

AutoStack Core – Industry Led European Consortium To Develop Next Generation Automotive Stack Hardware

Objective

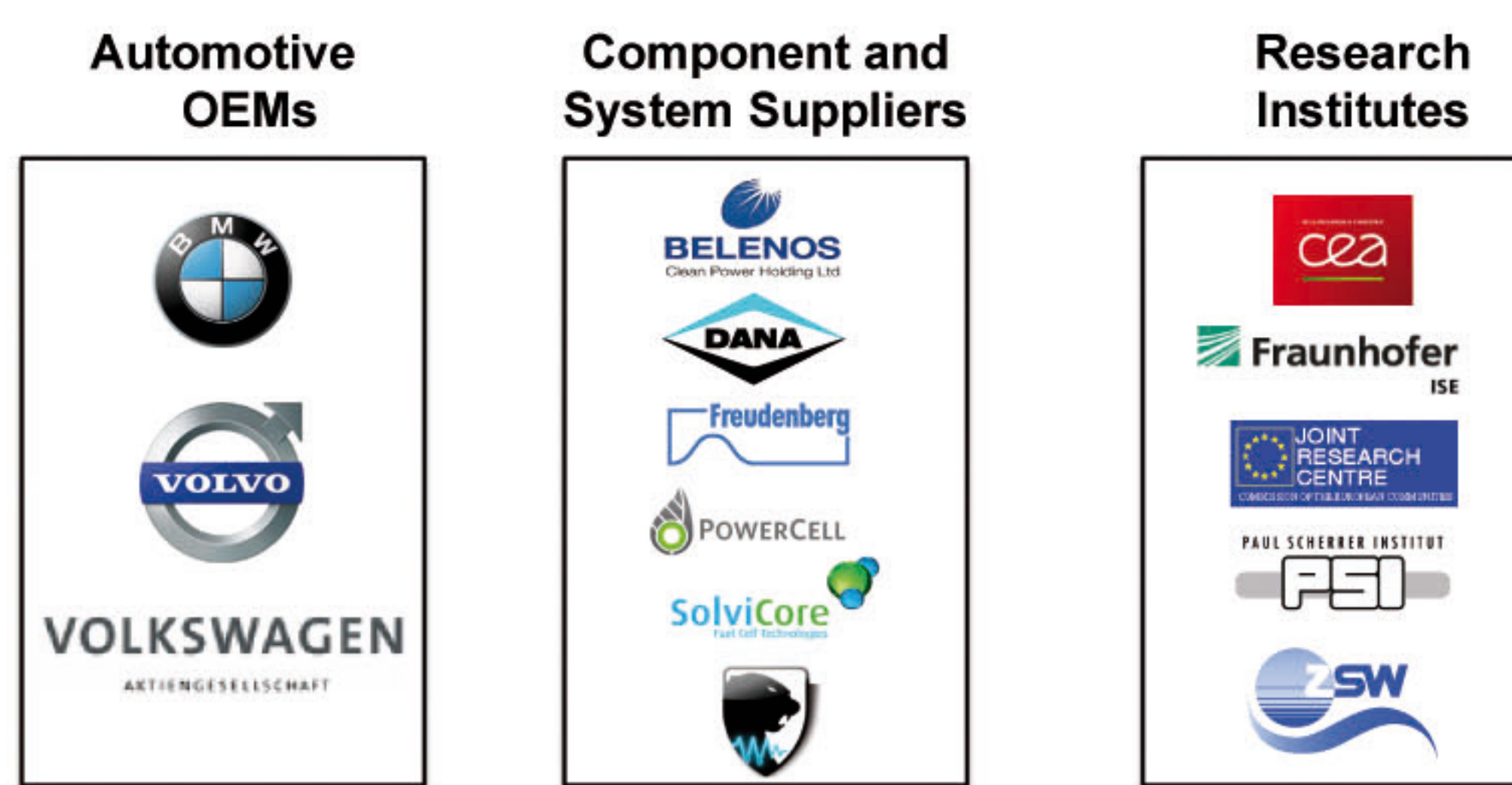
“Auto-Stack Core” establishes a coalition with the objective to develop best-of-its-class automotive stack hardware with superior power density and performance while meeting commercial target cost.

