Sustainable Aviation Fuel (CO22-SAF)

Grimes Carbon Tech (GCT)

A net negative green technology company changing the world

September 2024

CCR (Carbon Capture & Reuse Technology)

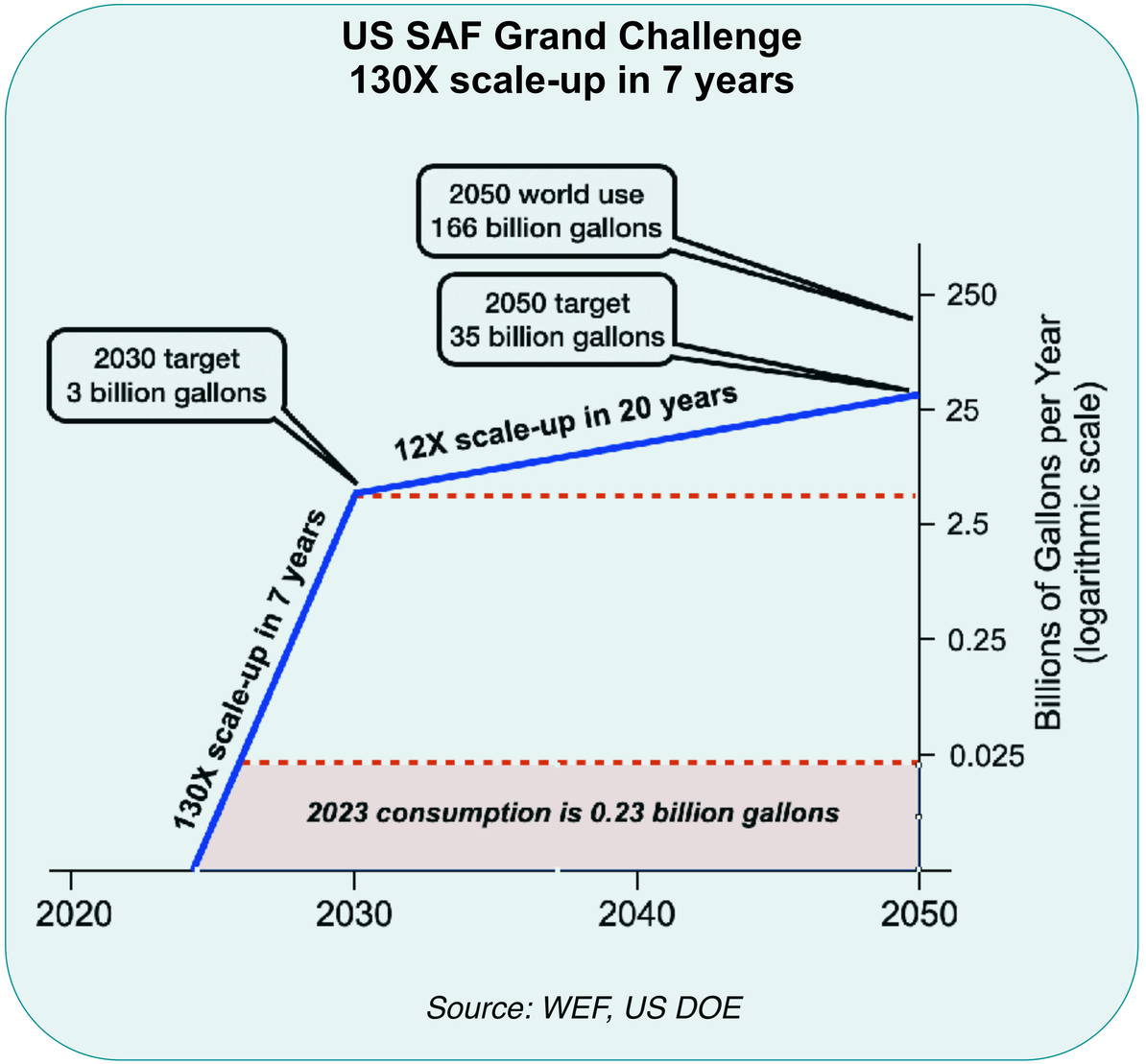
CCR technology that converts CO2 into Sustainable Aviation Fuel (SAF) at the cost of conventional, fossil-derived, Jet A fuel

The Challenge: Global supply shortage of Sustainable Aviation Fuel (SAF)

