



# Investment in energy efficiency projects: Risk mitigation through the application of quality criteria for energy efficiency services

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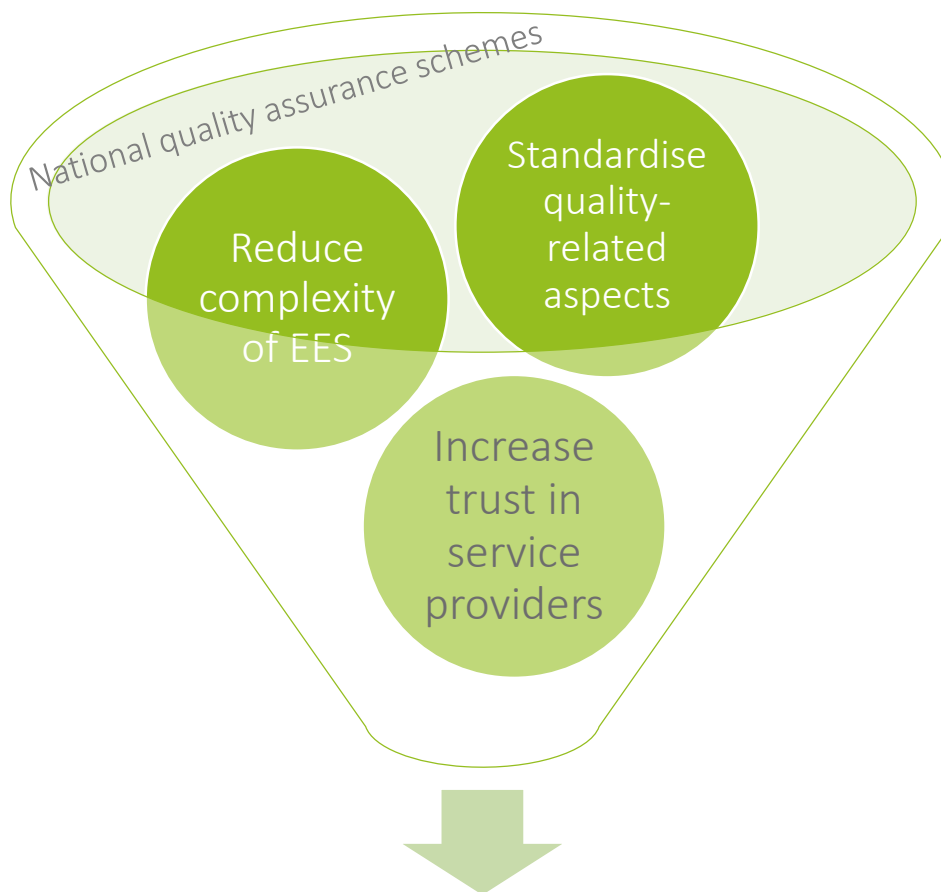
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# Objectives of QualitEE project



Increase investment in energy efficiency services (EES) in the building sector



# Target stakeholder groups

## ✓ Public and private clients

- Schools and universities
- Hospitals and health care
- Hotels
- Large scale multi-family houses
- Etc.



