



ELCOM FORUM
5.11.2021





Our mission

TURNING SUNLIGHT
INTO FUEL

We contribute to
a zero-emissions
transportation
sector by
replacing fossil
fuels with
carbon-neutral
solar fuels.





The challenge



Global CO₂
emissions are rising



Transportation:
3 billion tons of fuel



Liquid fuels are
here to stay





The solution: solar fuels



SUSTAINABLE

alternative to
fossil fuels



SCALABLE

to cover global
demand



COMPATIBLE

with existing
infrastructure



Our
vision

Let's close
the carbon
cycle.

TURNING SUNLIGHT INTO FUEL.





Synhelion

TURNING SUNLIGHT
INTO FUEL.

Concentrated
solar system
delivers high-
temperature
process heat.



Video: Solar tower IMDEA Energy Institute, Móstoles, ES



Synhelion
technology

TURNING SUNLIGHT
INTO FUEL.

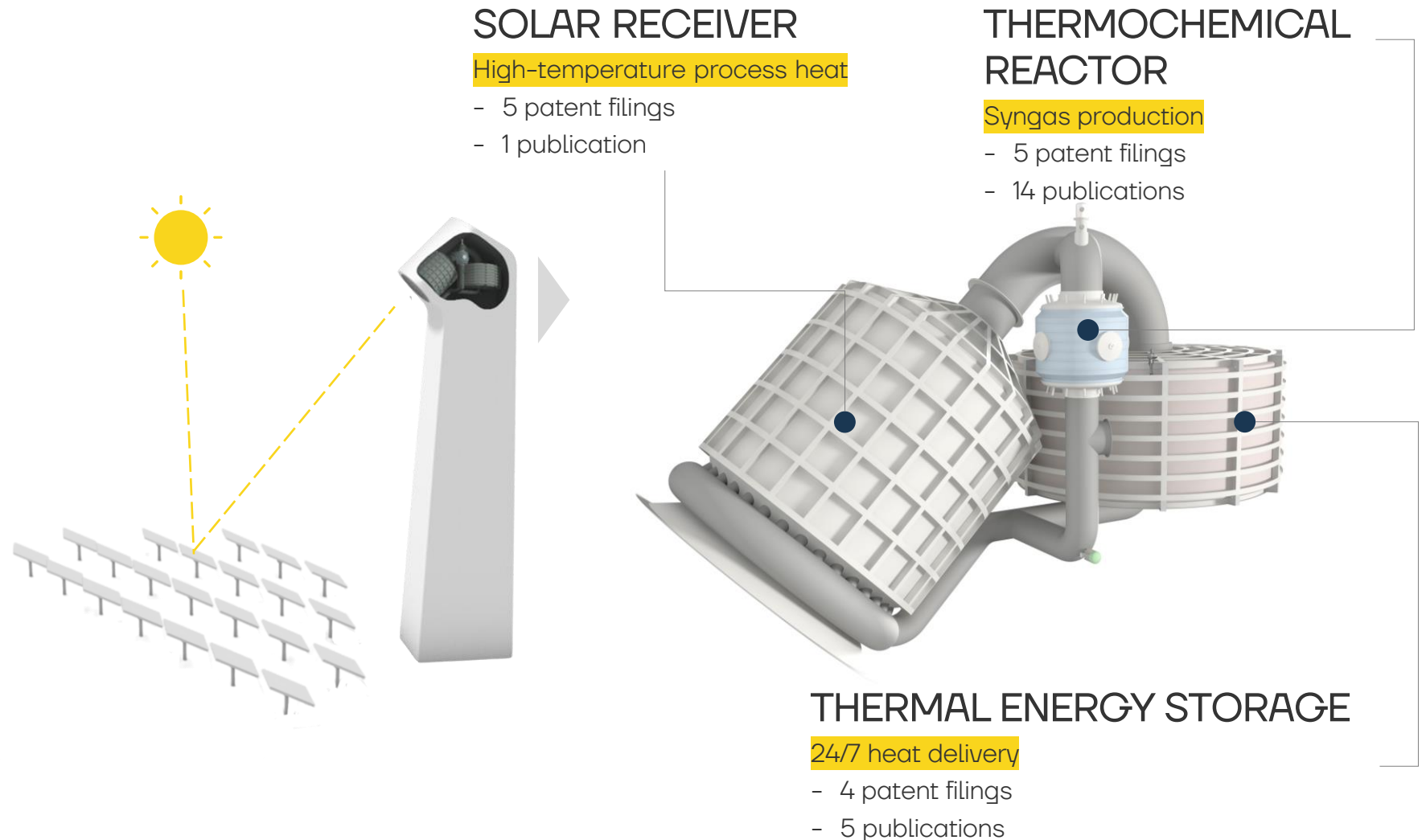
Synhelion uses
solar heat to
convert CO_2 and
 H_2O into
synthetic fuels.
We call them
solar fuels.



