sunfire®

USING CAPE-OPEN TO MAKE A PYTHON PACKAGE ACCESSIBLE IN AVEVA PRO/II™ SIMULATION

22/09/22 Sebastian Liebschner / CAPE-OPEN 2022 Annual Meeting

AGENDA

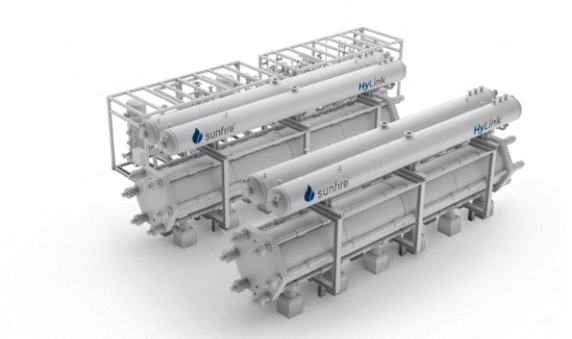
1. Who is Sunfire?

2. Sunfire's CAPE-OPEN Use Case

WHO IS SUNFIRE?

Sunfire is a leading industrial electrolysis company

Solutions & Markets

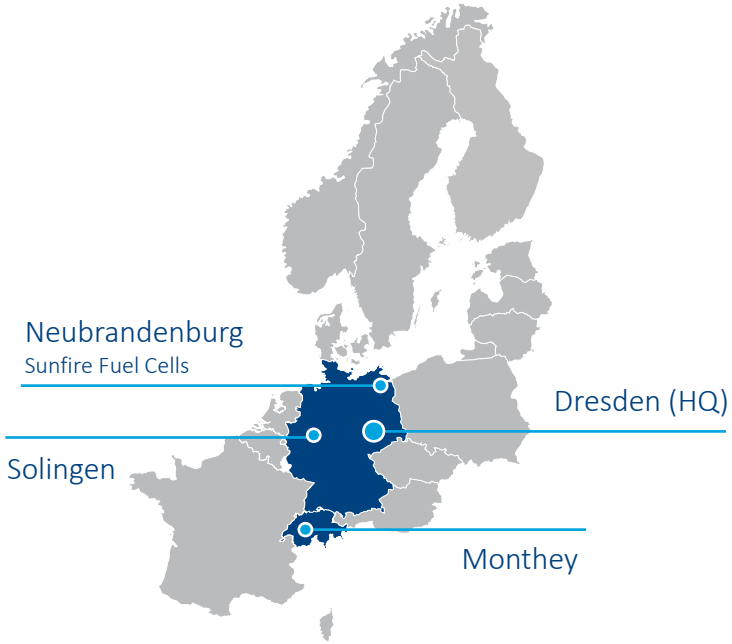


Pressurized Alkaline Electrolyzers

