

Financing and realising energy efficiency and renewables in industry

**A Horizon 2020 project to finance and realise
energy efficiency and renewables in industry**

2018-11-19 • *TrustEE introduction*



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of the European Union

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Challenges & Opportunities

Context for project

Challenges (1/3)

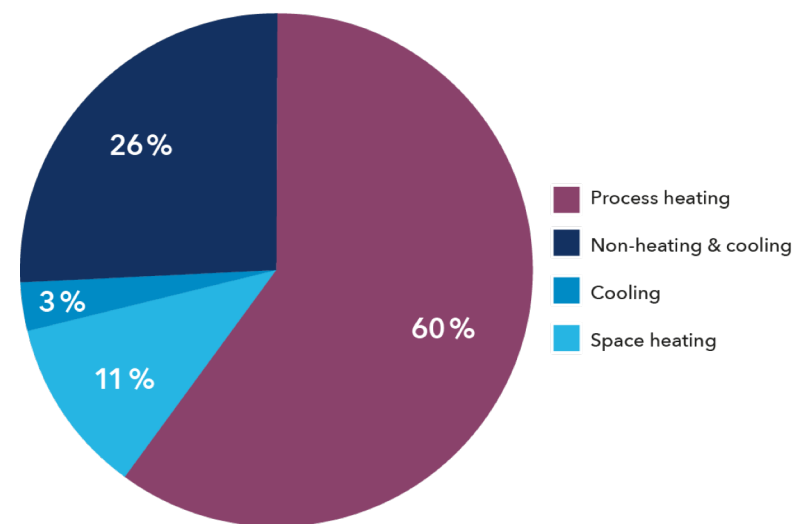
Process heating accounts for 60% of industrial energy use in EU¹

- About 1,920 terawatt hours (TWh)
- Equivalent of 18 % of total EU energy demand

1,920 TWh is greater than the combined electricity consumption of France, Germany, Spain and the UK!

Approximately 85% of Europe's industrial process energy is supplied by fossil fuels¹

Sources: 1. Fraunhofer et al. 2016.



Dark = fossil fuels;
Green = biomass

Challenges (2/3)

Energy efficiency and renewable energy projects are economical, and could meet the majority of Europe's industrial process heating demand.

However, even well-designed projects fail to attract viable financing due to:

- Risk mitigation problems with innovative projects
- Transaction costs high relative to capital requirements
- Projects developed by or for small and medium enterprises often lack necessary credit and performance guarantees required by financial institutions



Challenges (3/3)

The current approach for evaluating projects:

- Different and specific for each project
- No standardized procedure (technical and economic)
- Time and resource consuming

Project assessment barriers:

- Lack of (technical) know how among banks/investors
- High technical complexity
- Inappropriate preparation of projects
- No industrial standards (only building area)



Opportunities

60% of industrial process heating demand could be supplied by established energy efficiency and state-of-the-art renewables

Energy efficiency:

- 8-10% average savings with 5-year or less payback across industrial sectors¹

Renewable energy:

- 50% of industrial process heat demand could be met by state-of-the-art solar thermal, biogas and biomass technologies²

Sources: 1. "Study on EE and Energy Savings Potential in Industry..." ICF International. 2015
2. Estimate developed based on several sources: "Process heat collectors..." Horta P. 2016; "Process heat in Industry, Suitable Technologies". Fraunhofer ISE presentation. 2017. "Potential for Solar Heat in Ind. Processes." Vannoni C. et al. 2008;

60% NON-FOSSIL



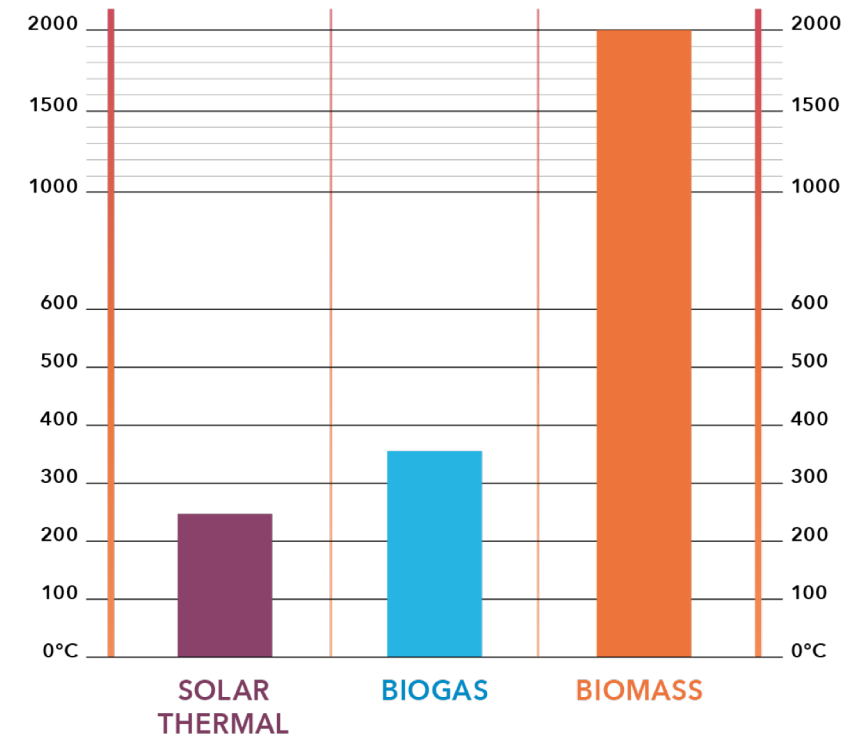
Dark = fossil sources;
Green = renewable energy;
Transparent = energy efficiency

Opportunities (cont.)

