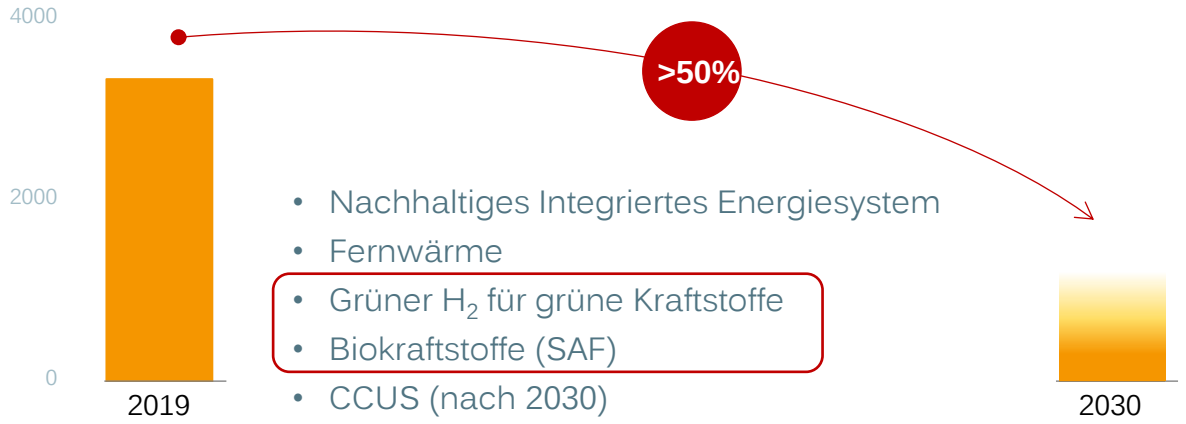
CO_2 ZIELSETZUNG TOTALENERGIES

Das Ziel von TotalEnergies: Kohlenstoffneutralität bis 2050

Scope 1+2* Emissionen aus TotalEnergies Anlagen der Öl- und Gasverarbeitung (*Mt/Jahr – $CO_{2\ Äqu}$*)



Leuna CO_2 Roadmap zur Minderung der Emissionen scope 1+2 (*kt/Jahr – $CO_{2\ Äqu}$*)



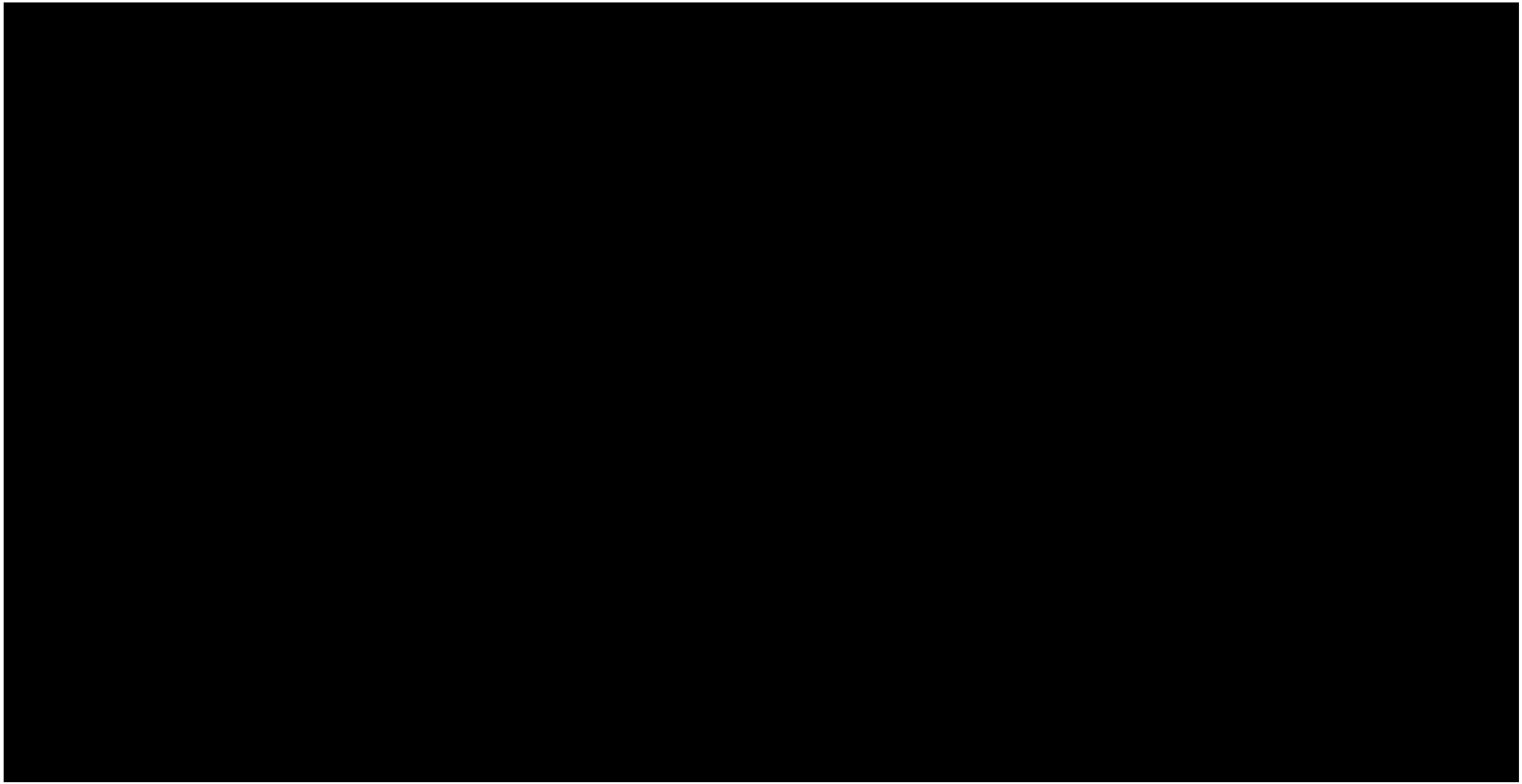
→ **Netto-Null in Europa bis 2050** oder früher (scope 1+2+3)
→ **Verringerung der Kohlenstoffintensität** der von unseren Kunden weltweit verwendeten Energieprodukte **um min. 60% bis 2050** (scope 1+2+3) mit Zwischenschritten von 15% bis 2030 und 35% bis 2040