The 3 innovation fronts



Turning
sunlight
into fuel.





A record-breaking path to market

TURNING SUNLIGHT INTO FUEL.



2014

World's first solar jet fuel
from H₂O and CO₂ in the lab



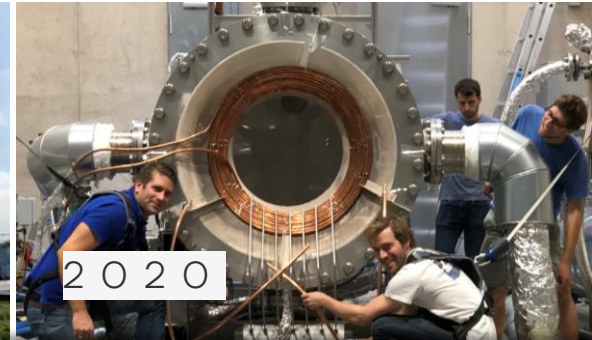
2019

World's first carbon-neutral
fuels from air and sunlight



2019

Medium-scale demonstration
under real field conditions



2020

Full-scale demonstration
of key components



2021: Integrated system

TURNING SUNLIGHT
INTO FUEL.

Demonstration of
solar syngas
production at
industrial scale on
solar tower of DLR

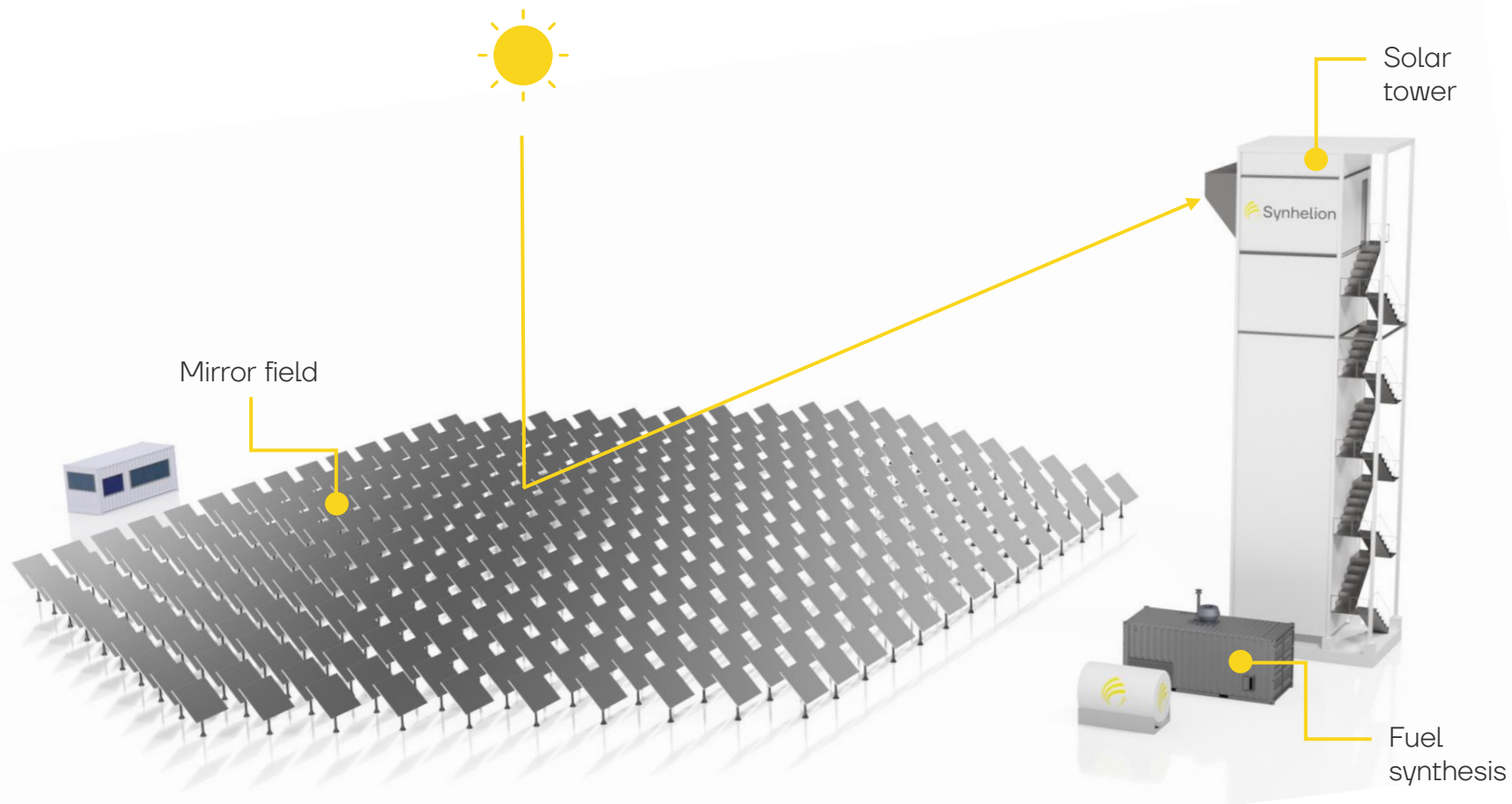


Picture: Solar tower German Aerospace Center, Jülich (DE)



2022: Industrial plant Jülich

TURNING SUNLIGHT
INTO FUEL.



Main specifications



1'000 m² mirror area



Status: fully financed



250–500 kW solar input power



Construction / commissioning: 2022 / 2023



10'000 l/y fuel demo batches



Customer: Zurich Airport

Supported by:



Federal Ministry
for Economic Affairs
and Energy

on the basis of a decision
by the German Bundestag



Synhelion roadmap

TURNING SUNLIGHT INTO FUEL.

