
Calculating the Levelized Cost of Heat (LCoH) for Reference Solar Thermal Systems

TASK 54

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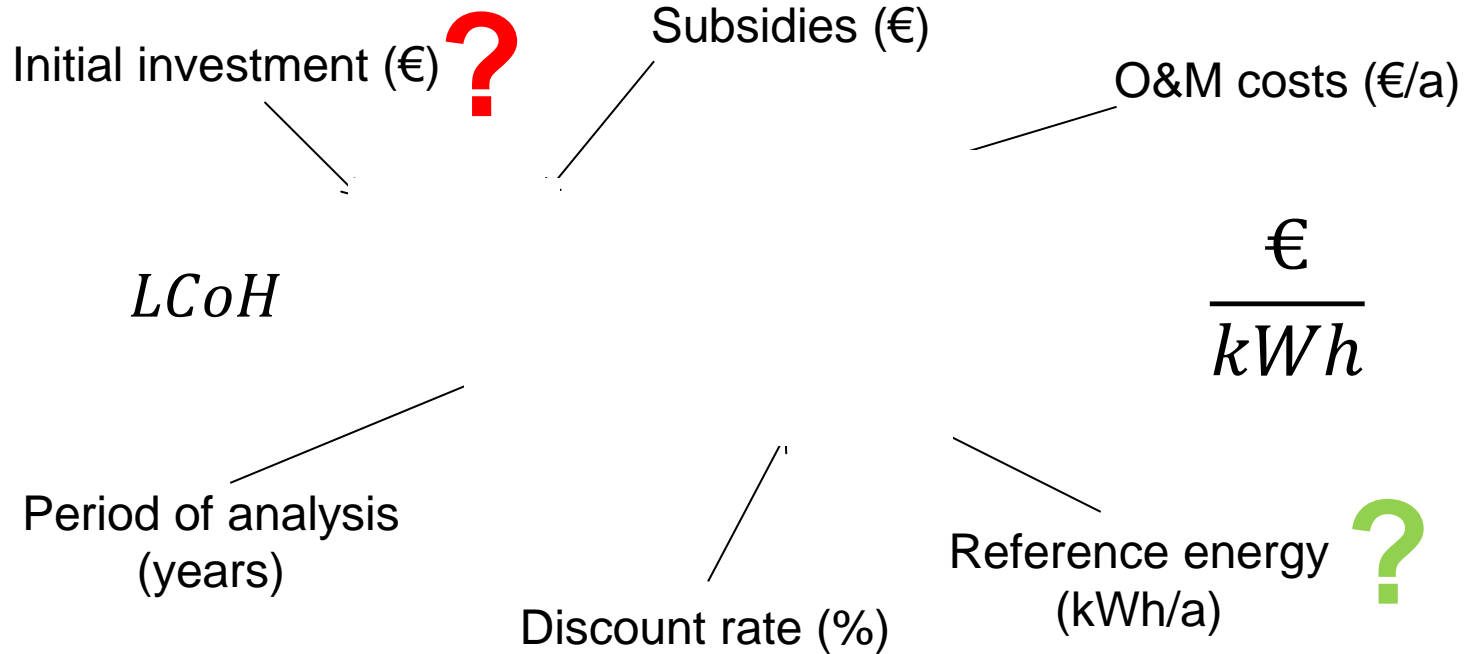
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Introduction

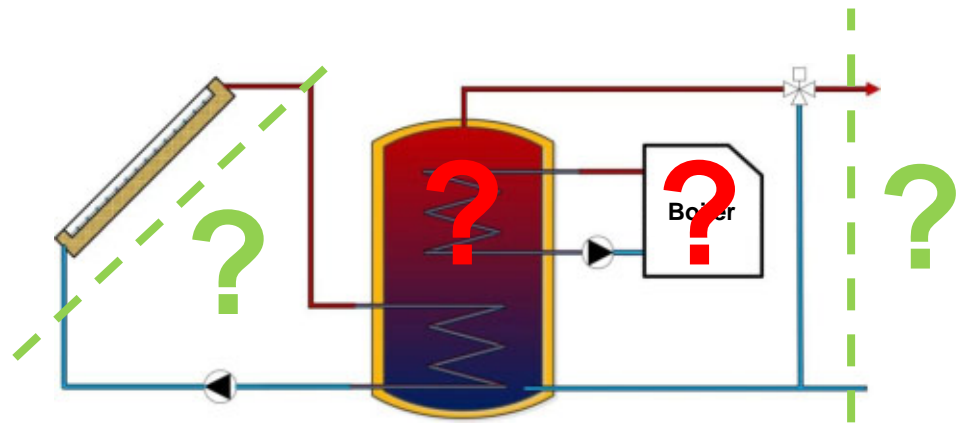
- Price reduction assessment in Task 54 requires:
 - Reference systems
 - Common **indicator** and methodology
- Levelized Cost of Heat (**LCoH**):
 - Often used in power sector (LCoE)
 - Growing usage in the heat sector
 - Assess the impact on heat costs of
 - **costs reduction** along the value chain (production to decommissioning)
 - system **performance improvements**

