

Overcoming Risk for your SAF Project

Shaping the project's full execution model to achieve FID and deliver successfully

Omar Hamid, Low Carbon Group Manager
ABLC Next, San Francisco
22 October 2026

worley consulting

We have proven experience in the Low Carbon Fuels space, and have worked extensively in Sustainable Aviation Fuels

700+
projects in Low Carbon Fuels

80+
SAF projects delivered across ecosystem of customers from airlines to developers to financers, across all production pathways

40,000
People

45
Countries

2,700+
Customers

We work with multiple technology providers for SAF production, across different pathways

Pretreatment of feedstock:

Honeywell UOP
ARA
ALFA LAVAL
desmet

Production of renewable fuels:

LanzaTech
Honeywell UOP
VELOCYS
TRI
LUMMUS TECHNOLOGY
SULZER
gevo
TOPSOE
Axens
Powering integrated solutions
JM Johnson Matthey
sasol
CLG
Chevron Lummus Global
ARVOS GROUP
LANZAJET

ENERGY TRANSITION PROJECTS

Summary of projects to date

6900+ projects*

Solar power

786
Solar power projects

950 MW
World's largest CSP/PV hybrid project

Wind power

1089
Wind power projects

1386/1500 MW
Largest offshore fixed/floating

424 MW
Largest onshore wind farm

Nuclear power

459
Nuclear power projects

30+ GW
Nuclear power projects

Low-carbon & renewable hydrogen/Power-to-X

820
Low-carbon hydrogen projects, incl. green H_2/Power-to-X

200 MW
Europe's largest green H_2 plant. Pre-FEED & FEED completed, Execute phase in progress

Energy transition materials

823
Energy transition materials projects (excl. copper)

40+
Battery active materials and recycling projects

Geothermal, hydropower (incl. pumped storage) & ocean power

397
Geothermal, hydropower and ocean power projects

20 GW
Largest hydropower project

Distributed energy systems (incl. EV & storage)

669
Distributed energy systems incl. EV and storage projects

190 MW/400 MWh
EPC energy storage project using Lithium-ion technology

Carbon capture utilization & storage, Direct Air Capture, GHG management

950
Total number of projects

40+
Active CCUS projects

110+ mtpa
CO_2 expected to be captured from active projects

Electrification, energy efficiency & grids

991
Electrification, energy efficiency and grids projects

70%+
Diesel reduction through electrification at world's largest iron ore mine

Liquid renewable fuels, renewable natural gas, biomass-to-energy

802
Liquid renewable fuels, renewable gas, biomass-to-energy (incl. WtE) projects

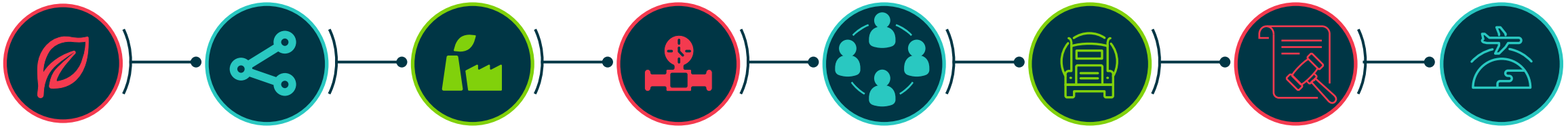
$211m
Savings in a single project through licensor design optimization

*Projects with multiple technologies are included in each relevant category but only counted once in the aggregate number. Does not include Natural Gas projects.
*References in notes field.

May 2026

The SAF Value Chain

Stakeholders along the SAF Value chain have different priorities and questions – Worley Consulting has a proven track record in helping our clients to address questions, informing strategic decisions in the SAF market.



Feedstock and Power

- What industry will pay the most for my feedstock – power or biomass?
- How do I transport my feedstock to the SAF site?
- What infrastructure needs to be developed for efficient transport?
- What is my waste stream now valued at?

Technology Providers

- How do I move my technology up in TRL?
- What can I do to boost the appeal of my technology to SAF producers?
- How do I scale up my technology?

SAF Producers

- How do I finance my project?
- What regulatory and sustainability criteria affect my operations?
- How do I guarantee offtake of my product?
- What market/region do I target?
- Which technology/route do I select?

Fuel Suppliers

- How do I establish a robust logistics and blending infrastructure?
- How do I comply with regulations such as the EU ReFuelEU mandate and avoid penalties?

