Spark e-Fuels – Pitch Deck

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Exec Summary

Spark is in the best position to enable lowest-cost e-fuels for aviation (and beyond)

Market: How big is the market opportunity? Why now?

The time is now: 65%+ of today's growing €300bn global jet fuel market will be Sustainable Aviation Fuel (SAF) in 2050 to reduce 1 Gt of CO2 annually (sub-quotas for e-SAF in EU), driven by ambitious mandates & strong customer demand; Spark targets €2bn+ revenues in 2035 with its production systems in aviation and other sectors (e.g., chemicals) (p. 3/4, 13/14)

IP & advantage: What is Spark's secret SAF sauce? Why is it defensible?

Spark's patented, next-gen demand-responsive e-fuels production facilities enable direct access to low-cost renewables (solar & wind) without expensive H2 storage to reach most scalable SAF production at lowest cost (40% lower unit cost), providing a clear competitive advantage; Its tech advantage is based on proprietary e-fuel synthesis, including a disruptive CO2 conversion (p. 5-8)

Scalability: How can Spark achieve fast scalability and long-term commercial success?

Through rapid technology development with partners, Spark achieves commercial size by 2029. Once the tech is proven, Spark acts as system developer / OEM of standardized plants for fast cost degression & hyper-scaling in collaboration with EPCs (p. 9-13)

Team: Why the Spark team?

We best combine strong expertise in cleantech business building and chemical tech & product development: Mathias (Ex-BCG, MBA, PhD physics), Julia (Ex-Evonik, Ex-BASF, PhD Chemistry), Arno (2x founder, Forbes 30, PhD Chem. Eng.); complemented by veteran investors and advisors from PtL, oil & gas, plant development, aviation, company building (p. 15-17)

Investment opportunity: We are always looking for partners!

Spark already raised €3.7m from professional VCs to develop its breakthrough syngas conversion step and execute its already lined-up Fischer-Tropsch projects together with strong development partners; to further accelerated commercialization we are always looking for new investors and partners (p. 18)

Problem

To reduce emissions in hard-to-abate aviation sector, we must change the fuel, not the plane

Aviation depends on existing infrastructure and combustion

Existing planes:
Planes with 30+ years lifetimes and long development cycles

Existing infrastructure:
Heavy infrastructure difficult to replace for introduction of alternative propulsion tech

Combustion main option:
Limited energy density of H2 / batteries not enough for mid- to long-haul (responsible for ~75% of emissions)

Net-zero aviation only possible with sustainable aviation fuel (SAF)

CO_2 emitted from aviation p.a. **>1 Gt** ≈ **300+ mt** of SAF required to reduce emissions

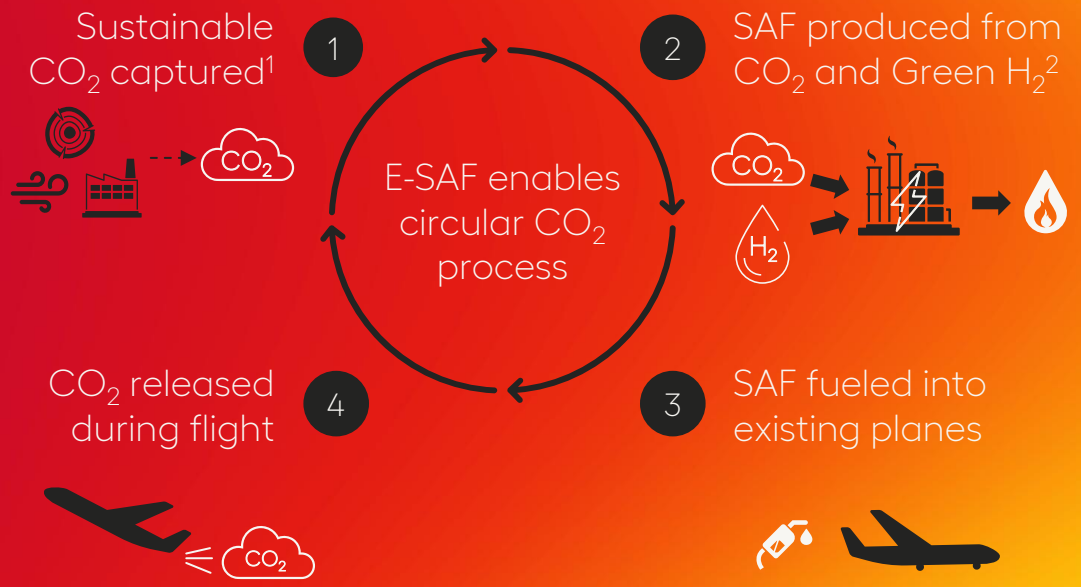
Aviation industry committed to SAF – IATA[1]: at least 65% of 2050 emission reduction from SAF

1. International Air Transport Association Source: ATAG, IATA

Complication

E-fuels are the best solution for SAF …

What is e-SAF and why is it green?



