

Example of EIB financing for district heating and cooling

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Regional heating and cooling strategies
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The EIB: the EU bank



- Natural financing partner for the EU institutions since 1958
- Around 90% of lending is within the EU
- Shareholders: 28 EU Member States

**Investing in
Europe's growth**

The EIB at a glance

- Largest multilateral lender and borrower in the world
 - We raise our funds on the international capital markets
 - We pass on favourable borrowing conditions to clients
- Some 450 projects each year in over 160 countries
- Headquartered in Luxembourg and has 40 local offices
- Around 3 000 staff:
 - Not only finance professionals, but also engineers, sector economists and socio-environmental experts
 - Almost 60 years of experience in financing projects

EIB Group financing in 2017



European Investment Bank
The EIB bank

EUROPEAN INVESTMENT FUND

EUR 78.2bn



European Investment Bank
The EIB bank

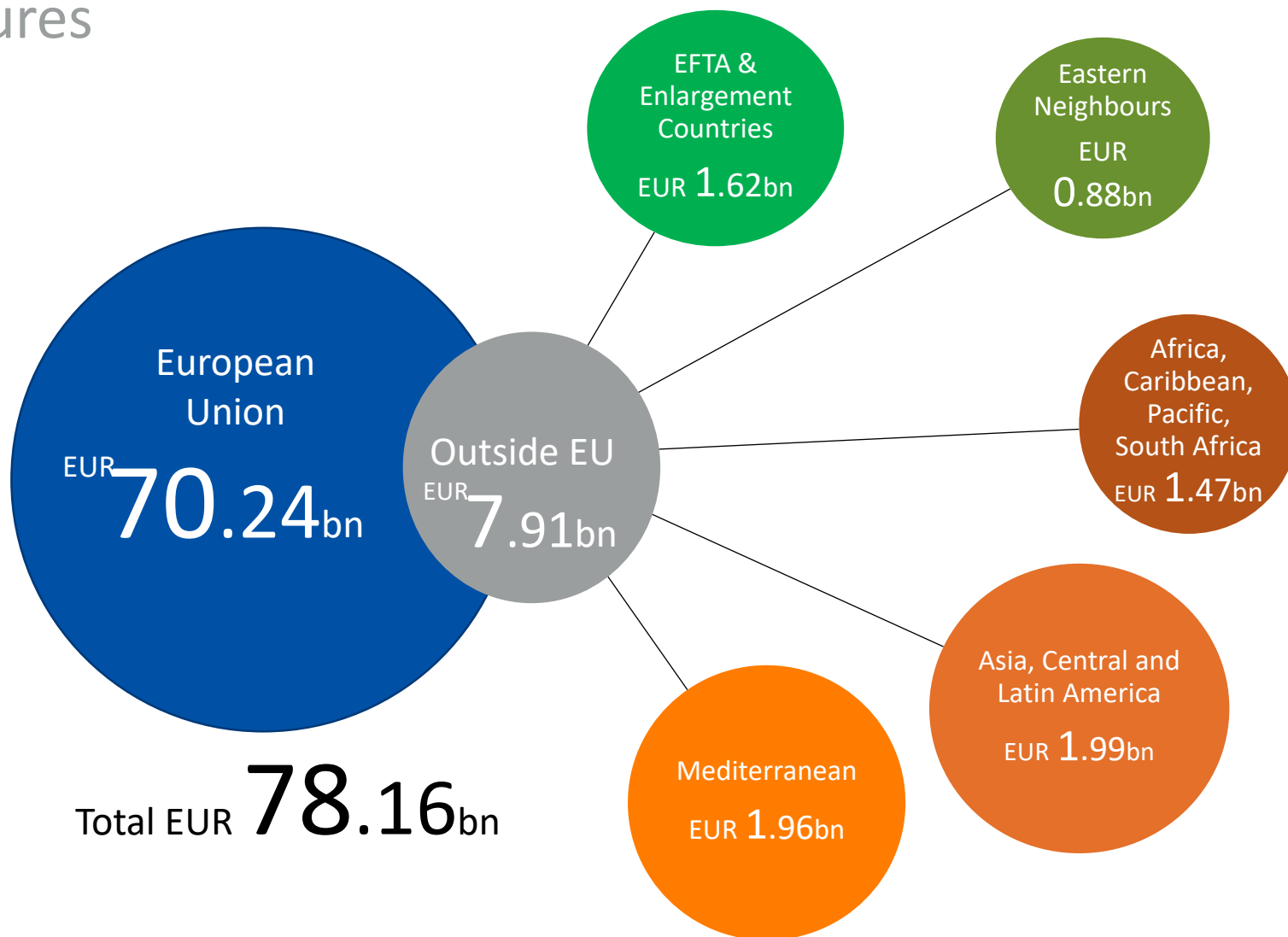
EUROPEAN INVESTMENT FUND

EUR 250bn

