Presentation

CoolHeating.eu

Economic calculation tool for the target Communities CoolHeating training

Project CoolHeating

- The objective of CoolHeating is to support the implementation of "small modular renewable heating and cooling grids" for communities in South-Eastern EuropE

- The project is aimed also at building capacities in the target communities and beyond, on technical and non-technical aspects
- To facilitate the deployment of improved business models and innovative financing schemes for mobilizing investments in small modular district heating and cooling systems

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Economic evaluation of potential DHC projects

- Knowledge and capacity in economic evaluation of potential DH projects and preparation of business plans has to be strengthened
- Easy to use tools for easy-to-understand-and produce but comprehensive economic evaluations are needed…
- …especially for target groups with less knowledge and skills for economic evaluations and preparation of business plans

The economic calculation tool

- An Excel spread sheet tool – anyone using MS Excel can access it
- Easy to use, with exact leas on what data has to be inserted
- Full financial part of the business plan
- In local language
- Freely available at the www.coolheating.eu

In the CoolHeating project

- The economic calculation tool will be used in order to prepare economic evaluation for the business models and technical concept developed for new DCH concepts in target communities
- The tool can also be used by third parties in evaluations of potential DHC projects
- Download available at the project website

The economic calculation tool - basics

- Excel document includes macros and VBA programing
- Protected with a password in order to avoid unwanted and accidental modifications of the tool by the users
- The password for unlocking the file is included in the manual
- Users are advised to „enable Editing“ and „enable Macros“ if during opening of the tool Excel asks for confirmation about enabling these features
- Cells formatted in white color are editable by users. Cells of other colors are locked and are calculated by the tool

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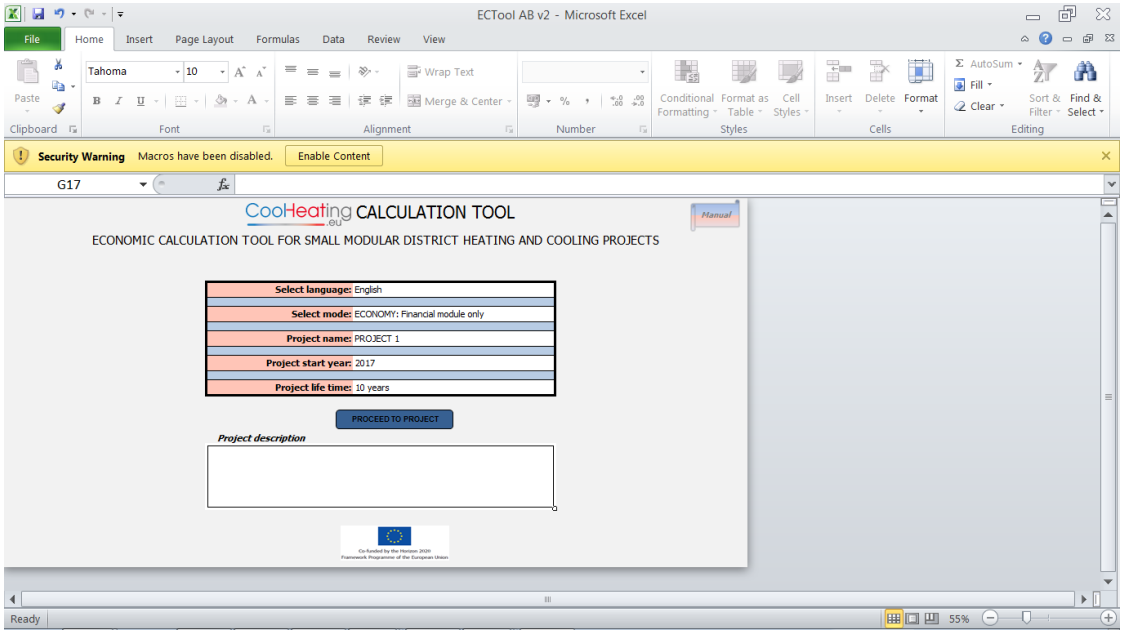
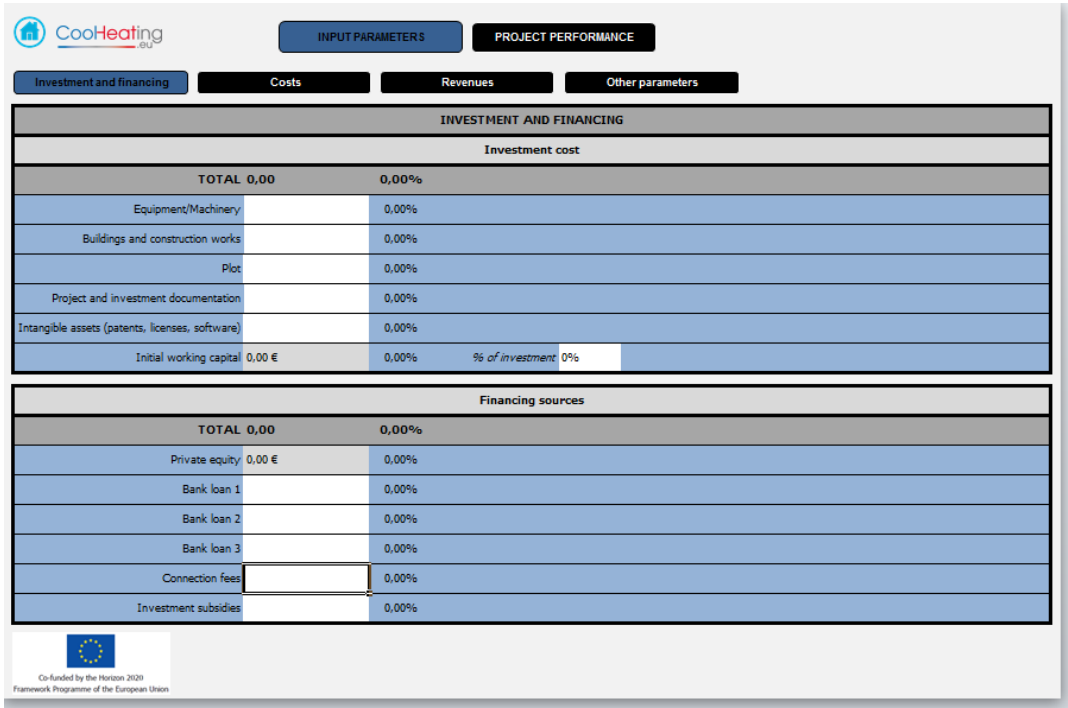
Economic calculation tool - homepage