Many best practice examples show the technical and economical potential for EE and RE integration across the European industry

- De-risking Energy Efficiency Platform contains 5,000 industrial EE projects
- Mean payback is 2 years! (high economical relevance across sectors)

Learn more: <https://www.trust-ee.eu/discovery/process-heating>
<https://deep.eefig.eu/>

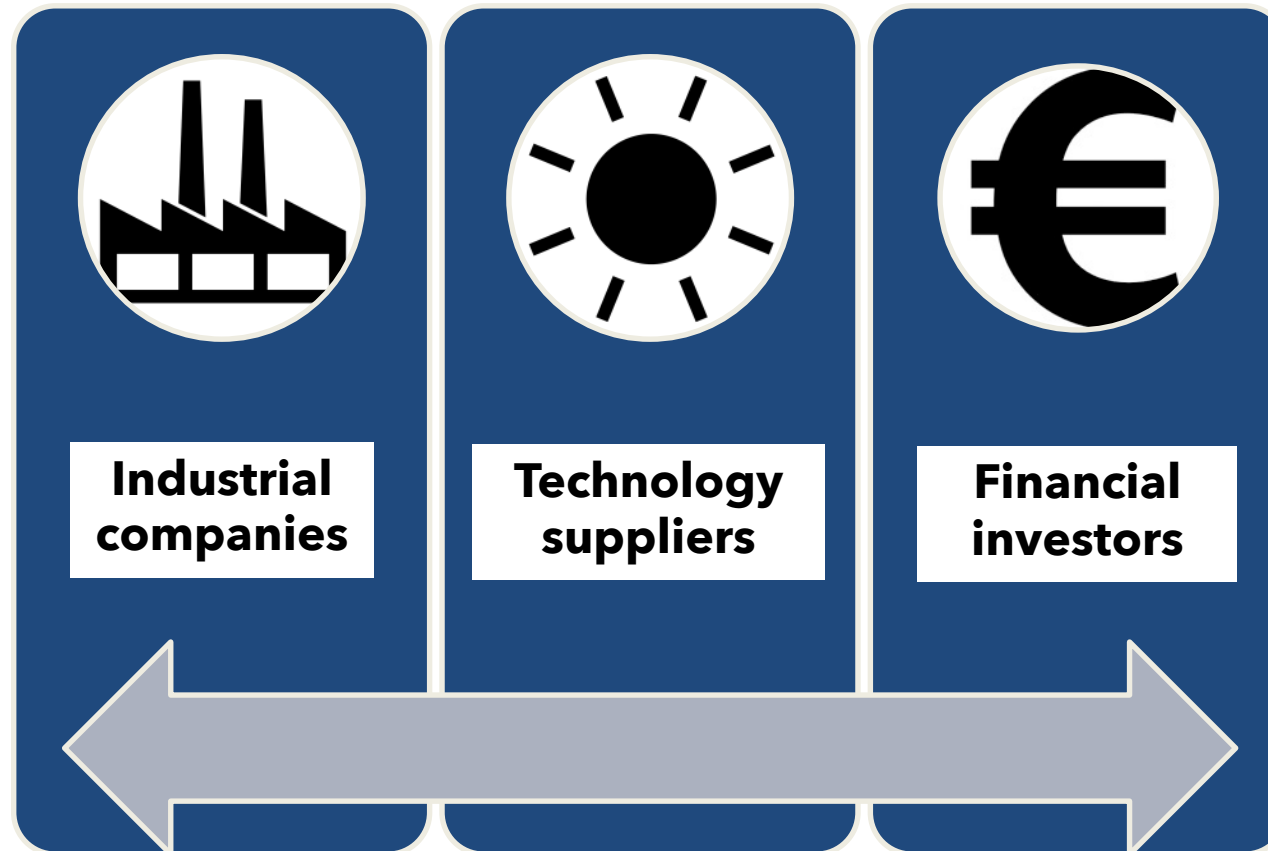


Today's commercialised renewable technologies can meet many industrial heating demands (°C)



TrustEE Scope & Approach

A new model to address project
development barriers



In the framework of project development, realization, and financing TrustEE works with three key stakeholder groups

Project focus & scope

Small to mid-size industrial energy efficiency and renewable energy projects, including:

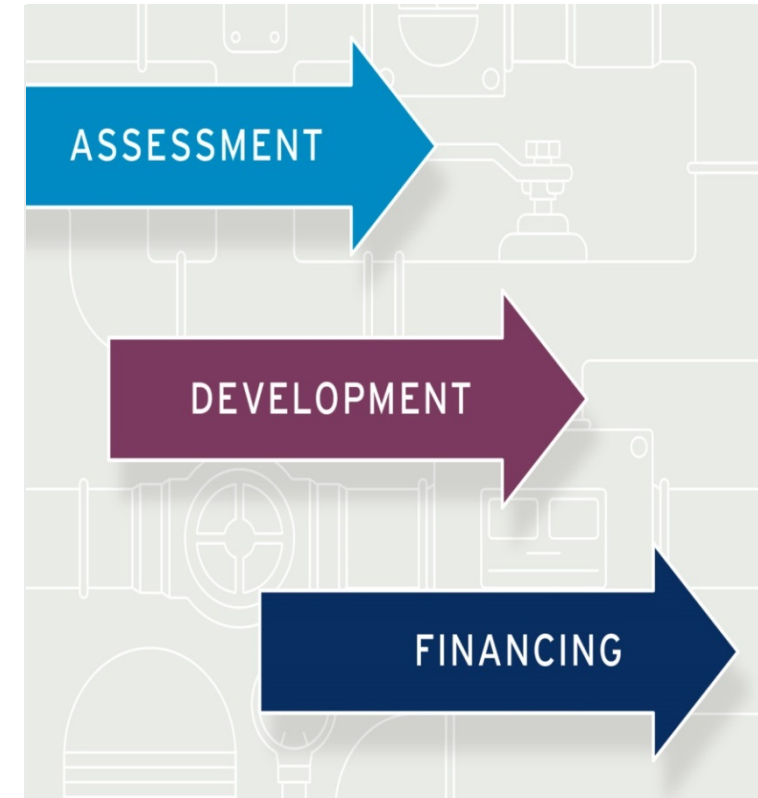
- Waste heat recovery, solar thermal, biogas, biomass, and heat pumps
- SME-projects sponsored by owners/end-users, engineers and planners, technology suppliers and manufacturers
- Well-developed projects having attractive amortisation times
- State-of-the-art and innovative projects in industrial sectors
- Performance-based project models, such as energy performance contracts or energy sales agreements



Standardised project assessment in three steps

The TrustEE Platform offers a consistent approach to industrial project development

1. Technical and economic evaluation
2. Development:
 - Technical optimization
 - Apply contractual standards
 - Augment risk protection via insurance solutions
3. Offer refinancing after successful commissioning of the plant or measures



Key elements for EE and RE projects

Project assessment via energy audit

- Energy consumption analysis
- Evaluation and assessment of measures
 - process and system optimisation
 - energy savings
 - renewable energies
- Objective: Financing of measures through energy savings (measures)

Project development implementation of measures

- Energy supply (e.g. economizer)
- Energy distribution (e.g. heat exchanger and storage)
- Process optimization (e.g. machines with lower demand)
- Use of renewable energy

Financing from energy cost savings

- Fast amortisation (2-4 years)
- Contracting financing
- Reduction of energy costs and price fluctuations

Register for TrustEE provider network

Technology providers sign a framework agreement

- Conditions

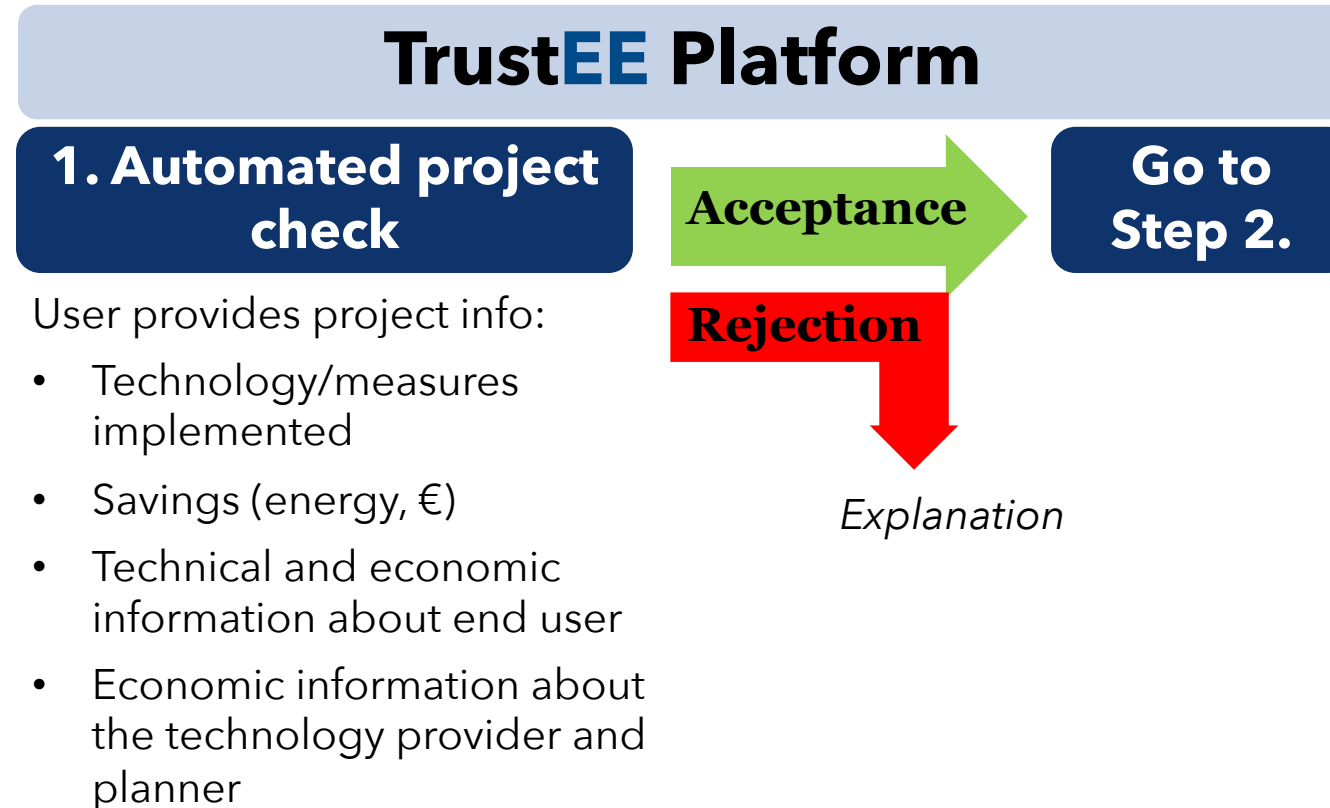
- Fulfill pre-defined quality requirements for products, components, systems, etc.
- Provide successful reference projects where energy efficiency and renewable energy systems were installed in industry applications