Total investment supported

EIB Group financing in 2017: EUR 78.16bn

Signatures



Benefits of an EIB loan

- Benefits of low cost of funding passed on to clients:
 - Large amounts
 - Broad range of currencies
 - Long maturities
 - Attractive interest rates
 - Catalyst for participation of other banking or financial partners

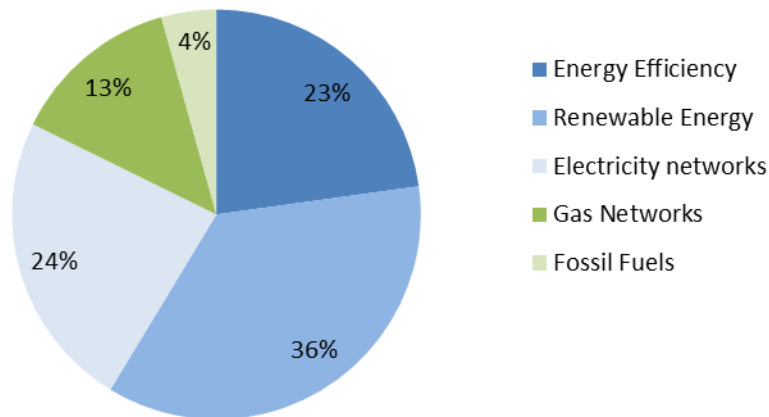
EIB products available

LENDING	BLENDING	ADVISING
<ul style="list-style-type: none"> ▪ Long term debt ▪ Subordinated loans ▪ Project finance ▪ Equity type ▪ Guarantee ▪ Securitisation ▪ Venture capital ▪ Growth finance Specific tools: ▪ SFSB ▪ EFSI ▪ PF4EE 	<ul style="list-style-type: none"> ➤ Combining EIB finance with EU budget (e.g. ESIF) ➤ Higher risk projects for innovation (InnovFin) 	<ul style="list-style-type: none"> ✓ ELENA (European Local Energy Assistance) ✓ JASPERS (Structural Funds assistance) ✓ EIAH (European Investment Advisory Hub)

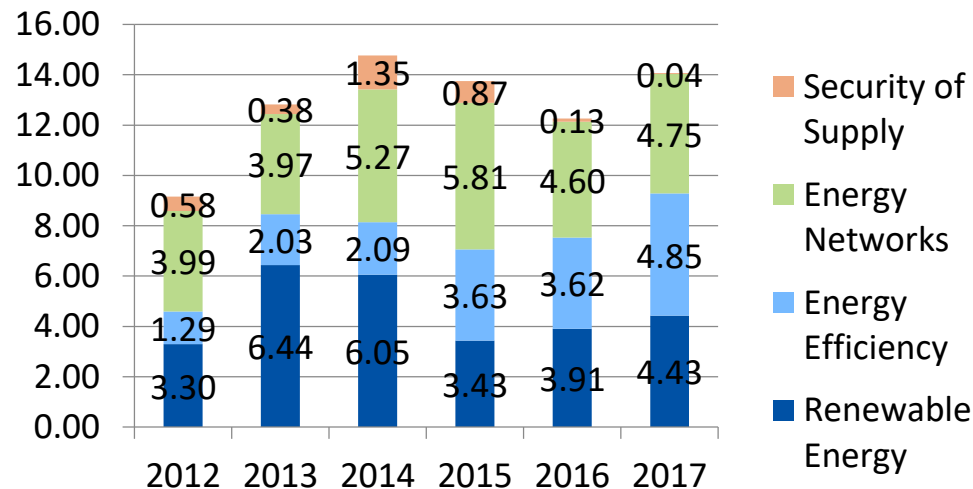
Attracting FUNDING for long-term growth

EIB Energy Lending 2012-2017

Total EIB Energy Lending 2012-2017



EIB Energy Lending 2012-2017
COP objectives (in EUR bn)