## ✓ Energy service providers

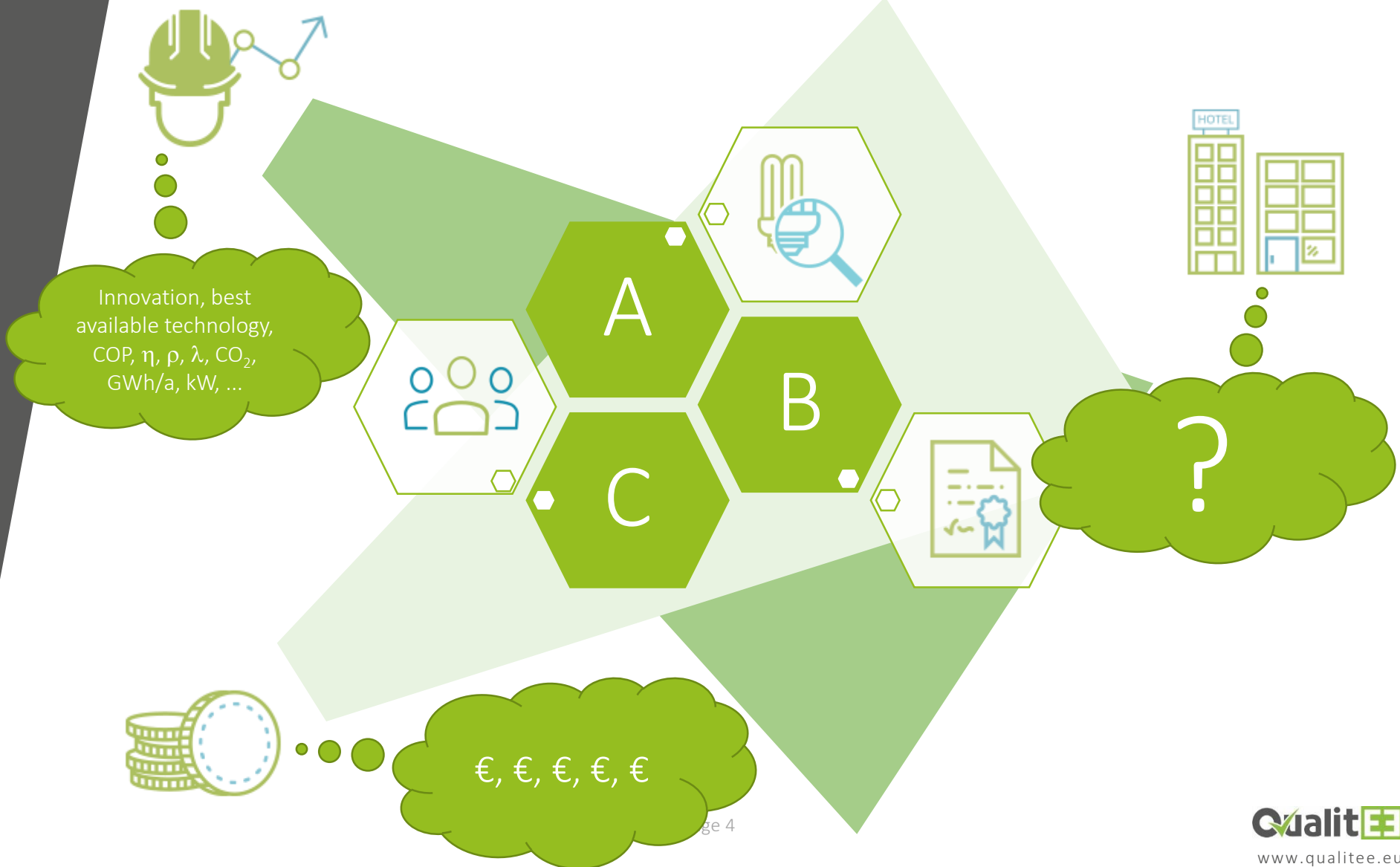


## ✓ Financial Institutions





# Handling interfaces through mutual trust





# Energy efficiency services

EE services are performance-based contractual agreements between a building owner and a provider over the implementation of energy efficiency improvement measures or/and supplying energy efficiently.

Energy efficiency services - '*energy service*' means the physical benefit, utility or good derived from a combination of energy with energy-efficient technology or with action, which may include the operations, maintenance and control necessary to deliver the service, which is delivered on the basis of a contract and in normal circumstances has proven to result in verifiable and measurable or estimable energy efficiency improvement or primary energy savings [Article 2, Directive 2012/27/EU on energy efficiency]



# Targeted services



**Energy Performance Contracting:** “EPC means a contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings.” (acc. to the EED - Directive 2012/27/EU of the EU Parliament of 2012, Article 1 (27) )



**Energy Supply Contracting:** “ESC means a contractual arrangement for the efficient supply of energy. ESC is contracted and measured in Megawatt hours (MWh) delivered”



**Operational Contracting:** Energy performance operational contracting (OC) is a type of EPC without major investments



**Integrated Energy Contracting:** Integrated energy contracting (IEC) means a combination of energy efficiency measures with energy supply contracting typically with short term ‘operational verification’ rather than ongoing measurement and verification