Solid Oxide (SOEC) Electrolyzers

Steel | Refineries | Utilities | Chemicals | Mobility

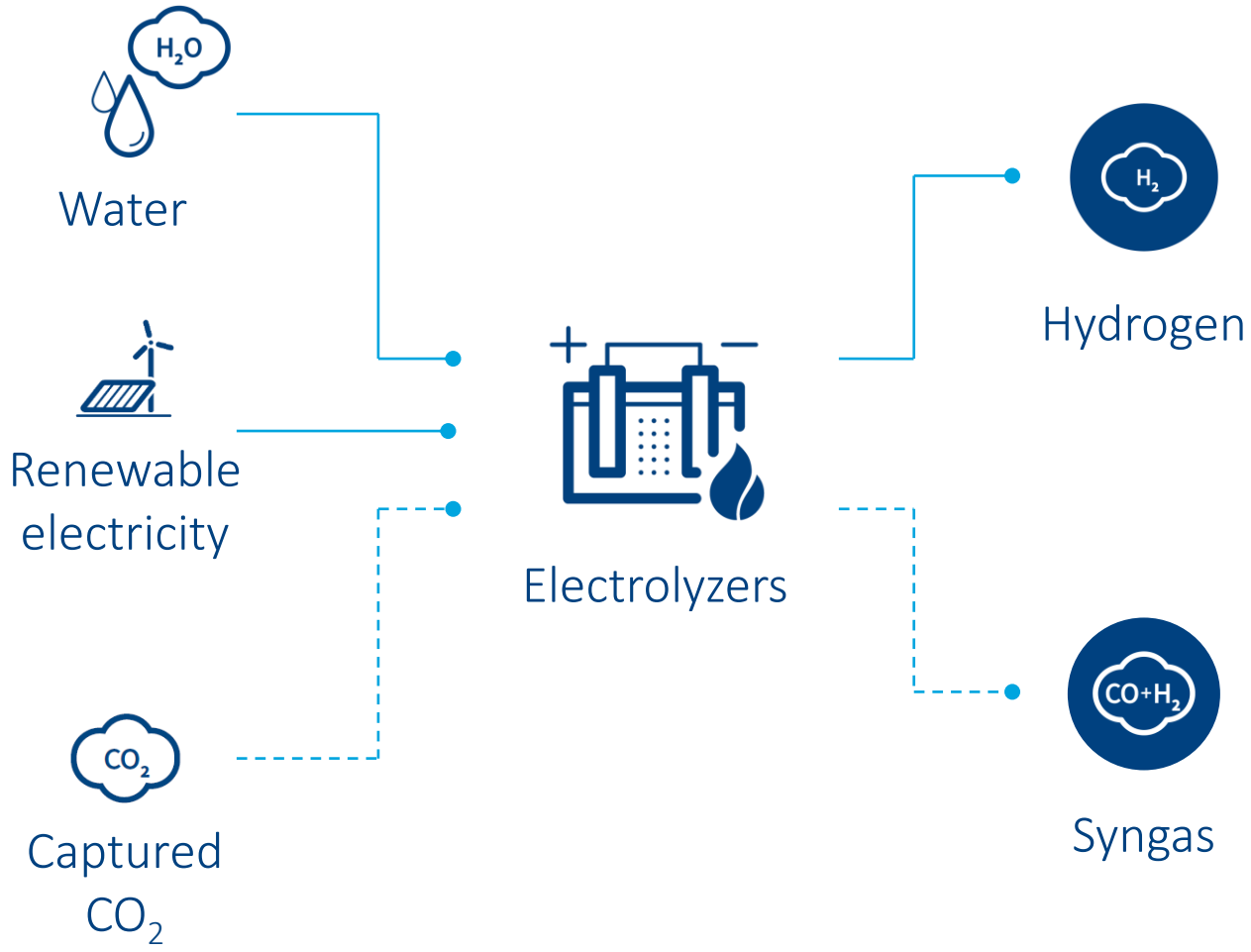
Company Sites



> 70	> 250 MW	100 MW	500 MW/year	> 400	> EUR 500 m
Electrolysis projects[1)]	Installed capacity[1)]	Largest electrolyzer installation	Production capacity as of 2023	Talented employees	Private and public funding

1) Including projects from predecessor alkaline company “IHT SA” prior to the acquisition by Sunfire

