ICCI 2015
Istanbul
Dario Dilucia La Perna

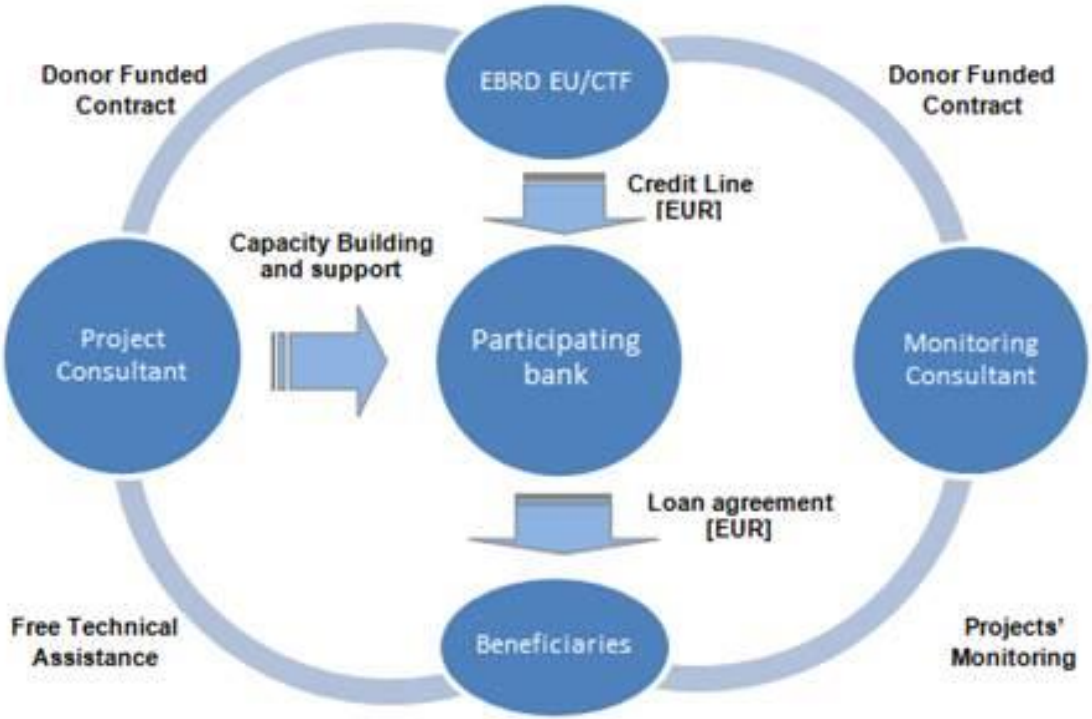
TurSEFF: A great financing opportunity for Cogeneration, Tri-generation and Energy Efficiency projects in Turkey

DESIGNED BY European Bank for Reconstruction and Development

SUPPORTED BY EUROPEAN UNION CLIMATE INVESTMENT FUNDS

IMPLEMENTED BY MWH FICHTNER

TurSEFF stakeholders



DenizBank

TÜRKİYE İŞ BANKASI

VakıfBank

YapıKredi

Type of loans

Energy Efficiency and Renewable Energy Projects

(1)
- Large Scale loan in Industry (SMEs)
- (up to EUR 5 million)

(2)
- Large scale loan in commercial buildings(SMEs)
- (up to EUR 5 million)

