

Improving energy efficiency and renewable energy in Ukraine: EBRD experience

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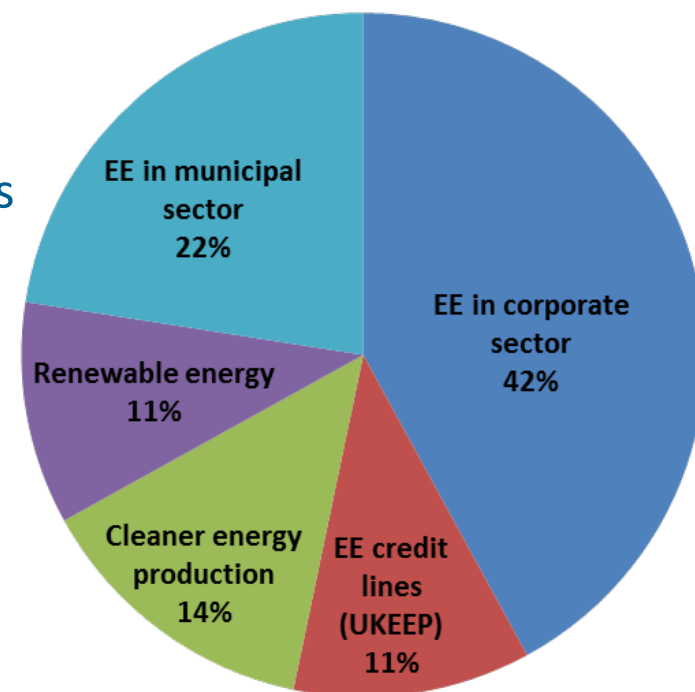
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EBRD – a largest financial investor and facilitator of Green Economy Transition

- Green economy financing – 55% of all financing in Ukraine in the last 3 years
- Avoided GHG emissions – 12 m tonnes annually or 4% of Ukraine's annual emissions
- Energy savings – 4 m toe per year or 15% of Ukraine's annual energy imports

Green economy investments in Ukraine, 2006-2018

	Number of projects	Amount (EUR million)
EE in corporate sector	82	1,377
EE credit lines for SMEs/RE	29	353
Cleaner energy production	9	397
Renewable energy (USELF etc)	20	330
EE in municipal sector	37	708
TOTAL	177	3,165



Corporate energy efficiency:

Value added to our clients – Astarta success story

- 3 loans of total \$100m with \$25m EE components identified through Energy Audits:
 - Installation of deep pressing pulp presses
 - Modernisation of vacuum pans
 - Replacement of boilers, automation of TPS
 - Installation of VSDs
- Energy savings of 25-30%; carbon emission reduction of 80 kton CO₂e per annum
- Carbon credits purchased by MCCF (\$2.5m)
- Energy Management Training for 20 engineers
- €325k Energy Efficiency Management System grant incentive
- A follow-up biogas study
- A new \$12m loan for biogas plant (one of the largest in Ukraine) in 2012
- A new \$20m EE project in June 2016 (ISO 50001)