- Advantages

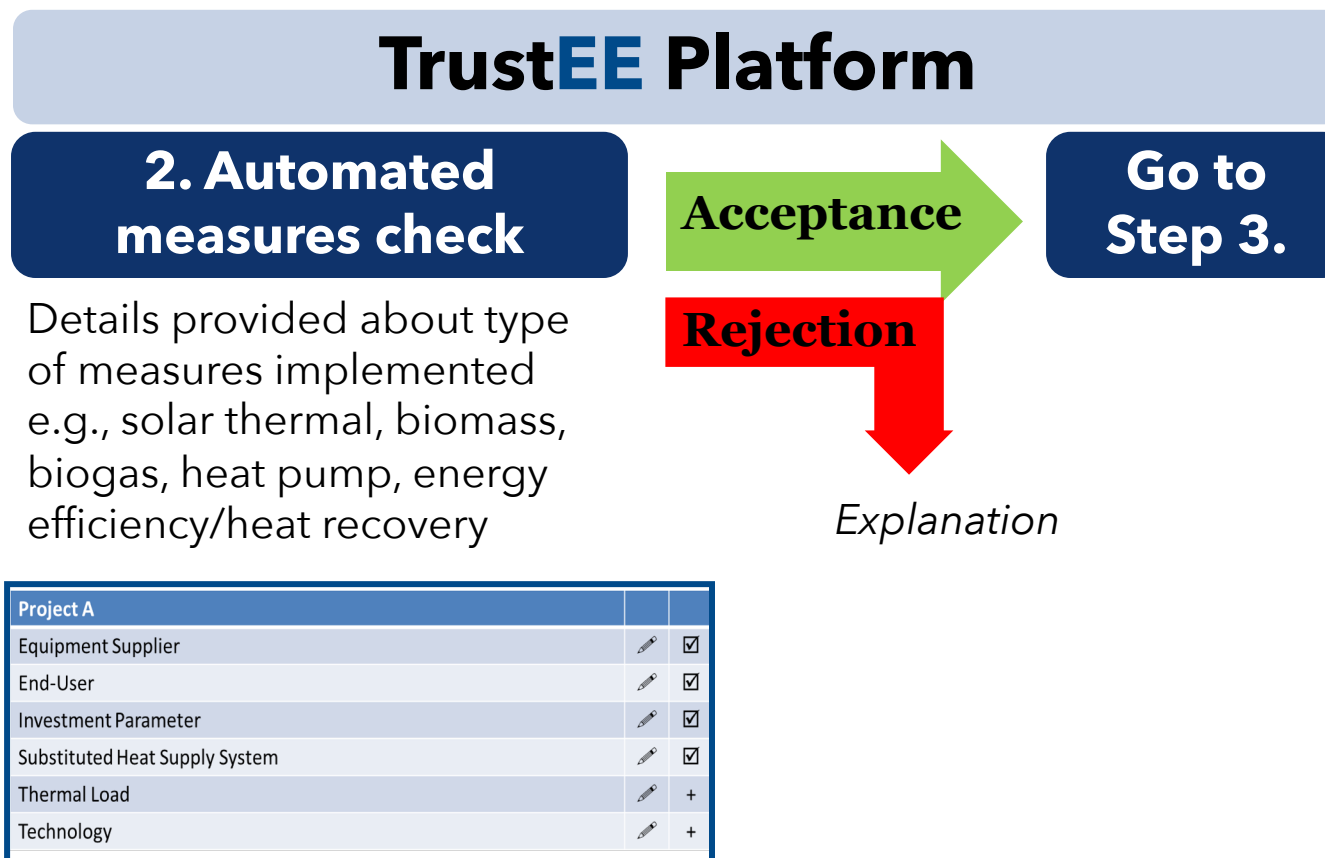
- "Fast-Lane" in platform rating
- Registration of own concrete projects
- Marketing via TrustEE website and other channels
- Independent quality endorsement and match-making with industrial customer prospects