The project consortium combines the collective expertise of automotive OEMs, component suppliers, system integrators and research institutes and thus removes critical disconnects between stakeholders.

An automotive PEM fuel cell stack fulfilling the specification set out in the Auto-Stack Project (FCH-JU GA 245142) will be developed, built and tested in three technology evolutions.

Consortium

Project budget: € 15m
Co-funded: FCH JU
Brussels
Partners: 14
Duration: 40 months



Step 1 – 2010 - 2011

AutoStack
Assessments and Specifications

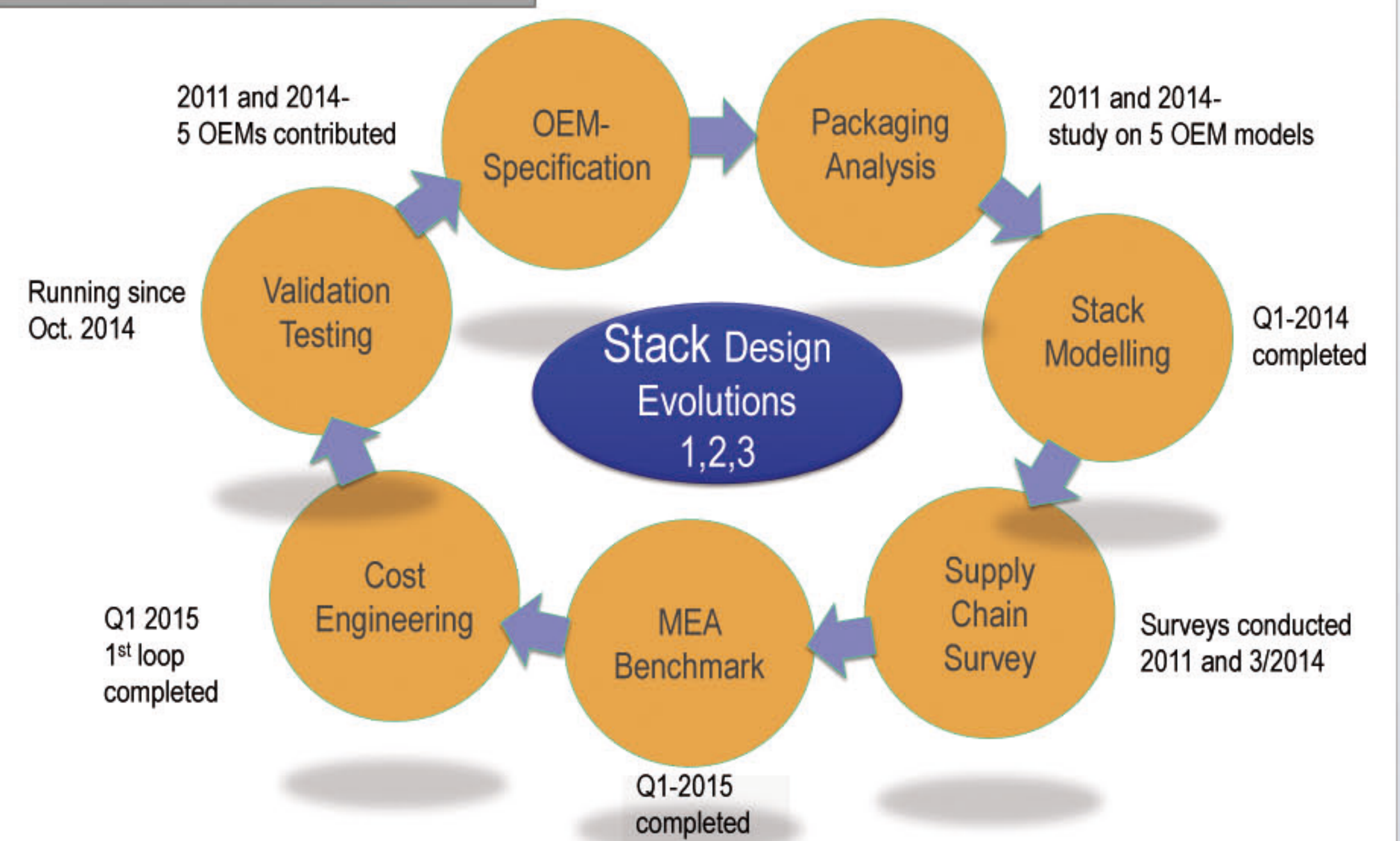
