

IEA DSM Task 16 'Innovative Energy Services'
Phase IV Life-Cycle Costing;
'Deep Retrofit'; Simplified M&V;
Crowd-Financing for EE & RE projects
& Energy Services Taxonomy

Task Status Report
47th IEA DSM ExCo meeting
Stockholm, Sweden, March 16-18, 2016

Jan W. Bleyl, Task 16 Operating Agent

Executive Summary

1. **Key Accomplishments** in last 6 month 2016:
 - ⇒ **National stakeholder workshop** “Einsparcontracting in öffentlichen Gebäuden”, Switzerland => further NIAs
 - ⇒ Think Tank work on **sM&V** (Simplified M&V), **Deep Retrofit** “bankable” case study
2. **Dissemination: University master classes Energy Services**
3. **Preparations for Phase IV almost accomplished**
Budget: 196.700 (3,3 countr.) => **151.700,- EUR** (3,3 countr.)
4. **Participants:** Canada (*in kind only?*), GIZ (*for 9 m*), Netherlands, Norway, Switzerland, Germany (*in kind*)
‘Maybes’: Austria, Belgium, Sweden ...?

Accomplishments since last meeting

Accomplishments since last meeting (cont'd)

Think Tank (subtask 20) (1/2)

- 1. *Life-Cycle Costing assessment:*** Submission of an abstract for ECEEE Industrial Summer Studies:

Economic Pre-Feasibility Life-Cycle Cost Methodology for Decision Makers.

Paper submission in cooperation with IEA ECB Annex 61
=> *not accepted!*

- 2. *Life-Cycle Cost & ‘Deep Retrofit’:*** Application of investment-grade “bankable” life cycle cost tools to Annex 61 case studies.

Work in close cooperation with IEA ECB Annex 61

Accomplishments since last meeting (cont'd)

Think Tank (subtask 20) *(2/2)*

3. Simplified measurement & verification:

Research started for a peer-reviewed academic journal publication. Working title: *Simplified measurement & verification + quality assurance instruments for energy, water and CO2 savings. Methodologies and examples.*

In close cooperation with EfficiencyOne, Nova Scotia

4. Crowd-Financing for Energy efficiency and renewable investment: Identification, analyses and modeling work for 2–3 cases studies.

In close cooperation with GIZ

Activities + goals for next 6 month

A Teaser of our current work:

Life Cycle Cost Analyses of a Building 'Deep Retrofit' Case

= > Economic (pre-)feasibility?

= > Financiability?

= > Bankability?

= > Communication with stakeholders?

Case study office building: Deep Retrofit to Passive House standard



Key figures:

- ⇒ Floor area: 1.680 m²
- ⇒ Energy cost baseline: 39,000 EUR/a => price developm.: 2%/a (1,5%/a)
- ⇒ CAPEX (energy retrofit only): 560,000 EUR (330 EUR/m²)

Goals and questions to be answered

Detailed technical, economic and financial analyses of a Deep Retrofit business case:

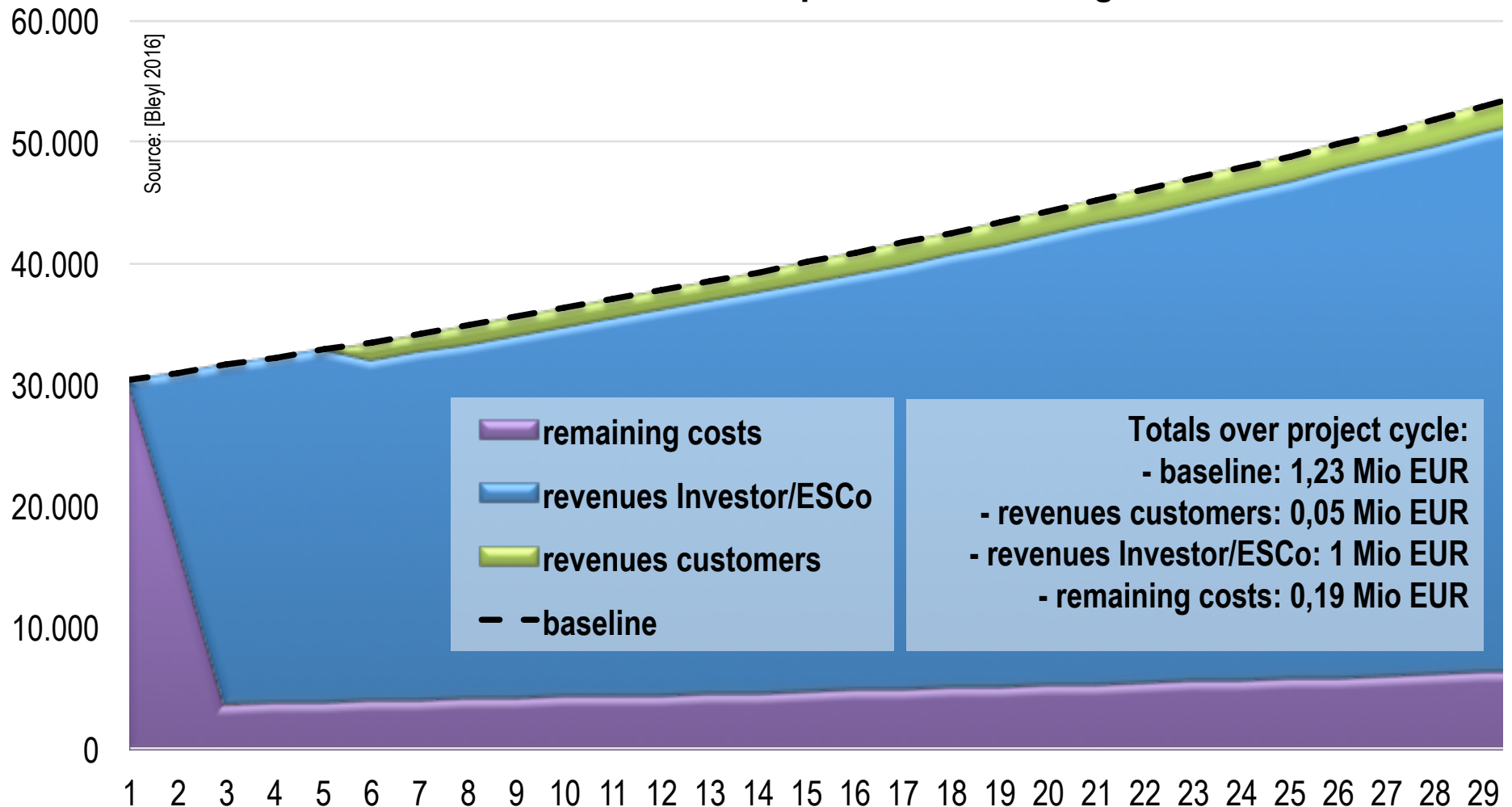
- **Economic viability and sensitivity analyses?**
- **Finance: Reporting, financial engineering, & due diligence**
- **How to communicate with decision makers?**

Other applications:

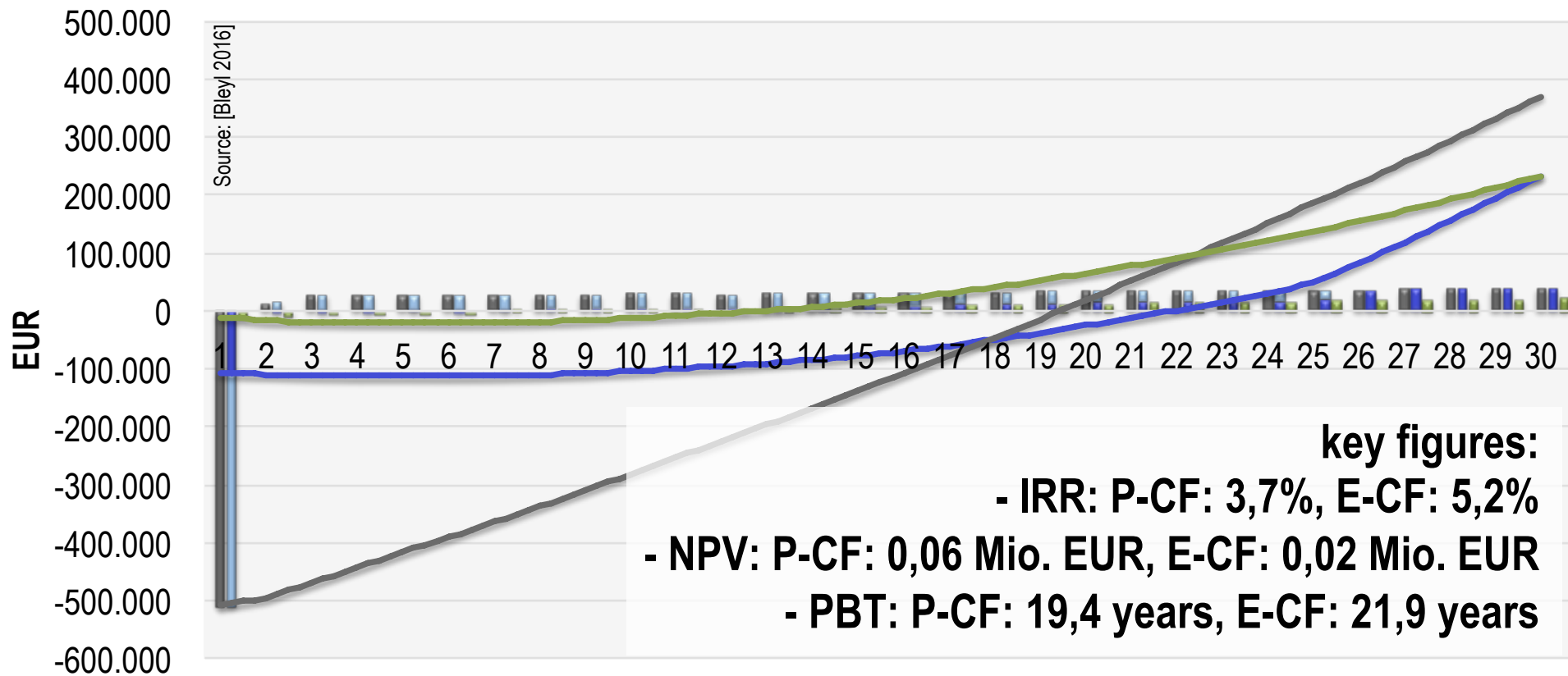
- *Economic and technical **project management and risk assessment over life cycle** => e.g. sensitive parameters*
- ***ESCos: Proposal calculation***
- *Support **policy design**, e.g. subsidy or funding demand calculations (amount and timing)*

Baseline-, revenue development of heat energy savings (84 EUR/MWh, 2%/a)

baseline + revenue development heat savings



Net Project-, Equity- & Debt- Cash Flows; annual profit (annual, cummulative)



■ Annual profit (EBT)

■ project cash-flow (P-CF)

■ equity cash-flow (E-CF)

