What can we learn from the application of tools in real-world projects?

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This project receives funding from the European Union's Horizon 2020 research and innovation programme.

Agenda

- Main questions studied and methodology
- Pilot projects used
- Main results
- Ask the experts - real-world projects across Europe. Q&A session

Approbation of criteria

- **Test** application of criteria in real energy service projects. Incorporation of technical quality criteria into tenders and service contracts
- **Obtain feedback** from Clients, ESCO's and Facilitator in qualitative and quantitative manner
- **Support** energy service providers and clients in developing their projects

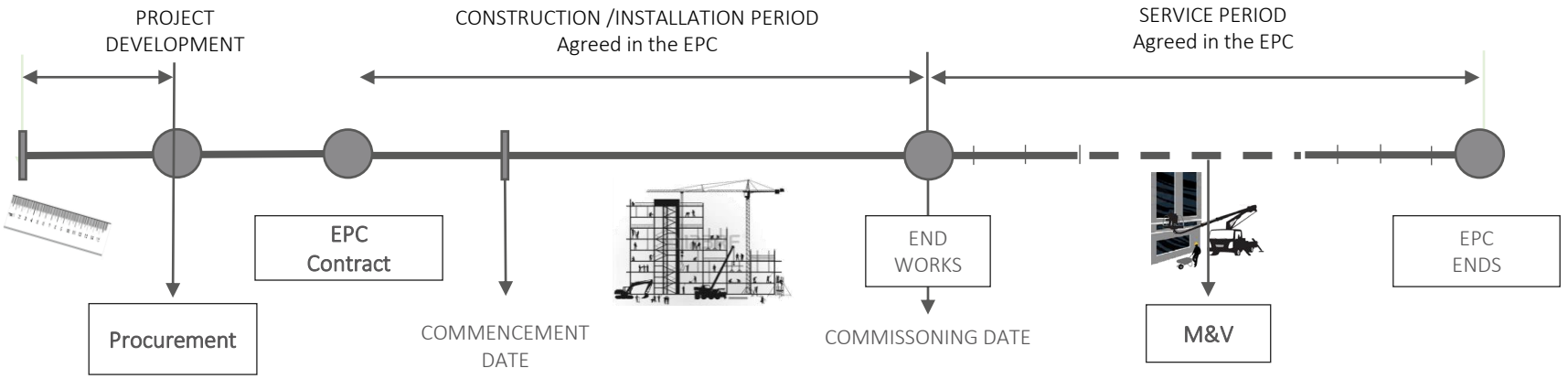
Test criteria and support pilot projects

our target

24 pilot projects

Main questions studied and methodology

- **Importance** of criteria
- Possibilities to **assess** and **provide evidence**
- **Time and resources** needed to evaluation criteria
- **How many and which** of the criteria were used
- Something needs to be changed **removed / added**



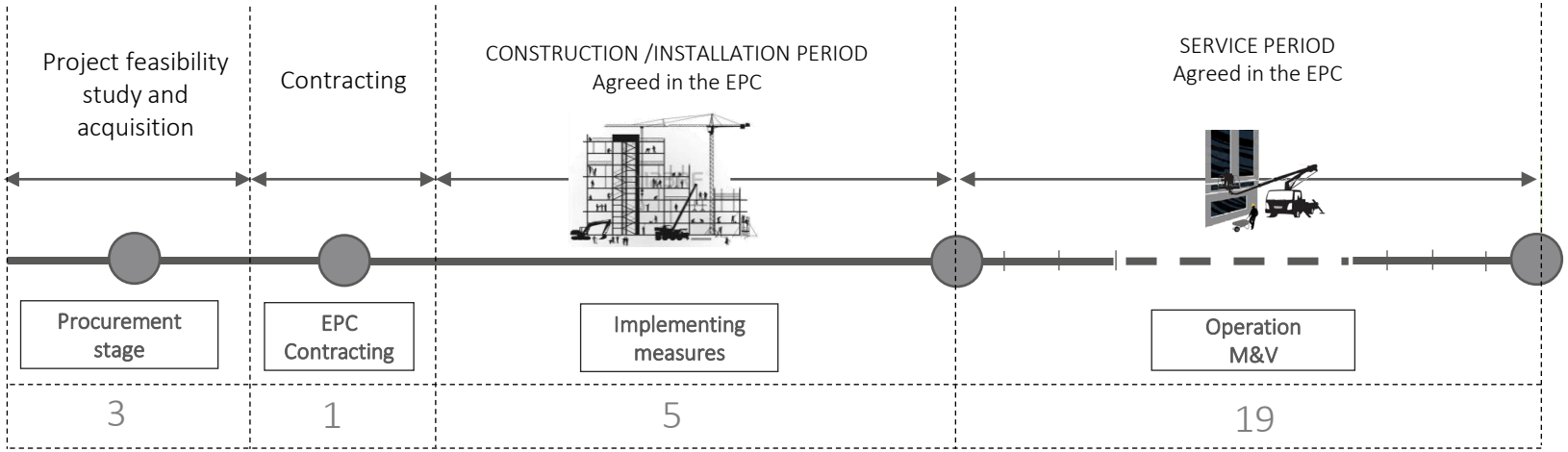
- Pilot project description using DEEP database input form