… but too high costs slow down market ramp-up

Drop-in fuel

E-SAF leverages existing infrastructure enabling fast sustainable transition

>90% CO_2 emission reduction

Most sustainable SAF option from using sustainable CO_2 and green hydrogen

High scalability

E-SAF production depending on highly scalable renewable electricity

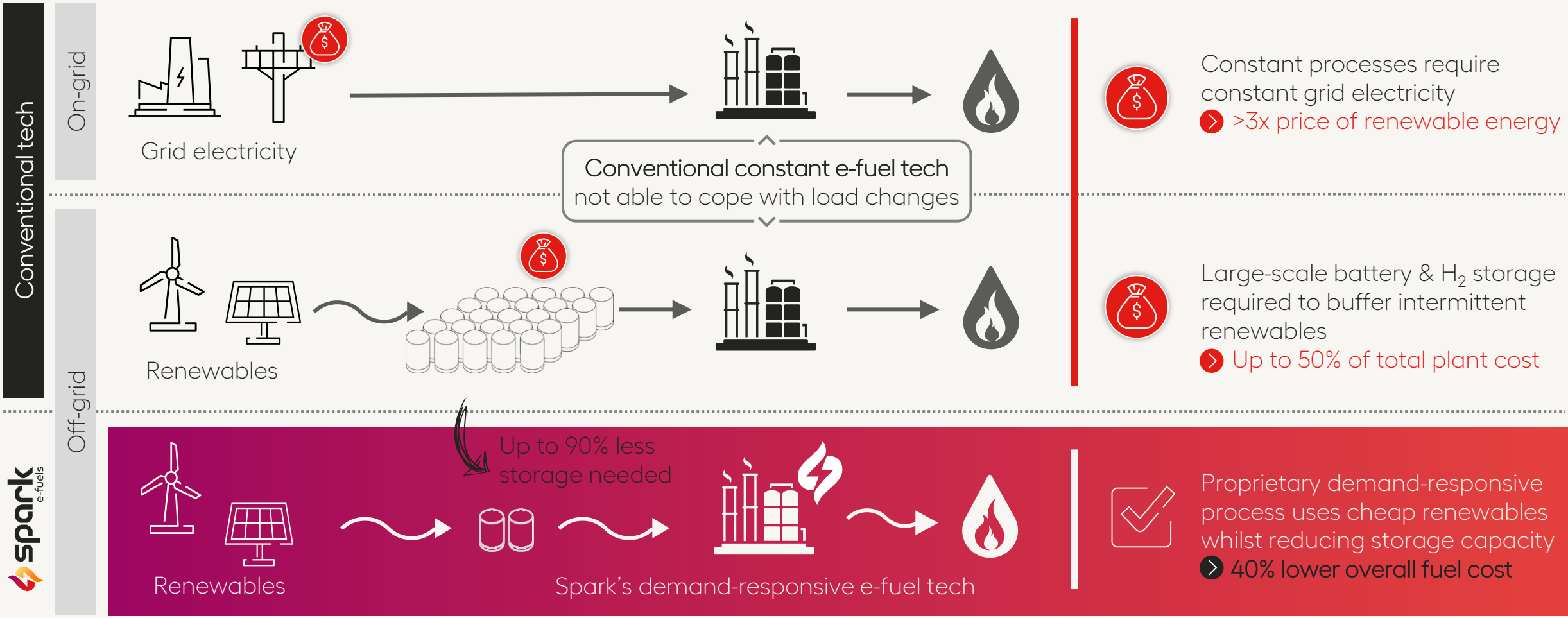
e-SAF price minimum 5x fossil jet fuel

Price-gap limits fast industry-wide adoption of e-SAF.

1. From biomass, industry point sources, ambient air, etc.

Competitive Approaches

Spark's demand-responsive tech with direct access to renewables overcomes limitations of constant e-SAF plants



