

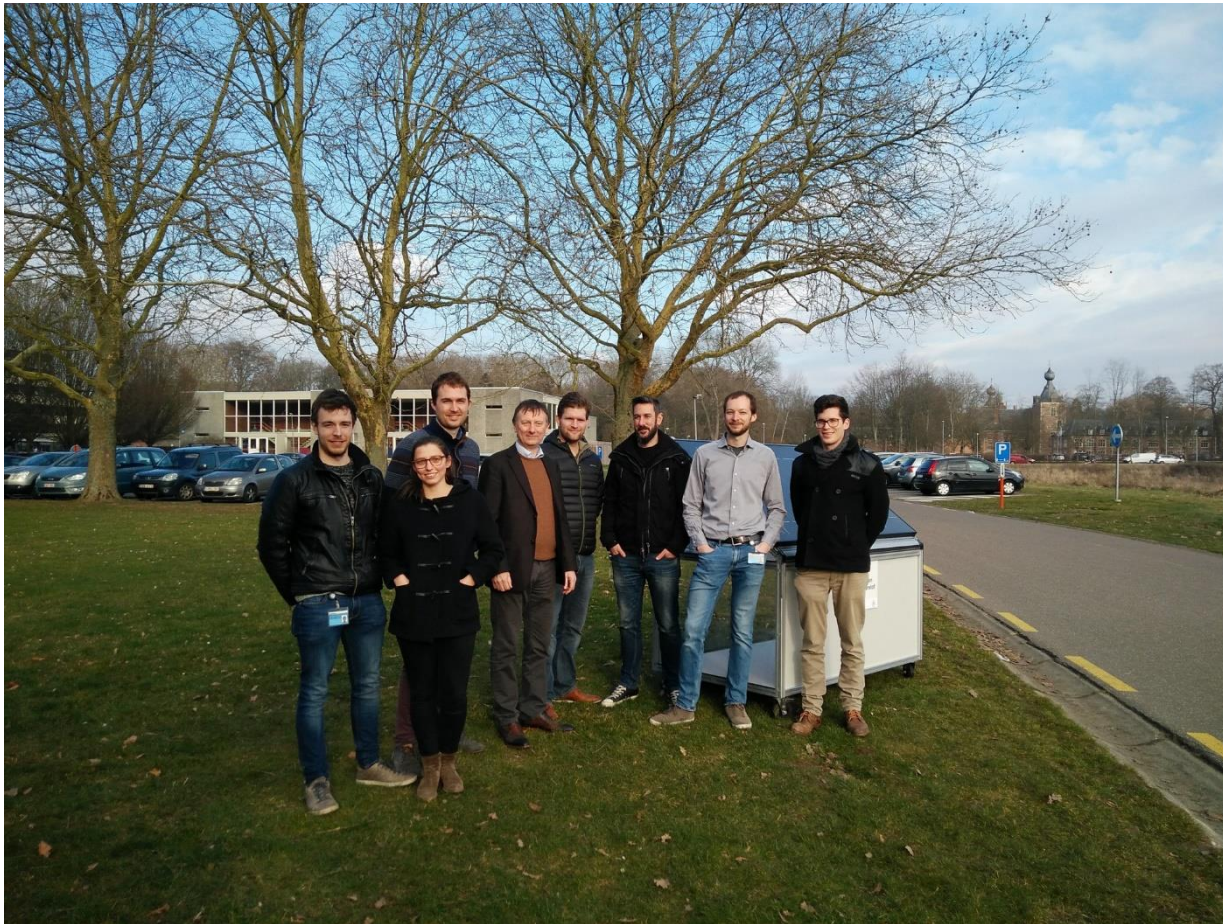
Solar hydrogen panels @ KU Leuven: fuel from air and sunlight

