



On-site waterstofproductie met modules van Solhyd

Interreg
Vlaanderen-Nederland



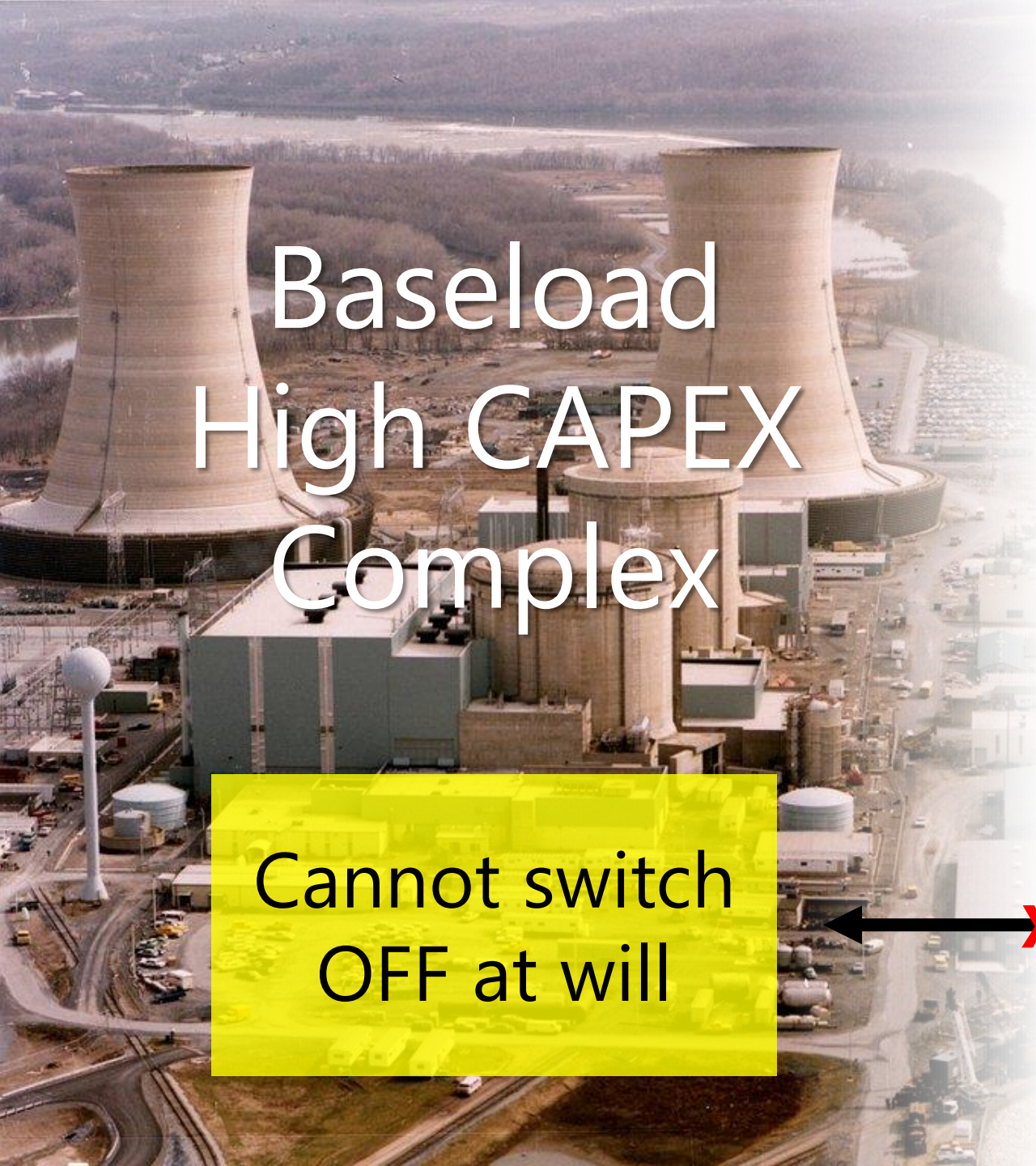
Gefinancierd door
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Smart dHYstrict