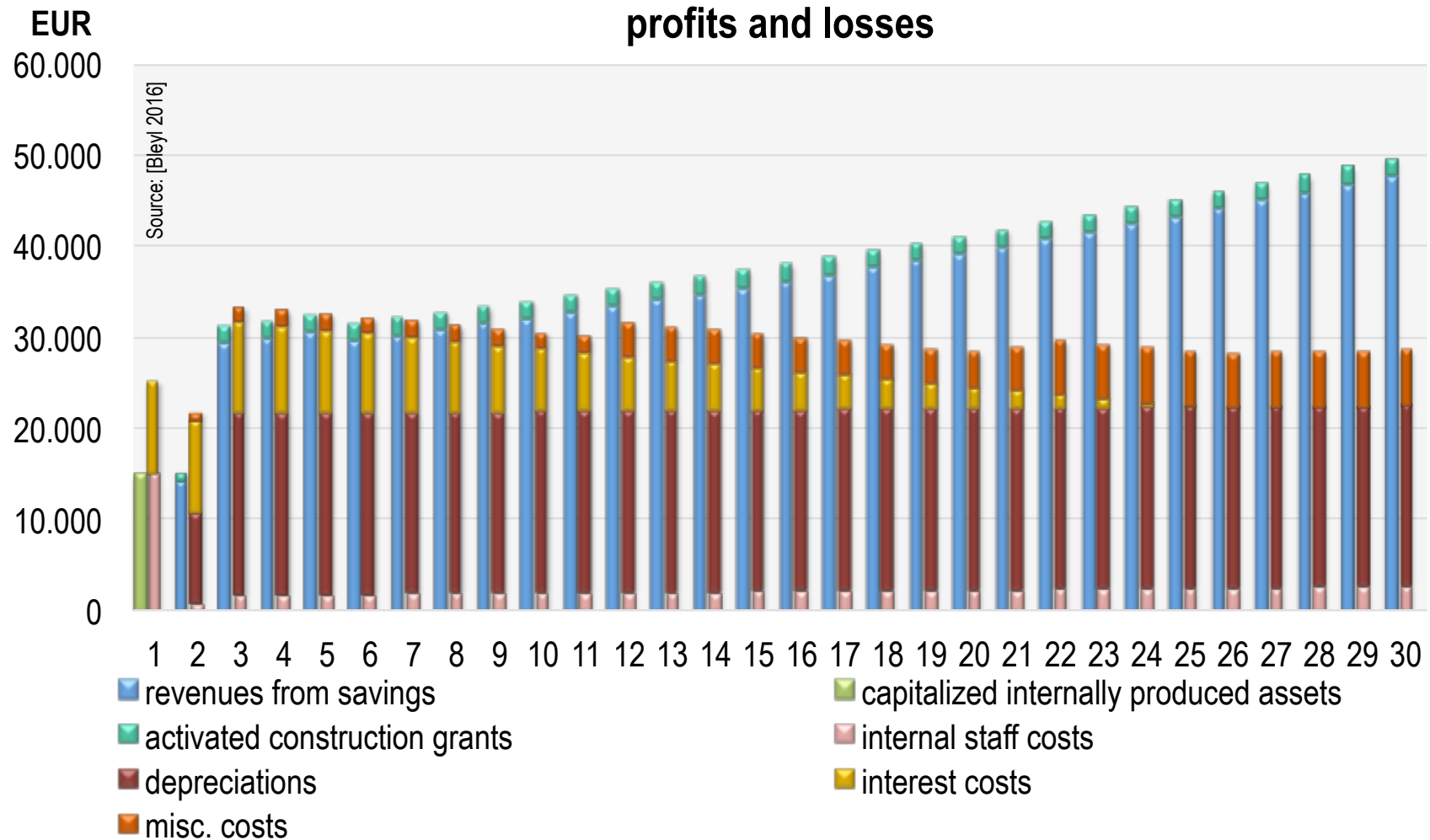
■ debt cash flow

— cumulative equity cash-flow

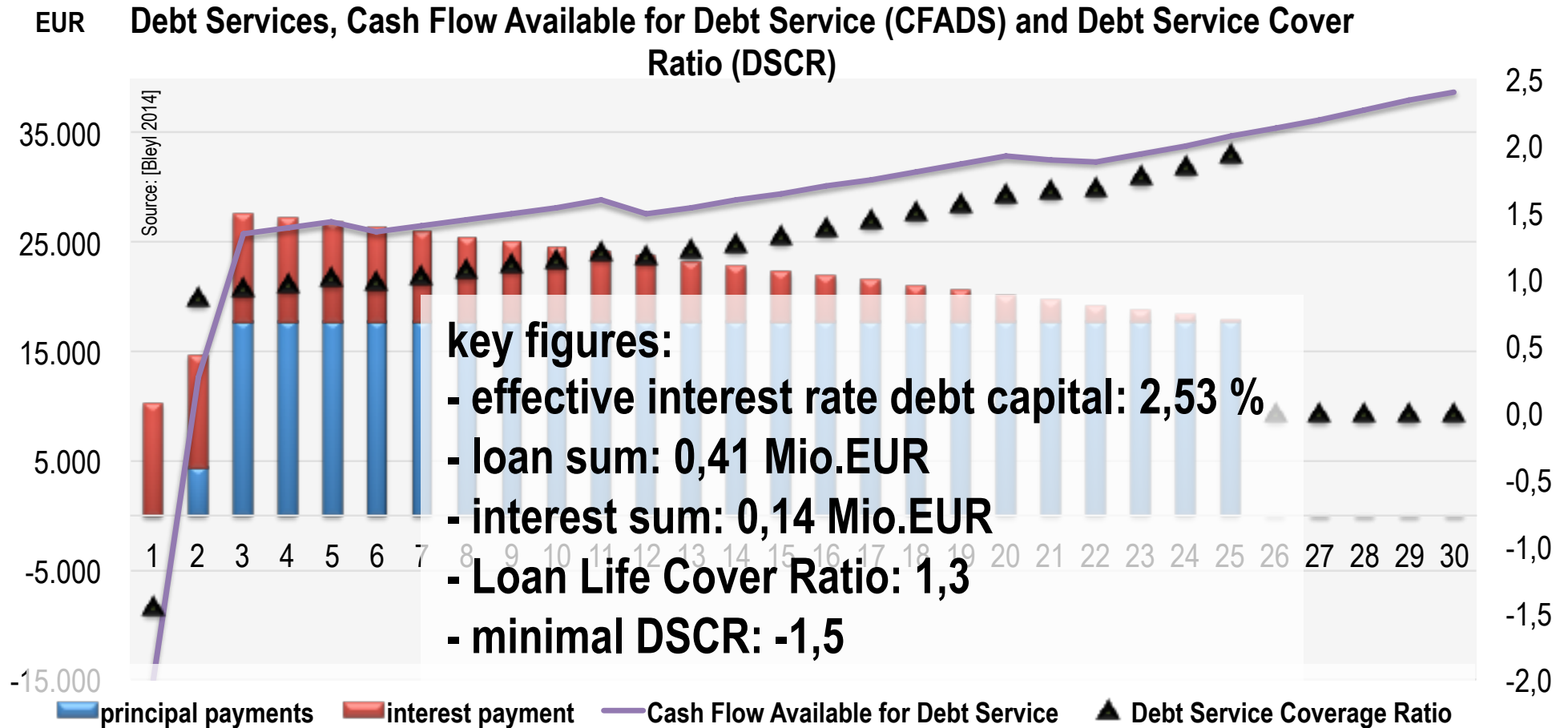
— cumulative project cash-flow

— cumulative annual profit

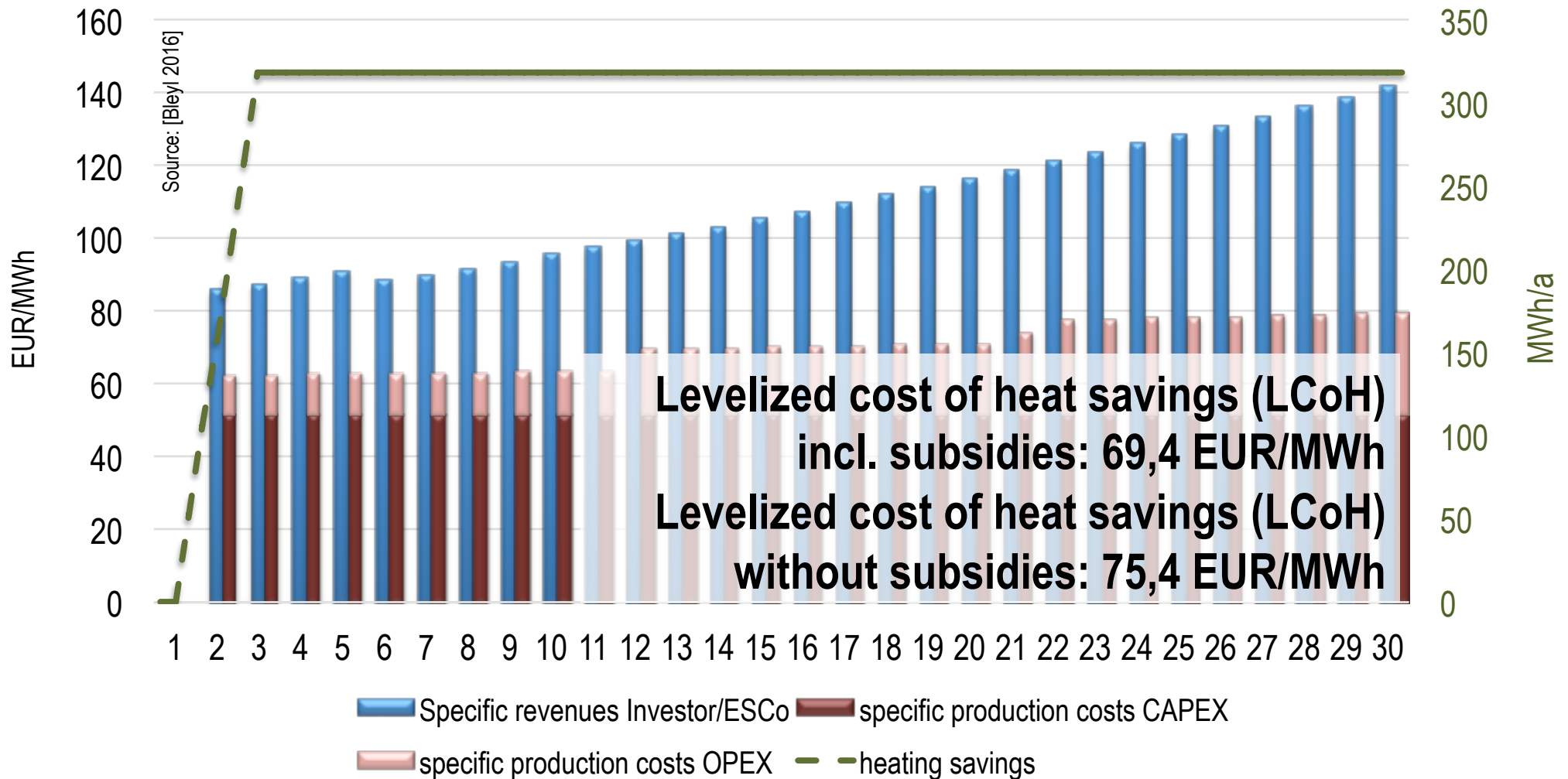
Profit & Loss figure



Debt Services; Cash Flow Available for Debt Service Service; Debt Service- & Loan Life Cover Ratios



Spec. revenue-, cost structure developm.; MWh heat savings/a; LCoH



Activities + goals for next 6 month

Activities + goals for next 6 month (cont'd)
Think Tank (subtask 20) (1/4)

- 1. *Life-Cycle Cost & 'Deep Retrofit'***: Preparation of a paper for ECEEE Industrial Summer Studies: ***Economic Pre-Feasibility Life-Cycle Cost Methodology for Decision Makers and ,Deep Retrofit' Case Study.***

Paper submission in cooperation with IEA ECB Annex 61

- 2. *Life-Cycle Cost & 'Deep Retrofit'***: Application of **pre-feasibility and bankable life cycle cost tools => Further case studies from Task 16 participants. Comparison of different LCC Tools** (e.g. RETSCREEN).

Work in close cooperation with IEA ECB Annex 61

Activities + goals for next 6 month (cont'd)
Think Tank (subtask 20) (2/4)

3. *Simplified measurement & verification (sM&V):*

Finalize research for a peer-reviewed journal publication on *Simplified measurement & verification + quality assurance instruments for energy, water and CO₂ savings.*

Methodologies and examples.

In close cooperation with EfficiencyOne, Nova Scotia, Canada

Activities + goals for next 6 month (cont'd)
Think Tank (subtask 20) (3/4)