Johan Martens, Jan Rongé, Tom Bosserez

Power-to-gas cluster meeting, Antwerp

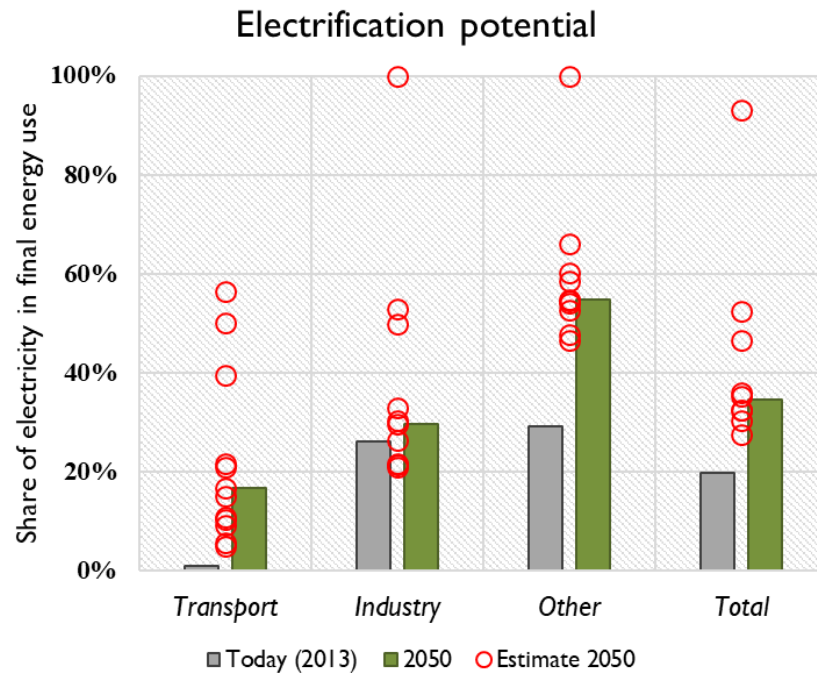
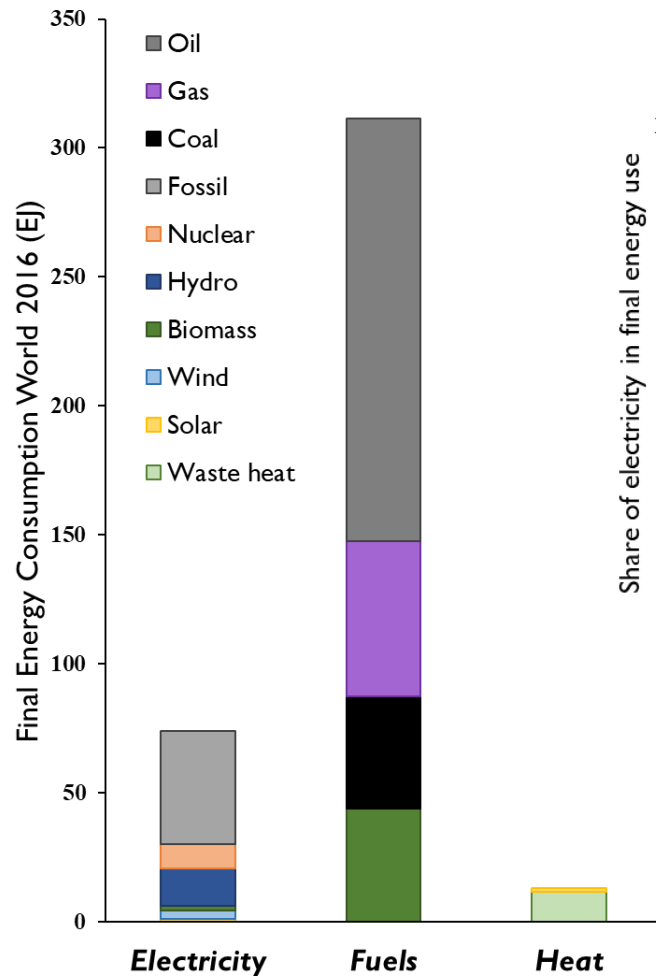
27/03/2019