Airlines desperately seeking solutions

SAF supply can’t meet demand

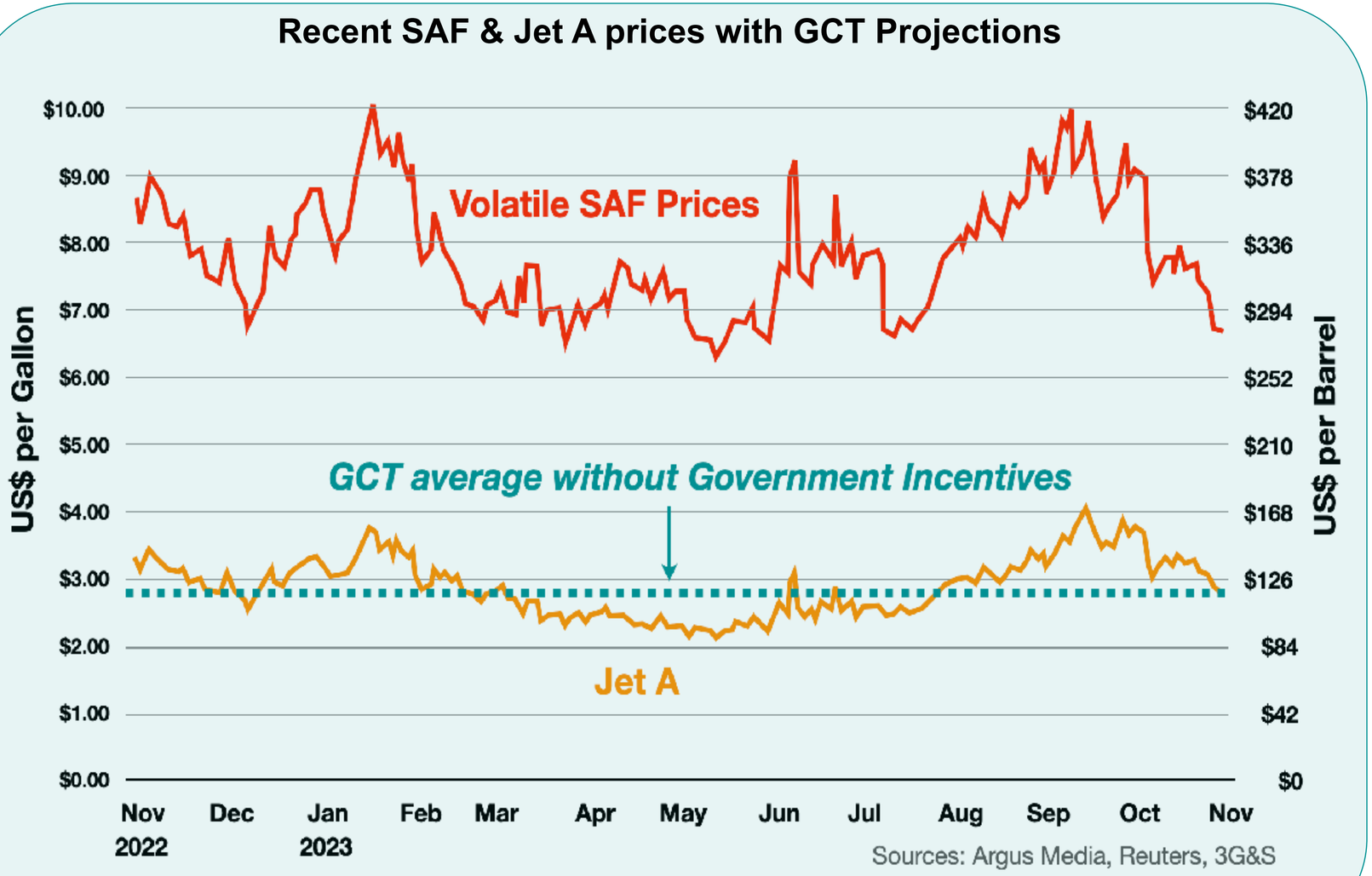
- Major airlines committed to net-zero carbon emissions by 2050, but United, Delta, & Virgin cut SAF projections due to supply constraints.
- SAF production to triple in 2024 but announced production plans are 60-70% short of meeting 2030 targets (WEF).
- Current SAF costs, produced from waste, are 2-3x the cost of conventional jet fuels. Available waste material to produce feedstock is limited.
- Current CO2 derived fuels are 6-10x more costly to produce than conventional jet fuel.



Source: WEF, US DOE

The solution: GCT has the *only economical* pathway to SAF

Using waste CO2 to produce SAF at the cost of current fossil-derived jet fuel



GCT SAF:

- Integrates with all commercial CO2 capture systems.
- Eliminates feedstock shortages by using universally available CO2.
- One CCR shipping container unit processes 3.6 tons of CO2 per day, producing eight barrels* of SAF per day.
- Fast, modular construction ‘plug and play’ systems can stack containers to create as much fuel capacity as needed.
- Incredible opportunities in the US and emerging markets to produce cost-competitive, accessible fuel, with intermittent renewable electricity without the need for grid connections.
- Reduces need for hedging volatile fuel prices

** a 737 flying from NYC to LA uses ~100 barrels of fuel*

The Outcome: GCT's SAF produced from CO2, water and electricity

Carbon emissions reduced by 99% (US DOE)

Inputs

196 MWh

Green electricity

22 tons

Waste CO2

11.8 tons

Water

1 Module = $800,000 ($25,000/BPD)

Modular, flexible and distributed

GCT's CCR converts captured carbon in modular, factory-built shipping containers that eliminate the need for CO2 pipelines. The CCR can be operated alone or integrated with a CAPER system for zero-cost carbon capture.

Low energy, liquid-phase

GCT's CCR operates at low temperature (< 90^{0}C) and in liquid-phase, eliminating the need for gas-phase compression, a major cost. System needs only 67 kWh/gallon of fuel & produces 94 gallons of fuel per ton of CO2 (42 gallons = 1 barrel = 2,814 kWh/barrel).

Outputs

41.4 bbls/day

5 tons

SAF

Airplane 99% less CO2 emissions per flight or negative with reuse or sequestration

26 tons

Saleable Oxygen

For more information please email info@grimescarbontech.com