

INNOSOFC STATIONARY FC: GOING LOCAL

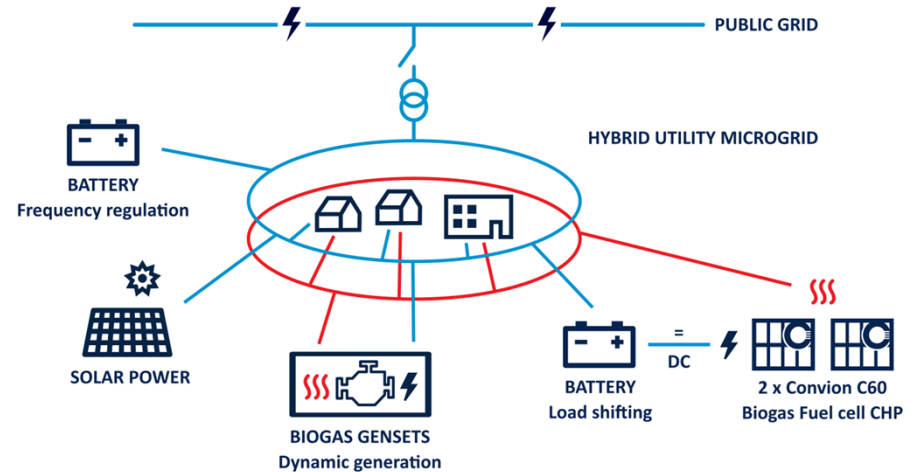
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FC FOR SMART GRID RENEWAL

- C60 mini-CHP system has been designed in an EU project INNOSOFC.
- Convion has built the first C60 unit to be deployed in Finland in 2019.
- At a hybrid microgrid of a utility Lempäälän Energia, 2 Convion SOFC systems are integrated in DC supply mode with a battery storage system.

INNOSOFC



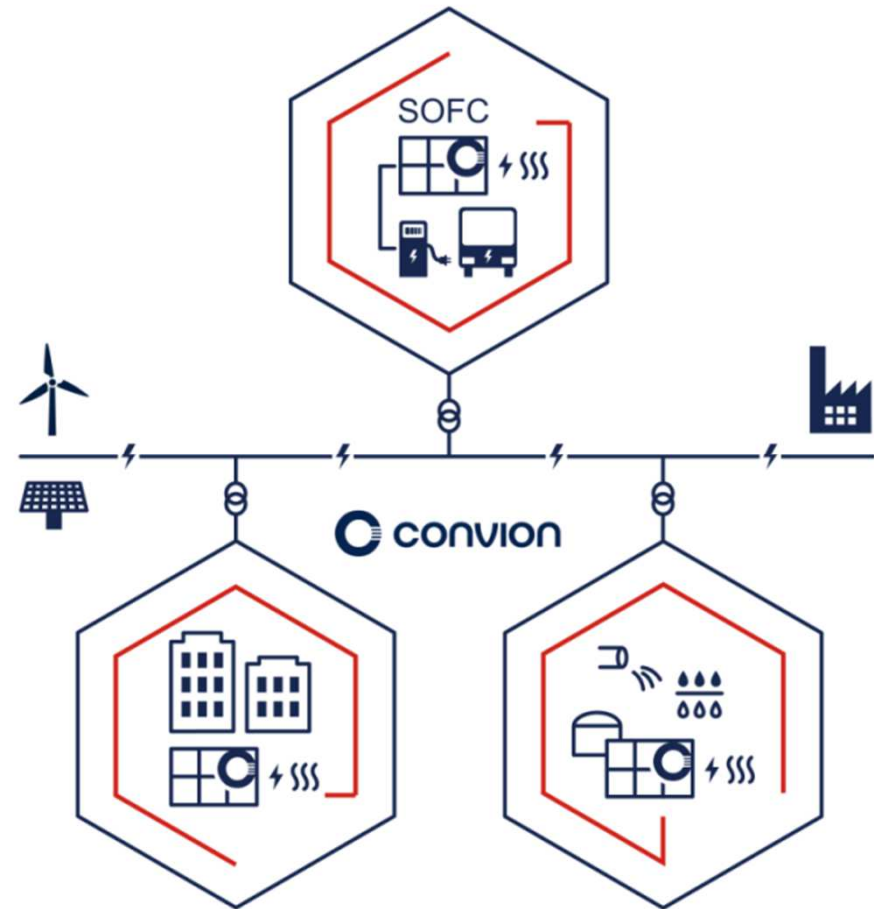
Electric output	60	kW net-AC
Electrical eff.	60	% (LHV)
Thermal output	27 kW, exhaust gas 200°C	
Total efficiency	>80 % (LHV)	