Investors and Consortia

- What risks do I need to be aware of when financing SAF projects?
- Will there be demand guarantees which will ensure ROI?

SAF Traders

- How do I connect suppliers with buyers of SAF?
- How does Book and Claim, and SAF certificates impact my role?
- What are the certification requirements for tradable SAF volumes?

Certification and Auditing

- Confirmation of credentials through bodies such as ISCC and RSB

Airlines

- Which type of SAF should I buy?
- Can I use Book and Claim to meet my Net zero targets?
- What length of offtake contracts should I sign?
- What price should I pay for SAF?
- What are the blending ratios and certified pathways available (ASTM D7566)?

What Drives Off-takers for Cost-Effective and Reliable SAF Supply?

Supply contracts are central: long-term contracts secure reliable supply, while short-term contracts capture future cost reductions. Managing these trade-offs requires expert insight to balance risk, cost, and flexibility in SAF offtake.

FEEDSTOCK SOURCING AND AGGREGATION

Feedstock sourcing can present challenges with sustainability, aggregation, and logistics, requiring interaction with stakeholders. Additionally, for e-SAF, renewable electricity accounts for >50% of e-SAF production costs, with captured CO_2 representing another major input. Appropriately sourcing both bio and e-SAF feedstocks is critical for project viability and compliance with regulatory frameworks.

TECHNOLOGY MATURITY

Different production pathways have varying technology readiness levels, energy efficiencies, and capital expenditures. Understanding maturity and learning curves is key to balancing supply reliability with economic efficiency.

LICENSOR EVALUATION & SELECTION

The choice of licensor affects production efficiency, energy use, and overall cost. Understanding variations in technology performance and operational capability is important for anticipating supply reliability and economic outcomes.



REGULATORY COMPLIANCE & POLICY

The lifecycle greenhouse gas emissions of SAF depend on feedstock, utilities, CO_2 source and the renewable electricity mix. Regulatory compliance differs across regions, with stringent requirements for feedstocks, renewable power and overall carbon intensity. Compliance with some regulatory criteria can be costly.

LOGISTICS & MARKET ACCESS

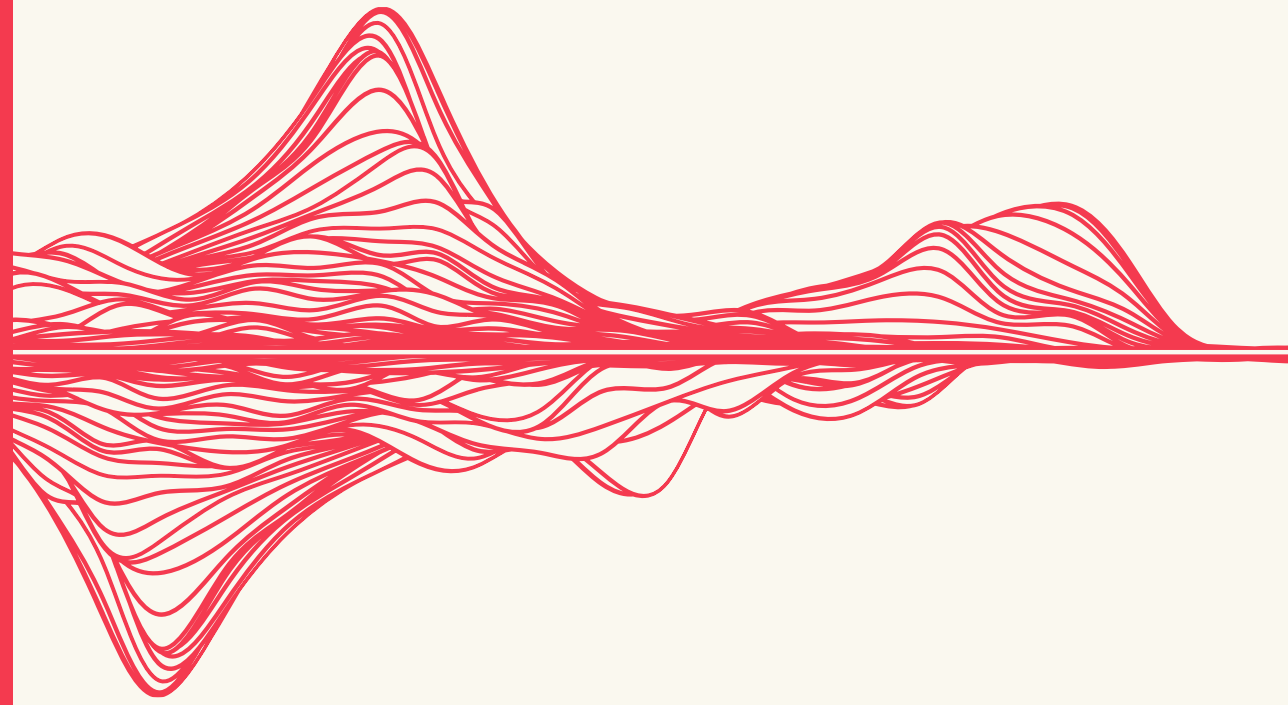
Location of SAF facilities can impact costs with some pathways enabling a hub and spoke model while others require co-location. Assessment of individual project landscape is necessary to optimize project location, to decrease transport and integration costs while enabling reach of target markets.