# Scope of market research – Autumn '17

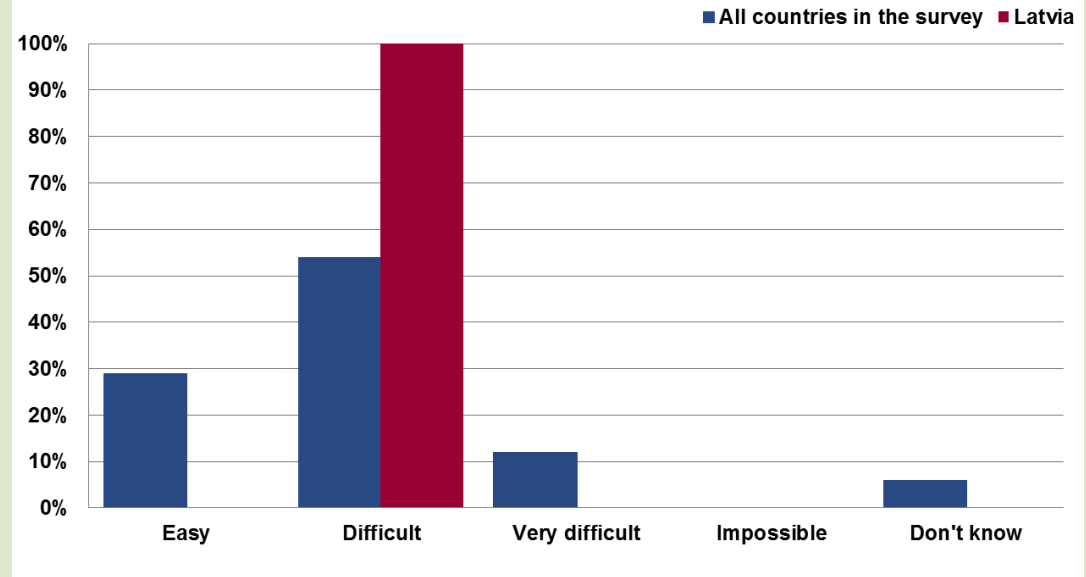
Interactive results at <https://qualitee.eu/market-research/>

## Online questionnaire 2017



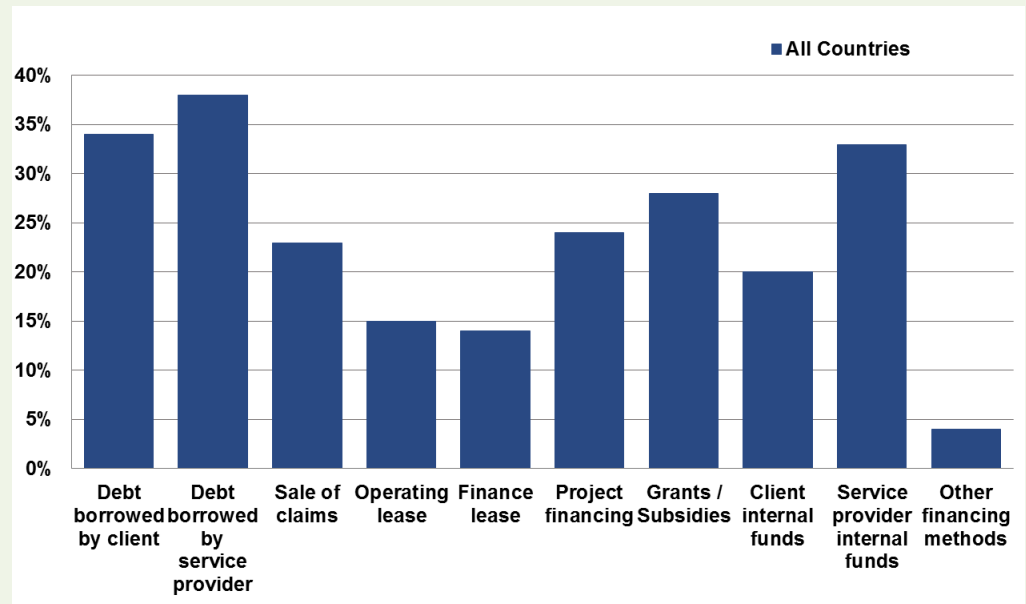
## Survey results: Energy Performance Contracting

Overall, do you consider that obtaining viable finance for a project is [easy or difficult?]



How are the projects you are involved with financed?