Note: based on electricity price data and own TEA model

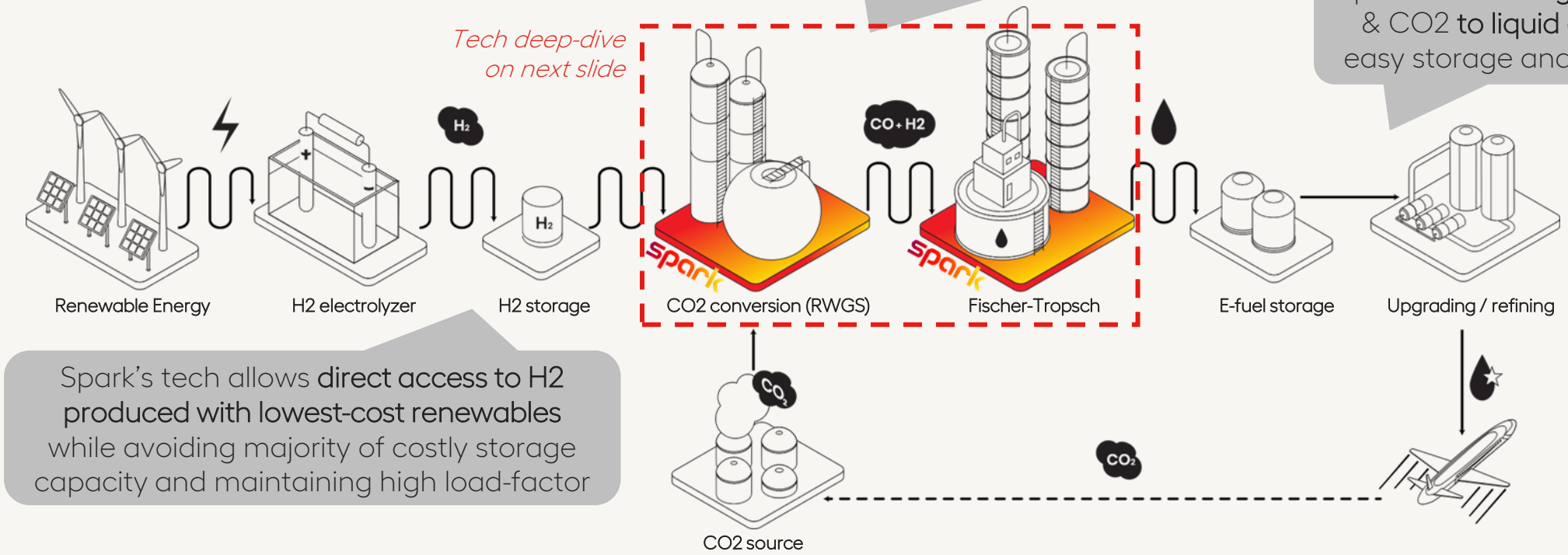
Spark's Solution

Spark addresses e-fuels' core problem: directly converting expensive-to-store H2 to easily storable liquid energy

Spark's proprietary next-gen CO2 conversion & flexible Fischer-Tropsch (FT) processes enable **demand-responsive** operation of **critical e-fuel synthesis**

Tech deep-dive on next slide

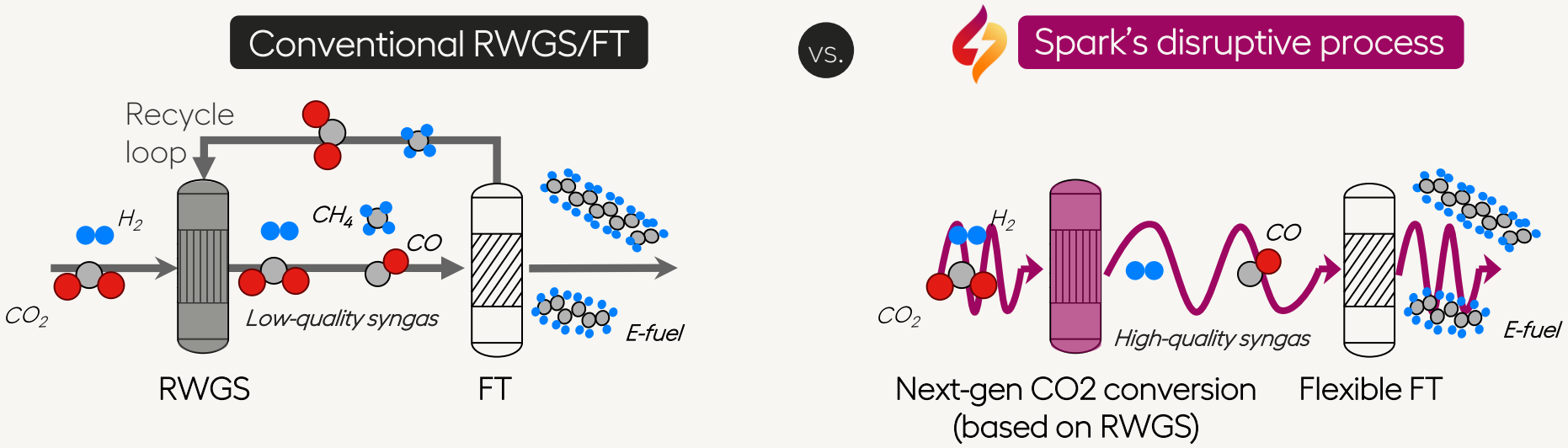
Spark **transform gaseous** H2 & CO2 **to liquid** e-fuel for easy storage and transport



Spark's tech allows **direct access to H2 produced with lowest-cost renewables** while avoiding majority of costly storage capacity and maintaining high load-factor

Spark's disruptive syngas technology reaches superior flexibility and efficiency …

Technology details only with NDA



RWGS deep-dive

Load	Stiff; steady state	Intrinsically flexible
CO yield	~55 %	>95 % (>99% proven in lab)
Side products	Methane	None
Temperature	>850 °C	~600-700 °C

- Flexible operation avoiding storage
- Reducing need for recycle and separation
- Simpler process design & materials

