European polysilicon for the twin transition

RESiLICON

Europe needs greater industrial autonomy

93.2% of global polysilicon production was in China in 2024
Europe needs a resilient supply of materials for energy and digital technologies.

www.resilicon.eu

Indicative global material markets



SOLAR

~1,500,000 t/year

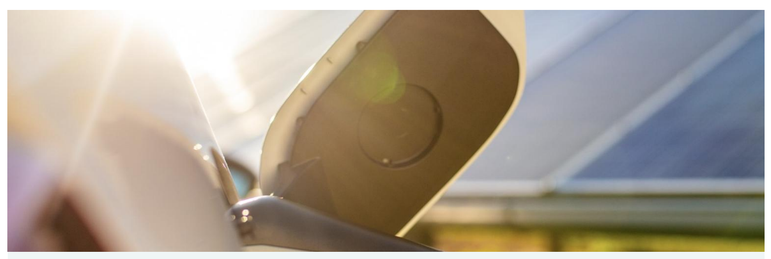
Polysilicon for solar cells



SEMICONDUCTORS

~100,000 t/year

Ultra-pure polysilicon for wafers



BATTERIES & SPECIALTY GASES

~50,000 t/year

Silicon anodes and specialty gases

Enabling applications: quantum technologies, defence, photonics, AI and high-voltage electronics



The RESiLICON solution

A planned 13,000 t/year plant in Delfzijl, Groningen

Renewable power. Reuse of process streams.
Traceable quality, sourcing and carbon footprint.

NZIA Strategic Project

Recognition under the EU Net-Zero Industry Act

A European industrial anchor

Value chains designed to work together

Silicon feedstock + RESiLICON purification + downstream partners

Solar: ingots / wafers / cells / panels Semiconductors: wafers / chips
Batteries: silane / anode materials Circularity: recovered silicon / upgrading

R&D programmes and opportunities for PhD graduates

1 Circular silicon recovery

Upgrade silicon from end-of-life PV beyond solar use.
Approved programme with TNO and Mirec/HKS.

2 Purity, traceability & cell performance

Link impurities to efficiency and wafer/cell breakage.
Develop digital traceability across the value chain.

3 CVD rods for Topsil

Develop reactor, handling and packaging solutions with AMS for customer-specific rod quality.

4 Lower-energy CVD production

Improve reactor and process design, including CVD cladding, with engineers and reactor designers.

5 Plasma-based polysilicon

Explore participation in TBRM research to produce polysilicon directly, bypassing the CVD step.

6 Flexible operation on renewable power

Evaluate with partners such as TNO how variable power supply affects cost and production losses.

7 Alternative wafer manufacturing

Explore different silicon sources and silane/TCS feedstocks with deeper integration of facilities.

8 Silicon-perovskite tandem cells

Prepare research into manufacturing routes and quality assurance for cell efficiencies above 30%.

9 Integrated kerfless wafers

NexWafe licensing discussions: epitaxial wafers using TCS, with hydrochloric acid returned to RESi.

10 Laboratory & industrial ecosystem

Plan a lab for optimization, qualification and customer trials within a future Groningen industrial cluster.

Indicative development timeline

2023–2026
Initiation & pre-FEED
Basic engineering

2027
Final investment decision (FID)
Construction starts

2030
Commissioning

2030–2031
Start-up & ramp-up

2031
First polysilicon out
Operations & qualification

Ultra-pure polysilicon **Sustainably made in Europe** **Future-ready**

European polysilicon

RESiLICON



At RESiLICON,
we are committed to securing Europe’s future
by sustainably producing ultra-pure polysilicon
with a strong value proposition for solar, semiconductors and batteries



Ultra-pure polysilicon | **Sustainably made in Europe** | **Future-ready**