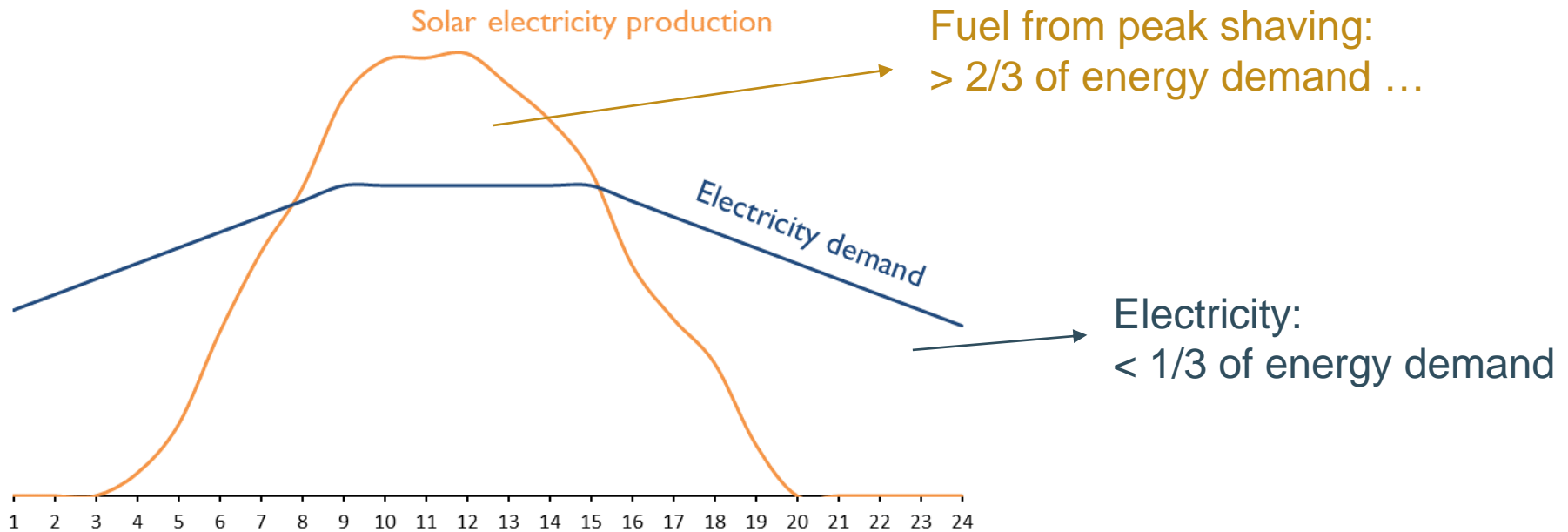
3 post-doctoral researchers
3 PhD researchers
Technical staff
... and counting

Our vision: fulfil fuel demand with a renewable alternative



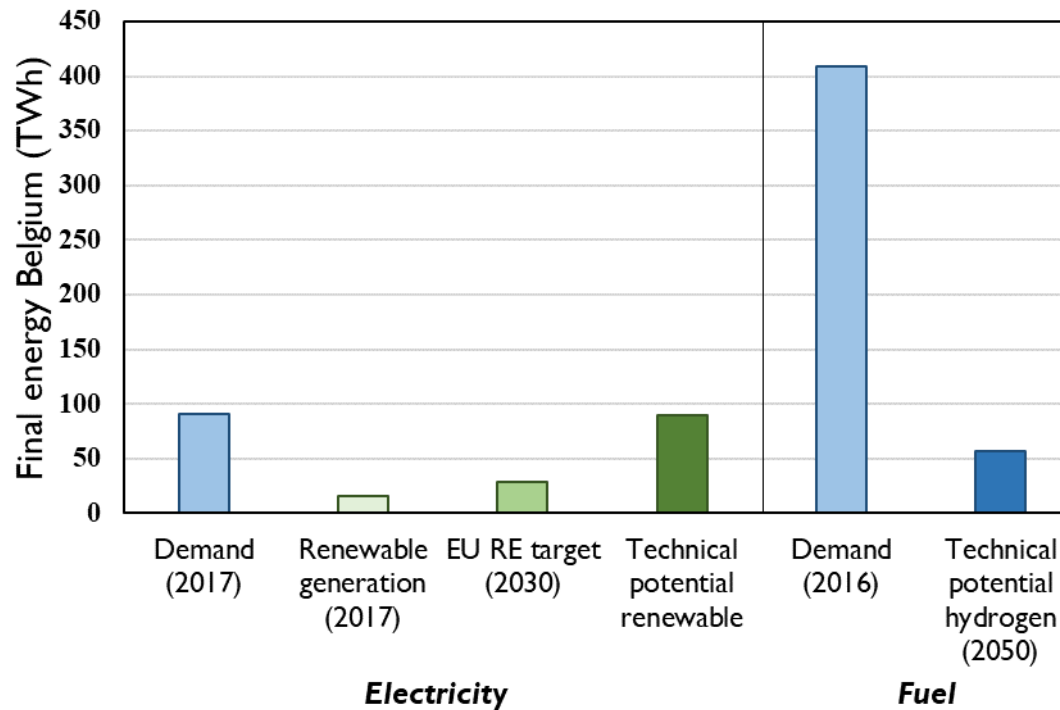
> 60% of fossil fuels can not be replaced by electricity