- Signatures 2012-2017: EUR 76.8bn
- DH & C included in Energy Networks, EUR 50-100m per year

EIB project requirements

□ Projects must:

- Meet at least one of the EIB's objectives
- Be technically sound
- Be financially viable
- Show an acceptable economic return
- Comply with environmental protection and procurement regulations

EIB sector specific criteria

- District heating networks:
 - Heat supplies favoured are RE, high efficiency cogeneration or heat recuperation (industry or waste incineration), but not obligatory
 - Long term heat supply costs should be competitive (financial and economic approach) compared to individual heating systems
 - Clear long term vision on heat demand (e.g. masterplan)

- Cogeneration:
 - Comply with high efficiency cogeneration criteria of EU EE directive

- Biomass sourcing:
 - Medium/long term supply contracts
 - Compliance with sustainability requirements

Some EIB co-financed projects

□ District heating

- Extension of DH & C network in France
- Extension of DH network in several cities in Italy (in general part of a utility investment programme)

□ Cogeneration

□ Biomass

- FL for biomass cogeneration (linked to DH or industry) in FR
- Small scale biogas plants in several EU countries

□ Gas cogeneration (difficult currently)

- Several projects in Italy (mainly CCGT's)
- Small scale plants in several EU countries

□ Waste to energy

- Revamping and extension in Vienna

Example thermal rehabilitation DH network in Poland

- The project concerns the improvement and extension of the district heating (DH) network in the city of Krakow and Skawina municipality in Poland and consists of four types of investments as follows
 1. Extension and densification of the network in view of replacing existing solid fuel based heating systems, and particularly coal stoves.
 2. Renovation and replacement of piping and related network equipment.
 3. New substations replacing old, inefficient ones
 4. Extension of the DH network to newly developed areas of the city.
- Objectives: future proof district heating network supported by municipality
- Planned loan amount: EUR 46m
- Total estimated project costs: EUR 117m
- Co-financing with European Structural and Investment Funds

Example DH & C upgrades and extensions in FR

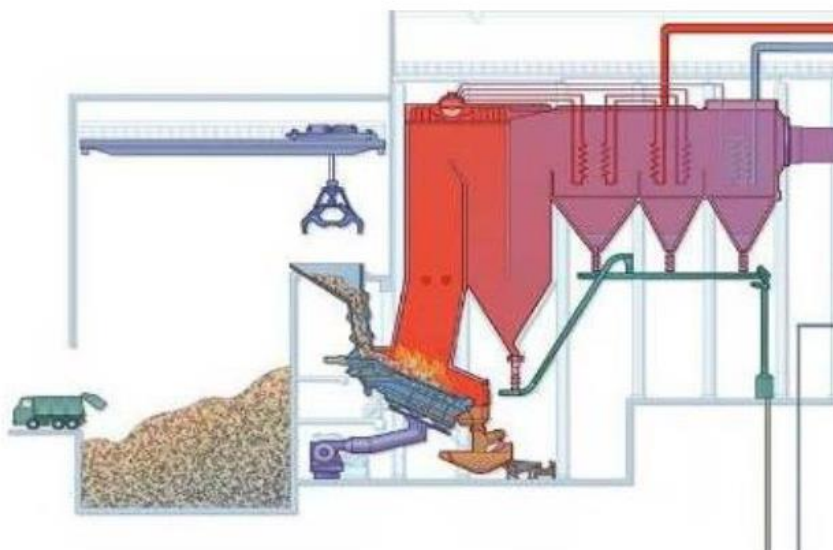
- Promoter/investor: Engie France Réseaux
- The project consists of a refurbishment programme of heat distribution pipes and the extension of pipeline networks to new customers as well as of building new renewable heat/cooling-generation capacity.
- Individual projects spread all over France in cities, where Engie is concessionaire of DH or DC networks
- One individual project implemented by Climespace, DC operator in Paris, consist of a new cooling plant, piping and new connections to customers to be implemented in the Paris region
- Planned EIB loan amount: EUR 260m
- Total estimated programme costs: EUR 360m