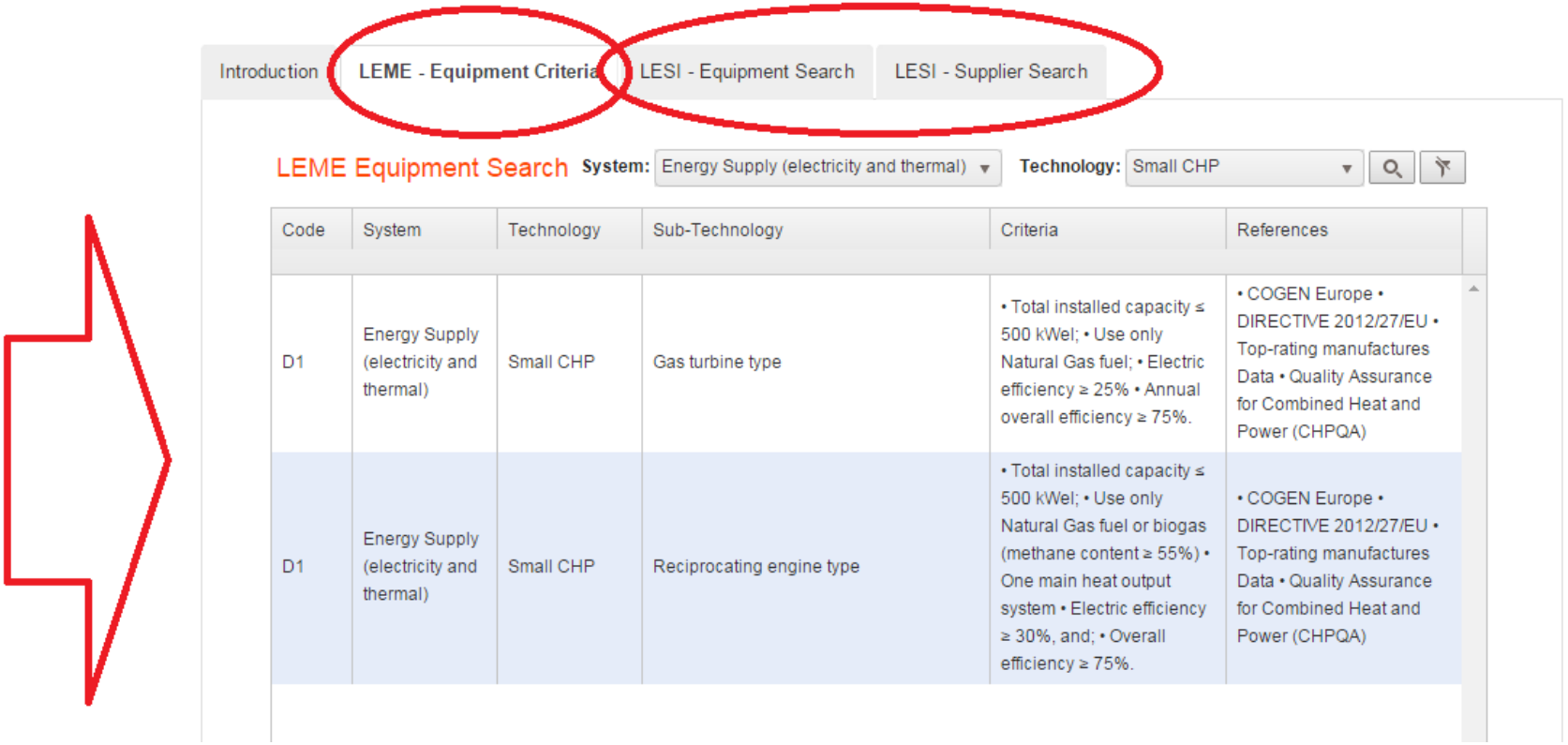
(3)
- Small Scale loan (LEME-LESI) (SMEs)
- (up to EUR 250,000)

(4)
- Supplier loan (SMEs)
- (up to EUR 1 million)

(5)
- Vendor loan (End-users must be SMEs)
- (up to EUR 5 million)

