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Platts Sustainable Aviation Fuel and Renewable Diesel prices

Platts, a division of S&P Global Commodity Insights publishes assessments and values for renewable diesel and Sustainable Aviation fuel. The launch of these prices followed extensive consultation of producers, consumers, traders and others in the oil, biofuel and renewable fuel markets. Platts will continue to seek feedback and update methodology as the supply and demand for advanced biofuels grows.

On September 1, 2023, Platts launched the first market based sustainable aviation fuel (SAF) assessment for Northwest Europe.

- SAF CIF Amsterdam-Rotterdam-Antwerp
- SAF CIF Amsterdam-Rotterdam-Antwerp Premium to Platts CIF Northwest Europe Jet Fuel Cargoes

What are the SAF assessments?

The European SAF price assessment reflects the tradable market value for SAF, based on bids, offers, trades and other relevant prices indications gathered directly from the market.

The assessment reflects SAF that has been produced via the HEFA or Hydrotreated Esters and Fatty Acid pathway.

The price assessment is published daily as an outright value and as a premium to the benchmark CIF Northwest European jet fuel price assessment.

In the absence of daily SAF price indication Platts may look at other relevant markets such as used cooking oil feedstock prices.

Platts also publishes daily cost of production values for SAF and renewable diesel/Hydrotreated vegetable oil (HVO).

- HVO Ex Works Northwest Europe
- SAF Ex Works Northwest Europe
- SAF with credits, US West Coast

- SAF without credits, US West Coast
- RD with credits, US West Coast
- RD without credits, US West Coast
- HVO (PFAD) Southeast Asia
- SAF (PFAD) Southeast Asia
- HVO (UCO) North Asia
- SAF (UCO) North Asia

What are the cost of production prices?

Values reflecting the production cost of sustainable aviation fuel (SAF) and hydrotreated vegetable oil (HVO) through the HEFA method.

These are ex-refinery prices based on calculations from S&P Global Commodity Insight group using existing Platts assessments.

Why has Platts launched these assessments?

In the aviation industry, policy and incentives around the globe have helped drive the growth in Sustainable Aviation Fuel demand and production. For example, the Carbon Offsetting and Reduction Scheme for International Aviation program (CORSIA) aims to halve the industry's 2005 carbon emissions by 2050 by way of carbon neutral growth. SAF is one key component in airlines' sustainability toolboxes that can be used to meet these lower carbon goals. In the EU, UK, Brazil, North America and Japan, mandates and clean fuel programs have given clear signals to the industry on the need for SAF.

By first launching a cost-based, calculated assessments, while the spot market was limited, we added critical transparency that allows market participants to compare the cost of traditional jet fuel with new SAF production. The addition of the new market price takes that transparency to the next level, with a price assessment based directly on market data.

How do the cost of production prices differ from SAF assessments?

The SAF and HVO/RD cost of production prices are underpinned by calculations which reflect the cost of the renewable distillates based on the yields of a biorefinery. The European and North Asia prices use Used Cooking Oil as the feedstock, the USA published prices use tallow or animal fat as the feedstock and the Southeast Asia HVO and SAF prices use PFAD,

The assumptions are based on the HEFA production pathway fixed costs and take into account relevant Platts price assessments produced daily.

In comparison, the market-based SAF price assessments reflect repeatable market value at the close of the assessment process.

Platts publishes market information in real-time including but not limited to firm bids and offers, expressions of interest to trade and confirmed trades that are received from market participants throughout the day.

Platts is committed to ongoing review of its methodology specifications and assumptions as the sustainable aviation and renewable diesel markets continue to develop and evolve and as Platts continues to engage with the marketplace.

What are the specifications ?

EMEA

SAF price assessment: The assessment reflects 500 to 5000 metric ton parcels of SAF delivered into ARA, 10 to 25 days forward from date of publication. The assessment reflects neat SAF produced via the Hydrotreated Esters and Fatty Acid (HEFA) pathway from Renewable Energy Directive-compliant feedstocks, with an exclusion for Palm Fatty Acid Distillate, and reflects minimum GHG savings of 80% and a density of 760 kg/cu m at 15 degrees Celsius. Platts publishes the SAF prices in \$/mt, using a 347.594 conversion factor to \$/gallon, which implies a \$/mt to \$/barrel conversion factor of 8.276.