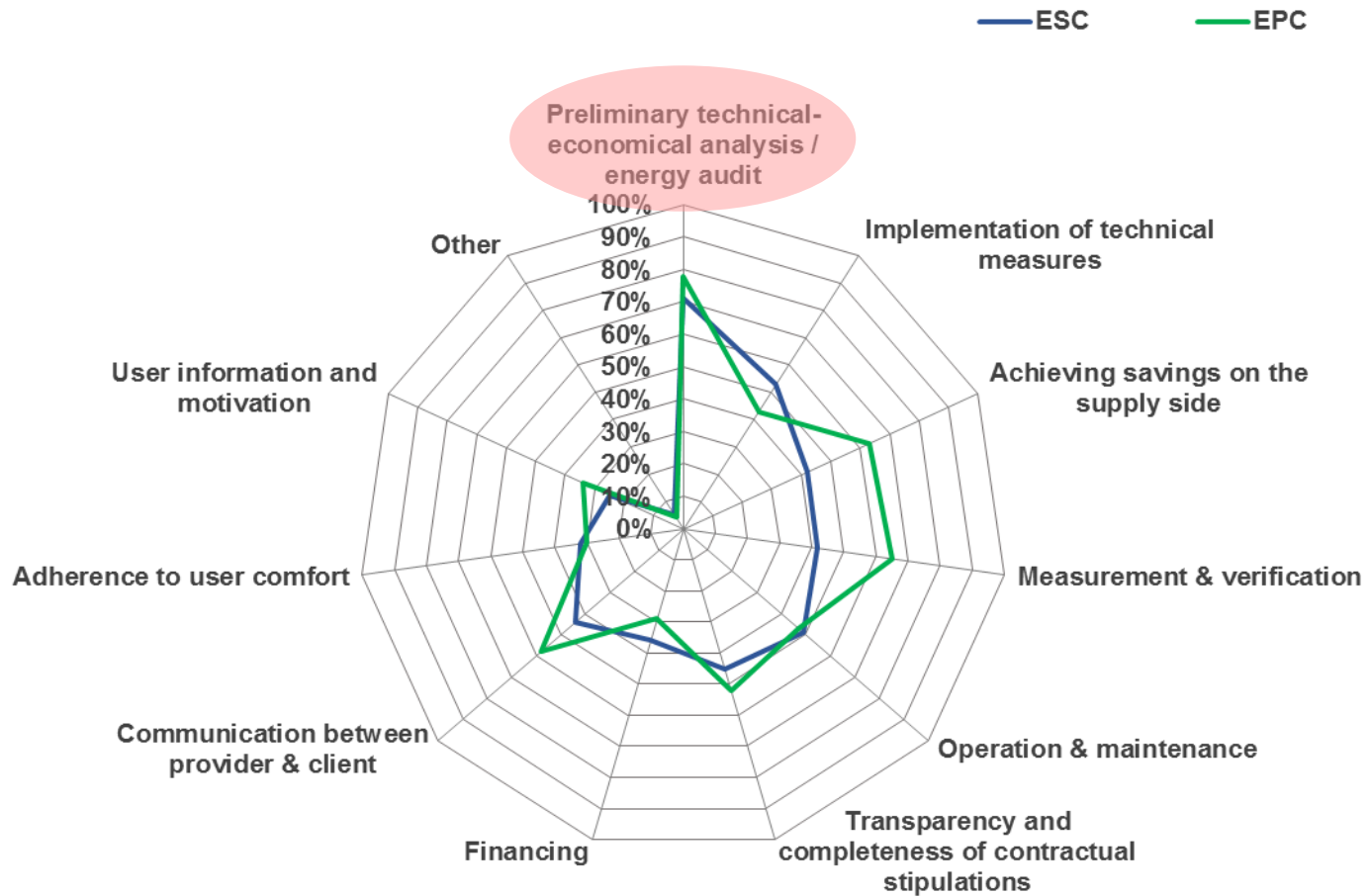
*Note: Respondents may have selected multiple answers. The chart shows the proportion of respondents selecting each answer out of overall respondents to the question. Results therefore do not sum to 100%. For Financial institutions the question was formulated as: "What type of financing has been provided to EPC projects financed/co-financed by your institution?"*