EFFICIENCY, RESILIENCE, INDEPENDENCE



- Ultra clean, dependable mini-co-generation solutions for distributed generation
- Unparalleled fuel economy, resilience of backed-up systems, direct utilization of biogas.
- Microgrids and behind-the-meter solutions
→ new low carbon business models

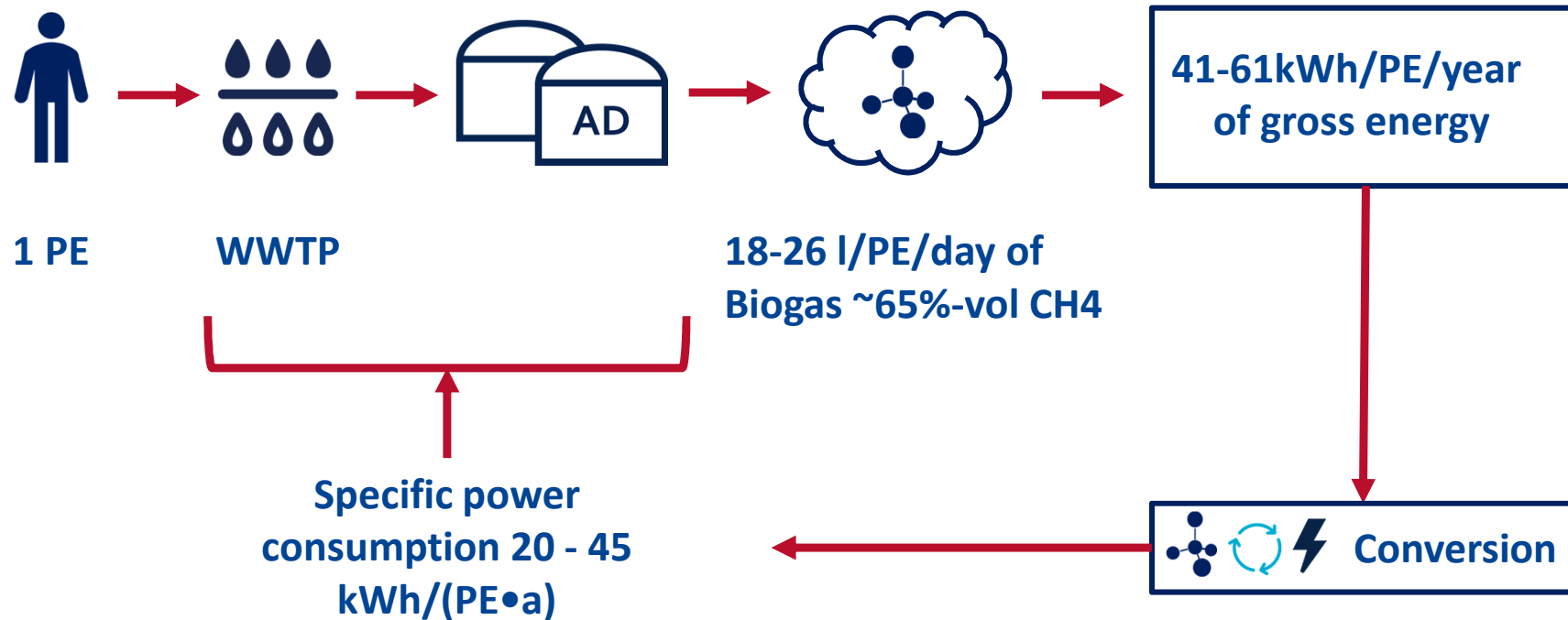


ENERGY AUTONOMY BY BIOGAS AT ANY SCALE

- **DEMOSOFC** – the largest ever field deployment of SOFC systems fueled directly by biogas.
- Industry leading electrical efficiency demonstrated with diluted and variable composition digester biogas with ~60%-vol CH₄.
- Self-generation by SOFC covers ~30% of electric and 100% of thermal energy consumption of the wastewater treatment facility of SMAT in Turin, Italy.