Smart Dhystrict webinar
2 Juni 2026

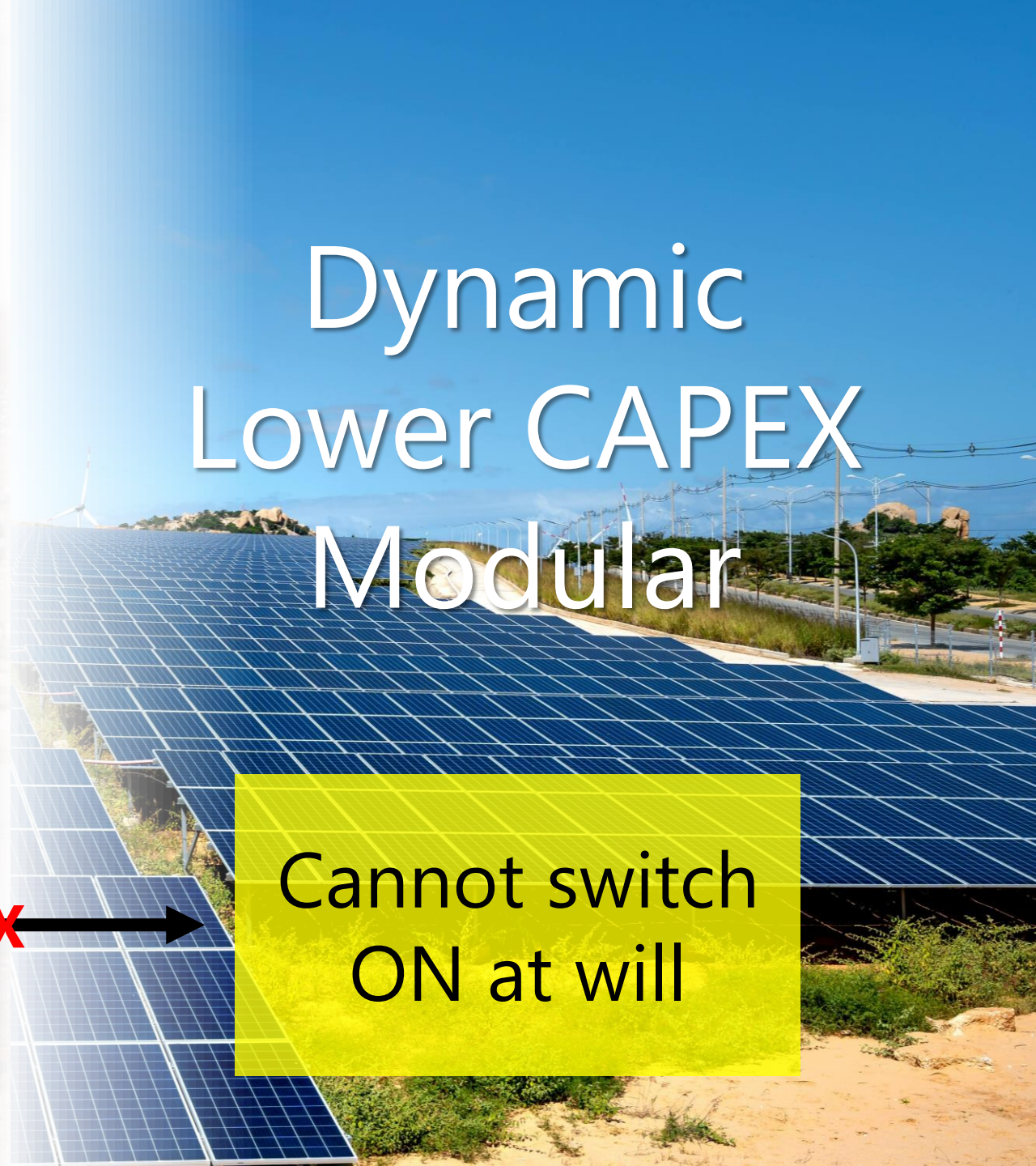


Don't optimize the old paradigm,
adapt to the new one



Baseload
High CAPEX
Complex

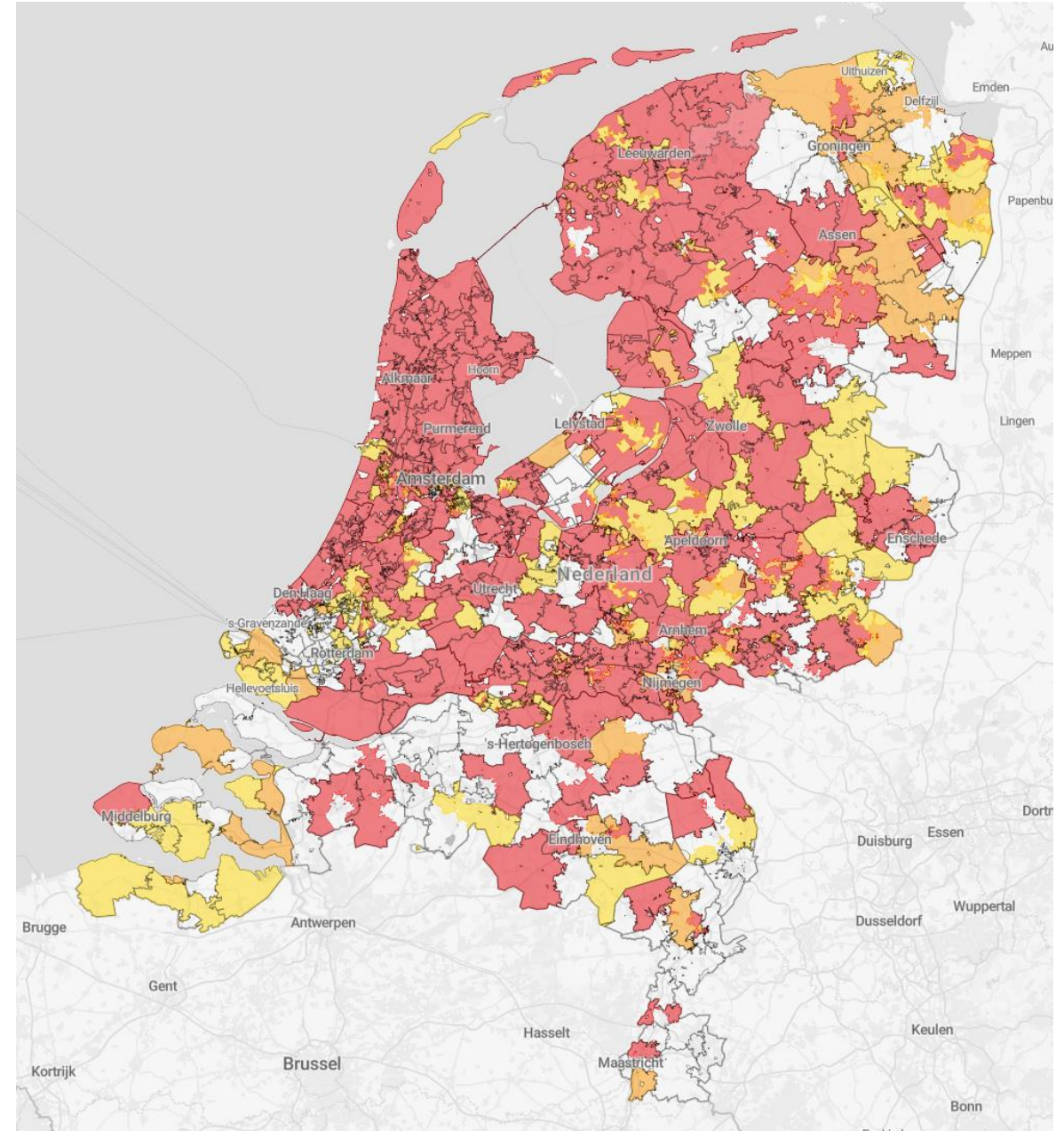
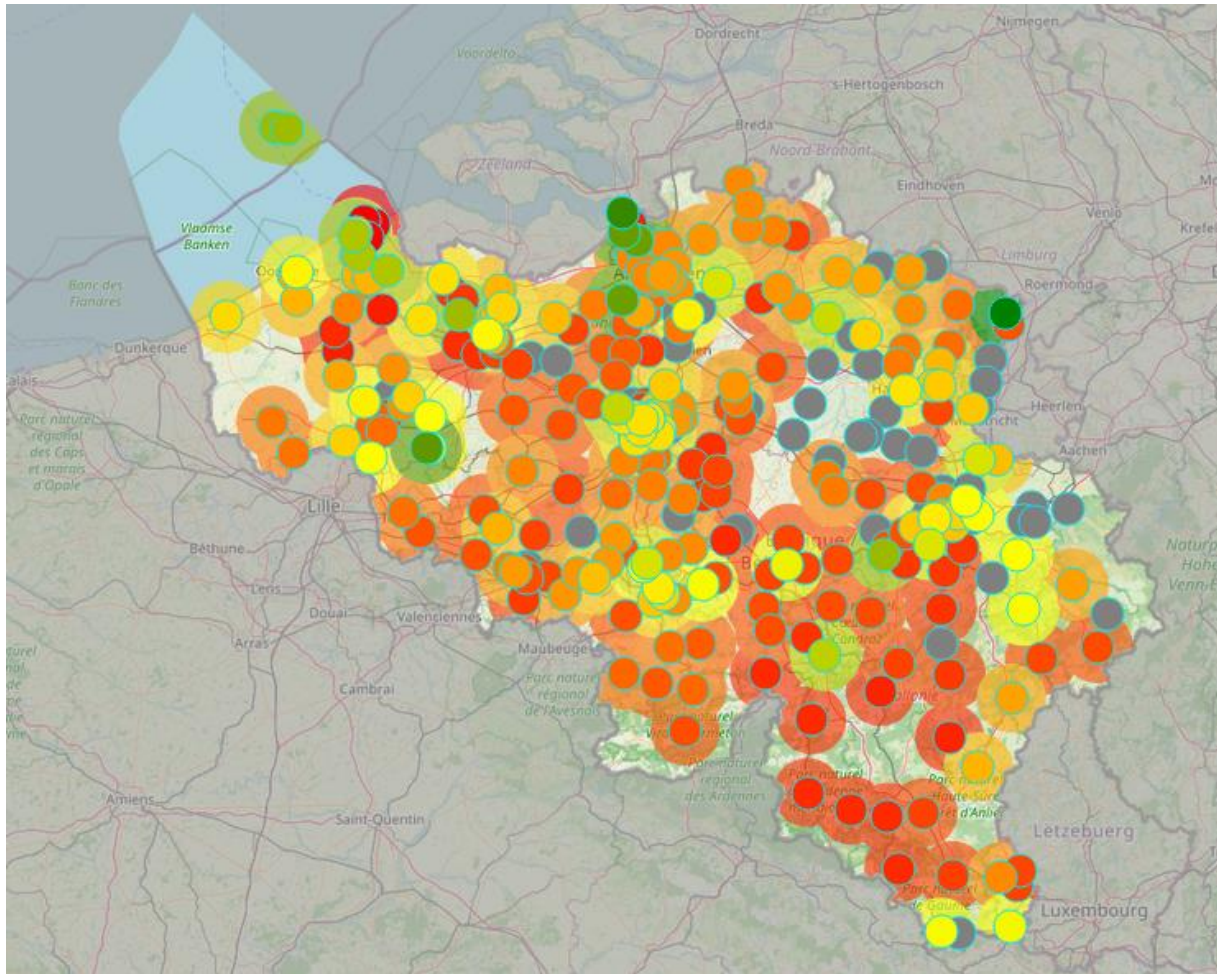
Cannot switch
OFF at will



Dynamic
Lower CAPEX
Modular

Cannot switch
ON at will







Baseload
High CAPEX
Complex



Designed like
chemical plants



Flexible
Lower CAPEX
Modular

Designed for
renewables



Green hydrogen, simplified.