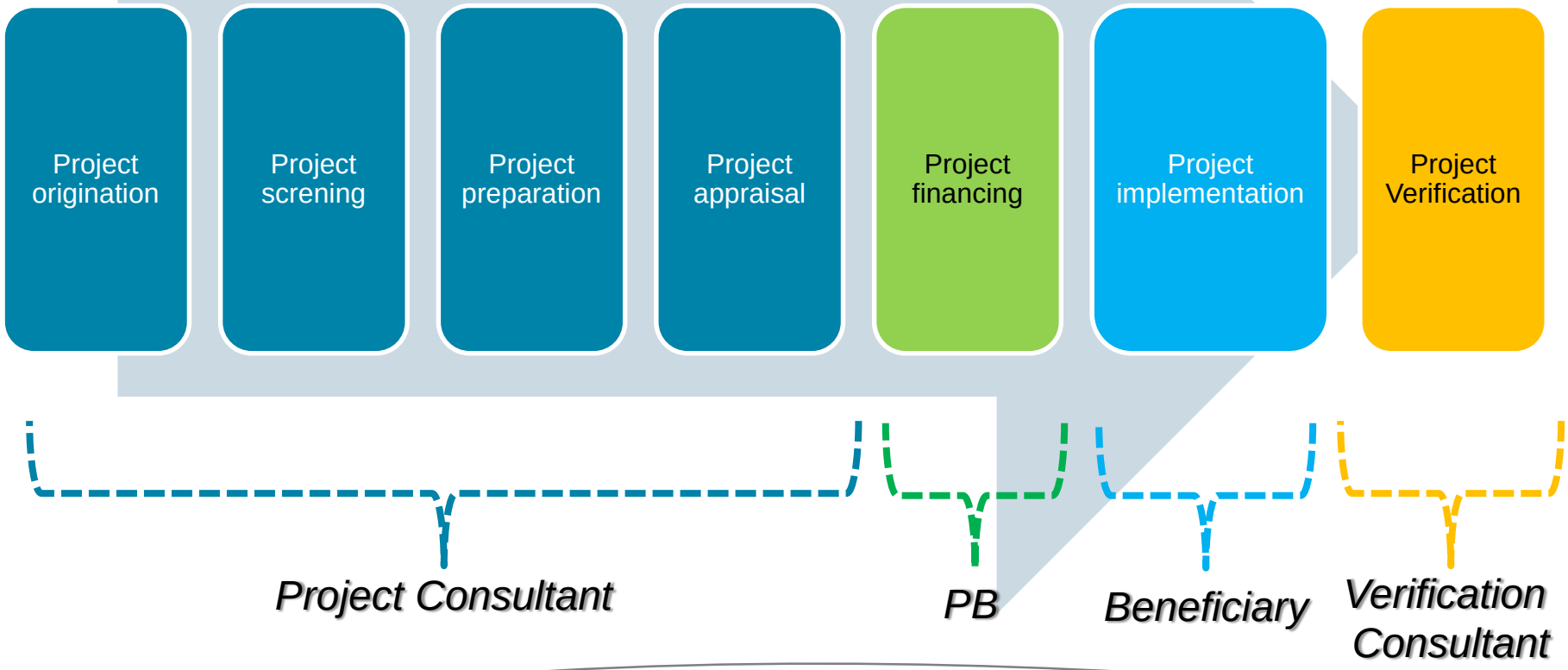
Small-Scale projects (up to EUR 250,000): visit our LEME-LESI on TurSEFF website!

http://www.turseff.org/en/page/introduction



Code	System	Technology	Sub-Technology	Criteria	References
D1	Energy Supply (electricity and thermal)	Small CHP	Gas turbine type	• Total installed capacity ≤ 500 kWel; • Use only Natural Gas fuel; • Electric efficiency ≥ 25% • Annual overall efficiency ≥ 75%.	• COGEN Europe • DIRECTIVE 2012/27/EU • Top-rating manufactures Data • Quality Assurance for Combined Heat and Power (CHPQA)
D1	Energy Supply (electricity and thermal)	Small CHP	Reciprocating engine type	• Total installed capacity ≤ 500 kWel; • Use only Natural Gas fuel or biogas (methane content ≥ 55%) • One main heat output system • Electric efficiency ≥ 30%, and; • Overall efficiency ≥ 75%.	• COGEN Europe • DIRECTIVE 2012/27/EU • Top-rating manufactures Data • Quality Assurance for Combined Heat and Power (CHPQA)