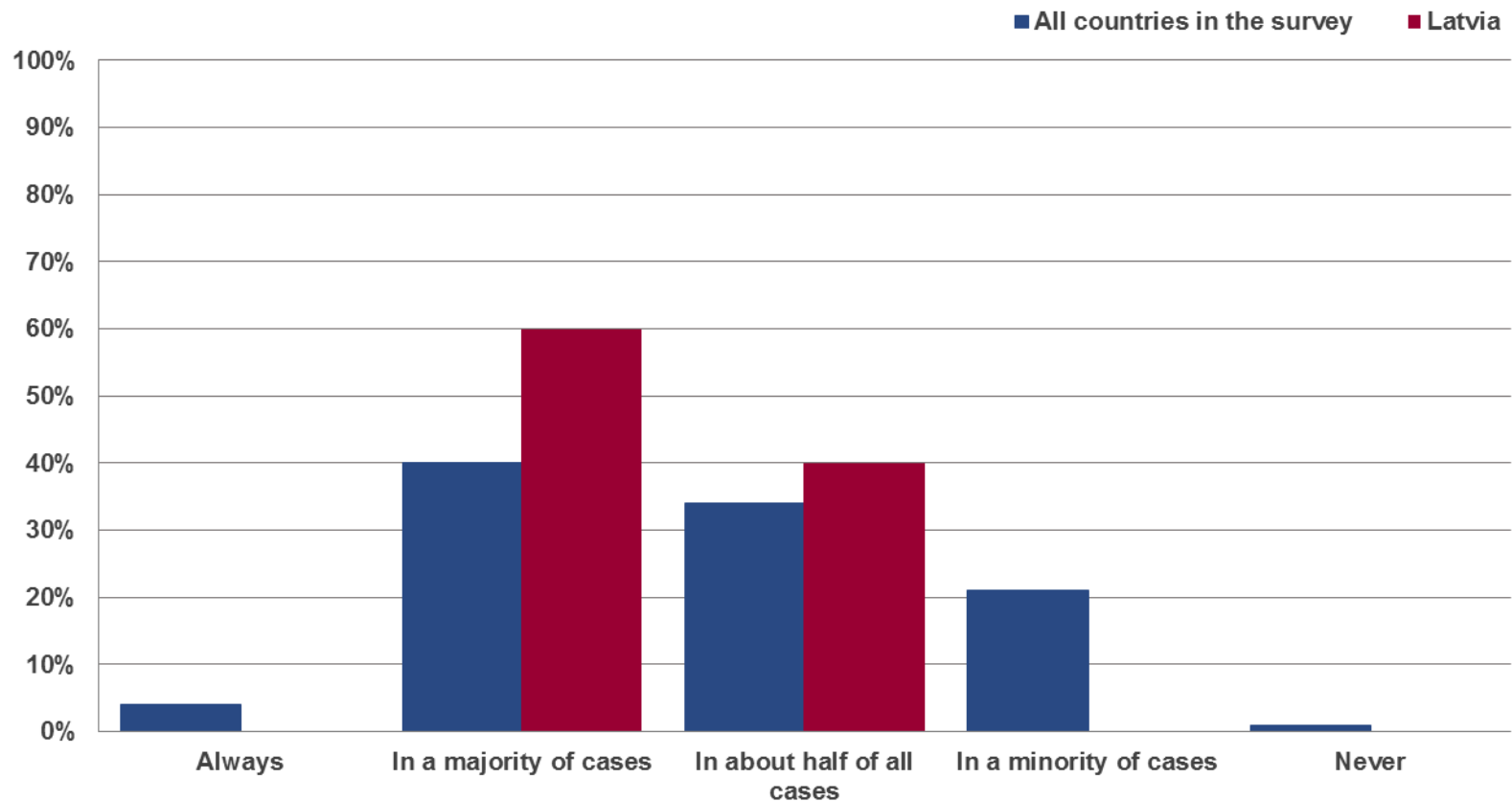
## In your opinion what are the most important determinants of quality in EPC/ESC projects?





# Survey results

In your experience, is there a lack of trust in energy efficiency service providers?





# Quality assurance schemes to increase trust and reduce complexity of EES





# Purpose of quality criteria

- ✔ A common set of quality criteria is the basis for the general understanding of good quality of a product or service.
- ✔ The **QualitEE** criteria are tailor-made for the application on energy efficiency services and present guidelines
- ✔ The relevant quality criteria can be applied by different stakeholders, such as
  - clients by incorporating them into tender documents and assessing their fulfilment during and after the project
  - EE service providers by integrating them into their own product/service assessment or
  - financial institutions by requiring quality criteria in projects to provide financing.
- ✔ Quality criteria can also be used as a decision support