SUPPLIER ASSESSMENT

Comprehensive evaluation of suppliers and projects, including technical, financial, and regulatory aspects, to mitigate operational and reputational risks and support informed, confident procurement decisions.

Source: Worley Consulting

What are the risks that keep you up at night?



How to derisk SAF developments early and achieve FID



1 **Clear business case**
Model various economic scenarios **in a detailed financial model and confirm ROI requirements**

2 **Prepare for a maturing funding ecosystem**
Develop a detailed **project bankability** analysis, including several funding scenarios at various risk profiles

3 **Robust costs and execution schedule**
Developed during FEL2/3 and detailed engineering, ensure robustness of **capital cost estimate and go-to-market strategy**

4 **Allocate risks to the right party**
Develop **risk-sharing frameworks and allocate to the party that is in control of each risk**

5 **Select the right technology**
Select **technology and licensor** that matches the feedstock you have access to and meets TRL lending requirements

6 **Changing SAF pricing & off-taker requirements**
Evolving nature of **pricing** and **off-take frameworks**, requiring detailed **levelized cost analysis**

7 **Lock feedstock supply**
Adapt to the dynamic **feedstock landscape**, requiring detailed assessments of **availability**, **logistics** and **LCA including supply chain**

8 **Adapt to evolving nature of regulatory policies**
Understand mandates and **incentives, implement changes in your financial model and understand impact**

Our SAF experience

Worley Group has over 50 years of experience across many regions, with a record of excellence in resource and infrastructure developments on world class projects. We have SAF project experience **globally**, looking at **all technologies, regions, production pathways**, and **stages of project lifecycle**. A selection of projects are shown below. A key project that we have recently completed is a **Global SAF Review** including feedstock availability, regulations & policy and technology on behalf of **IATA**.

Our key locations



//non exhaustive sample of SAF projects in key locations

Europe	Type	Location
Biojet project	Owners Engineer	Netherlands
HEFA coprocessing with UCO	Feasibility	Ireland
Methanol to SAF	Concept, Feasibility & Prefeed	Netherlands
Waste to chemicals evaluation	Advisory	Europe
Country assessments	Advisory	Europe
MSW and Biomass residues SAF	FEED	UK

Rest of World	Type	Location
Waste oils to SAF via HEFA	Pre-feasibility	Singapore
Site Selection for waste oils to SAF	Pre-feasibility	Malaysia
eSAF production MTJ vs FT - Middle East	Feasibility	GCC
Waste to fuels evaluation	Advisory	GCC
SAF supply chain	Due Diligence	South Africa
HEFA SAF	FEED	Australia

USA	Type	Location
Multiple SAF Pathway & technology providers (Gasification, AtJ & e-SAF),	Due Diligence	USA
Revamp RD conversion to SAF – Greenfield RDU and PTU facility	Advisory	USA
Revamp study RD facility for SAF production	Advisory	USA
VGO Unit Conversion to Biofuels	Engineering Services	USA
SAF Plant Technology Selection	Advisory	USA
RD Plant	FEED	USA