LCoH Equation

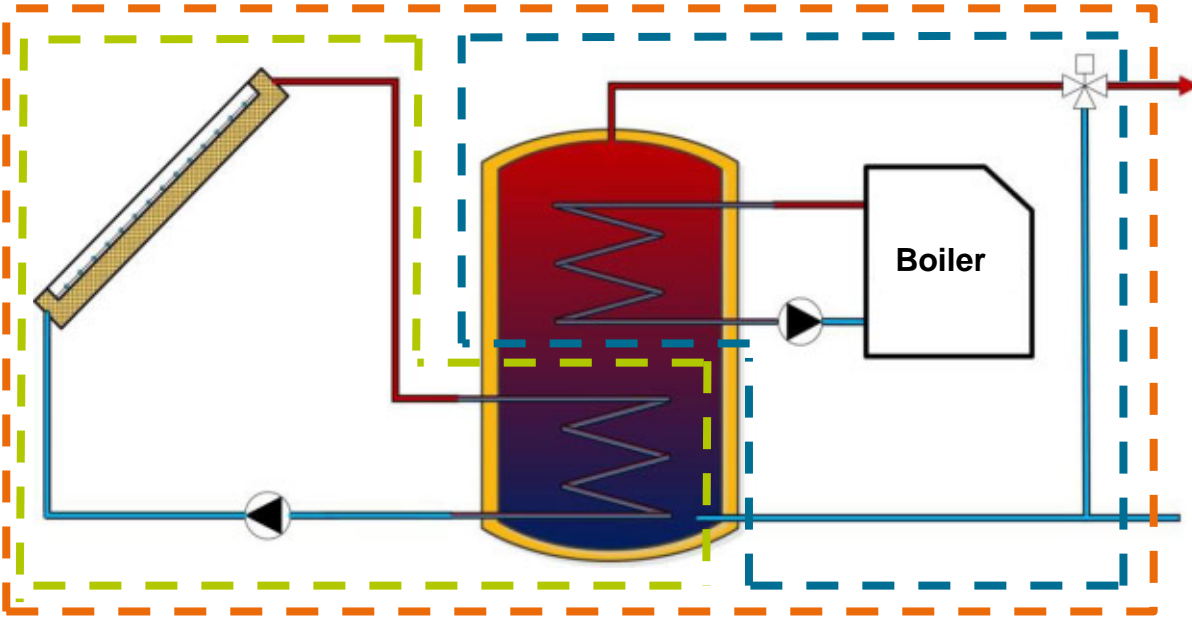


■ Task 54:

- $r = 0$
- $S_0 = 0$
- All costs excluding VAT



System Boundaries and LCoH



$LCoH_{ov,fin}$ (overall)

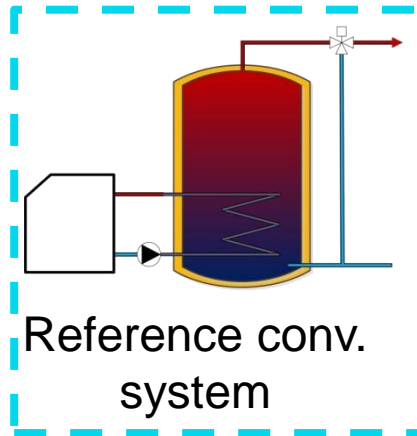
$LCoH_{sol,fin}$ (solar)

$LCoH_{conv,fin}$ (conventional)

$LCoH_{sol,fin}$

I_0 Overall –
Reference conv. System

E_t fin. energy „ref. conv. sys.“ –
fin. energy „conventional“



Reference conv.
system

Example: Reference SDHW System in Germany (SFH)

- 5 m² FPC (gross), 300 l store, back-up: gas condensing boiler
- Saved final energy by solar: 2.2 MWh/a
- Final energy „conventional“: 13.4 MWh/a
- T = 25 years

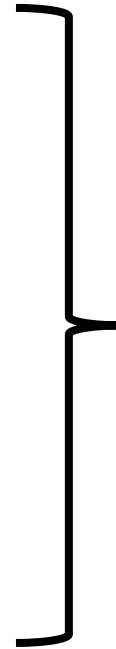
	Conventional	Solar
Investment I_0 [€]	6500	3850
O&M C_t [€/a]	1368	97

LCoH _{sol,fin}	11.3 €ct/kWh
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$$LCoH = \frac{I_0 + \sum_{t=1}^T C_t}{\sum_{t=1}^T E_t}$$

Summary

- LCoH depends on **system boundaries**
(solar, conventional, overall)
- Several **reference energies** possible:
 - final energy (Task 54)
 - solar collector yield
 - useful solar heat
 - heat demand



Clear **indexes** defined
(LCoH_{xx,xx})

- LCoH is a sensitive indicator: detailed assumptions necessary!
- 11 **reference systems** (5 countries) calculated in Task 54

Thank you for your attention!

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More on Task 54:

<http://task54.iea-shc.org>



https://twitter.com/iea_shc_task54