Less complexity

MODULAR SYSTEM

- Drastically simplified balance-of-plant
- 2x lower BOP & EPC costs
- Easily scalable installation

Embedded solar energy

COMMERCIAL PV-COMPATIBLE

- Direct solar energy use
- 4x lower energy costs
- Capitalizes on solar value chain

Flexible asset

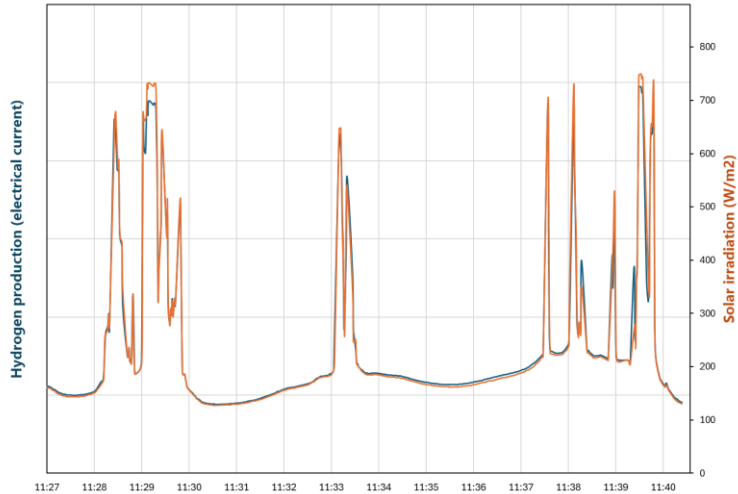
BUILT FOR TODAY'S INDUSTRY

- Grid connection optional
- 0-100% operating range
- Rapid response, zero standby

Water captured from air •
Zero PFAS, zero noble metals •
No cooling, no water purification •
No HV transformers, no gas-liquid separators, ... •