Disclaimer

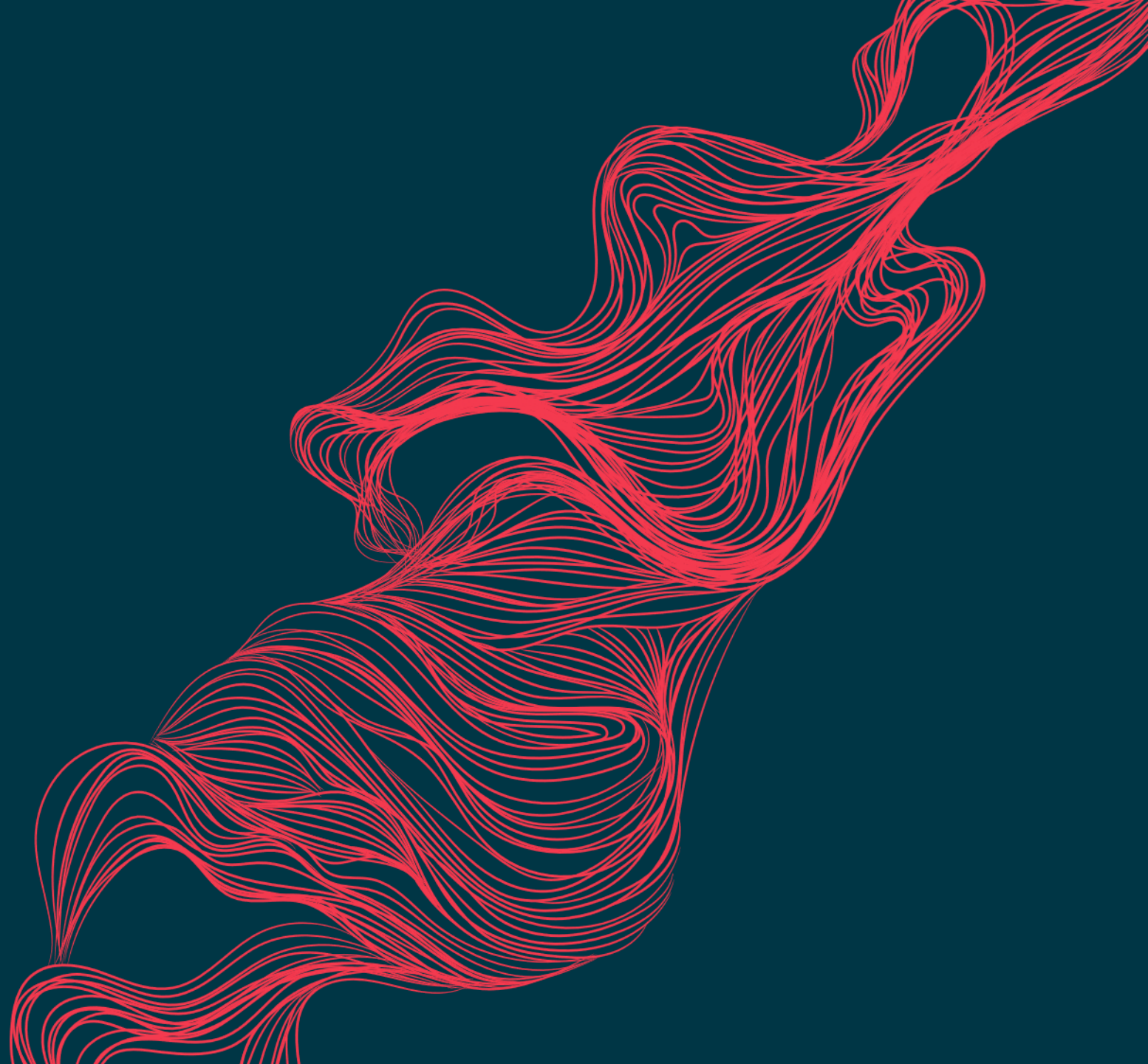
This presentation has been prepared by a representative of Worley.

The presentation contains the professional and personal opinions of the presenter, which are given in good faith. As such, opinions presented herein may not always necessarily reflect the position of Worley as a whole, its officers or executive.

Any forward-looking statements included in this presentation will involve subjective judgment and analysis and are subject to uncertainties, risks and contingencies—many of which are outside the control of, and may be unknown to, Worley.

Worley and all associated entities and representatives make no representation or warranty as to the accuracy, reliability or completeness of information in this document and do not take responsibility for updating any information or correcting any error or omission that may become apparent after this document has been issued.

To the extent permitted by law, Worley and its officers, employees, related bodies and agents disclaim all liability—direct, indirect or consequential (and whether or not arising out of the negligence, default or lack of care of Worley and/or any of its agents)—for any loss or damage suffered by a recipient or other persons arising out of, or in connection with, any use or reliance on this presentation or information.



worley consulting

Contact Us:

N: Omar Hamid
E: Omar.Hamid@Worley.com

worley.com