Phases of sub-project development

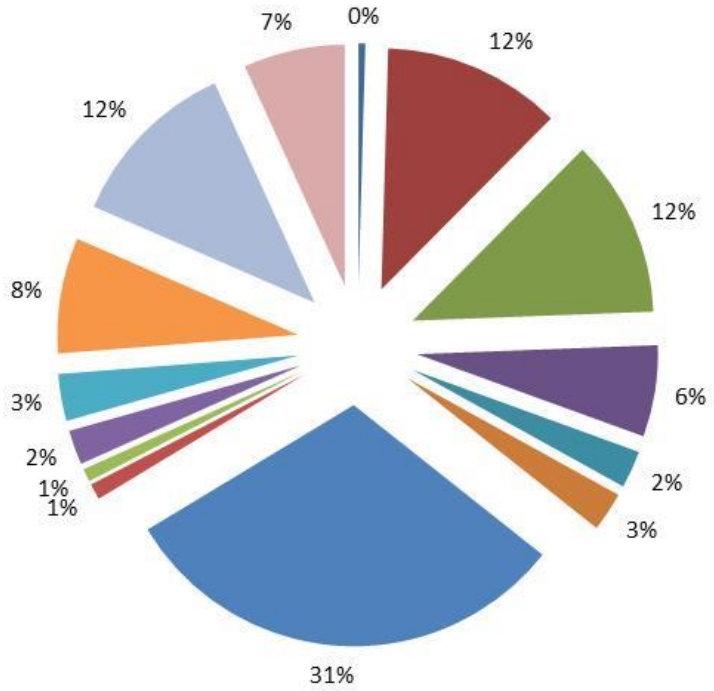


How can TurSEFF help mitigating the risks and barriers of the market?

- Competitive pricing;
- LEME-LESI List to boost the process for small scale projects (loan amount lower than 250,000 EUR)
- Fast evaluation process against the TurSEFF criteria (if data are available)
- The technical assistance provided by us is free-of charge for both the banks and the end-users
- Wide spectrum of technical assistance activities provided, including:
  - Tailored energy surveys to the most energy intensive clients (both industrial and commercial);
  - Energy Management trainings to:
    - Beneficiaries
    - PBs
    - Engineers and architects (via training)
    - Regional Development Agencies (via training)
  - Technical support to the client to promote their projects to the bank for financing

Energy efficiency financing under TurSEFF: results achieved so far!

Out of **EUR 300 million** financed under TurSEFF, **EUR 210 million** was financed for EE projects