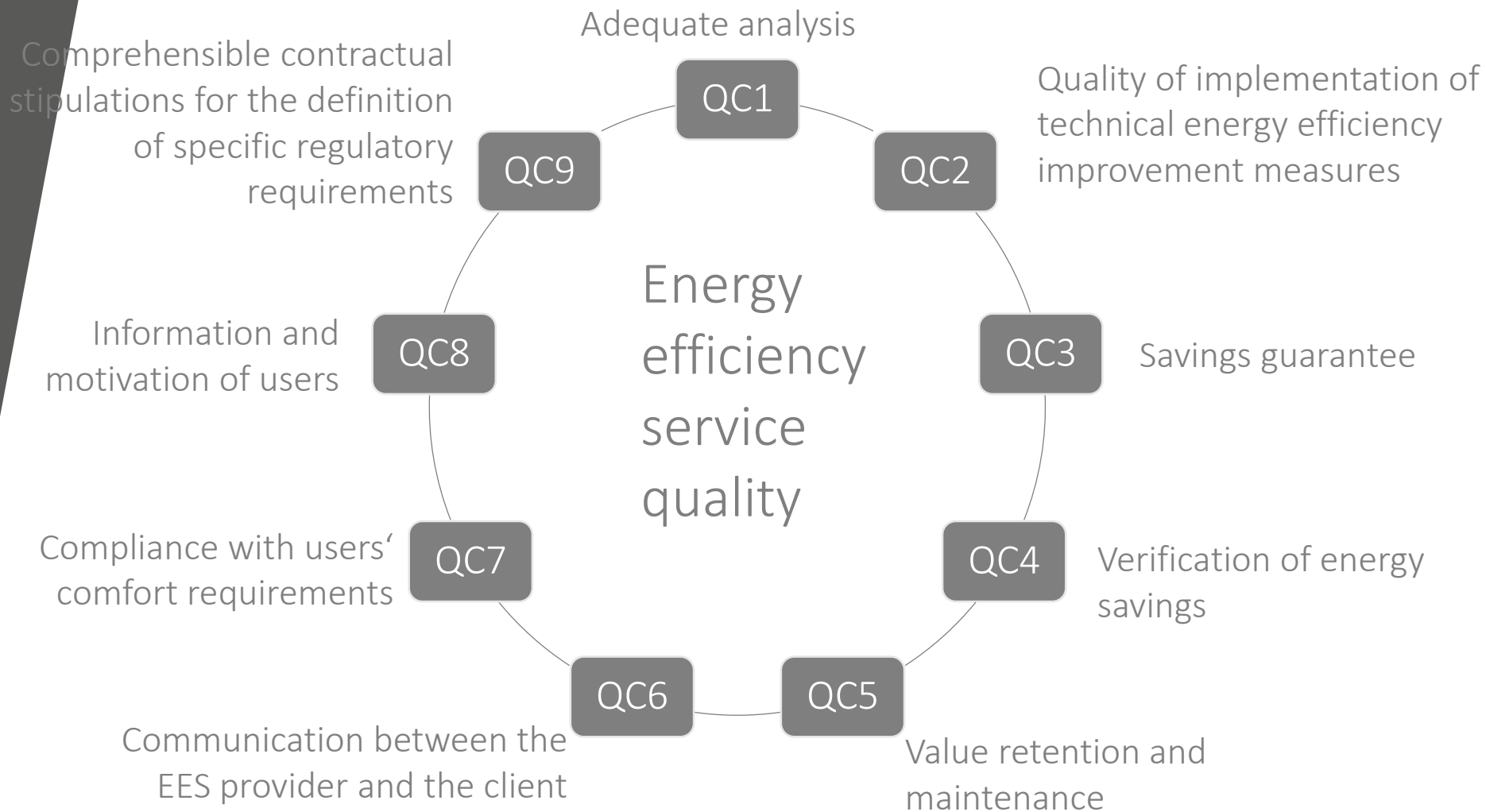
# Quality Criteria Structure

Quality Criterion	Proof	Assessment	Comment
<p>Which specific aspect of the energy efficiency service is being assessed?</p> <p>What is the ideal requirement for this specific aspect?</p>	<p>What evidence should the assessor look for to assess the criterion.</p>	<p>How should the assessor decide whether the evidence collected demonstrates the criterion has been achieved?</p> <p>This could be pass/fail presence of the evidence or there may be a set of quality statements to assess against in a rating scale.</p>	<p>Supporting comments to assist the assessor in coming to their conclusion.</p>



# Technical quality criteria for EES

Basis for the evaluation of quality in energy efficiency services and foundation of the national quality assurance schemes





# Financial quality criteria for EES

- ✔ Establishment of a common understanding between service providers, clients and financial institutions for the assessment of the bankability of energy efficiency projects
  - What defines quality of an EES project from a financing point of view?
  - Which information is important at the interfaces between project sponsors and FIs
- ✔ Interlinkage with, but also distinction from Technical Quality Criteria
  - FIs do not need to know all technical details of a project
  - FIs need to understand how values are generated and secured in an EES project



# Financing energy efficiency

## PROJECT

Boiler replacement

Building renovation

Complex EE project



Equity

Equity

Equity

+

+

+

Debt (Leasing)

Debt (Mortgage)

Debt (?)

## FORM OF CAPITALS

- Leasing and Mortgage are highly standardised financial products.
- Clear collateral and securities
- No execution

- Low level of standardisation
- What is the financial product?  
What sort of debt capital?
- Leasing? Project financing like for real estate development and infrastructural projects?