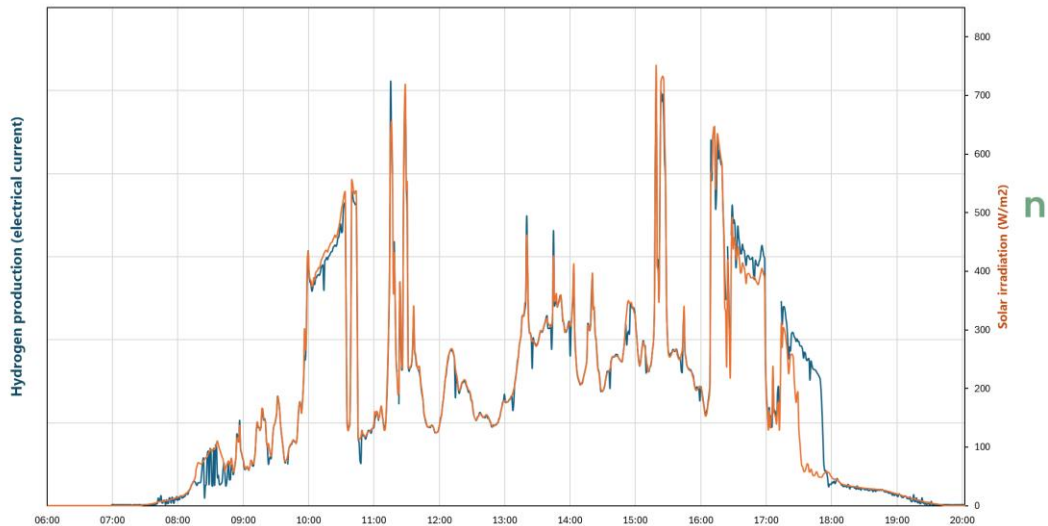


Solhyd technology was designed to follow renewables

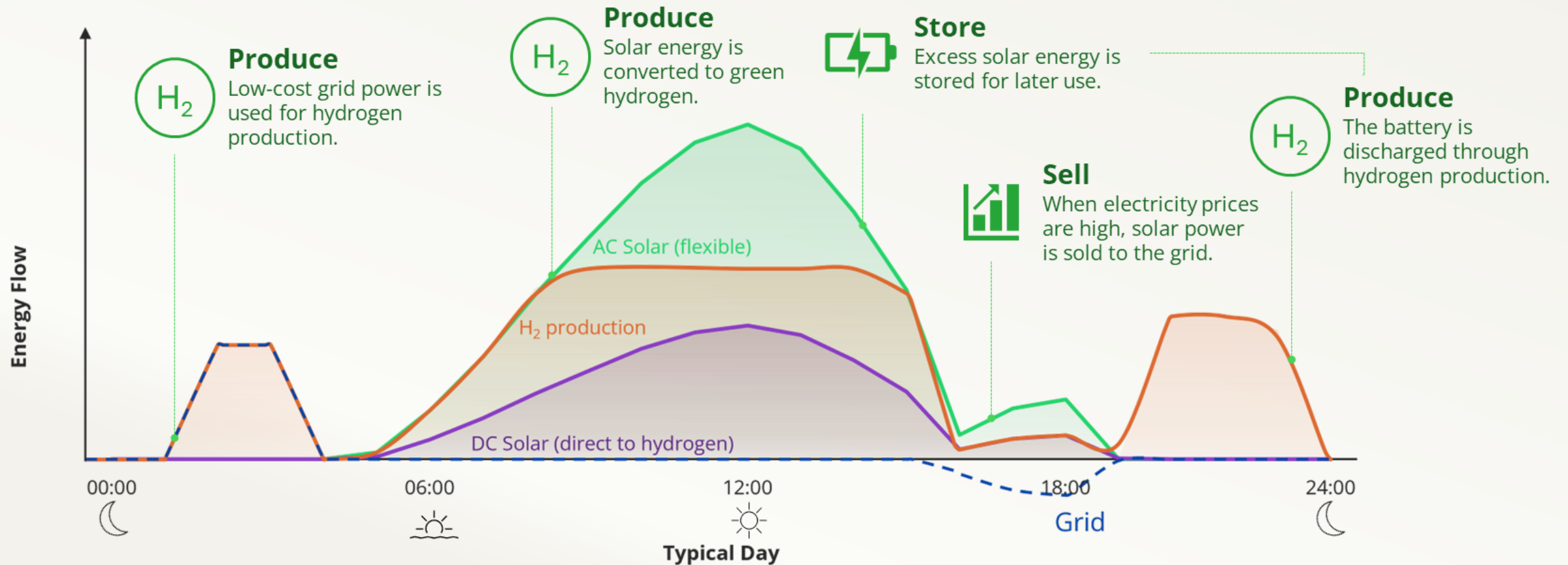


- Automatic instant load following (0-100%)
- No shutdown cycle limitations
- No energy management needed
- No peripheral components
- Zero standby energy consumption