2021-2023

2023-2025

2025-2030

2040

= 50% of Switzerland's jet
fuel consumption

= 50% of European jet fuel
consumption



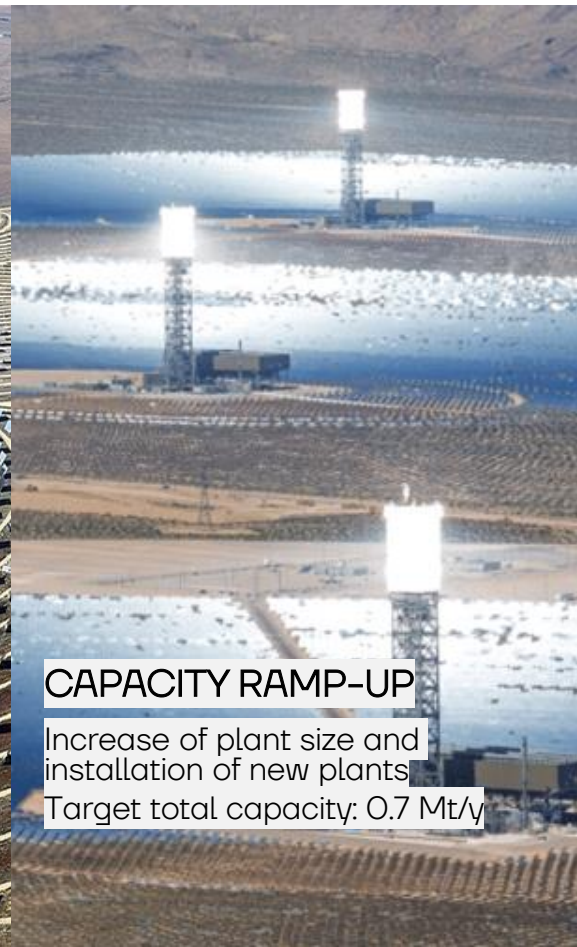
FIRST INDUSTRIAL PLANT

Building an industrial-scale plant
to start fuel production
Capacity: ~10'000 l/y



FIRST COMMERCIAL PLANTS

First two commercial fuel plants
Capacity: 2 Mio L/y



CAPACITY RAMP-UP

Increase of plant size and
installation of new plants
Target total capacity: 0.7 Mt/y



TOWARD NET ZERO

Ramp-up of production capacity
Target total capacity: 40 Mt/y

Core team



Turning
sunlight
into fuel.



Dr. Gianluca Ambrosetti
CEO and Founder
PhD EPFL Physics



Dr. Philipp Furler
CEO and Founder
PhD ETH Mech. Eng., MBA



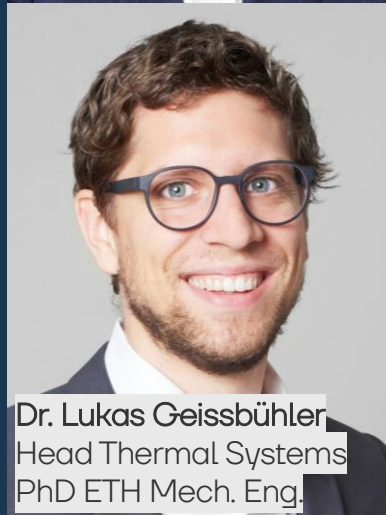
Dr. Philipp Good
CTO
PhD ETH Mech. Eng.



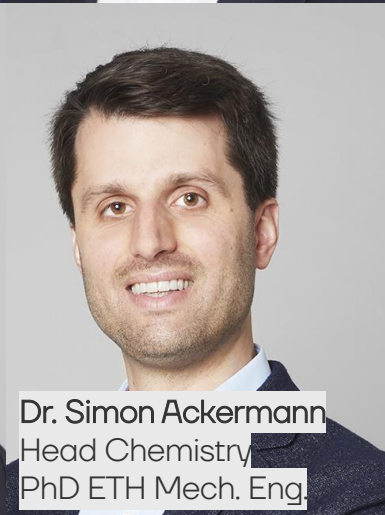
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MSc in Energy Engineering



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PhD ETH Mech. Eng.



Dr. Simon Ackermann
Head Chemistry
PhD ETH Mech. Eng.



Carmen Murer
Head Corporate Comm.
BA Multilingual Comm.



Simon Dieckmann
Head Software Develop.
Dipl. Ing. Mech. Eng.

Total:
20 FTEs



TURNING
SUNLIGHT
INTO FUEL.

Partners & key customers



Scuola universitaria professionale
della Svizzera italiana



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Office fédéral de l'énergie OFEN

Supported by:



Federal Ministry
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Solar fuels are
the most



AFFORDABLE



EFFICIENT



SCALABLE



ECO-FRIENDLY

solution for clean,
long-distance
transportation.





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