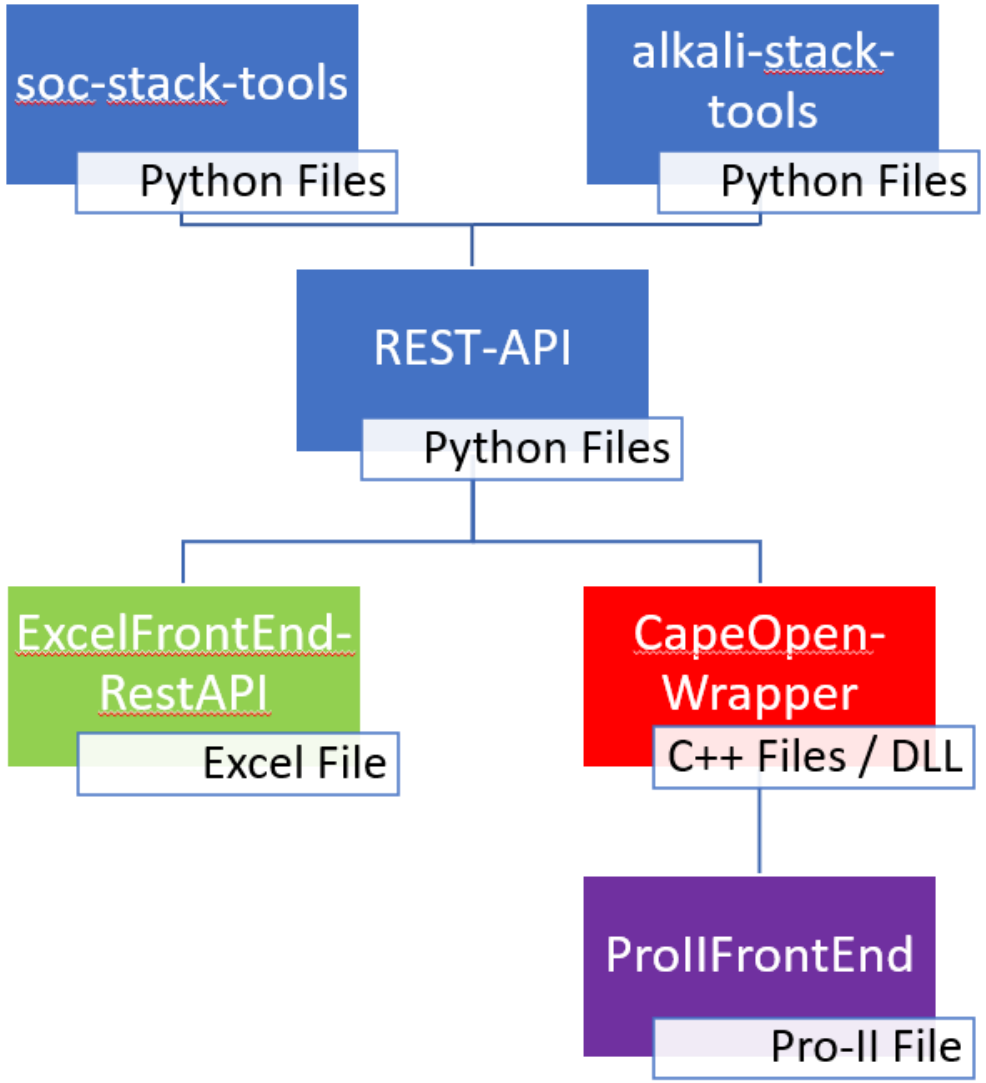
Our electrolyzers produce renewable hydrogen or syngas



Alkaline and Solid Oxide (SOEC) Electrolyzers

Structure of the Frame Work

- We use – in-house developed – Python packages to calculate/simulate our products.
- Access to other softwares is realized with a REST-API.
- To enable usage in AVEVA PRO/II™ Simulation, a CAPE-OPEN compliant DLL is used.