Solhyd cores



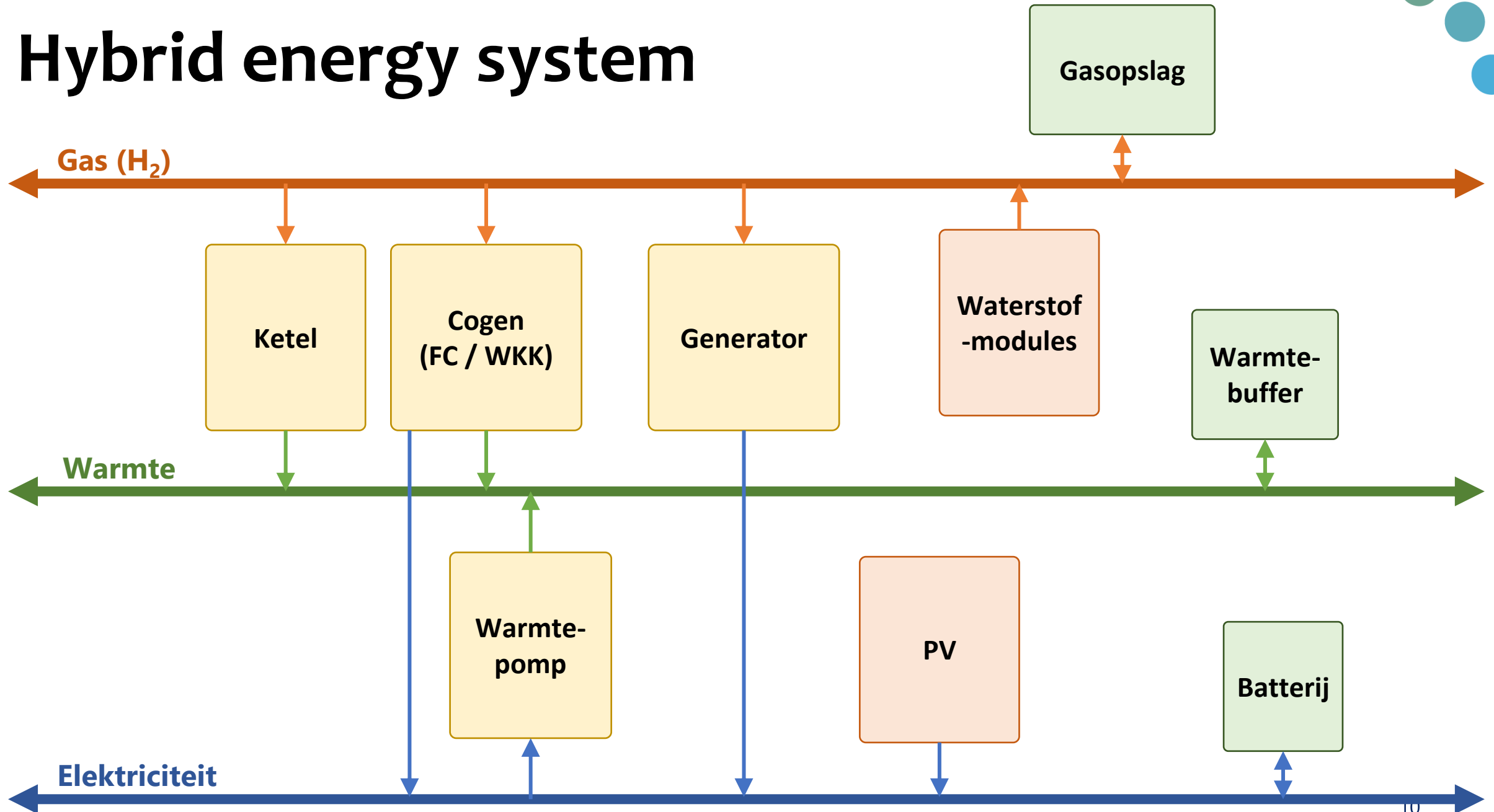
Benefits of flexibility





solhyd

Hybrid energy system

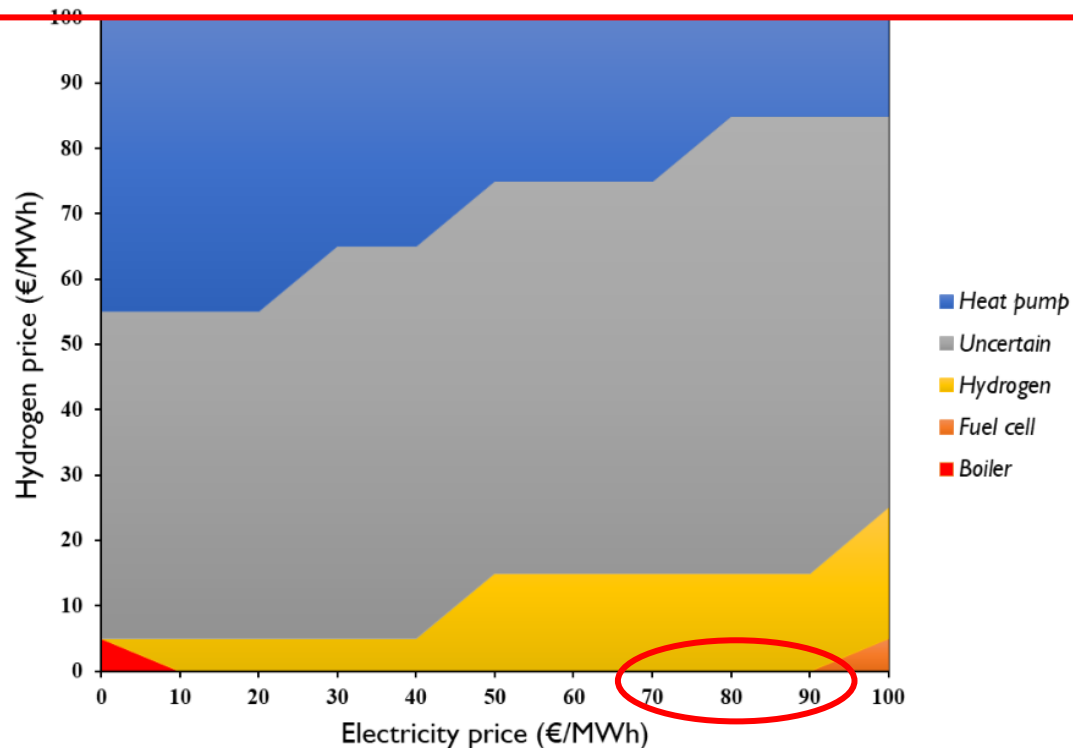


Hydrogen for heating? Not the first choice

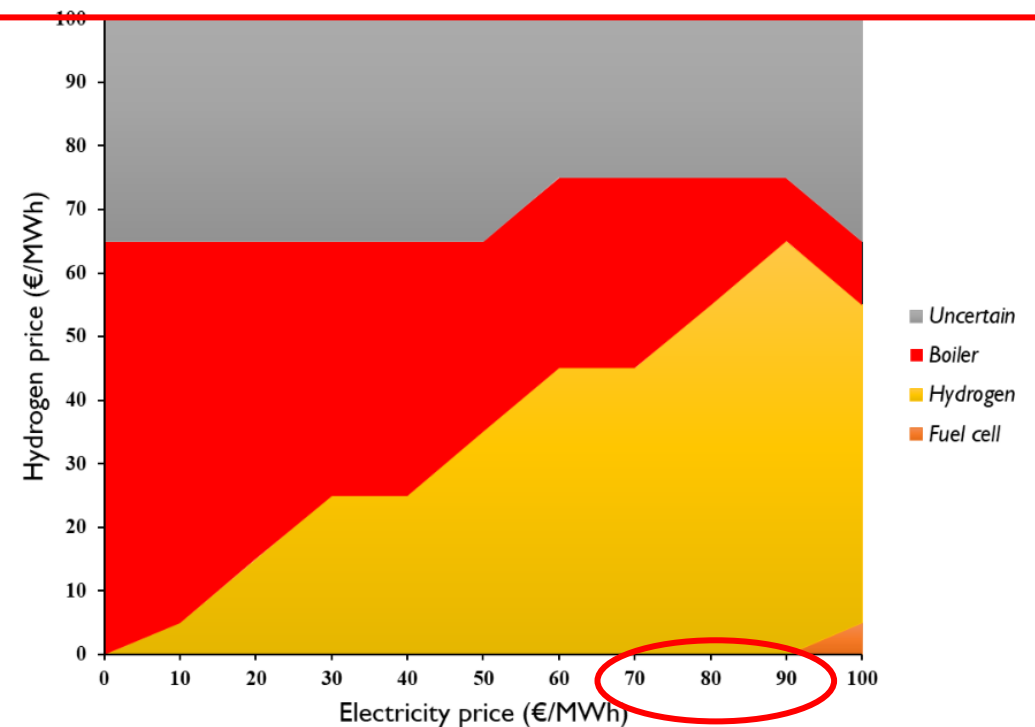
2021 study on hydrogen in buildings
(Waterstofnet & KU Leuven):

Average hydrogen cost (energy component): at least **150 €/MWh**

Least-cost heating option (9 MWh heat demand)



Least-cost heating option (9 MWh heat demand - including
€ 10 000 renovation cost)



Average electricity cost (energy component): ca. **85 €/MWh**

Use cases

- ✓ Vervanging huidig H₂-verbruik (bundels, flessen, tube trailers)
- ✓ Indirecte elektrificatie van industrieel proces (bij tekort aan netcapaciteit)
- ✓ Noodstroomvoorziening via generator
- ✓ Virtuele uitbreiding netcapaciteit (lokale productie en opslag voor uitbreiding bedrijfsactiviteiten)
- ✓ Synergie tussen bovenstaande



Typical configuration



01 Energy in

Solar PV, wind or grid

DC or AC, or both

On-site renewables feed directly into the modules, with optional grid input. The system optimizes cost and availability.



02 Modules

Solhyd hydrogen production

Flexible operation

Hydrogen modules, installed outdoors, operate with all available power sources. No minimum load, no ramping restrictions.



03 Storage

Compression and buffering

30 to 300 bar

Post-processing compresses hydrogen to the desired pressure. Local storage smooths intermittent production into continuous supply.



04 Use

Direct offtake

No deliveries

Pipe hydrogen straight into your process line, refuelling point, or fuel-cell backup. Real-time monitoring via the cluster controller.

Benefits of localized production



Cost-effective, even at small scale

Simplified plant design enables viable projects at any scale, with minimal maintenance and operating requirements.



Flexible, modular, scalable

Follows any energy source, can be switched on or off at will. Add modules as offtake grows. Pilot today, expand next year, based on the same concept.



Solves grid bottlenecks

Grid capacity issues? Solhyd runs from on-site renewables, grid connection optional. Avoid delays and don't depend on grid connection queues.