Cost of production: HVO and SAF are published on an ex-refinery Northwest European basis in US dollars per metric ton on a daily basis.

USA

SAF and RD cost of production, calculated assessments are published on an ex-refinery, California basis in US cents/gallon.

SAF prices with and without environmental credit values are also published in \$/mt using a 3.4 conversion factor

and in \$/barrel using a 0.42 conversion factor. This implies a \$/mt to \$/b conversion factor of 8.105.

SAF values reflect ASTM D7566 standard specification for Aviation Turbine Fuel Containing Synthesized Hydrocarbons, with a relative density of 776 kg/cu m (at 15 degrees Celsius).

The RD values with and without credits are also published in \$/mt using a 3.39 conversion factor and in \$/barrel using a 0.42 conversion factor. This implies a \$/mt to \$/b conversion factor of 8.071.

The USWC RD prices reflect ASTM D975 standard specification, with a relative density of 779 kg/cu m (at 15 degrees Celsius).

Southeast and North Asia cost of production process

HVO and SAF cost of production prices are published on FOB Singapore basis and FOB North Asia in US dollar per metric ton and US dollar per barrel on a daily basis. SAF uses a \$/mt to \$/b conversion factor of 8.105. HVO uses a \$/mt to \$/b conversion factor of 8.071.

Cost of Production calculation inputs

EMEA

SAF: The SAF inputs are Used Cooking Oil FOB ARA and Hydrogen Netherlands SMR, added to fixed renewable refinery costs, then deducting the by-product credits to include FOB ARA Propane, Naphtha CIF NWE cargoes and Diesel CIF NWE ARA Cargoes.

HVO: The HVO inputs are Used Cooking Oil FOB ARA and Hydrogen Netherlands SMR, added to fixed renewable diesel refinery costs, then deducting the by-product credits to include FOB ARA Propane and Naphtha CIF NWE cargoes.

The Platts symbols for the specific assessments used in the price calculations can be found in the Global Biofuels specification guide on Platts.com.

USA

SAF: The inputs are Packer Grade Beef Tallow Dlv'd Chicago and Hydrogen California SMR w/o CCS (incl CAPEX), added to fixed renewable aviation fuel refinery costs, then deducting the by-products of Gasoline Unl 84 Los Angeles CA Pipeline, Propane non-LST Mt Belvieu pipe Mo01 and ULSD No2 CARB Diesel Los Angeles CA Pipeline.

The primary SAF value is inclusive of environmental credits. Platts publishes an additional value without environmental credits by deducting the value of Renewable Identification

Numbers under the Renewable Fuel Standard, credits from the Low Carbon Fuel Standard administered by CARB and, when applicable, the federal biomass-based diesel blender's tax credit.

RD: The RD inputs are Packer Grade Beef Tallow Dlv'd Chicago and Hydrogen California SMR w/o CCS (incl CAPEX), added to fixed renewable diesel refinery costs, then deducting the byproducts of Gasoline Unl 84 Los Angeles CA Pipeline and Propane non-LST Mt Belvieu pipe Mo01.

The Platts-published environmental credits deducted for the RD values without credits are Biodiesel RIN Cal Yr02, the Low Carbon Fuel Standard Carbon Credits Front Quarter, and, when applicable, the federal biomass-based diesel blender's tax credit.

Southeast and North Asia

SAF: The SE Asian SAF inputs are Palm Fatty Acid Distillates FOB Indonesia; North Asia SAF inputs are Used Cooking Oil FOB North Asia and Japan Hydrogen SMR w/o CCS Inc. Capex normalized to Singapore using relevant freight costs, added to fixed renewable refinery costs, then deducting the by-product credits to include Propane Refrigerated CFR North Asia normalized to Singapore using relevant freight, Naphtha FOB Singapore Cargo and Gasoil FOB Spore Cargo.

HVO: The Southeast Asia SAF inputs are Palm Fatty Acid Distillates (PFAD) FOB Indonesia; North Asia SAF inputs are Used Cooking Oil FOB North Asia and Japan Hydrogen SMR w/o CCS Inc. Capex normalized to Singapore using relevant freight costs, added to fixed renewable refinery costs, then deducting the by-product credits to include Propane Refrigerated CFR North Asia normalized to Singapore using relevant freight, Naphtha FOB Singapore Cargo.