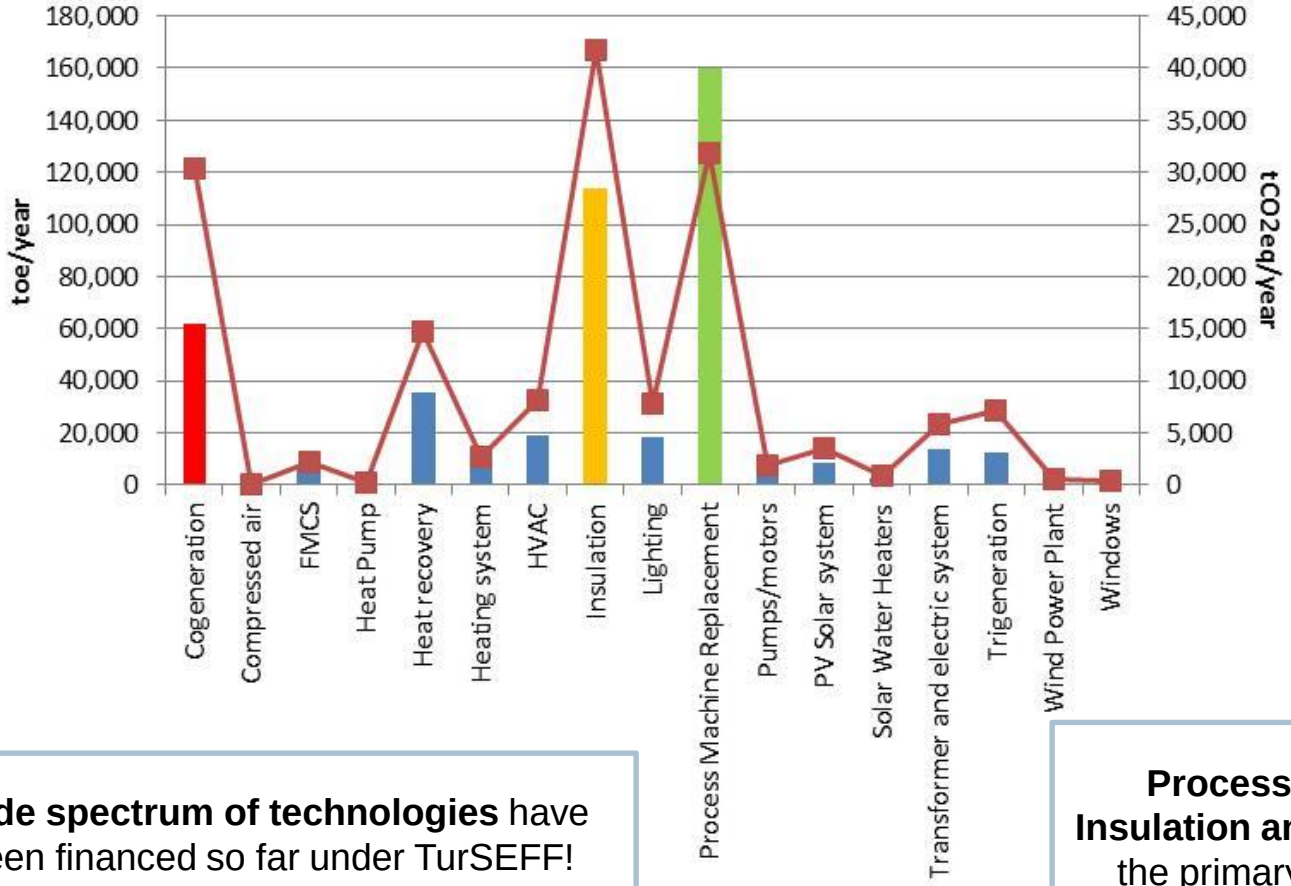


Manufacturing, Textile, Construction and Service are the leading sectors!

The **CO2eq emissions savings** are equivalent to the emissions of **80,000 cars**!

The **primary energy savings** are equivalent to the electricity consumption of around **1.2 million people living in Turkey!**

Which EE technologies are financed under TurSEFF?



Wide spectrum of technologies have been financed so far under TurSEFF!