- Language used in the tool can be selected from English, German, Slovenian, Croatian, Bosnian, Serbian and Macedonian
- Basic information is included as Project name, Start year and Project life (all simulations in the tool will run for this duration)



Input parameters module

- All data needed for economic simulations is inserted in this module
- Please note in order to insert the needed data the DHC project has to obtain:
  - Basic technical layout and Investment costs
  - Energy needs
  - Heat consumers



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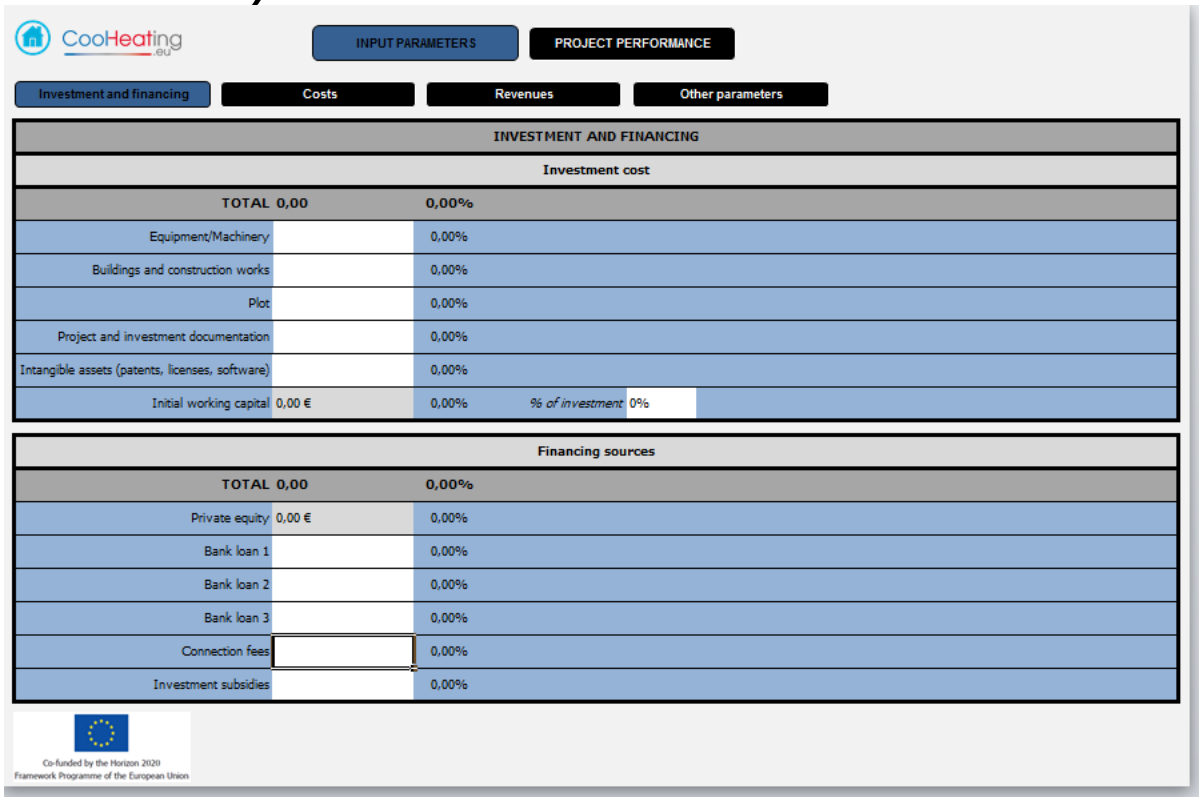
Input parameters - Investment and financing

- Breakdown of investment costs in €
- Financing sources are inserted (Equity, Subsidies, Loans and Connection fees)



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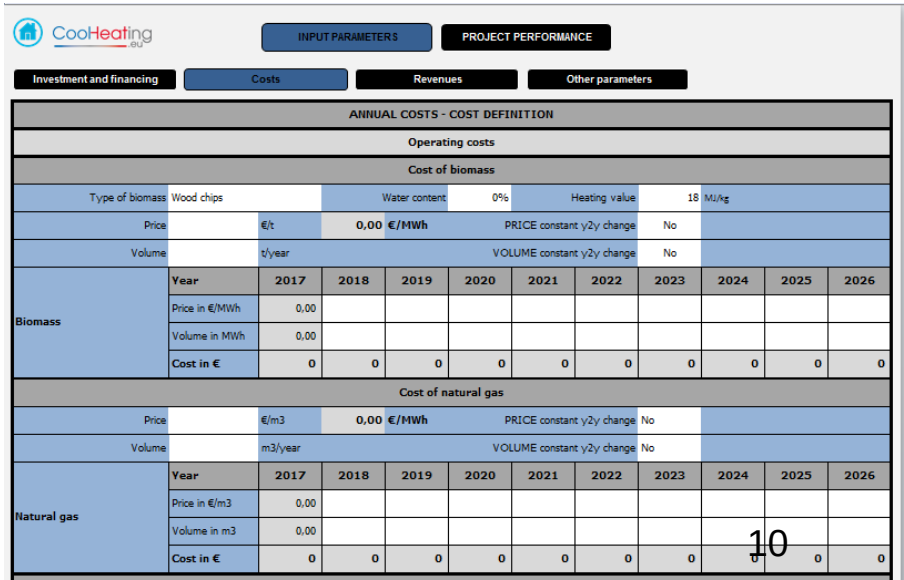
Input parameters - Costs

Costs are inserted and simulated for the life time of the project (the tool includes a linear year 2 year cost change simulation)

- Operating costs (fuel costs)
- Service costs (Management, insurance and lease, Promotional activities, Other)
- Cost of labor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INPUT PARAMETERS | PROJECT PERFORMANCE

Investment and financing | Costs | Revenues | Other parameters

ANNUAL COSTS - COST DEFINITION

Operating costs

Cost of biomass

Type of biomass	Wood chips			Water content	0%		Heating value	18	MJ/kg		
Price		€/t	0,00	€/MWh			PRICE constant y2y change	No			
Volume		t/year					VOLUME constant y2y change	No			
Biomass	Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	Price in €/MWh	0,00									
	Volume in MWh	0,00									
	Cost in €	0	0	0	0	0	0	0	0	0	0