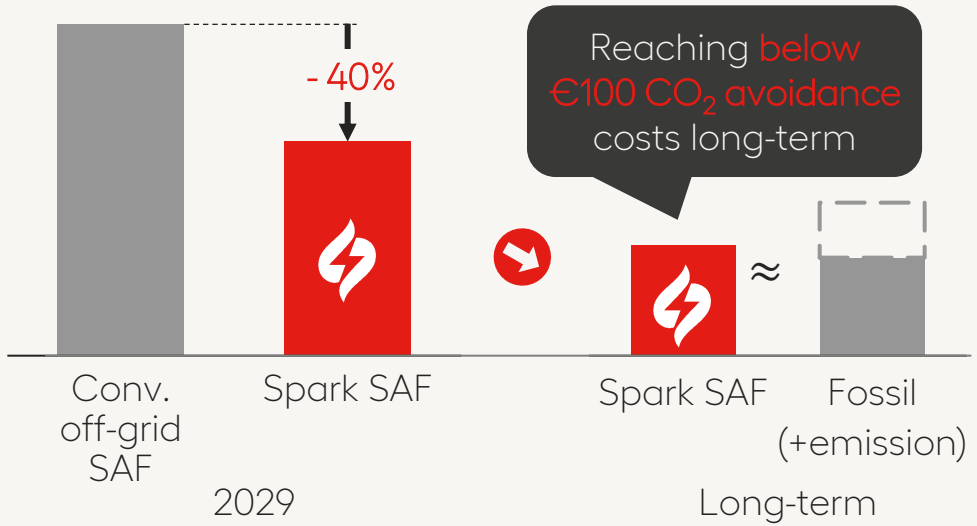
Spark's Advantage

… leading to significant cost advantages of overall system for lowest-cost e-fuel production

Cost advantages of Spark's overall system

- Flexible operation of de-coupled processes avoid expnsive H2 storage
- Streamlined design from unmatched CO2 conversion reduces Capex for recycling
- Efficient process setup & optimized conditions allow for overall 15% in efficiency gains

Enabling ~40% e-fuel cost reduction to reach fossil prices long-term



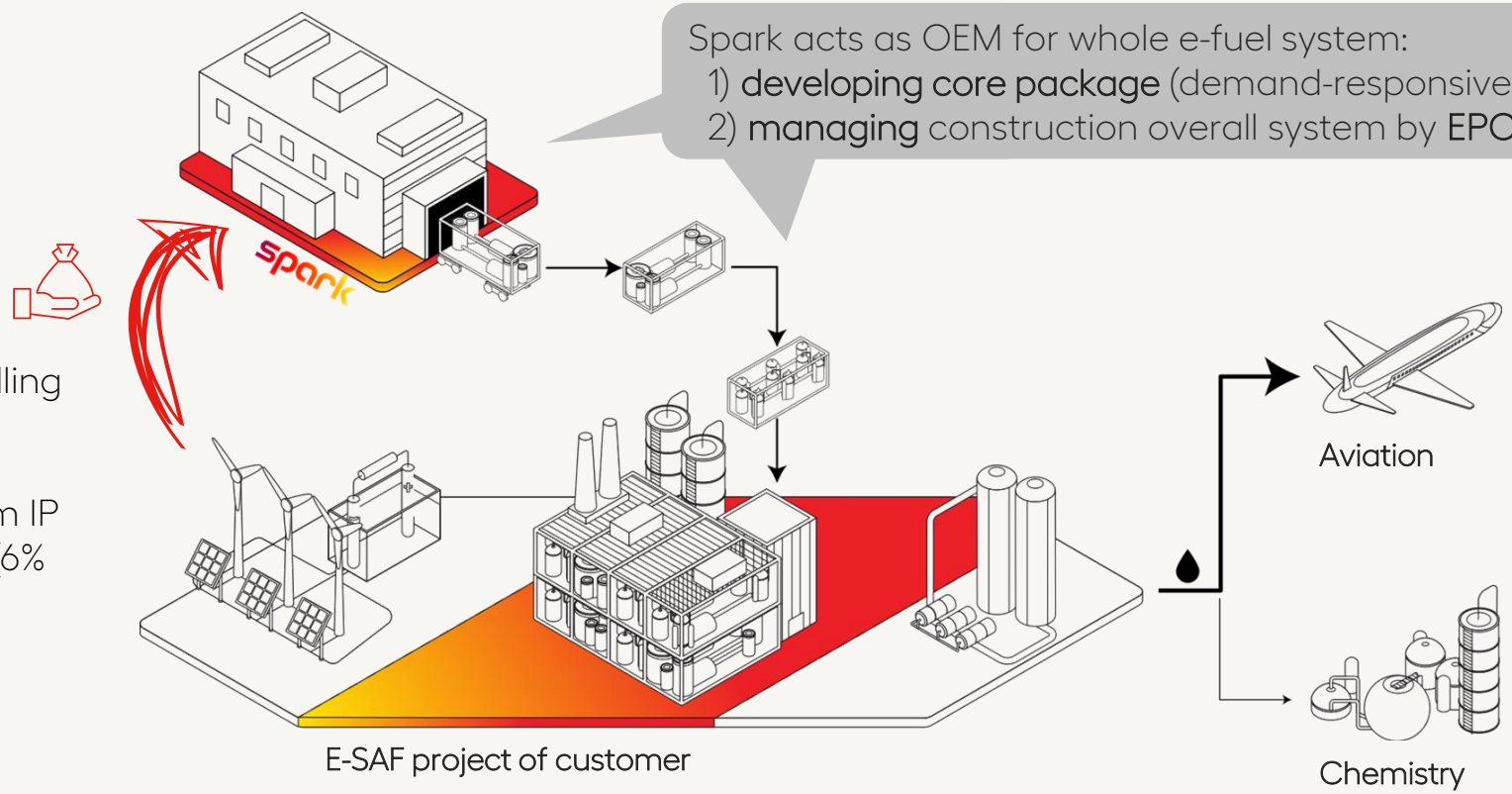
Cost/price of jet fuel (in €/ton) – Comparing Spark with conventional tech at off-grid site and fossil jet fuel

Sources: Spark TEA model

Business Model

Spark develops and supplies high-margin e-fuels systems as OEM to SAF projects worldwide