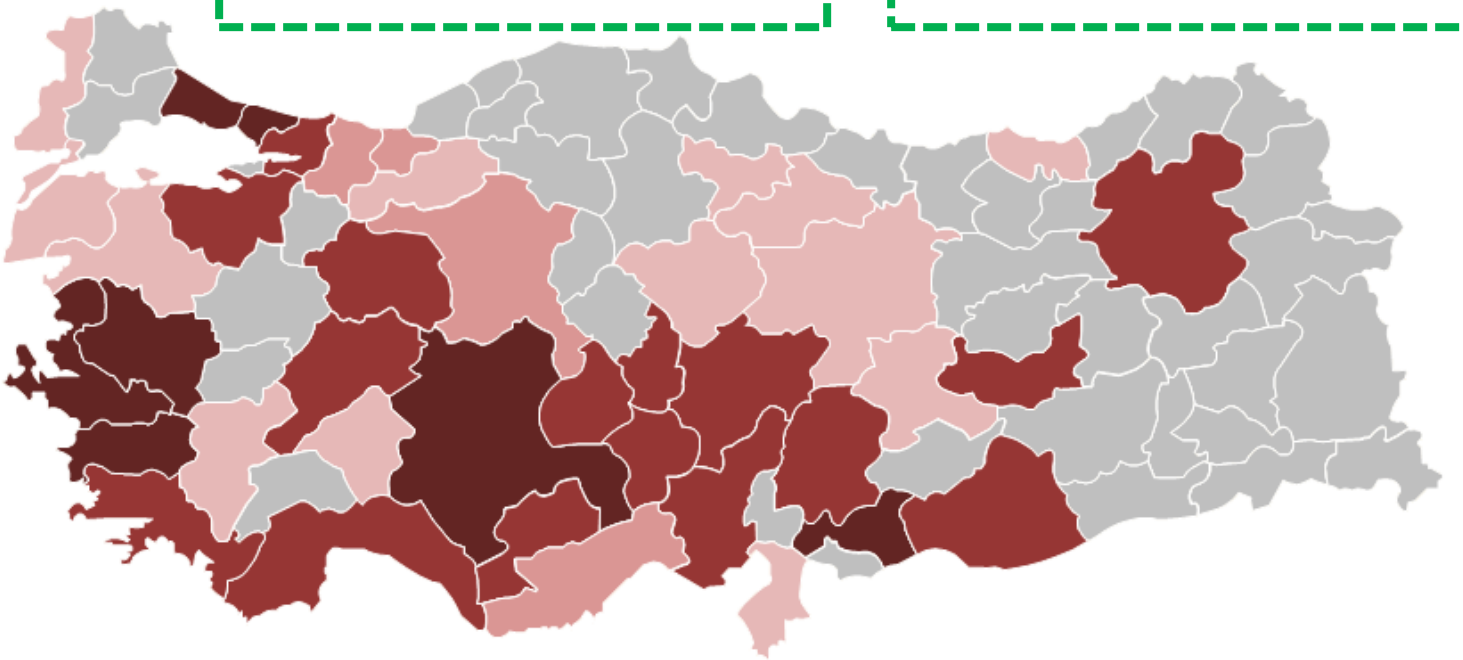
Process machine replacement, Insulation and cogeneration are leading the primary energy savings achieved

Regional coverage of TurSEFF financing for EE projects

Marmara, Aegean and Central Anatolia have been the most active Regions in terms of disbursement!

- Marmara: 43%
- Aegean: 28%
- Central Anatolia: 15%

- Mediterranean: 8%
- South and Eastern Anatolia: 6%
- Black-sea: 1%



Industry – Cogeneration barriers..

a) *Lack of technical awareness (especially amongst SMEs)*

b) *Creditworthiness of Clients (especially amongst SMEs located in the least development Regions)*

c) *Electricity tariff very low in OIZ*

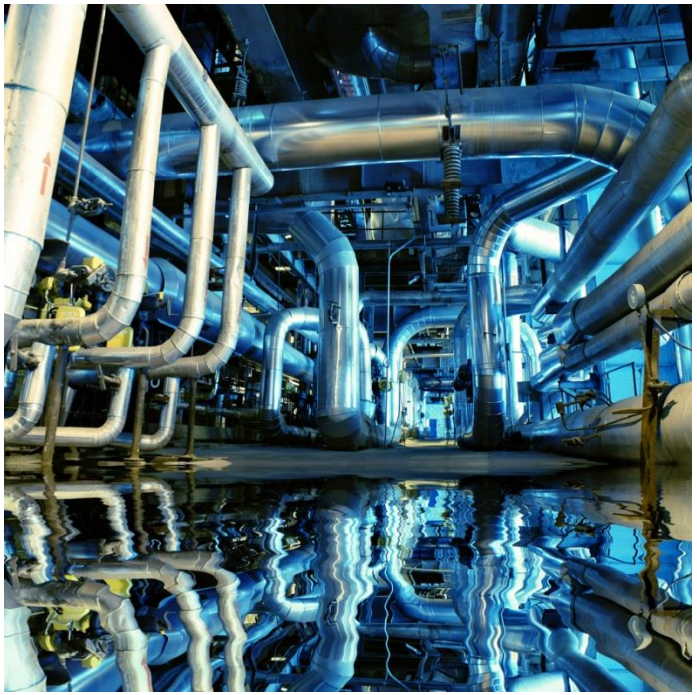
d) *Lack of budget resources on EE projects*

e) Natural gas market not fully liberalized (uncertainty for CHP and tri-generation projects)

f) Lack of awareness of business models such as EPC, ESCO, PPA agreement

g) Poor quality Feasibility Study

h) ESCO modeling is difficult for the un-licensed segment of the market (< 1 MW)



