



INNO-SOFC Deliverable D2.3

Techno-economic analysis for SOFC systems

Date: 28.11.2019

Lead Beneficiary: EnergyMatters/BlueTerra

Nature: Report

Dissemination level: Public

Summary:

A model was developed to analyze different business cases of stationary fuel cell systems. This includes EU-countries and individual states in the USA. This model is available in:

<https://blueterra.nl/en/project/inno-sofc/> and it can be used to analyze specific applications and business cases within certain regions.

Disclaimer: This model was composed with great care. It contains numerous assumptions which may change over time or are bound to time constraints. Convion and Blueterra do not make any express or implied warranties with respect to the information or results and will not be held liable for any losses or damages resulting from any errors or omissions in any information or results, or any action or decision made by users in reliance on any information or results.

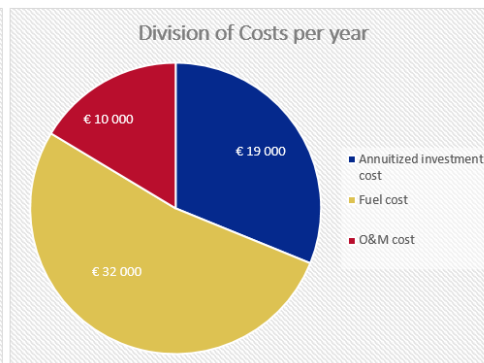
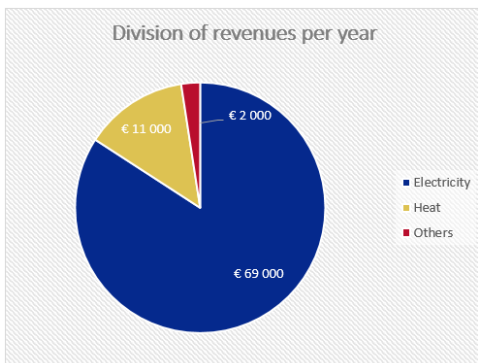
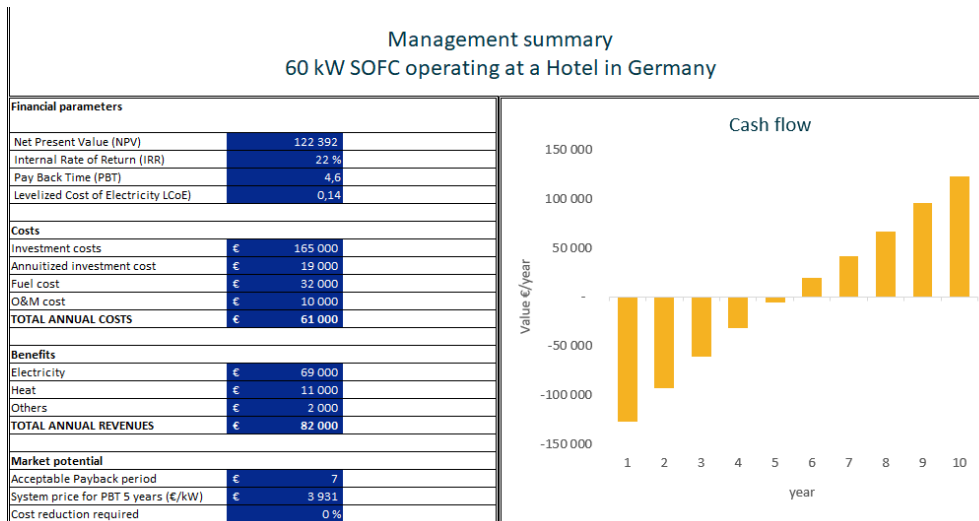
1. Model description

Below is an example calculation done for a hotel in Germany.

Model input values:

Application		
Select region	EU	
Select country	Germany	
Select appropriate electricity price	Business (<500 MWh/year)	
Select module type	Convion 60 kW	
Select number of modules	1	
Select application	Hotel	
Conditions		
Cost level	Target	
UPS/prime power needed?	No	
NOx emissions limited by regulations?	No	
Investment subsidy	0 %	
Overrule electricity price		€/kWh
Overrule gas price		€/m3
Technical performance		
Electrical capacity	60	kW
Electricity load hours	8000	hours
Heat load hours	6000	hours
Gasinput	99 000	m3/year
Electricity generation	480	MWh
Heat generation	305	MWh
CO2 emission	177	ton/year
water production	129 000	liters/year
Reference CO2	302	ton/year
CO2 reduction compared to reference	125	ton/year
CO2 reduction %	41	%

A model gives following output, including financial parameters (eg. NPV and LCOE), annual costs and revenues, and a summary of market potential.





In this example case, payback time is less than 5 years, showing a very potential business case. Electricity and gas prices, subsidies and other relevant parameters can be adjusted. Similar calculation can be done for other applications and with different future scenarios.