The Platts symbols for the specific assessments used in the price calculations can be found in the Global Biofuels specification guide on Platts.com.

What other supporting information does Platts publish?

The daily renewable distillate prices are accompanied by monthly commentaries from the USA, EMEA and Asia.

In addition, Platts publishes month average SAF and RD/HVO values.

Platts also assesses and publishes:

- Global ULSD prices
- Global jet fuel prices
- California Low Carbon Fuel Standard credit prices

- Renewable Identification Numbers and Renewable Volume Obligation prices
- Used Cooking Oil, PFAD and tallow feedstock prices
- Global biodiesel (methyl ester) prices
- Global hydrogen prices
- Global vegetable oil prices

Where are these prices published?

Biofuels Publications

- Platts Biofuelscan
- Platts Weekly Biomass-Based Diesel
- Platts Biofuels Alert
- Americas Renewable Distillate PBF0012
- European Renewable Distillate PBF1013
- Platts Renewable Fuels Asia PBF2013

Platts Market Data

Biofuels (Platts symbols):

- SAF CIF Amsterdam-Rotterdam-Antwerp \$/mt AJNWD00
- SAF CIF Amsterdam-Rotterdam-Antwerp Premium \$/mt AJNWF00
- Sustainable Aviation Fuel Cost of Production EXW NWE \$/mt BJNWD00
- HVO EXW NWE \$/mt HVNWD00
- Sustainable Aviation Fuel Cost of Production w/ Credits USWC cts/gal ASAFK00
- Sustainable Aviation Fuel Cost of Production w/o Credits USWC cts/gal ASAFL00
- Renewable Diesel w/ Credits USWC cts/gal ARDFK00
- Renewable Diesel w/o Credits USWC cts/gal ARDFL00
- Sustainable Aviation Fuel Cost of Production Southeast Asia (PFAD) \$/bbl ASMAB00
- Sustainable Aviation Fuel Cost of Production Southeast Asia (PFAD) \$/mt ASMAA00
- HVO Southeast Asia (PFAD) \$/mt HVMAB00

- HVO Southeast Asia (PFAD) \$/bbl HVMAA00
- Sustainable Aviation Fuel Cost of Production (UCO) North Asia \$/mt ASFAC00
- Sustainable Aviation Fuel Cost of Production (UCO) North Asia \$/bbl ASFAD00
- HVO North Asia (UCO) \$/mt ASMAC0
- HVO North Asia (UCO) \$/bbl ASMA00

Oil Publications

- Platts European, US and APAG Marketscans
- Platts Oilgram Price Report
- Platts Global Alert
- Renewable fuels Europe PGA1414
- Renewable fuels Americas PGA0483
- Platts Renewable Fuels Asia PGA2414

Oil products (Platts symbols):

- HVO EXW NWE \$/mt HVNWA00
- Sustainable Aviation Fuel Cost of Production EXW NWE \$/mt BJNWA00

- Sustainable Aviation Fuel Cost of Production w/ Credits USWC cts/gal ASAFI00
- Sustainable Aviation Fuel Cost of Production w/o Credits USWC cts/gal ASAFJ00
- Renewable Diesel w/ Credits USWC cts/gal ARDFI00
- Renewable Diesel w/o Credits USWC cts/gal ARDFJ00
- Sustainable Aviation Fuel Cost of Production (PFAD) Southeast Asia \$/mt ASFAA00
- Sustainable Aviation Fuel Cost of Production (PFAD) Southeast Asia \$/bbl ASFAB00
- HVO Southeast Asia (PFAD) \$/mt HVSAB00
- HVO Southeast Asia (PFAD) \$/bbl HVSAA00
- Sustainable Aviation Fuel Cost of Production (UCO) North Asia \$/mt ASFAC00
- Sustainable Aviation Fuel Cost of Production (UCO) North Asia \$/bbl ASFAD00
- HVO North Asia (UCO) \$/mt HVNAA00
- HVO North Asia (UCO) \$/bbl HVNAB00

Platts Connect

Platts

S&P Global

Commodity Insights

Contact Client Services:

E-mail: ci.support@spglobal.com; Americas: +1-800-752-8878; Europe & Middle East: +44-20-7176-6111; Asia Pacific: +65-6530-6430

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