Cost of natural gas

Price		€/m3	0,00	€/MWh			PRICE constant y2y change	No			
Volume		m3/year					VOLUME constant y2y change	No			
Natural gas	Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	Price in €/m3	0,00									
	Volume in m3	0,00									
	Cost in €	0	0	0	0	0	0	0	0	0	0

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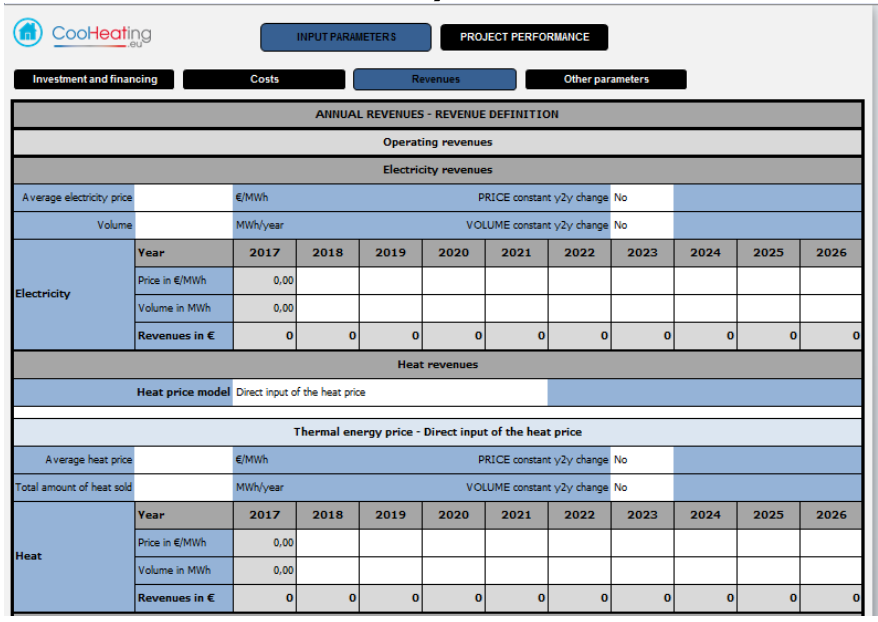
Input parameters - Revenues

Revenues from different sources are inserted for the project life time (the tool includes a linear year 2 year revenue change simulation)

- Revenues from sold electricity
- Sold heat (includes 3 possible heat sales models)
- Other revenues (financial and other revenues)



CooHeating eu | INPUT PARAMETERS | PROJECT PERFORMANCE

Investment and financing | Costs | Revenues | Other parameters

ANNUAL REVENUES - REVENUE DEFINITION

Operating revenues

Electricity revenues

Average electricity price		€/MWh				PRICE constant y2y change	No				
Volume		MWh/year				VOLUME constant y2y change	No				
Electricity	Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	Price in €/MWh	0,00									
	Volume in MWh	0,00									
	Revenues in €	0	0	0	0	0	0	0	0	0	0

Heat revenues

Heat price model	Direct input of the heat price

Thermal energy price - Direct input of the heat price

Average heat price		€/MWh				PRICE constant y2y change	No				
Total amount of heat sold		MWh/year				VOLUME constant y2y change	No				
Heat	Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	Price in €/MWh	0,00									
	Volume in MWh	0,00									
	Revenues in €	0	0	0	0	0	0	0	0	0	0

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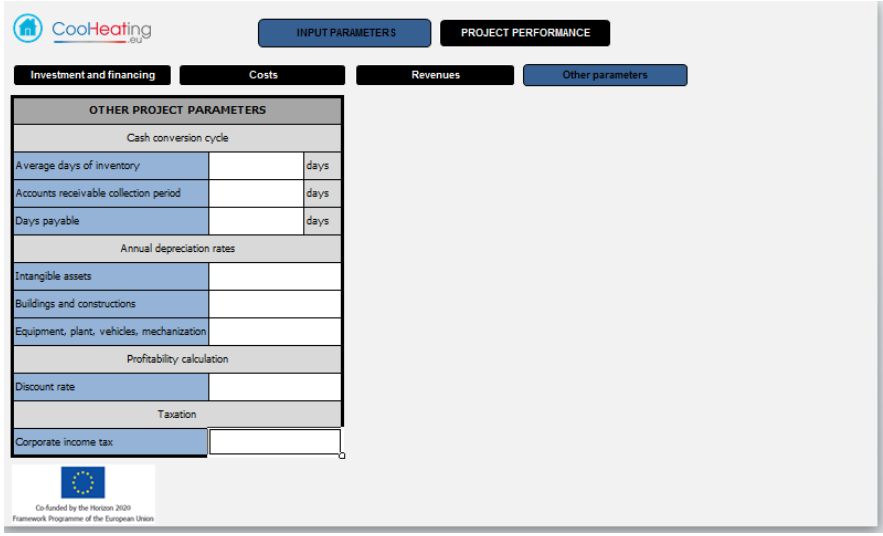
Input parameters - Other parameters