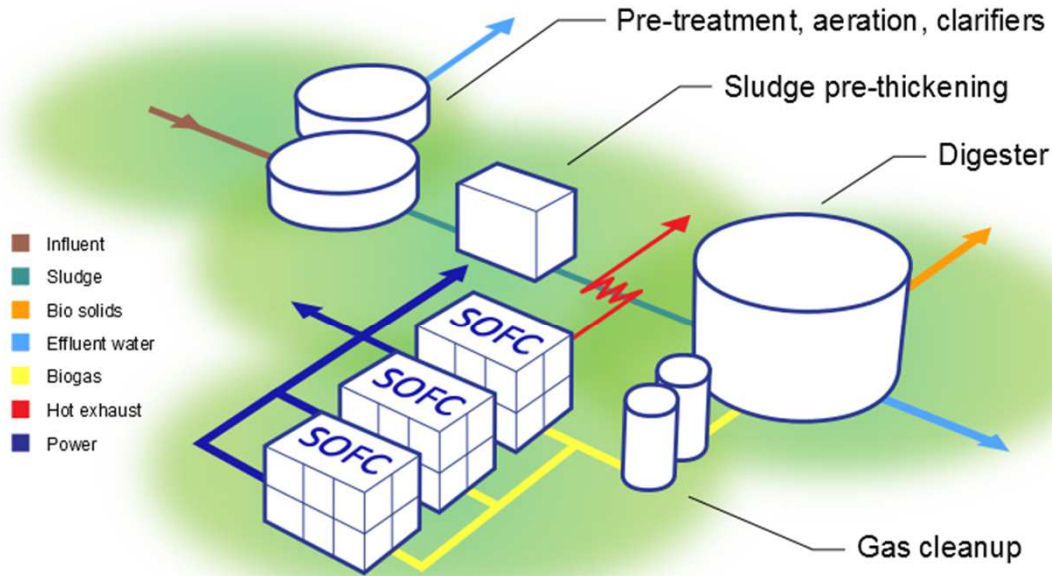


CONCEPT OF ENERGY AUTONOMY IN WWTP'S



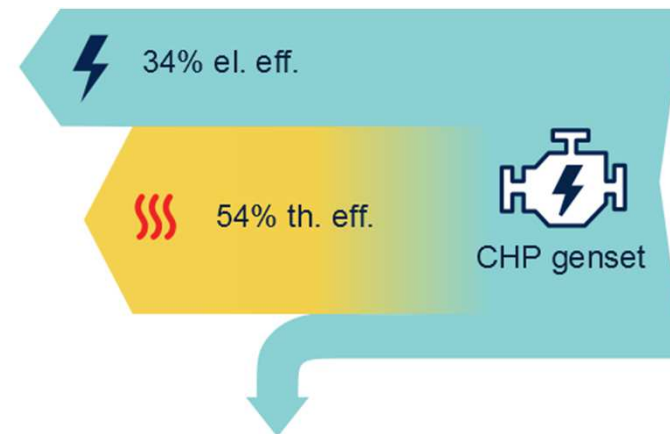
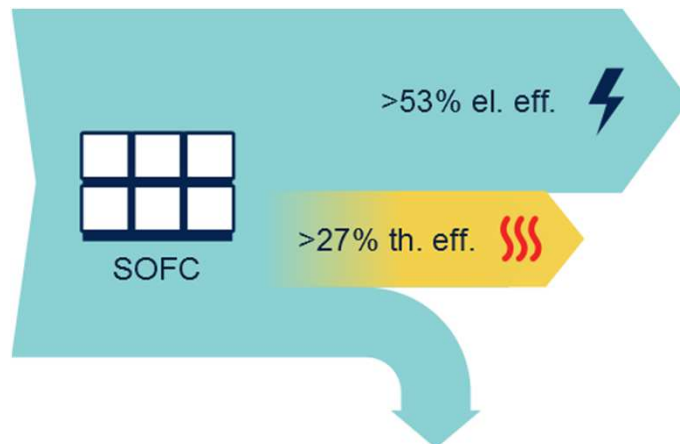
- Wastewater contains sufficiently embedded energy for its own treatment.
- Majority of wastewater treatment takes place in small <1MW facilities, where conventional CHP would be infeasible.
- Convion SOFC provides a superior and scale independent means for biogas-to-power conversion.

FUEL CELLS AS A LOCAL SOLUTION



Energy autonomy of critical municipal functions

- Wastewater
- Potable water
- Organic solid waste



BIOGAS AND CIRCULAR ECONOMY

- Waste streams are a distributed resource.
- SOFC makes possible high efficiency electrification of biogas locally in small scale.
- Matching of thermal output of co-generation with local loads maximizes total efficiency.
- Distributed architecture is resilient and scalable.