Spark acts as OEM for whole e-fuel system:
1) **developing core package** (demand-responsive RWGS+FT)
2) **managing** construction overall system by **EPC**



Revenue Streams

- One-off revenues by selling plants (25% margin)
- Recurring revenues from IP licensing/SW/Services (6% p.a. with 50% margin)

Today: Outsourced manufacturing to focus on core tech development

Target Model: Manufacturing of core equipment and collaboration with EPCs for construction

Achievements

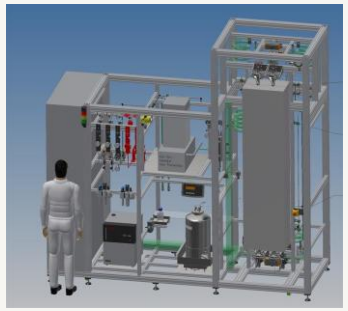
Significant milestones reached in tech, funding and commercialization

Tech development

Filed patents on disruptive demand-responsive e-fuel processes

Demonstrated tech superiority in lab and smaller pilot setups

Currently building TRL 5/6 pilot plant (tons p.a. scale)



Funding

Raised €3.7m funding from leading deep-tech & climate tech (C)VCs

Breakthrough Energy · Nucleus Capital · BASF · Zero Carbon Capital · IBB Ventures

€500k+ public funding granted for disruptive tech development

SPRIN-D · Investitionsbank Berlin

Commercialization

Advanced discussions with corporate partners for joint demo project

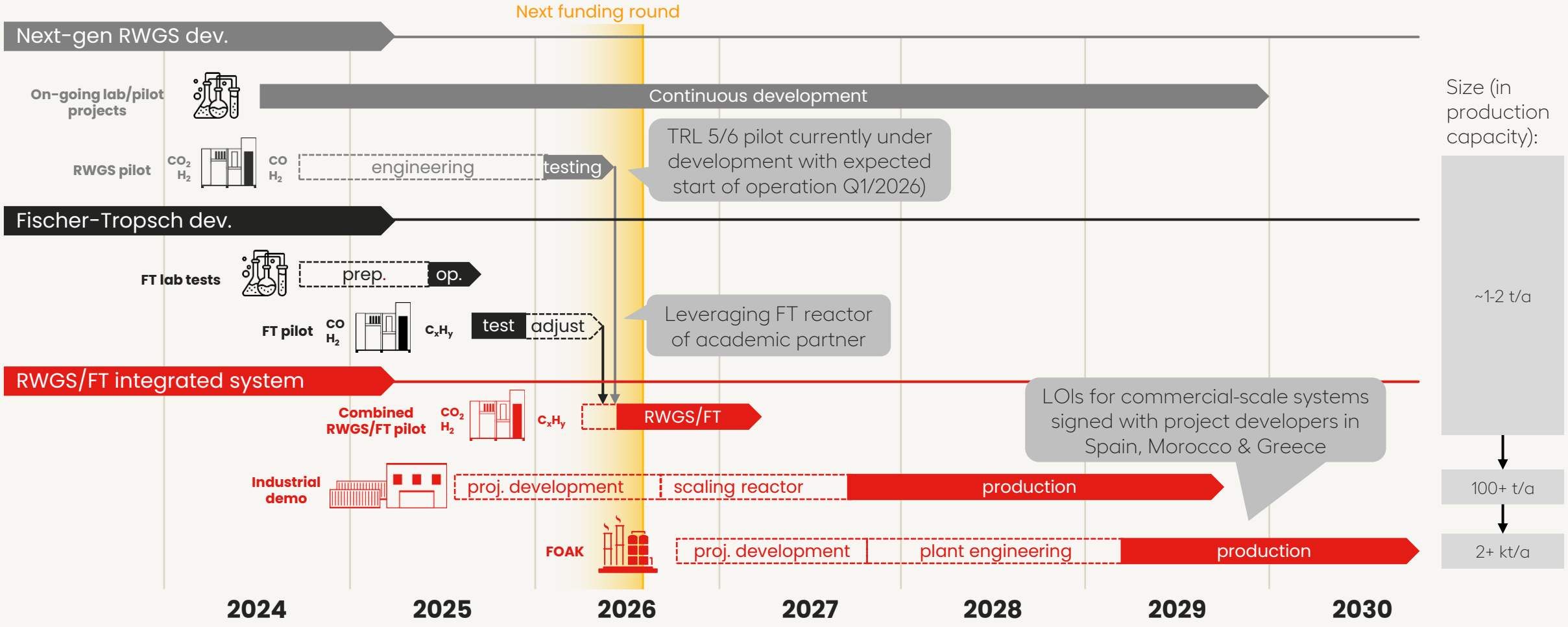
confidential

LOIs for commercial projects signed with project developers (e.g., in Spain) + LOIs signed for off-take

confidential

Roadmap

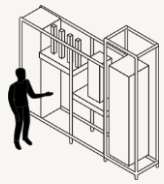
Rapid development of own next-gen RWGS and flexible FT to reach FOAK[1]-scale in 2029