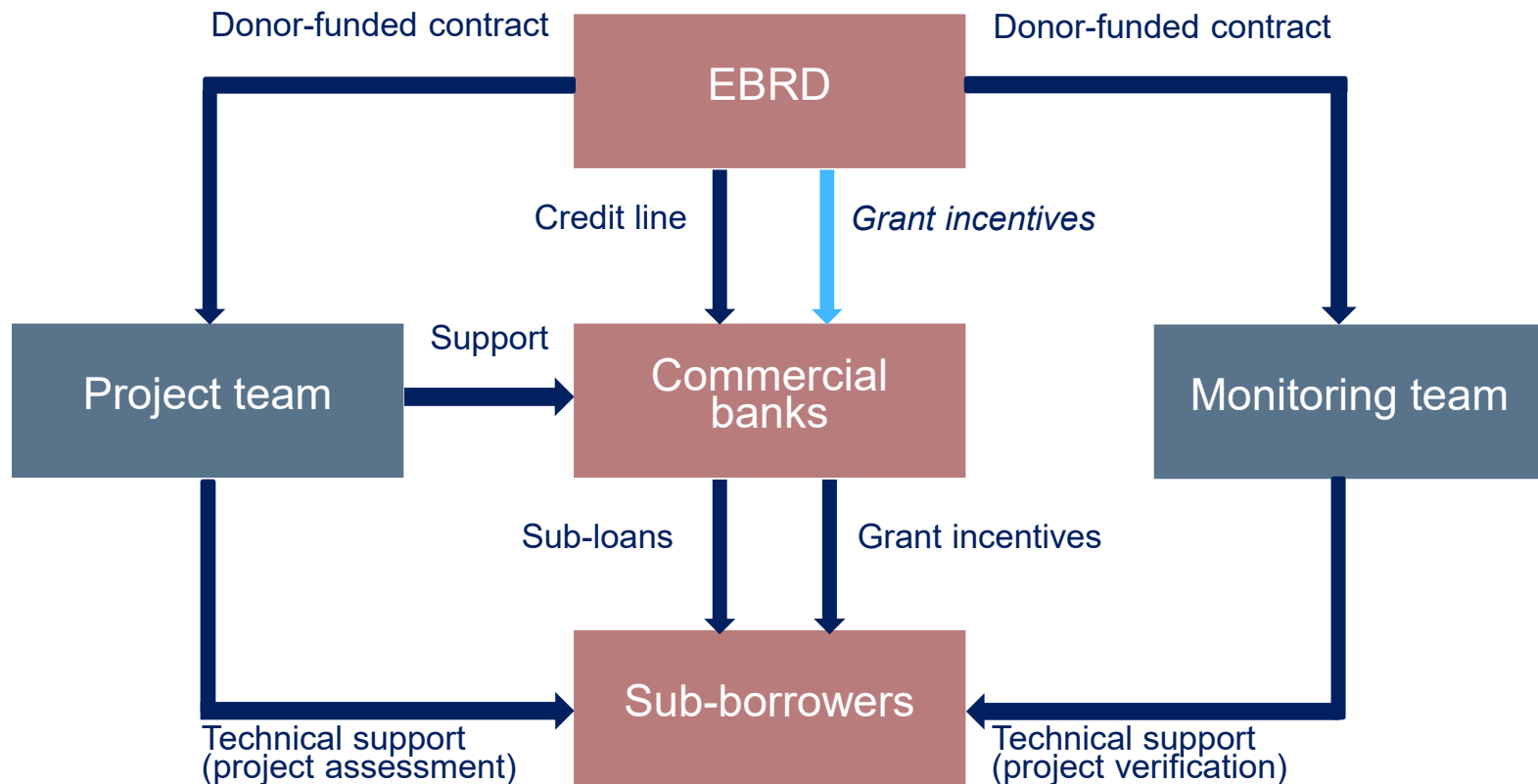
Green Economy Financing Facilities:

GEFFs – leveraging local banks



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GEFFs are effective in reaching a wide range of industrial and residential clients



UKEEP:

Ukraine Energy Efficiency Credit Line

- €200 million in 2007-2015 for Ukrainian banks: UkrExim - \$150m; Kreditprom - \$10m; Forum - \$25m; Megabank - €10m



- Over € 5 million from Sweden, Austria, EU for:
 - Project preparation, marketing, information campaign
 - Project evaluation and assistance to end-users and banks in project design through energy audits
- Impact to date: 300 projects screened; 50 energy audits completed; 100 projects financed

Ukraine Residential Energy Efficiency Financing Facility (IQ Energy)

- Investment potential – EUR 15-20 billion

- EBRD policy dialogue from 2009:

- Market Assessment Report

- www.teplydim.com.ua

- Law on EE in buildings, secondary legislation, Software



- Loan financing via Ukrsibbank, Raiffeisen Aval, OTP and Credit Agricole for residential energy end-users (owners of flats, houses, OSBBs)

- EUR 15 million from E5P for incentive payments (35% for individuals, 40% for OSBBs)

- Over 32,000 loans of total UAH 1 billion in 2 years

www.iqenergy.org.ua and hot-line: 0-800-50-57-17

ESCOs and Energy Performance Contracts



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- Pilot project in Dnipropetrovsk – EUR 10 million for EE in public buildings (84 schools and kindergartens)
- New laws to introduce the legal basis for ESCO business drafted by the EBRD and approved by the Parliament in 2015; template contract approved by CabMin
- Amendments to enable procurement via ProZorro
- EUR 100 million Public Buildings Energy Efficiency Framework – the first project in Kremenchug approved; 5 projects in the pipeline
- Project Implementation Unit to support cities and ESCOs



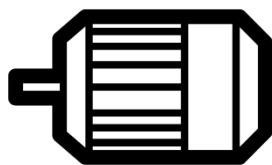
Policy Dialogue assists the Ukrainian government to design an effective policy framework for climate technology transfer:

Activities

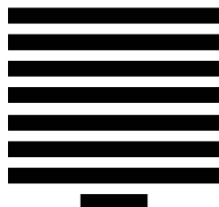
- Legal Analysis
- Prioritisation of products
- CBAs for 6 priority products
- Drafting of Technical Regulations
- Discussion in Technical Consultation Group (TCG)
- Endorsement by Inter-ministerial Group (IMG)

Results

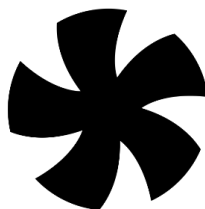
- ✓ Article on Ecodesign in draft Energy Efficiency Law
- ✓ Framework Ecodesign Technical Regulation
- ✓ Ecodesign Technical Regulations for 6 priority products
- ✓ Submitted to inter-agency approval process
- ✓ Expected approval by Cabinet of Ministers of Ukraine in 4th quarter of 2018



Electric Motors
(EC 640/2009)



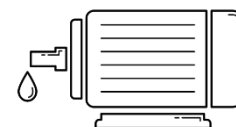
Transformers
(EC 548/2014)



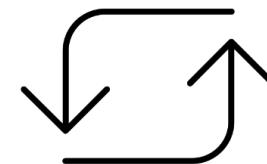
Fans
(EC327/2011)



Lighting
(EC 1194/2012)



Water Pumps
(EC 547/2012)



Circulators
(EC 641/2009)

USELF: Ukraine Sustainable Energy Lending Facility



USELF

Ukraine Sustainable Energy
Lending Facility

INTEGRATED APPROACH

USELF helped to open and develop the renewable energy market in Ukraine via:

- Policy dialogue since 2008 (FIT law and the NERC support)
- TA to developers, incl. technical, financial, environmental, legal (funded by the GEF, SIDA, Japan)
- EBRD DLF-type financing for developers
- Substantial concessional co-financing from the Clean Technology Fund (EUR 50 m)

Over 200 projects screened and 14 projects signed – 7 solar, 2 wind, 2 small hydro, 2 biogas and 1 biomass in 2011-2018 (total EUR 140m financing, 160 MW)



ECO-OPTIMA WIND FARM (2012)

13.2MW wind farm in the Lviv region:

EBRD 10-y loan	€ 9.5 million
CTF 15-y loan	€ 3.8 million
Sponsor equity	€ 7.2 million

Wind farm successfully commissioned and operational since February 2015

Biomass/biogas projects in municipal sector



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- Lviv Sludge Biogas – 15 mcm/y, 4.5 MWe, € 22 m, 2016
- DH biomass:
 - Cherkasy (2.5 MWt) operational
 - Ivano-Frankivsk (10MWt), partly op-l
 - Ternopil (10MWt)
 - Lutsk (5MWt)
 - Chernivtsi (10 MWt)
 - Zhytomyr CHP (2MWe+10MWt)
 - Lviv CHP (5MWe + 20 MWt)



Biomass/biogas projects in corporate sector



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- Agri biogas:

1) Astarta	- 14.4 mcm/y	n/a	€ 10m	2013
2) MHP	- 20 mcm/y	5.5 MWe	€ 12m	2013
3) Danosha	- 3.5 mcm/y	1.5 MWe	€3.9m	2014
4) Rokytné	- 9 mcm/y	2.25 MWe	€7.1m	2016
5) Ecoprod	- 5.8 mcm/y	1.5 MWe	€ 4.2m	2017
6) MHP	- 43 mcm/y	10 MWe	€ 25m	2017
7) I&U Group	- 22.6 mcm/y	6 Mwe	€ 15m	2018

- Agri biomass:

1) Slavuta	- 6 MWt	€ 3.8m,	2014
2) Nyva	- 4 MWt	€ 2m,	2015
3) Dniprovská	- 8 MWt	€ 4.3m,	2017

Another two in 2018



Success factors for RE development:

- Well-functioning legal and regulatory framework
- Transparent and investors-friendly procedures on land allocation, construction permitting, grid connection, and licensing
- Good grid capacity to absorb more renewables and reinforcement plans
- Availability of the long-term project financing with sustainable interest rates combined with concessional funding at early stage
- Awareness raising and capacity building for all stakeholders – policy-makers, Regulator, project developers, consultants, municipalities

Thank you!

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