TotalEnergies

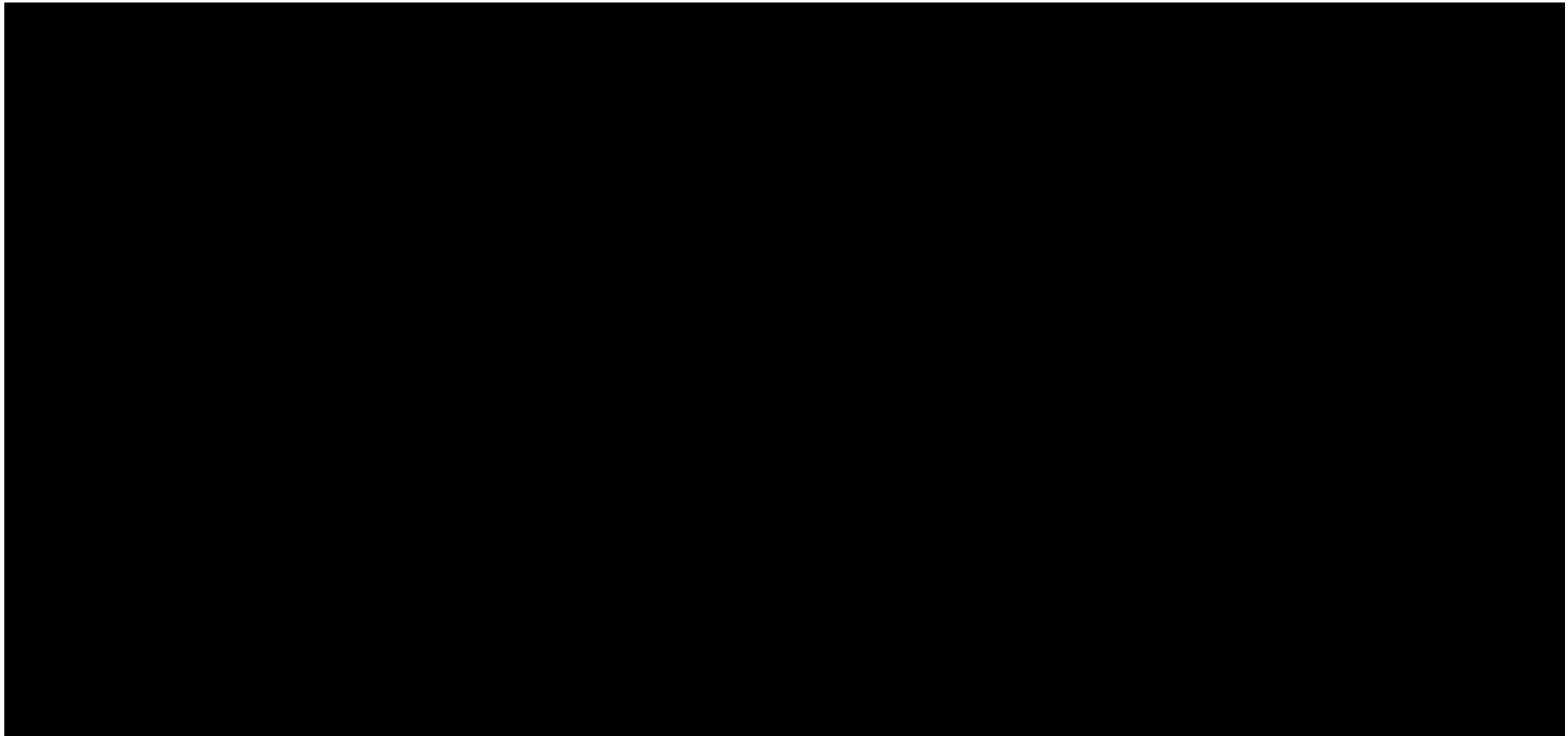
* Scope 1 : Direkte Emissionen aus Anlagen
Scope 2 : Emissionen aus der zugekauften Strom- und Dampferzeugung
Scope 3 : Emissionen aus der Verwendung unserer Produkte

SAF PROJECT IN A NUTSHELL



GRÜNER H2 ALS ECKPFLEILER UNSERER NACHHALTIGKEITSSTRATEGIE

Der Bedarf an grünem Wasserstoff in Leuna wird bis 2030 drastisch steigen



02.