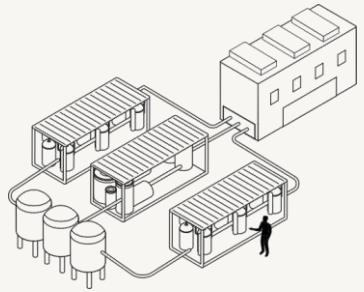
1. FOAK = First of a kind = first commercial-size production plant

Milestones

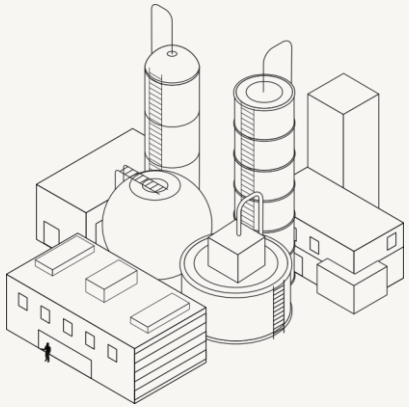
Key milestones financed by 3 financing rounds to reach commercial-scale production



Pilot (tons p.a.)



Demo (100s tons p.a.)



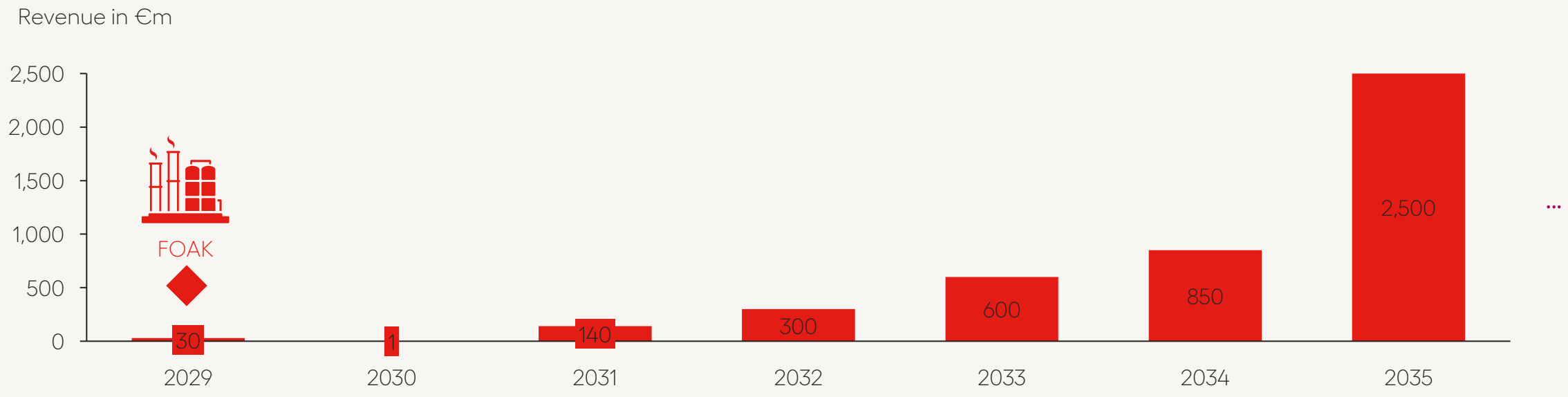
FOAK[1] (kilotons p.a.)

	2026	2027	2029
	Pre-Seed	Seed	Series A
Capital need Spark	Pre-Seed: €2.3m (already raised) ☑	Seed: €5-10m (depending on grants)	~€15-20m (TBD; depending on project scope)
Milestones	▪ Build & run own RWGS pilot reactor ▪ Run demand-responsive FT trials ▪ Optional: Combine both reactors to fully load-flexible system ▪ Determine partners & location for demo plant	▪ Build & run demo-scale e-fuels production plant (incl. RWGS & FT) ▪ Acquire off-taker for demo-plant production output ▪ Develop and pre-engineer FOAK plant	▪ Secure financing for FOAK plant, incl. binding customer contracts ▪ Build and start up FOAK production plant ▪ Prepare for global deployment and bankability of NOAK[2] plants

1. FOAK = First-of-a-kind 2. NOAK = N-th of a kind

Business Case

Spark is on a fast growth trajectory, targeting €4.0bn ARR and €1bn profit margin in 2035



	2029	2030	2031	2032	2033	2034	2035
Gross margin:	26%	26%	27%	27%	27%	27%	28%
Plants sold per year:	1	0	1	2	4	6	9[1]