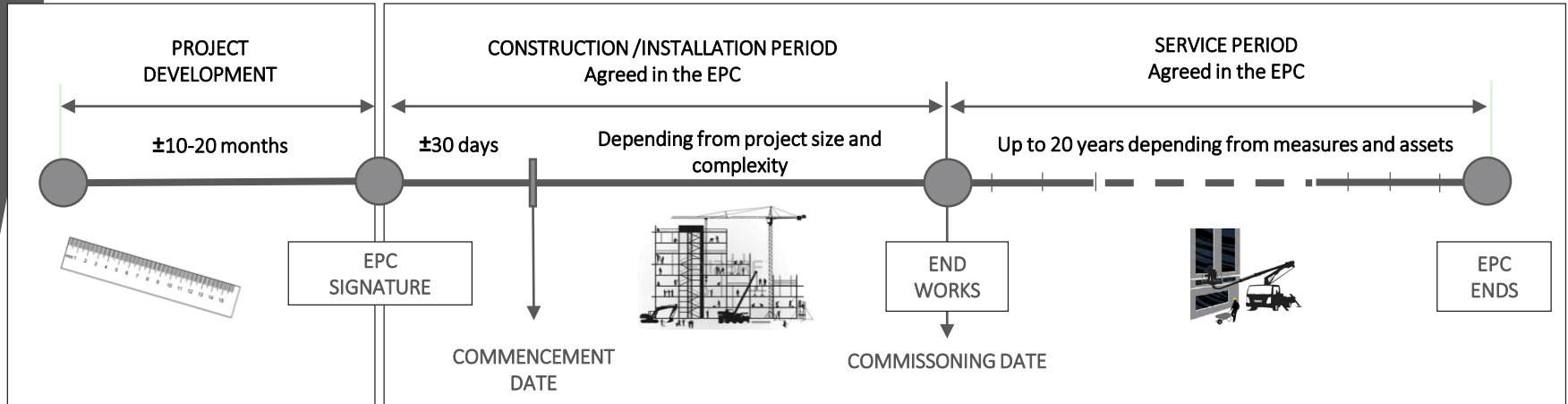


# Financing Instruments and challenges of EES projects

- ❏ **Credit financing:** generally used, but limits of creditworthiness on the side of EES provider as well as on the side of EES client
  - Deterioration of balance-sheet-based credit ratios
  - Competition of investments
- ❏ **Leasing financing:** applicable only for parts of the project
  - leasable goods: legal framework for transfer of ownership applies
  - EES are brain-driven: Hardware is sometimes only a smaller part of the total investment
- ❏ **Project financing:** Practically impossible, EES projects are too small and project bundling is difficult in practice
- ❏ **Cession:** frequently used; in some countries important instrument to refinance and collateralise EES investments (e.g. CZ, A), but projects need to be prepared accordingly
- ❏ **Forfeiting:** sometimes used, but projects need to be prepared accordingly



# Financial products for EPC



## ➤ Project development:

- Equity financing
- Quasi-equity financing
- Grants / technical assistance

## ➤ Project execution:

- Equity financing
- Quasi-equity financing
- Debt financing
  - Loan
  - Leasing
- Grants

## ➤ Project service period:

- Equity financing
  - Quasi-equity financing
  - Debt financing
    - Loan
    - Leasing
  - Re-financing (project execution loans)
  - Cession
  - Forfaiting
  - Securitized instruments
- Performing EPCs

Short term financing

Long term financing



# Financial Quality Criteria

- ☑ Selection of financial quality criteria (FQC)
  - Is the cash flow generated through reliable energy savings? (How big is the performance risk?)
  - What are the risks associated with potential failure or bankruptcy of EES provider?
  - What are the risks associated with potential failure or bankruptcy of the client of the EES project?
  - To which degree can the technical equipment be used for collateralisation?
  - What role play non-energy benefits for assessing the bankability of EES projects?
- ☑ FQC 1: Quality of cash flow prediction
- ☑ FQC 2: Incentive structure for cash flow generation
- ☑ FQC 3: Exploitation of cash flows
- ☑ FQC 4: Value and exploitation of assets (technical equipment)
- ☑ FQC 5: Non-energy benefits of EES projects



# FQC 1 Quality of cash flow prediction

## ✓ Cash flows are the result of energy savings

- main source for repayment
- energy savings cannot be measured
- energy efficiency  $\neq$  energy savings
- definition of baseline: What would have happened without the EES action?
- measurement and verification (M&V) concept

## ✓ Assessment Criteria

- Availability of M&V plan
  - Specification of standard used
  - Timing of M&V activities
  - Responsible stakeholders
- Clear definition of baseline
- Scenarios for worst, real and best case
- Application of best available technology



# FQC 2 Incentive structure for cash flow generation

- o ✓ Clear incentives for EES provider as well as for EES client to achieve forecasted cash flows **reduce the risk of project failure**
  - contractual stipulation regarding the savings guarantee
  - co-operation of the EES provider and client is necessary
  - well-balanced risk sharing
  