Development of the DLL

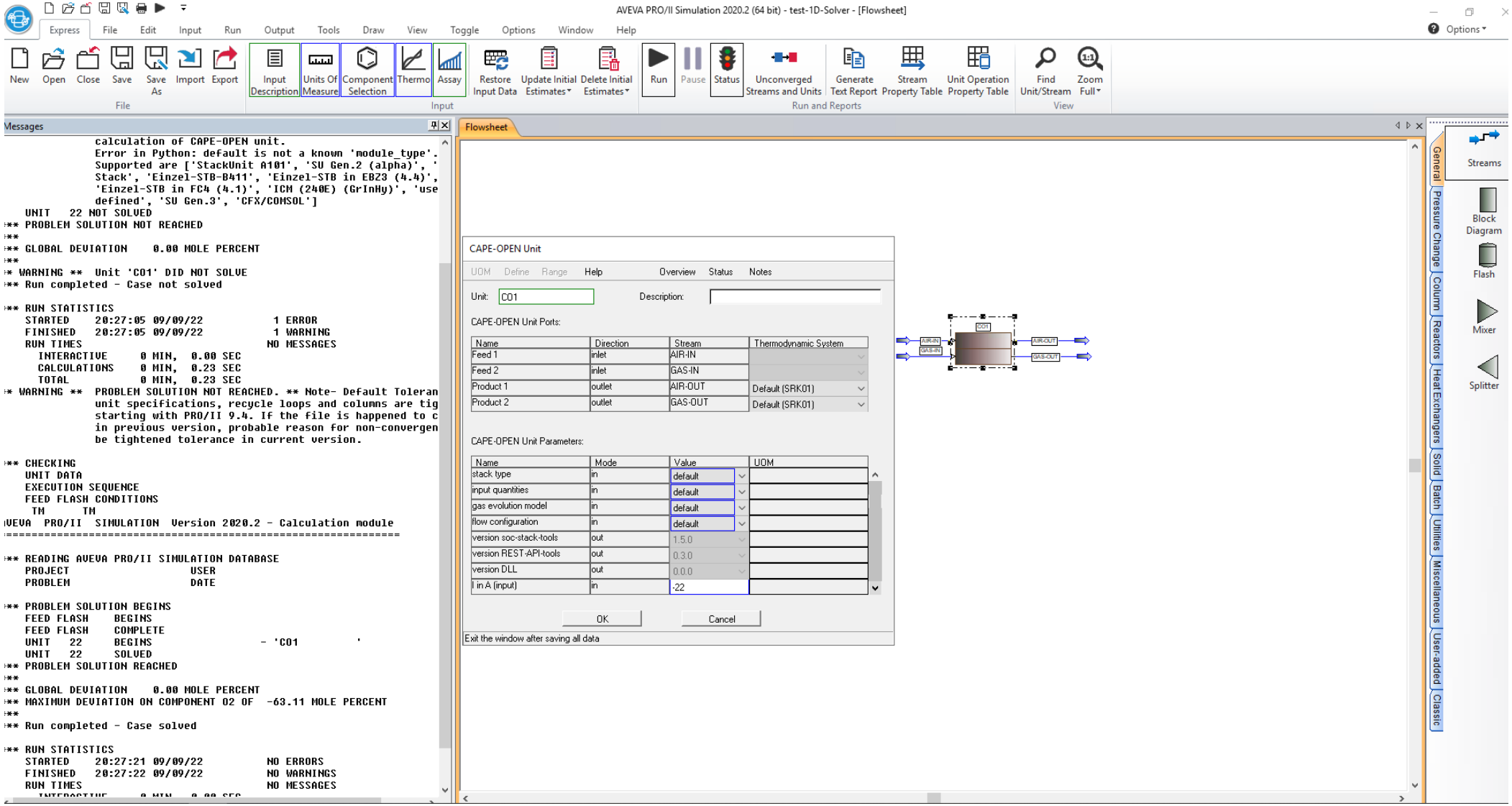
- The DLL is based on the „CPP Mixer Splitter Unit Operation Example“ (C)CO-LaN 2010 implemented by AmsterCHEM
  and was kindly provided by Michel Pons.

- In- and output parameters have been modified accordingly.

- A static CURL library is used to send requests to the REST-API.

- The REST-API returns output parameters in XML format, which are then parsed by the DLL and exported to AVEVA PRO/II™ Simulation.

Usage of the DLL



THANK YOU!

Sebastian Liebschner
Engineer Data Analysis and Tool Development / Stack Development
sebastian.liebschner@sunfire.de
Sunfire GmbH · Gasanstaltstrasse 2
01237 Dresden · Germany
www.sunfire.de