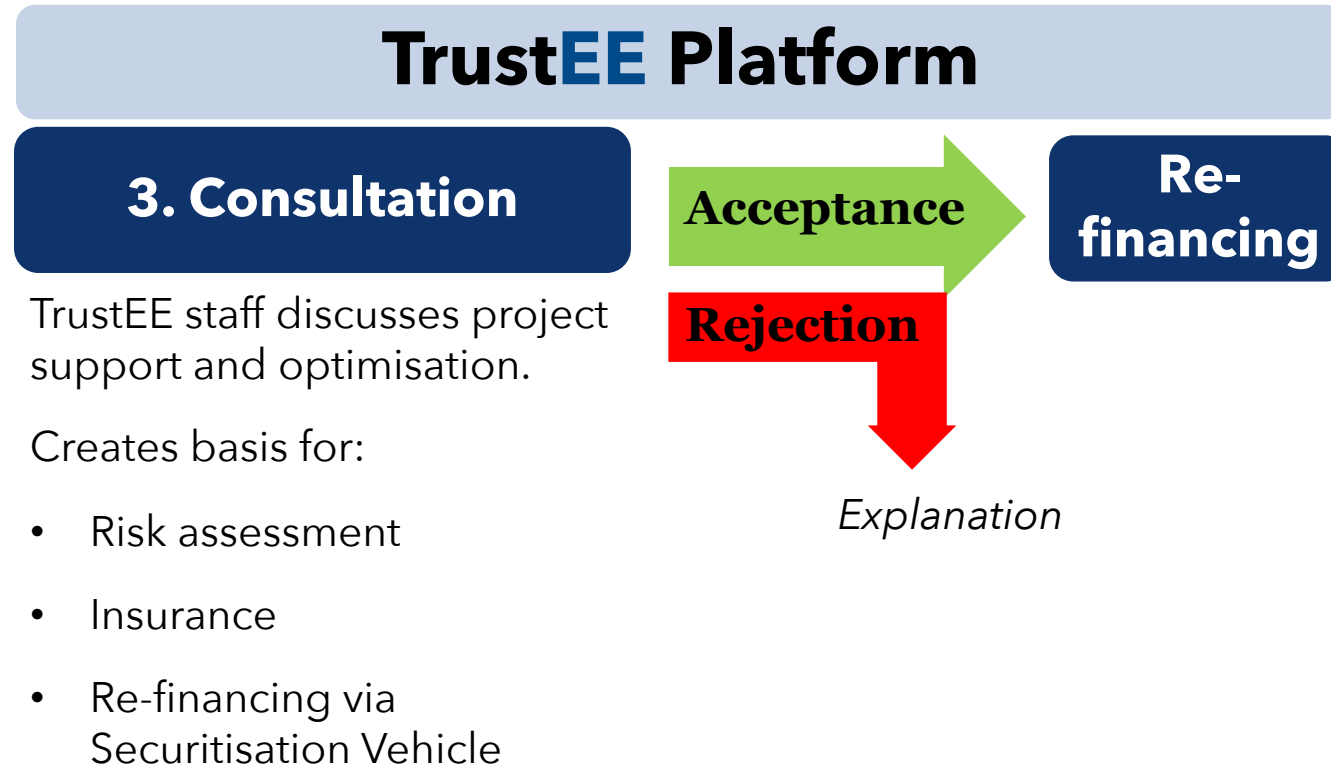
Propose projects in three, easy steps (1/3)



Propose projects in three, easy steps (2/3)



Propose projects in three, easy steps (3/3)



Financing Model

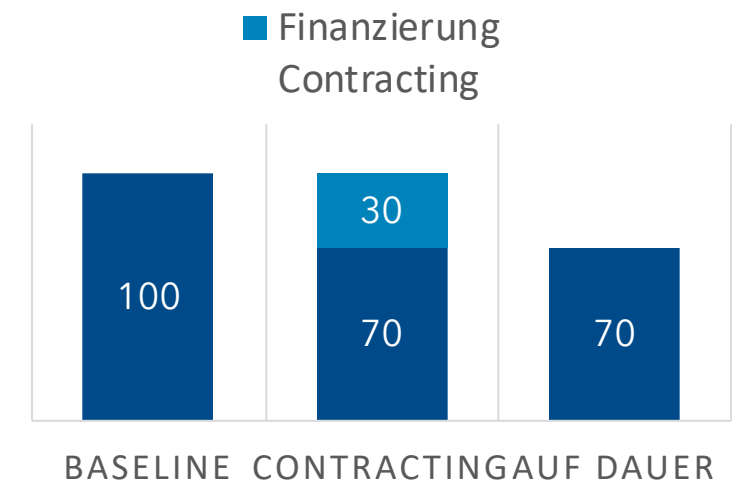
TrustEE refinancing offers payment flexibility

Financing from energy savings

Advantages for customers

- Technology provider assumes the technical risks
- Protection of the annual investment budget
- Liquidity neutral
- Payments only if savings are made