Bio-SAF at TotalEnergies

03.

Implementation of RED III and entry into force of the RefuelEU Aviation regarding Bio-SAF

Implementation of RED III and entry into force of the ReFuelEU Aviation (1/2)

All biofuels for aviation should be eligible for the GHG quota, regardless of which biogenic feedstock permitted under ReFuelEU Aviation they were produced from.

Most of EU member states intends to apply the fulfilment of the ReFuelEU Aviation quota for bio-SAF, which will apply from 2025, to their national emission reduction targets for transport (RED transposition). For reasons of harmonization and the competitiveness of German refineries, such a linking of the targets from ReFuelEU Aviation and RED III would also make sense in Germany.

Biofuels produced via co-processing should be counted towards the GHG reduction quota.

- ReFuelEU Aviation does not exclude the eligibility of bio-SAF from co-processing. However, the German legislator does not currently recognize co-processing to a sufficient extent. Only the co-hydrogenation of biofuels, i.e. the co-processing of biogenic oils in the desulphurisation plant (HDS), can currently be counted towards the GHG reduction quota for the production of biofuels, provided the feedstock is included in Annex IX-A of RED.
- The joint processing of sustainable biogenic residual and waste materials as well as renewable feedstocks with fossil fuels ("co-processing") enables a GHG reduction of up to 95 percent compared to purely fossil fuels.
- Recognizing co-processing in this way stimulates production in companies without the need for costly plant modifications and major investments.

Implementation of RED III and entry into force of the ReFuelEU Aviation (2/2)

All eligible feedstocks compliant to RED (excluding food & feed crops) should be recognized in the GHG quota

- The Federal Immission Control Act (BImSchG) only allows biofuels from biogenic feedstocks in accordance with Annex IX-A of RED II to be counted towards the GHG reduction quota when coprocessed.
- In order to have a greater choice, more flexibility and thus also shorter transport routes for procurement, all eligible feedstocks compliant to RED (excluding food & feed crops), should be recognized in the GHG quota.

Enlargement of eligible feedstocks for GHG reduction quota to animal fats category 3

- The Federal Immission Control Act (BImSchG) only allows biofuels from certain biogenic feedstocks to be counted towards the GHG reduction quota, notably those eligible to in accordance with Annex IX of RED. However, ReFuelEU Aviation, does not exclude this broad eligibility of feedstock for the production of Bio-SAF.
- In order to reduce competitive disadvantages for German refineries, the German legislator should make greater use of the possibilities offered by European framework legislation and enable biofuels from animal fats of category 3 to be eligible for the GHG reduction quota, as is the case in France – for road transport, but at least for air transport.

04.

H2 tender for our European refineries

05.

Ambitious targets for RED III implementation needed for H2 ramp-up

Ambition for RED III implementation regarding RFNBO

A sub-quota for RFNBO[1] between 2,5% and 4% by 2030 in energy content (without EU double counting)

TotalEnergies recommends that a separate RFNBO sub-quota must be set up to avoid competition between nascent RFNBO fuels and mature biofuels:

- **RFNBO sub-quota to be set between 2,5% and 4% in energy content (physically without EU double counting)**
- It would cover the H2 demand of German refiners, and the use of H2 in mobility as green H2 or e-fuels including RFNBO methanol for road transport, aviation and shipping.

All Green H2 used in a refinery including POX/Methanol units to count as RFNBO for transport

- TotalEnergies recommends that **100% of the green H2 imported at the refinery gate could be counted in the RED III transport sector obligation** whether as RFNBO H2 or RFNBO methanol (methanol is already used notably for the production of MTBE and FAME[2] components blended into gasoline and diesel today. Methanol could also play a role in the future to decarbonize the shipping sector).

RFNBO penalty of €14/kg of H2 missing (as currently implemented for RED II in Germany)

TotalEnergies recommends that a dedicated incentive / penalty level needs to be associated with the RFNBO transport sub-quota to ensure its physical fulfilment:

- Germany to **continue the current level of penalty for RFNBO equivalent to ~14 €/kgH_2**[3] .

[1] RFNBO: Renewable Fuels from Non-Biological Origin: green H2 and e-fuels
[2] MTBE is Methyl tert-butyl ether, FAME is Fatty acid methyl ester
[3] Based on 600 €/tCO2 penalty in Germany using triple counting for RFNBO and 70% GHG savings for RFNBO. Calculation: 3 x 600 €/tCO2 x 94 gCO2/MJ x 70% x 120 MJ/kg H2 ≈ 14 €/kg H2

Contact details