Step 2 – 2013 – 2016

AutoStack-Core
Stack Development

Step 3 – from 2016, planned

AutoStack-Pro
Production Readiness and Manufacturing Concept

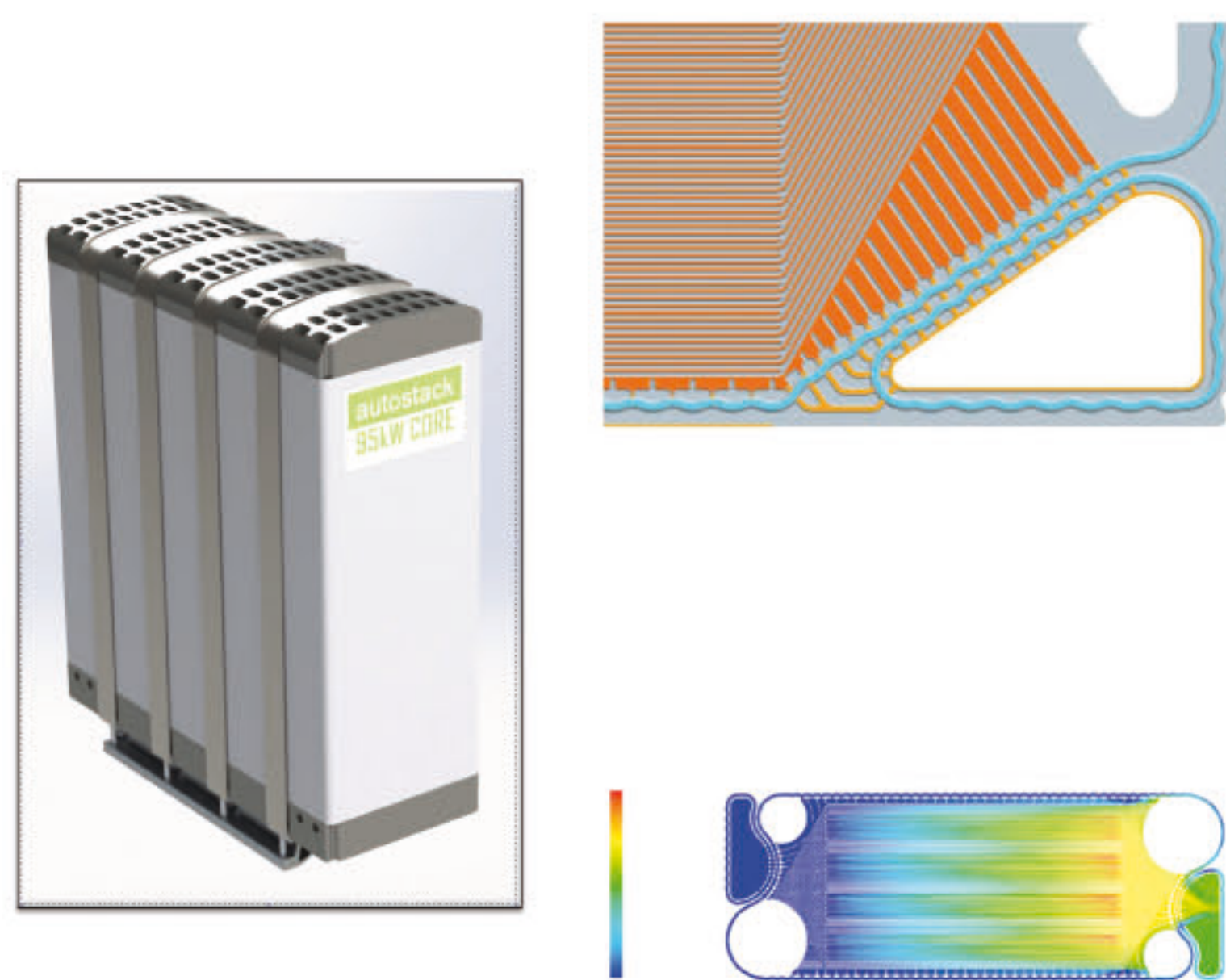
Approach



Selected Results

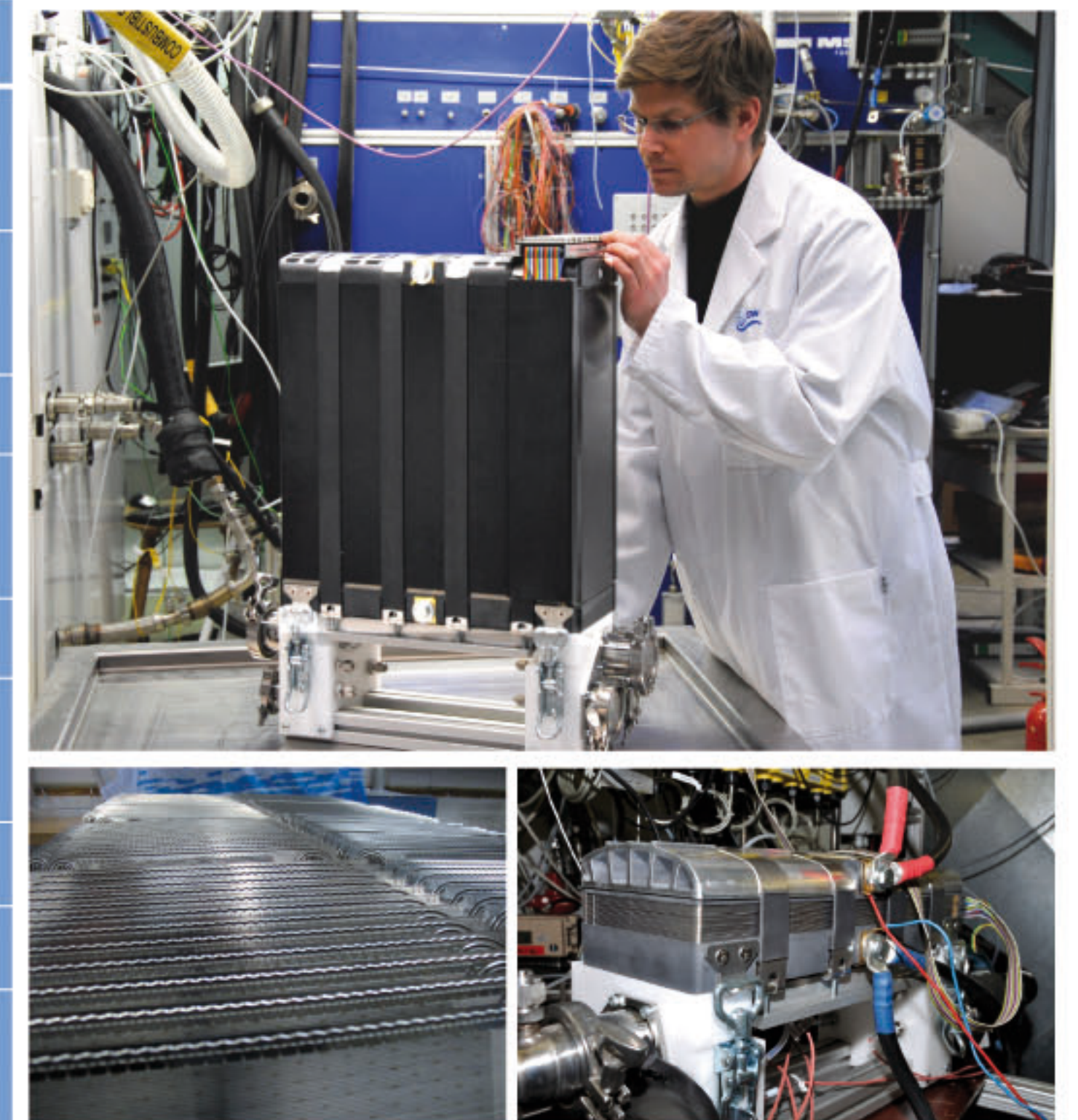
Common specification to boost economies of scale