- Cash conversion cycle
- Annual depreciation rates
- Profitability calculation (Discount rate)
- Taxation (Corporate income tax)



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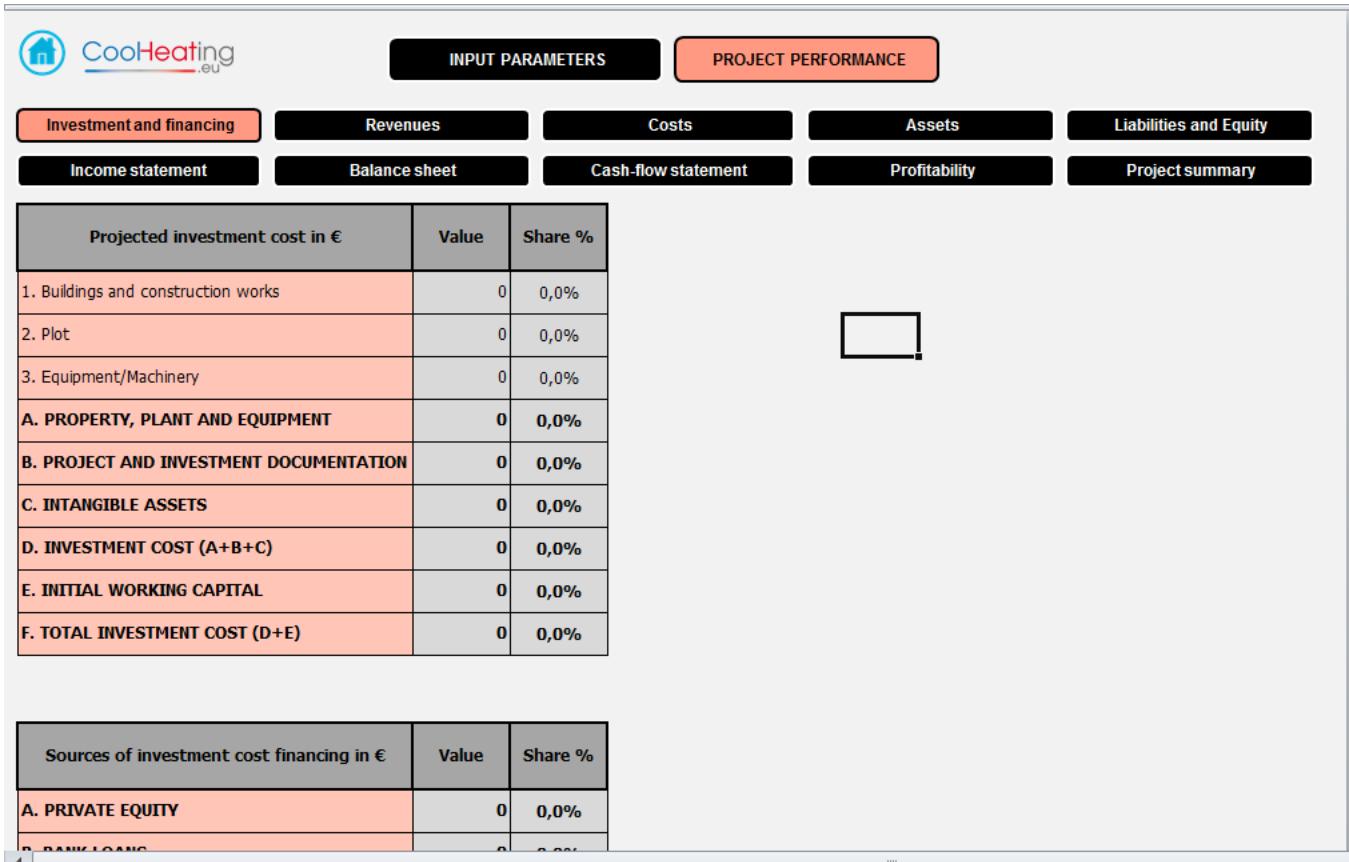
Project performance