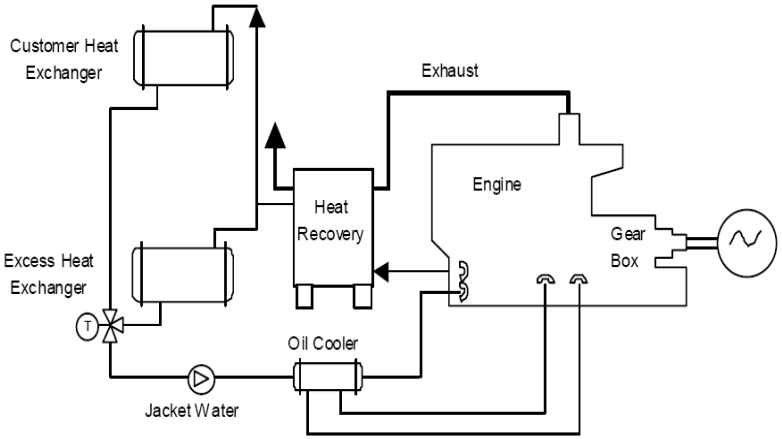
Industry – ..and cogeneration opportunities

a) *Good penetration rate of top-equipment suppliers*
b) *Good penetration rate of high-efficiency equipment*
c) *Different financing schemes are available*
d) High Efficiency Cogeneration requirement has been recently defined in the energy legislation
e) There are many energy intensive industries
f) Very good profitability for many industrial clients
g) Natural Gas is available in many Regions of the country
h) ESCO model can reduce the technical and financial risk from Client side

Facts and figures: Co-generation and tri-generation with TurSEFF!

EUR 27.8 Million was disbursed under TurSEFF for both cogeneration and tri-generation projects leading to **335 GWh/year** electricity generation .

The electricity generation would offset the electricity consumption of around **660,000 people** living in Turkey. The tCO_{2eq} savings are equivalent to the tCO_{2eq} emitted by nearly **30,000 cars**.



CHP application in a Food&Beverage factory

Investment amount	**EUR 1.4 million**
Internal Rate of Return	31%
Simple Pay Back Time	2.6 years
Total Energy saving	1,604 toe/year

Type of Clients which have used TurSEFF funds for co/trigeneration since 2010!

(1)
- Industrial Clients, up to EUR 5 million

(2)
- Commercial Clients, up to EUR 5 million

(3)
- Energy Service Companies (ESCOs), up to EUR 5 million

(4)
- Cogeration manufacturers, up to EUR 1 million

(5)
- Cogeneration dealers, installers and vendors, up to EUR 5 million

Why energy efficiency? Transition from MegaWatt to NegaWatt is possible!

- Pay-back time can be very short
- "*Negawatt*" means the energy that is never used
- Energy Efficiency can be «partially» done even **for free**, just changing the behavior of people and managing energy
- Energy Efficiency improves the competitiveness of Clients
- Energy Efficiency is the «**cheapest fuel**» available in the market
- At final user level, **energy efficiency MUST come before renewable energy** for self-consumption
- Energy Efficiency is the «**quickest way**» to save energy
- Nothing else can allow to achieve the below **sustainable energy targets all at once** as the energy efficiency can do:
  i. Reduction of energy consumption at final users;
  ii. Reduction of primary energy consumption at country level;
  iii. Reduction of GHG emissions at country level, and;
  iv. Improvement of Power Supply security.

“Energy Efficiency is one of the highest-return and lowest-risk investments in the whole economy”

By Amory Lovins, Rockey Mountain Institute

Contact details

Asmadalı Sokak No:27
Koşuyolu / Kadıköy
34718 Istanbul / TURKEY

Tel: +90 216 340 0020
Fax: +90 216 339 2444
www.turseff.org