4. *Crowd-Financing for Energy efficiency and renewable investments:*

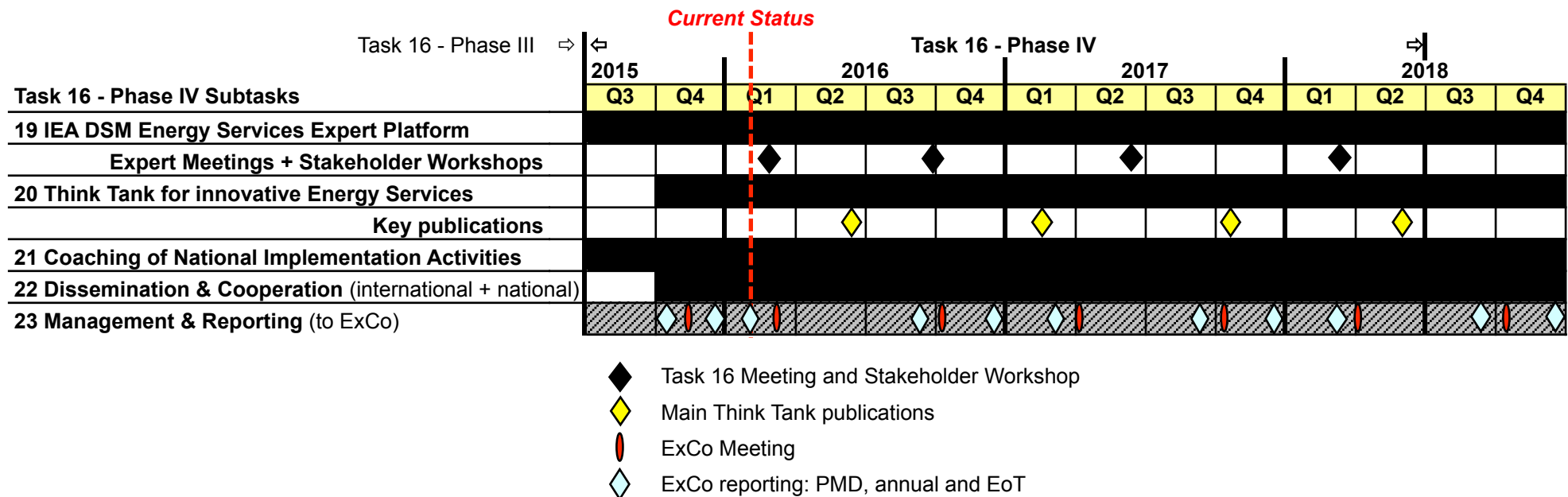
Analyses of cases studies: Can Crowd-Financing contribute to solve financing bottlenecks for EE and RE projects? E.g. through access to equity or (cheaper) debt financing? In particular for smaller projects in SME and communities? Bridge the mezzanine financing gap? Reduce risks and transaction cost? Analyses based on detailed LCC modeling of 2–3 cases studies.

In cooperation with GIZ and KRITTER Advisory Services

Task 16 - Phase IV timetable update

Phase IV has started operation on 01 July 2015 and will end 30 June 2018.

Task 16 - Phase IV Timetable (as of February 2016)



All scheduled events and reporting targets have been met.

Task 16 Budget vs. Expenditures (Phase IV)

(as of 12 February 2016 excl. VAT)

Subtasks	unit	Total budget EUR	Cumulative spending EUR	% spent %	Remaining EUR
19 Energy Services Expert Platform		24.640	3.696	15%	20.944
20 Think Tank for innovative Energy Services		77.440	7.040	9%	70.400
21 Coaching of National Implementation Activities		15.840	5.280	33%	10.560
22 Dissemination & Cooperation (international + national)		13.200	1.980	15%	11.220
23 Management & Reporting (to ExCo)		44.000	5.720	13%	38.280
Subtotals		175.120	23.716	14%	151.404
Travel costs		17.700	1.770	10%	15.930
Other costs		3.880	0	0%	3.880
Totals		196.700	25.486	13%	171.214

⇒ Spending of last reporting period: **25,486 EUR**, adding to **total expenditure of 25,486 EUR** (= 13 % of total budget)

⇒ **Income** during last reporting period: **1,700 EUR** (against **1,700 EUR billed**),
Total income: 1,700 EUR (= 1 % of total budget, assuming all bills paid)

Participants Task 16 Phase IV: 3,3 ,Yes`, 2 `in kind`, 4 Maybes => Any ExCo news?

- **Canada** (NE: Sarah Mitchel, Mark Robertson)
- **GIZ** (for 9 month) (NE: Simon Zellner)
- **Netherlands** (NE: Albert Hulsfhoff)
- **Norway** (NE: Emma Julie Otervik, Forsvarsbygg)
- **Switzerland** (NE: Markus Bareit, Gabriela Weiss Di Spirito)
- **Germany**: in kind cooperation with Annex 61 (Deep Retrofit)

Maybes?:

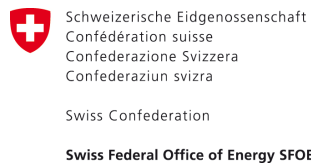
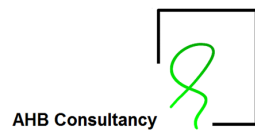
- **Austria** (NE: Christoph Amann ...?)
- **Belgium** (NE: B. De Bruyn, J. Coolen, L. Vanstraelen ...?)
- **Sweden** (NE Lotta Bangens ...?)
- ...?

Matters for the ExCo

1. Approve the Task Status Update Report

**ENERGETIC
SOLUTIONS**

JAN W. BLEYL



Task 16 'Innovative Energy Services'

**Thank you very much
for your continued support!**

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