CONTRACTING-FINANCING

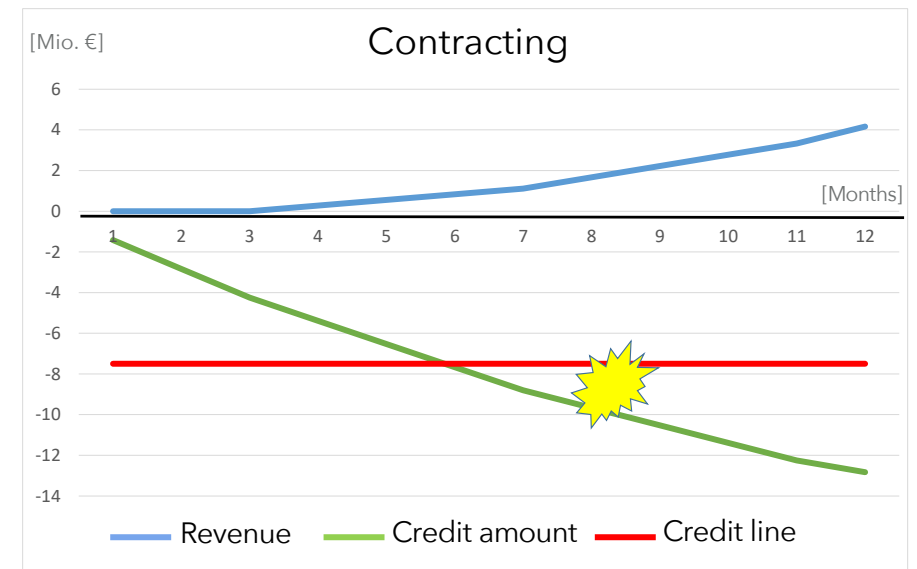
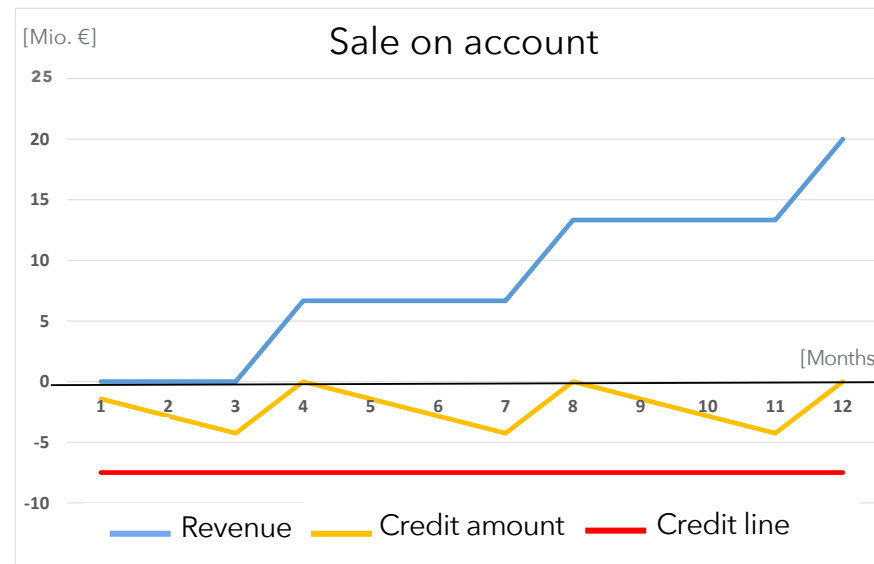


SMEs cannot afford performance-based contracts

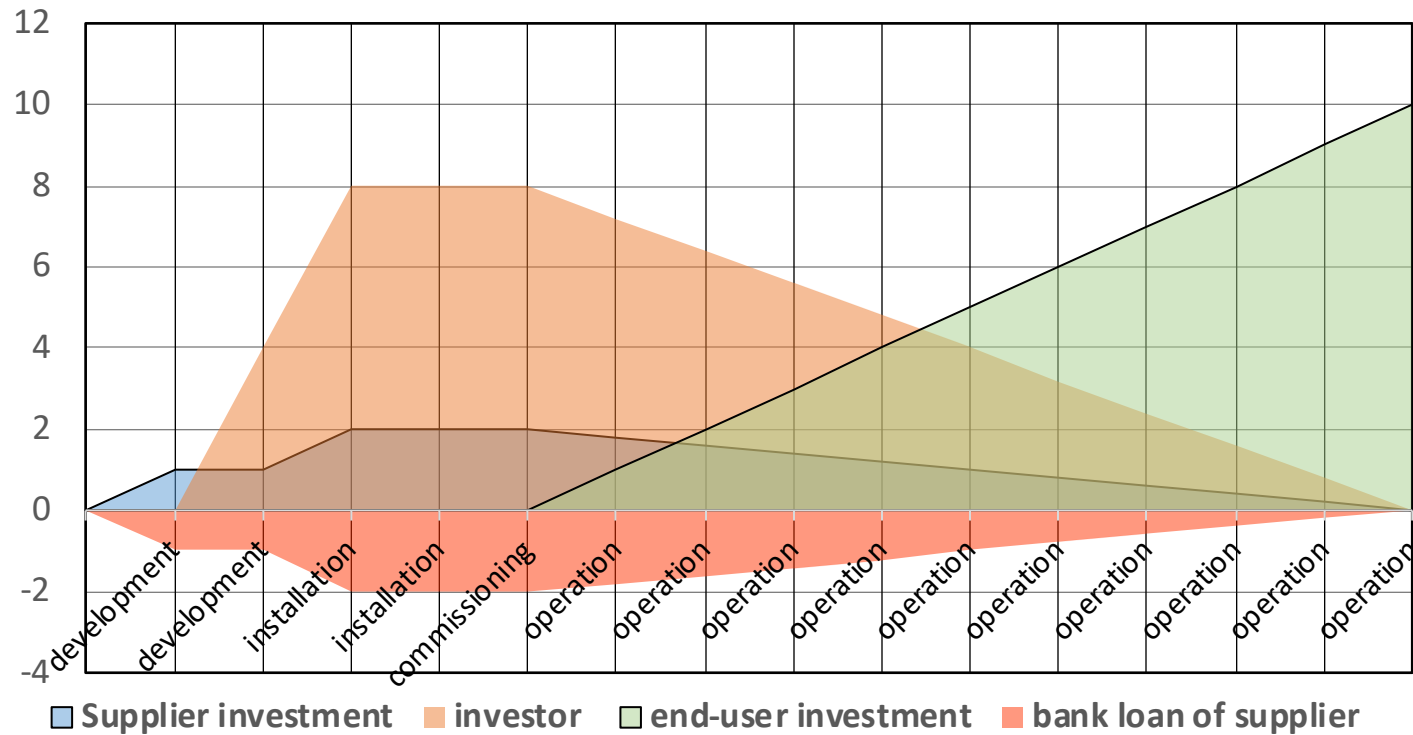
Assumption:

Turnover 20 Mio. € ; EBITDA 15%; project processing time 3 months; 1 month payment target; credit line 7,5 Mio. €

The same company is converting to a contracting offer with **24-month contract duration**

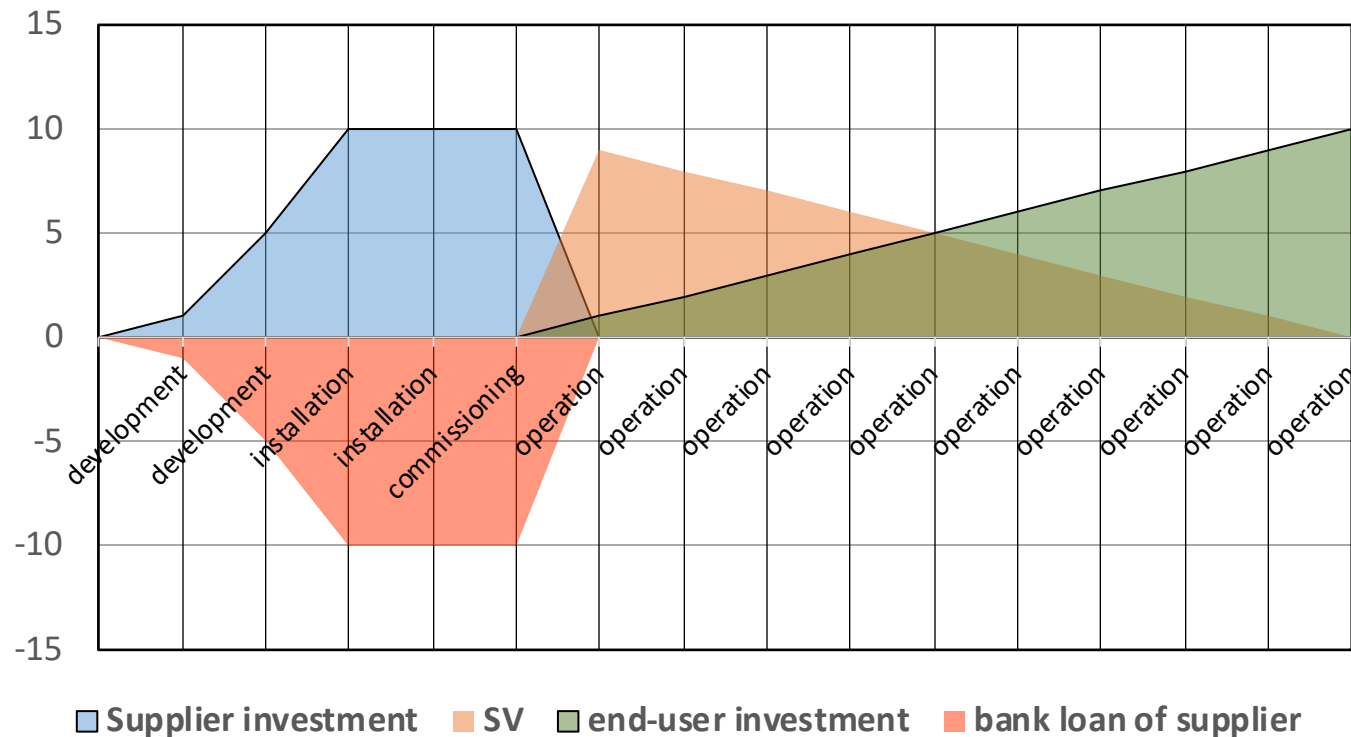


Project financing with project investor not feasible



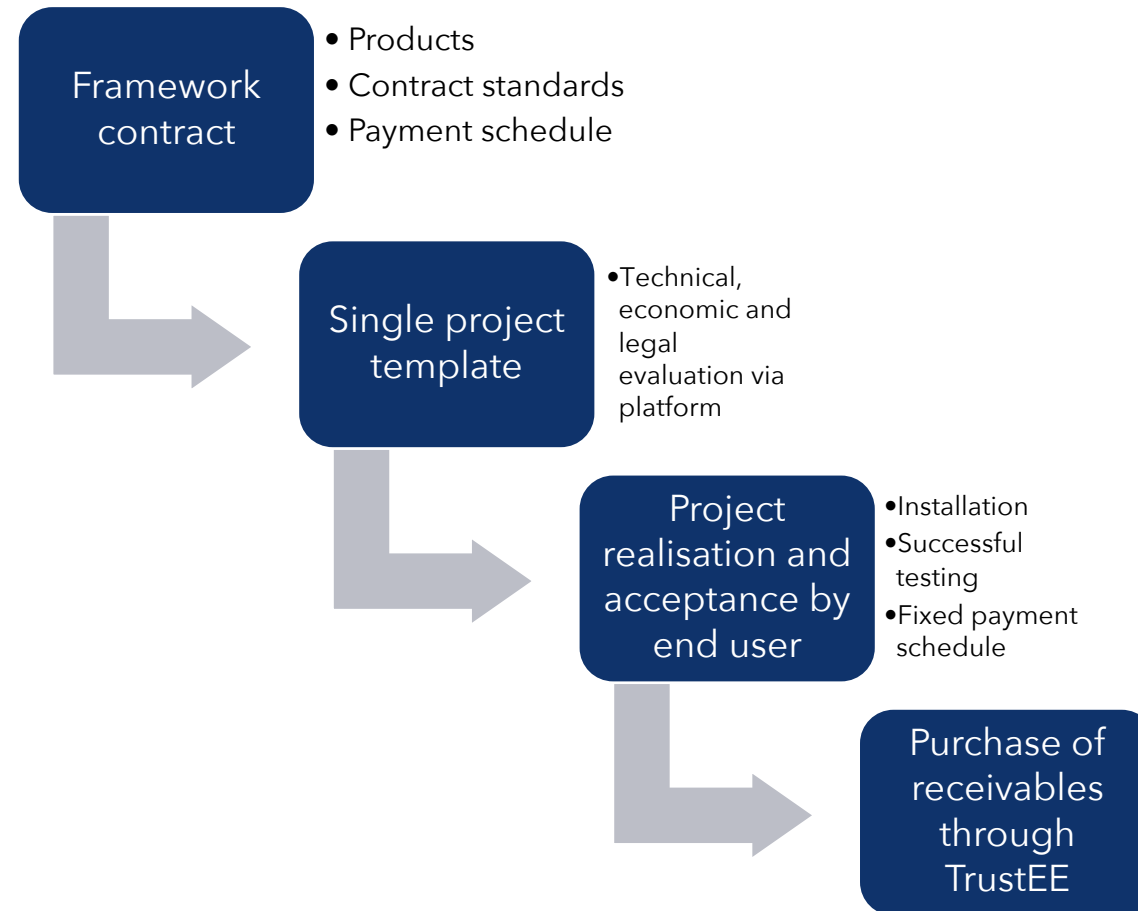
- Project financing requires own project company: only possible with large projects
- The financial investor bears all risks of the project
- Time-consuming and expensive project financing structure

Refinancing through a securitization vehicle



- Purchase of customer requirements after successful project launch (post commissioning)

Sales financing through TrustEE



The sales financing model

After a successful project start...

The service provider or supplier:

- Receives sum of contracting receivables minus deduction (for return on investment)
- Refinancing offer and rapid return improves creditworthiness

The industrial customer or end user:

- Pays according to fixed payment plan only after successful acceptance
- Technical risks are substantially reduced, guarantees and O&M obligations of the supplier remain
- Has unconditional payment obligation to TrustEE not bounded to energy savings or "baseline"

Note:

- Credit risk of the customer may be secured by credit insurance