No water purification

Modules capture water from ambient air. No demineralisation skid, no cartridge replacements, no water quality issues.



Ready for ETS2

Direct renewable coupling meets EU additionality and temporal matching rules. Supports ETS and ETS2 compliance targets.



No more delivery logistics

Producing on site cuts logistics, exposure to industrial gas prices, and dependency on green hydrogen supplies. Hydrogen is available when you need it.

FOR SYSTEM INTEGRATORS

A *worry-free*, versatile building block



No purified water

Modules capture water from ambient air. Reduces capex, operational complexity, and water quality concerns.



Switch on or off on demand

Modules follow renewables natively or stop on demand. No minimum load, no warm-up, no degradation from cycling.



Outdoor-rated, no frost protection

Designed for outdoor operation, without heating or frost protection. Install next to the building or in the open.



Simplified, modular building block

No grid, cooling or water utilities required. A standardized building block, ready to integrate into your scope.





Waterstof: de sleutel voor de energietransitie

Dankzij het Smart dHYstrict-project onderzoeken we hoe waterstof kostenefficiënt kan worden ingezet in lokale energiesystemen om de belasting van het elektriciteitsnet sterk te verminderen. Door verschillende technologieën te combineren, zoeken we naar de beste manier om overtollige hernieuwbare energie lokaal te gebruiken en tijdelijk op te slaan onder de vorm van waterstof, met aandacht voor zowel maatschappelijke als milieukosten.

In onze proeftuin tonen we hoe waterstof kan worden gemaakt uit groene stroom, opgeslagen, verdeeld en opnieuw gebruikt binnen een lokaal energienetwerk. Alles wordt aangestuurd door een slim energiemanagementsysteem dat vraag en aanbod op elkaar afstemt. Deze unieke infrastructuur in Vlaanderen biedt onderzoekers en bedrijven de mogelijkheid om innovatieve waterstoftoepassingen te ontwikkelen en te testen. Tegelijk is het een dynamische plek waar bezoekers via demonstraties, opleidingen en workshops kennismaken met de mogelijkheden van waterstof in de energietransitie.