- This module consists of calculations, simulations and sensitivity analysis figures, based on the input parameters



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Project performance - overview

Investment and financing	• Investment and financing includes an overview of the project investment costs and the sources of financing the respective investment costs
Revenues	• Structure of total planned incomes that will be generated in the project life-time
Costs	• Structure od total estimated costs incurred in the project life-time
Assets	• Development of the project properties and resources

Project performance - overview

Liabilities and Equity	• An overview of the obligations connected to financing the project assets and development of the value (capital) of the project for its owners
Income statement	• An overview of the projects revenues and expenses during the projected period
Balance sheet	• A summary of project assets, liabilities and capital, reflecting what the project will own and owe and the amounts invested by owners
Cash-flow statement	• A record that shows the actual flows of cash in and out of the business

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Project performance - overview

Profitability

- A forecast of the projects financial performance and its ability to generate earnings compared to the invested capital and costs incurred in the project life time

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Project summary

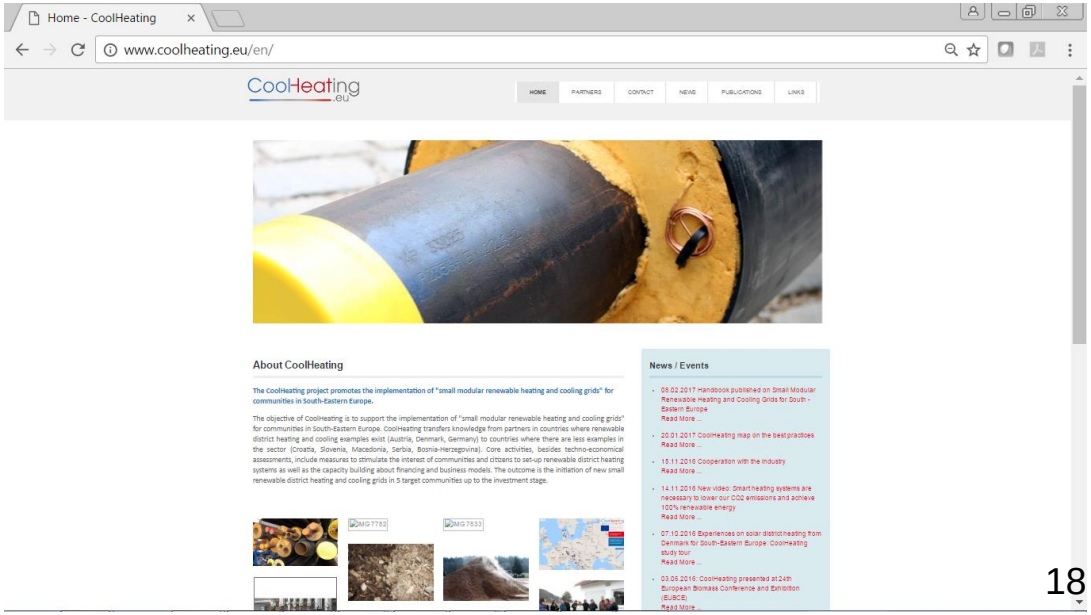
- A summary of key aspects comprised in all previous sections of the project performance module

Economic calculation tool

- In order to use the tool users need:
  - Basic knowledge of economy
  - Layout of the DHC idea to assess investment costs and financing options including possible subsidies
  - DHC project costs (fuel needs and prices)
  - Revenues generated (heat sales and heat price, possible electricity sales)
- The tool enables a creation of the banking case by easily modifying and analizing different parameters
  - More private equity vs. more debt
  - Higher heat price vs. higher connection fees
  - Creation of the banking case

Economic calculation tool

- In your language
- Project partners will provide support for Economic calculation tool users
- Free download available at http://www.coolheating.eu



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