- Securitization of purchased receivables by issuing bonds on the capital market "Green Asset backed Securities"

TrustEE Securitization Vehicle

- Subjected to a special capital market regulation
- May only carry out securitizations
- Establishment under the name **Sustainable Future TrustEE** (highest level of investor protection in Europe)
- TrustEE - Platform acts as advisor to the Securitization Vehicle and prepares the purchase of receivables
- Refinancing (securitization) of bond purchases or bonds with institutional investors
- Guarantee of the European Investment Fund (EIF) is sought

Summary

TrustEE Summary & Outlook

Target EE and RE project implementation in Europe

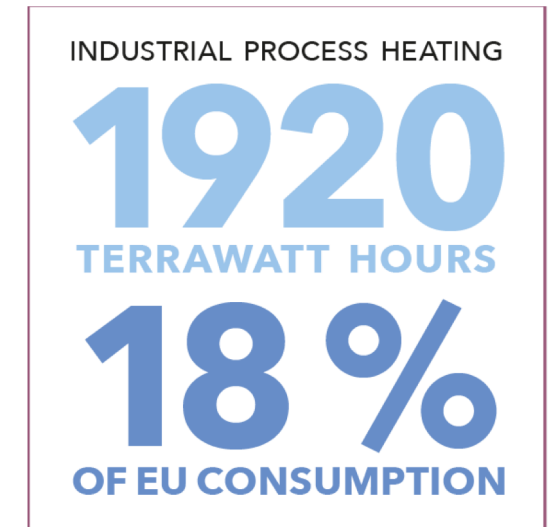
- Process heating in energy intensive industry sectors
- Solar thermal, biomass, biogas, heat pumps, energy efficiency (heat recovery)

All key stakeholders involved

- Industry owners, technology providers, and financial investors

Next steps

- Project acquisition
- Create and market technology providers network
- Integrate interested investors



Thank you!

www.trust-ee.eu
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european
council for an
energy efficient
economy



ainia
centro tecnológico



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