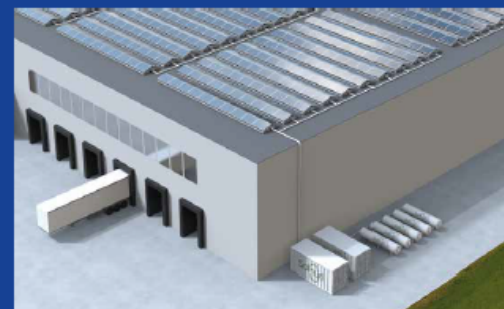
www.greenenergypark.be

Groene waterstof uit licht en lucht

Solhyd voorziet in dit project haar modulaire technologie, die rechtstreeks groene waterstof produceert uit zonlicht en waterdamp uit de lucht. Zo tonen we hoe waterstof ook ter plekke, zonder zware netaansluitingen kan worden opgewekt.

Binnen Smart dHYstrict onderzoeken we hoe deze technologie bijdraagt aan meer flexibiliteit, lokale energiezuikerheid en een lagere netbelasting. De proefopstelling (10 kW) die hier wordt gevalideerd, fungeert als model voor energiesystemen op grotere schaal.

www.solhyd.eu



Solhyd's role in Smart dHYstrict

- Phase 1: at Solhyd site
- 5 kW

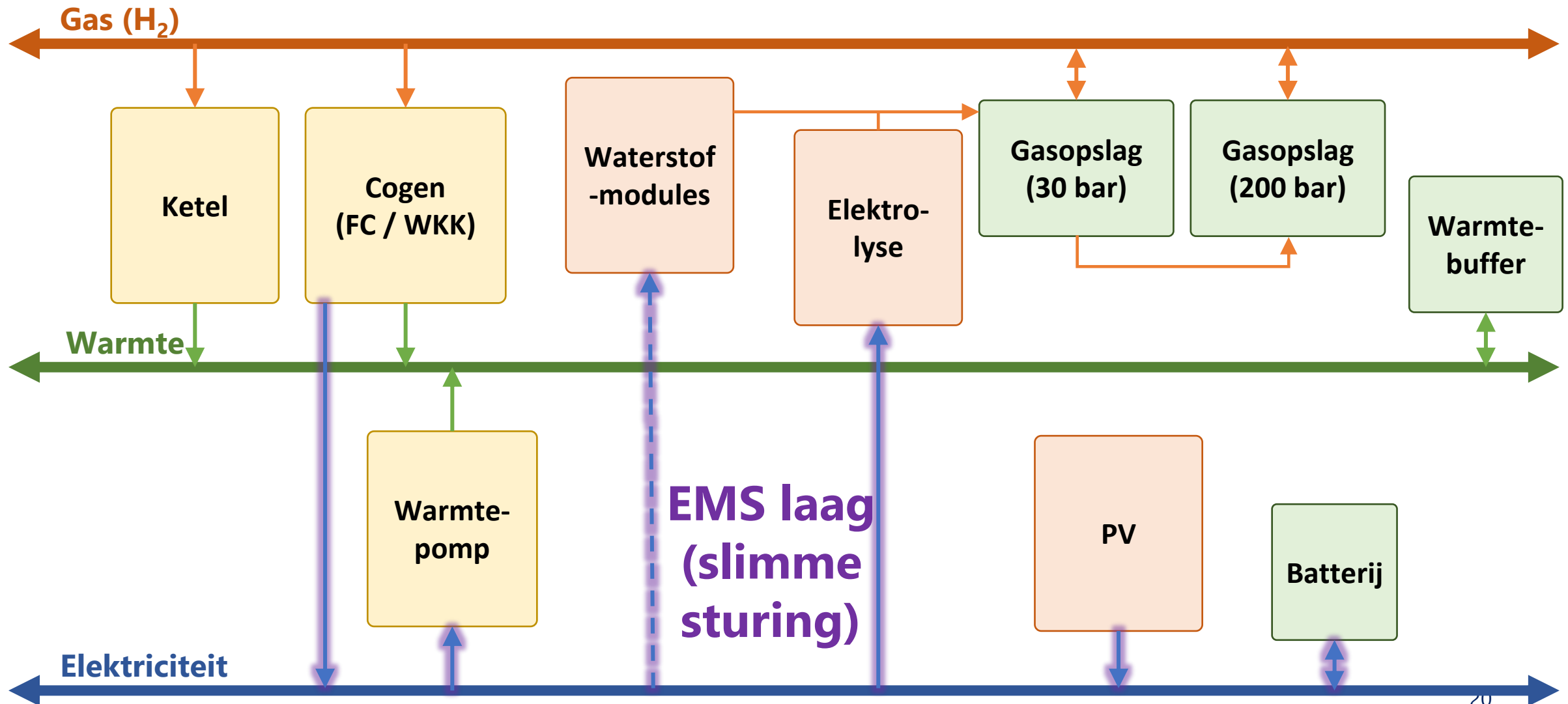


Solhyd's role in Smart dHYstrict

- Phase 2: at Green Energy Park
- 10 kW + compression & storage



Smart dHYstrict hybrid energy system





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