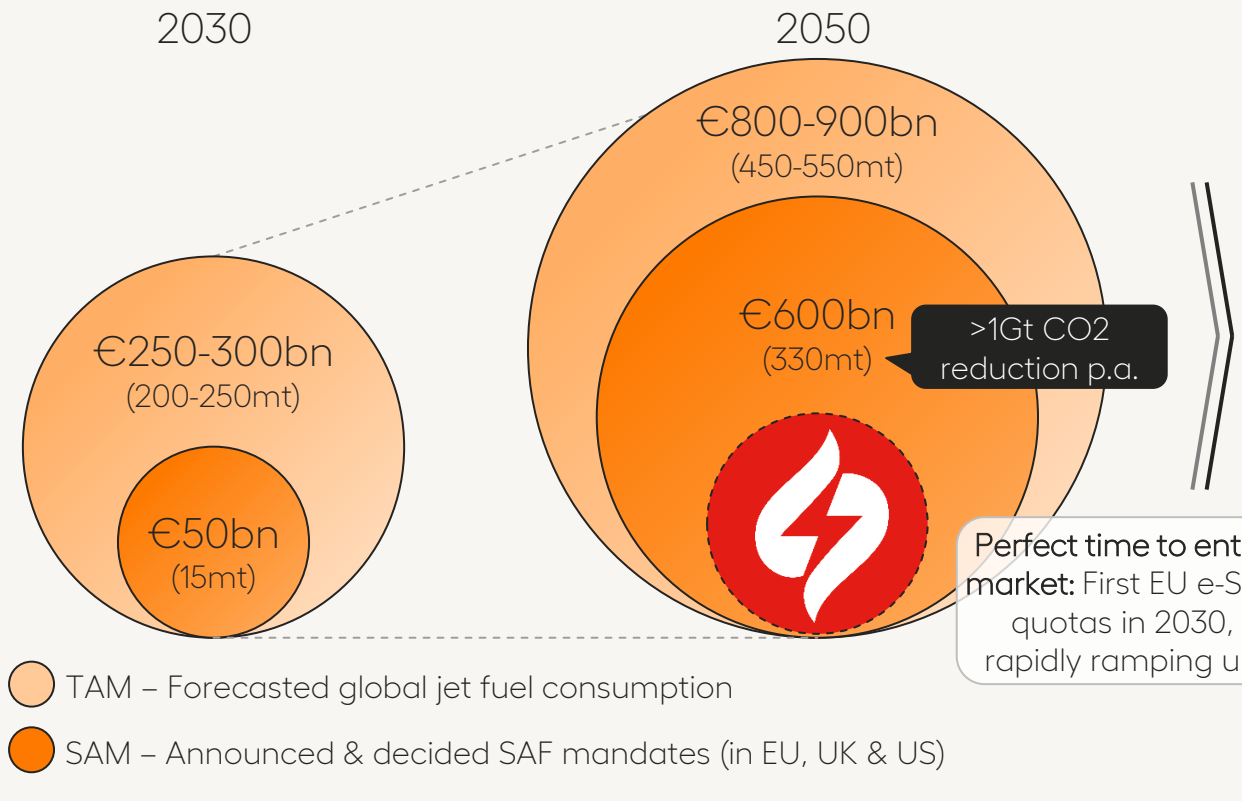
Margin increasing with # of plants sold, due to higher share of license & service revenues

Note: Assuming 25% profit margin for system sales + 50% for license/SW/services; Assuming 2 ktpa plant FOAK, 32 ktpa & 320 ktpa plants for following plants (several modules combined to one plant)
1. Including one 320ktpa plant and eight 32 ktpa plants

Market Opportunity

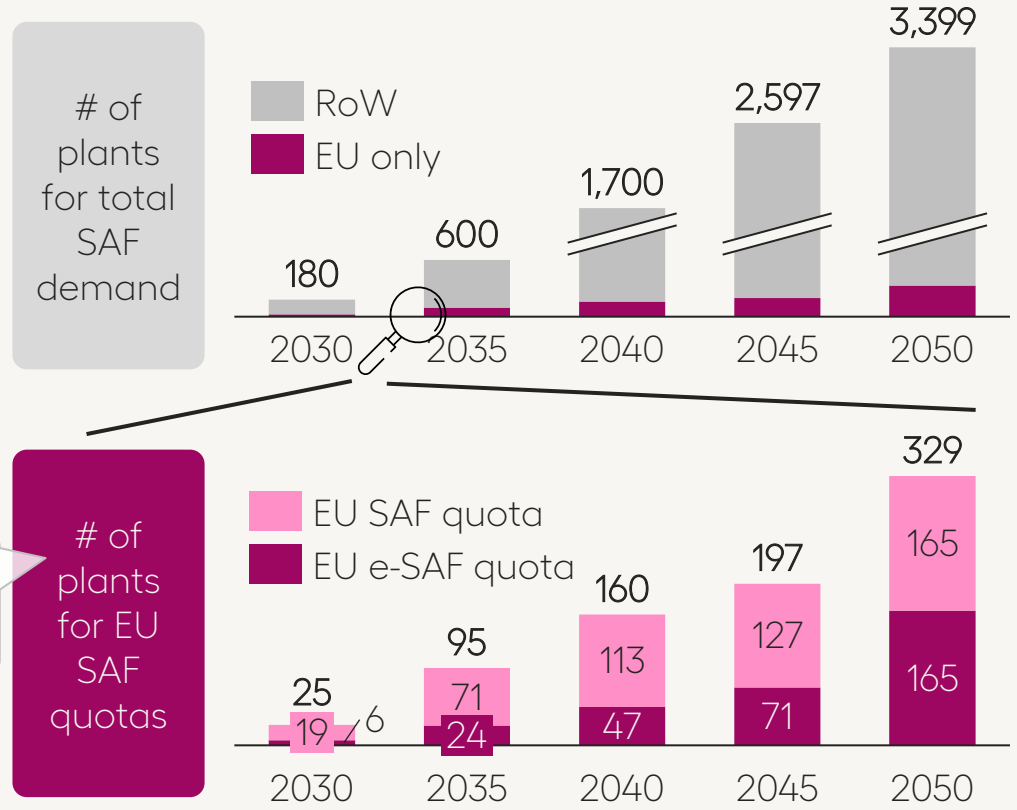
The time is now: Rapidly growing SAF market to reach €600bn in 2050, requiring >3000 SAF plants[1] to be built