Leftovers are not enough



Dedicated renewable hydrogen production is required

Competing demands



We need grid-to-gas *and* wind-to-gas ... *and* solar-to-gas

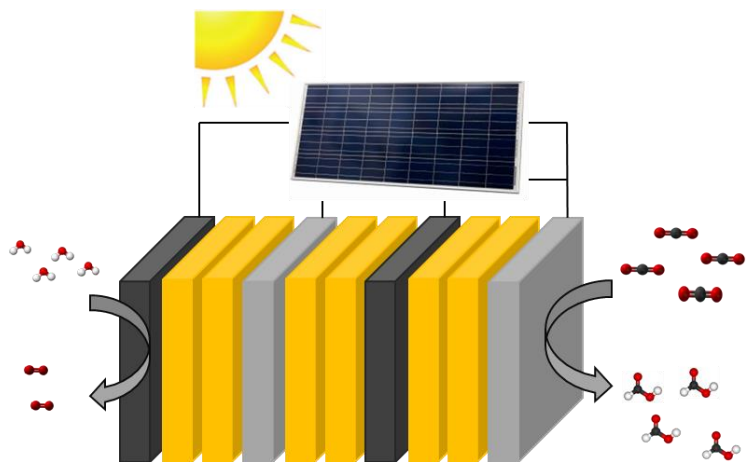
A solar hydrogen panel

- 'Solid state': no liquids
- 'Black box': hydrogen from air and sunlight
- Modular: kW – GW
- Safe: low pressure, no liquid leakage
- Record efficiency: 15% solar-to-hydrogen
- Cost effective and predictable: no grid electricity needed
- Decentralized: on-site hydrogen, anywhere



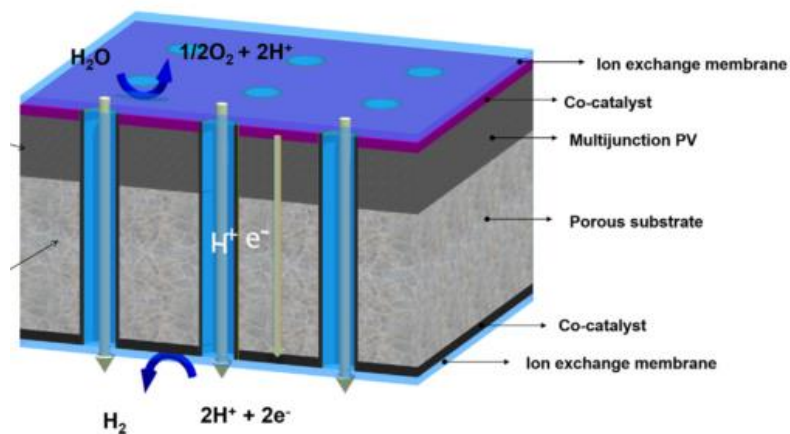
Other activities

Porous photoelectrode monoliths



*Solar-electrochemical
CCU*

Agrivoltaics



Company name: KU Leuven (COKAT)



Main activities:

Development, characterization and application of nanostructured materials for sustainable catalysis, separation and controlled release.

Experiences with H₂:

- RD&D of solar hydrogen panels
- CCU: solar-electrochemical conversion of CO₂
- Porous photoelectrode monoliths for hydrogen production
- Water splitting electrocatalysis

Specific topics of interest within the cluster:

- Use cases for solar hydrogen panels & synergies with electrolysis
- The role of hydrogen in the Flemish/European context