- o ✓ Assessment Criteria
  - Transparency of risk sharing approach
  - Dependency of remuneration of EES provider on adherence with savings guarantee
  - Incentivising stipulations at the client's side
    - definition of collaborative role of client
  - Safeguarding cash flows in case of equipment failure (e.g. through EE insurance products)



# FQC 3 Exploitation of cash flows

## ✓ Ensuring payments for the case of economic difficulties of contracting parties or changes in legal status

- bankruptcy of EES client or EES provider
- change of ownership of the facility where EES is implemented
- ensuring that project implementation is continued
- prior access to the cash flows for FIs

## ✓ Assessment Criteria

- Preventing approach regarding exit-strategies
- Replacement of EE provider
- Right of EES provider to refinance through cession and forfeiting
- Limiting stipulation regarding termination of the contract by EES client
- Cash flow exploitation in case of sale of facility



# FQC 4 Value and exploitation of assets

☑ Parts of the technical equipment can be used as collateral, but conditions need to be fulfilled:

- technical exploitation: assets can be removed
- economic exploitation: assets can be sold
- legal exploitation: ownership of remaining assets

☑ **Assessment Criteria**

- Value of removable parts of technical equipment is defined in the project documentation
- Technical equipment can be used for different processes and branches
- Contract defines ownership



# FQC 5 Non-energy benefits of EES project

- ✔ Non-energy benefits also known as multiple-benefits
- ✔ Benefits from the client's perspective
  - increased work productivity
  - reduced outages of production
  - reduced dependency of energy tariffs
  - sales/rental premium
  - societal benefits
  - ...
- ✔ Assessment Criteria
  - List of non-energy benefits is available and classified
  - Quantification and monetarisation of non-energy benefits





# Context and Application of FQC

- ✓ **Project sponsors (EES provider and/or EES client) as main target group** of the FQC
  - instrument for pre-assessment of bankability of EES projects
  - FIs have their own proven and unalterable routines for project appraisal (and do not need the FQC)
- ✓ **Attractive refinancing cycle** through cession and forfaiting as driver for EES market volumes
  - FQC specifically relevant for project preparation that allows for easy and standardised sale of future receivables



# Summary and Conclusions

- ❑ Financing energy efficiency projects is a key to achieving the energy and climate goal
- ❑ Financing instruments are available, but **unevenly accepted in the different countries**
- ❑ **Financing is easy as long as customers is creditworthy** (depending on credit-ratio based on balance sheet)
- ❑ **Off-balance sheet financing is usually difficult** for EES projects
  - complex and small, therefore unfavourable ratio between transaction cost and perceived project revenue
  - high perceived risks as cash flows come from savings and not from sales on the market
- ❑ **Reliable and verifiable criteria** are useful – mainly for easy and standardised refinancing
  - This allows for cleaning up balance sheets of project sponsors as well as for bundling of smaller projects



# Partners





Thank you

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[www.qualitee.eu](http://www.qualitee.eu)

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# Literature

- ✔ Bleyl, Jan W.; Bareit, Markus; Casas, Miguel A.; Coolen, Johan; De Bruyn, Benjamin; Hulshoff, Albert; Mitchell, Sarah; Robertson, Mark 2017: Building Deep Energy Retrofit: Using Dynamic Cash Flow Analysis and Multiple Benefits to Convince Investors. ECEEE summer studies proceedings 6-369-17. pp. 1127-1137.
- ✔ Bleyl-Androschin, Jan W.; Schinnerl, Daniel 2010: Financing Options for Energy-Contracting Projects – Comparison and Evaluation. A Manual for ESCos, ESCo Customers and ESCo Project Developers including Good Practice Examples and Calculation Tools. 2nd Edition. IEA DSM Task XVI report. Graz.
- ✔ Böttcher, Jörg; Blattner, Peter 2010: Projektfinanzierung. 2nd Edition. Munich.
- ✔ CEN/CENELEC 2015: Sector Forum Energy Management (SFEM). Working Group on Financing Tools for Energy Efficiency. Brussels.
- ✔ Energy Efficiency Financial Institution Group (EEFIG) 2017: EEFIG Underwriting Toolkit. Value and Risk Appraisal for Energy Efficiency Financing.
- ✔ Environmental Defense Fund (EDF) 2014: Investor Confidence Project. Project Development Specification. Version 1.0.
- ✔ EVO 2009: International Energy Efficiency Protocol. Standardized Concepts. Washington D.C.
- ✔ OECD/IEA 2014: Capturing the Multiple Benefits of Energy Efficiency. Paris.