AutoStack Core - Specification	
Calculated power	98kW max cont. 118kW peak 30 sec
Stack power density	2.8kW/l max cont. 3.4kW/l peak
Operating Point	675mV @ 1.5A/cm ²
Operating Temperature	74° C (68° C in, 80° C out)
Humidification	< 50%
Operating pressure bar _{absolute}	2.2...2.4 max cont. 2.7 peak
Lifetime	6000 h
Freeze-start	from -25° C
Stack target cost @ 120 000/year	< € 40.00/kW

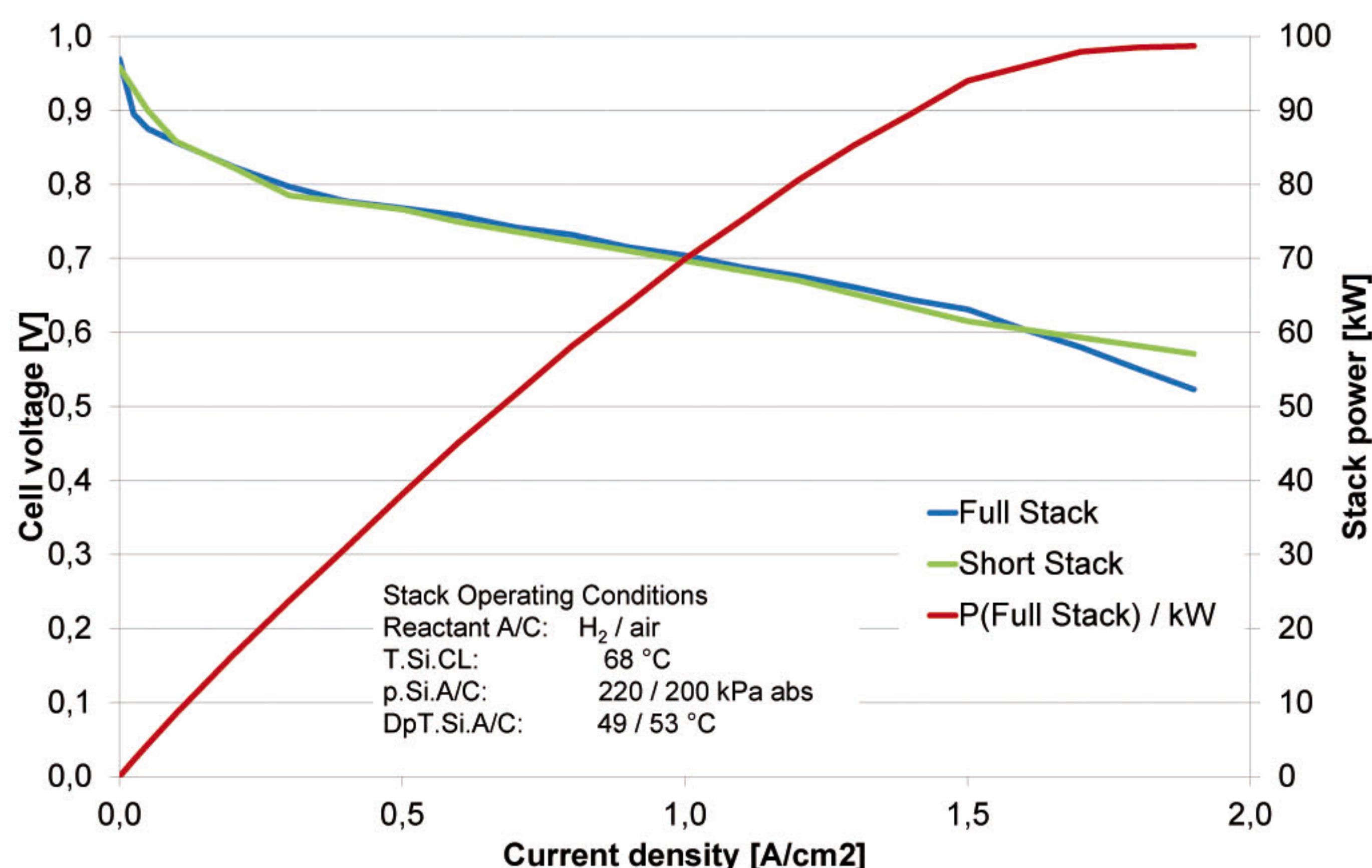


Achievements in Evolution 1

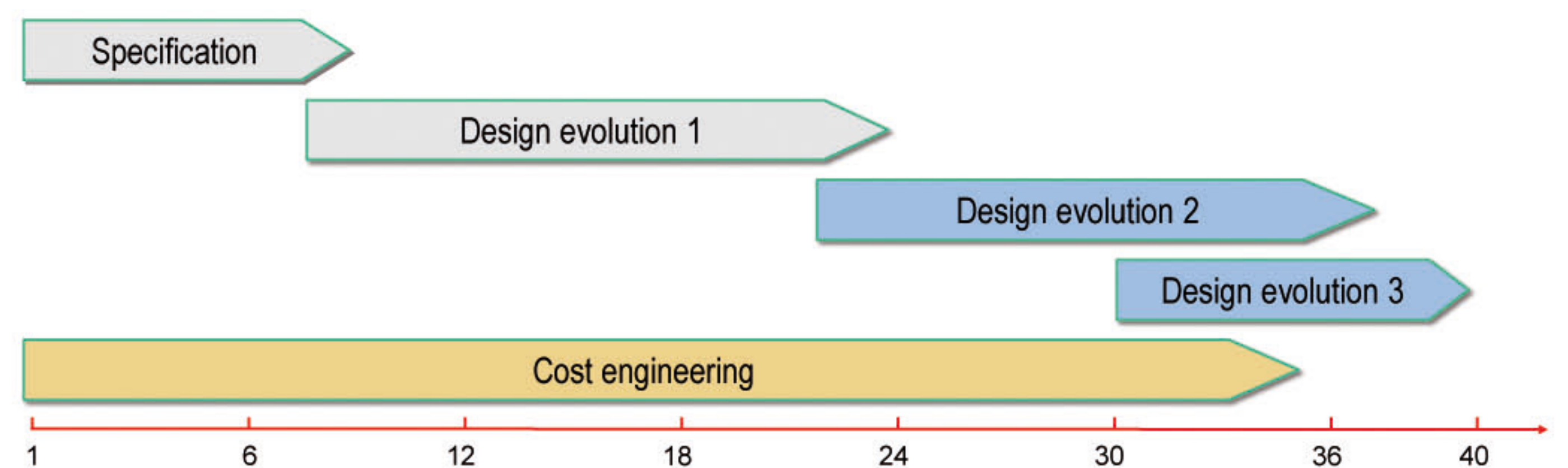
AutoStack Core – Evolution 1	
Power	94 kW max cont. 99 kW peak 30 sec
Stack power density	2.6kW/l max cont. 2.9kW/l peak
Operating Point	631 mV @ 1.5A/cm ²
Operating Temperature	74° C (68° C in, 80° C out)
Humidification	50% RH
Operating pressure bar _{absolute}	2.0 max cont. 2.0 peak
Degradation rate	49.6 μV·h ⁻¹
Freeze-start	from -20° C
Stack cost @ 30 000/year	€ 47.32 /kW



Identical performance in short and full stack



Project schedule



Contact

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