SAF market: Rapid growth starting from 2030, initially driven by political quotas to kick-start scale-up



Perfect time to enter market: First EU e-SAF quotas in 2030, rapidly ramping up

# of plants: >3000 plants[1] required in 2050; 300 for EU quota alone – Spark's tech perfectly positioned



1. Assuming 100ktpa Sources: ICAO; IATA; SkyNRG – SAF Market Outlook 2022; McKinsey; EC, Proposal for a Regulation of the European Parliament and of the Council on ensuring a level playing field for sustainable air transport, 2021; Transport & Environment - SAF mandate briefing, UK department of transport, White House announcement – SAF Grand Challenge; ICF SAF analysis

Founders & Team

We are the best mix of experience & execution power to enable next-gen e-fuel production

Dr. Arno Zimmermann – CTO

Product Development | Tech Assessment | Public Sector

Previously developed green tech & products (e-fuels, chemicals, cooling, etc.), e.g., as 2x-founder COOLAR

Analyzed and optimized production processes in energy & chemicals in-dustry (Bayer, Covestro, Uniper, Twelve)

Dr.-Ing. (TU-Berlin & MIT)
M.Sc. Industrial Engineering

Dr. Julia Bauer – CSO

Research & development | Installment | Operations

Designed & developed chemical processes & facilities, e.g., e-fuels (ethanol) plant during PhD

Developed sustainable & innovative technologies for chemical industry (Evonik, BASF)

Dr. rer. nat. (BasCat / TU-Berlin)
M.Sc. Technical Chemistry

Dr. Mathias Bösl – CEO

Business development | Strategy | Investor relations

Worked on business development, strategy & business processes for global corporates (3 years at BCG)

Developed & commercialized sustainable technologies (fuel cell cars, nuclear fusion, PV)

Dr. rer. nat. (Max-Planck, TUM)
MBA and M.Sc. Physics

Complemented by team of 10+ diverse and highly-skilled Sparkies (50% female and >75% PhD quota amongst full-time employees)

Advisors & Network

Spark is supported by strong VC investors and technology, industry & business veterans

Institutional investors

Nucleus Capital
IBB Ventures
1.5°Ventures
Berlin, Germany

Breakthrough Energy
USA

CHEMOVATOR
BASF

Zero Carbon Capital
VOYAGERS.IO
London, UK

Angels *(invested)*

Dr. Dietrich Roeben
Leading expert in planning, startup & operations of large-scale LNG facilities

Dr. Tom Kirschbaum
Serial entrepreneur and expert in B2B sales and pricing strategies

Natalia Westhäuser
Ex-VP for Sales & Execution Hydrogen Projects at Siemens Energy; Leading H2/PtL consultancy (Profas)

Thorsten Luft
Former VP Corporate Fuels Procurement at Lufthansa Group responsible for fueling 760 planes

Thomas v. Hake
Experienced founder and Board Chairman with deep expertise in fundraising and strategy

Dr. Christoph Wolff
CEO @ Smart Freight Center, initiated WEF's "Clean Skies for Tomorrow" initiative & Ex-McKinsey Sen. Partner

Advisors *(not invested)*

Uwe Gaudig
CEO at Griesemann Engineering with deep plant building expertise

Prof. Dr. R. Schomäcker
Leading expert in chemical processes & catalysis

Prof. Dr. R. Dittmeyer
E-fuels veteran, leading largest European R&D project "Kopernikus"

Raised total of €3.7m equity – next fundraising planned for Q3/Q4 2026

Recognitions

Spark's breakthrough approach convinced various tech awards and accelerators

Awards

Breakthrough Energy Fellows

BE Fellows: Selected for highly-distinctive Breakthrough Energy Fellows program ('25)

WORLD ECONOMIC FORUM

WEF/Uplink: Top Innovator in Sustain-able Aviation by WEF/UpLink ('24)

SPRIN-D

Sprin-D: German Federal Agency for Disruptive Innovation will fund our tech development with €200k (as first step)

ENERGY TECH CHALLENGERS

Energy Tech Challenger: 2x finalist in green molecules category ('23, '24)

Accelerators

SUSTAINABLE AERO LAB

Sustainable Aero Lab: Graduated from prestigious sustainable aviation accelerator ('23)

PLUG AND PLAY

Plug and Play: Part of PnP's Travel accelerator Batch 15 ('23)

LEAPSPRONG amsterdam

Leapsprong: Participating accelerator supported by Rockstart and Shell ('24)

D²XCEL

D2XCEL: Participated in Sustainable Freight Transportation scaling program ('24)

Highly selective & prestigious programs

Your chance is now!

We are always looking for partners for future investment rounds

- We have raised a total of €3.7m until Q4 2025
- Next larger round expected in Q3 / Q4 2026 to finance demo plant

Discuss with us about potential investment opportunities!

Sustainable e-fuels for everyone and everywhere

spark e-fuels

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Supported by: Breakthrough Energy, Nucleus Capital, Zero Carbon Capital, IBB Ventures, BASF, VOYAGERS.IO, 1.5° Ventures Climate Tech Venture Builder