Example Programme for upgrade of DH networks in Poland

- The main purpose of the investments is to develop and optimize the heat supply services to better serve the existing and future heating demand in the regions served by DH operators.
- The Programme will target construction of generation assets based on biomass, gas and waste. It will reduce CO₂ and other pollutants emissions by replacing individual coal-fired heating boilers in residential and public buildings with centralised heat generation and by modernising heat generation assets.
- The sub-projects will include installation or upgrade of generation capacity, construction of new distribution networks as well as extension and modernization of the existing ones.
- Size of “sub-projects”: from several million EUR to several 10 million EUR
- Loan volume planned: EUR 250m

Example DH and waste incineration Toplofikacia Sofia CHP

- District heat and electricity production from refuse derived fuel (RDF)
- Phase III of Sofia municipality Waste Management Programme
- Implementation scheduled for 2018-2022
- Grant funding from EU Structural Funds envisaged



- Intense collaboration between promoter, consultants, JASPERS, EIB
- Technical Assistance
 - Pre-feasibility, feasibility and CBA studies
 - Grant application
 - Implementation support
 - Capacity building
- EIB loan to Sofia municipality

Advisory services, technical assistance

- Expansion of advisory services (covering also DH and DC projects/programmes)
 - ELENA: EE&RE in the urban environment
 - Jaspers: project preparation for EU structural funds
 - European Investment Advisory Hub: support for preparation of bankable projects
 - Other TA (mainly outside the EU) e.g.
 - Municipal Project Support Facility for Eastern and Neighbourhood states;
 - Economic Resilience Initiative for the Western Balkans and Southern Neighbourhood

What is ELENA?

- Established in 2009 as European Local ENergy Assistance – not only local anymore
- Based on an agreement between the European Investment Bank (EIB) and the European Commission
 - managed by the EIB
 - financed by the Horizon 2020 Framework Programme for Research & Innovation
- Grant for preparation (not implementation) of investment programmes
- More than EUR 100m awarded to projects supporting approx. EUR 3.8 bn investments



General rules

- Grant covers up to 90% of costs related to project development support
- Budget allocation: first come, first served principle; on average 20 MEUR per year;
- Required level of maturity: preparatory studies carried out and main decisions taken before ELENA support request (ELENA proposal should demonstrate high probability that project will be implemented)
- Obligation of investment implementation - leverage factor required:
 - 20 for sustainable energy projects
 - 10 for clean urban transport
 - 10 for Smart Finance for Smart Building
- In case the leverage not achieved: grant may be clawed back
- Final beneficiary (applicant) doesn't have to be the one who is implementing the investment
- 3-year implementation period for sustainable energy projects, 4-year for urban transport

Eligible promoters & eligible investments

Public sector & Private Sector

- Local, regional or national authorities
- Other public bodies (e.g. energy agencies)
- Groupings of such authorities or bodies
- Local energy facilities that support EE/RE (e.g. smart grids)

- Private entities planning to develop eligible investments
- ELENA TA should not have purpose or effect of producing a profit

Energy efficiency & Urban transport and mobility

- EE renovations of public and private buildings
- Street and traffic lighting
- Integration of RES into the buildings
- District heating/cooling networks
- Local energy facilities that support EE/RE (e.g. smart grids)

- Investments to support the use and the integration of innovative solutions going beyond the current state of art for alternative fuels in urban mobility
- Vehicles, recharging infrastructure, energy-efficient measures and systems

Technical assistance provided by a public or private organization

Investment programmes implemented by the final beneficiary or by a third party

ELENA

ELENA supports DH development

- Development of new DH networks substituting gas individual heating systems (in NL)
- Fuel switch from natural gas (cogeneration) as heat generation for DH networks to biomass, geothermal heat, waste heat recovery (in DK, NL)
- Improvement of DH networks e.g. DH networks 4.0 (in DK)

Some conclusions

- EU policies support DH&C and cogeneration, but facilitation and implementation at MS level may not be sufficient to achieve the targets set
- Funding schemes and opportunities have improved, but may still need adaptations in order to respond to market needs and increase investment implementation
- EIB is present in the DH, DC and cogeneration sectors
 - Because: part of the EIB strategy is to support increase of energy efficiency, reduction of GHG and increase business opportunities in Europe by substituting imported fuel
 - With a portfolio of different financing schemes adapted to the needs of the promoters
 - EIB needs partners in view of aggregating small scale projects (see Polish example)
 - is open for new projects (fulfilling the Bank's criteria) and can make available technical assistance for project development and implementation

Thank you for your attention!

Further information:

EIB www.eib.org

ELENA www.eib.org/elena