- Continues quality management meetings (monitoring tool)

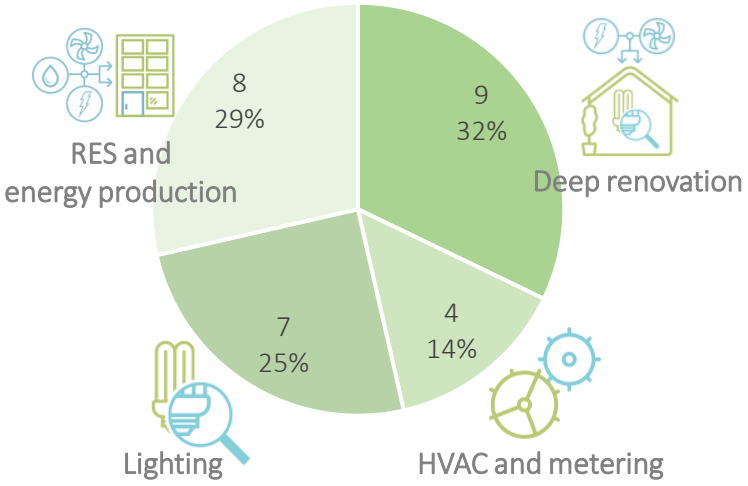
- Completed questionnaires from ESCOs, clients and facilitator (if applicable)
- Pilot project application reports (https://qualitee.eu/pilot-projects/)

continues feedback

In total 28 pilot projects from 11 EU countries



Type of projects



Size of investments

from 4 000 EUR to 8.6 million EUR

Pilot projects

United Kingdom

PV car ports, EV charging, ground source heat pump & various efficiency measures for municipal offices in Cambridgeshire

Efficiency measures, CHP and PV for eight public buildings owned by Dundee City Council

Czech Republic

Dormitory building complexes of Czech Technical University in Prague

Retrofit of 11 000 m^2 uildings of Academy of Fine Arts in Prague

Bulgaria

Kindergarten in Sadovo Municipality

School in Kostinbrod Municipality

Efficient refrigeration a distributional centre Ruvela, Sofia

Belgium

Municipal buildings in City of St.Niklaas

University Campus VUB, Brussels

Pilot projects

Greece

Energy upgrade of the heating and cooling system for 1 792 m^2 big office building in Athens.

Re-design of the indoor lighting 103 m2 retail clothing shop in Athens.

Energy upgrade of the indoor lighting system in 171 m^2 office

Germany

- Lighting renovation Office building in Wiesbaden
- Lighting renovation of 2 000 m^2 office building and warehouse in Mainz-Kastel
- Lighting renovation of 3 500 m^2 factory building in Bochum
- Lighting renovation of 6 200 m^2 factory building in Bochum
- Lighting renovation in Furniture industry in Bochum

Latvia

Deep retrofit of residential building in Riga

PV for Gulbene municipality office building

Pilot projects

Austria

Change of building heating boilers, lighting system and optimization of building control Triumph international, Wr. Neustadt

Energy source and optimization of building control in Residential building Hörsching

Slovenia

Deep energy retrofit of a 6675 m^2 dormitory in Maribor

Centre for School and Outdoor Education (CŠOD), Bohinj

Slovakia

Deep retrofit of municipal building in Nováky with floor area of 829,2 m^2

New heating management system implementation in Psychiatric Hospital of P.Pinel

Deep retrofit of student dormitory ŠD5 - Starohájska 2900/8 in Bratislava

Spain

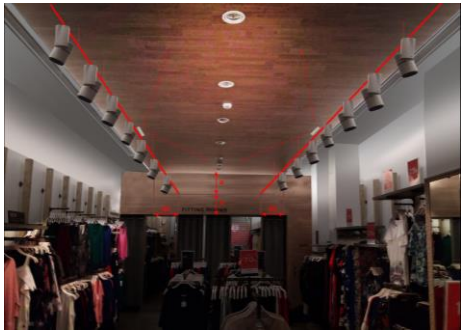
Monitoring and telemetric measurement in supermarket chain

PV for newspaper building

Results achieved

Investments triggered	Annual primary energy savings	Annual CO_2 emissions savings
~ 33 million EUR	~ 33 GWh/year	~ 9 000 tons

PV car ports, EV charging, ground source heat pump & various efficiency measures for municipal offices in Cambridgeshire, UK



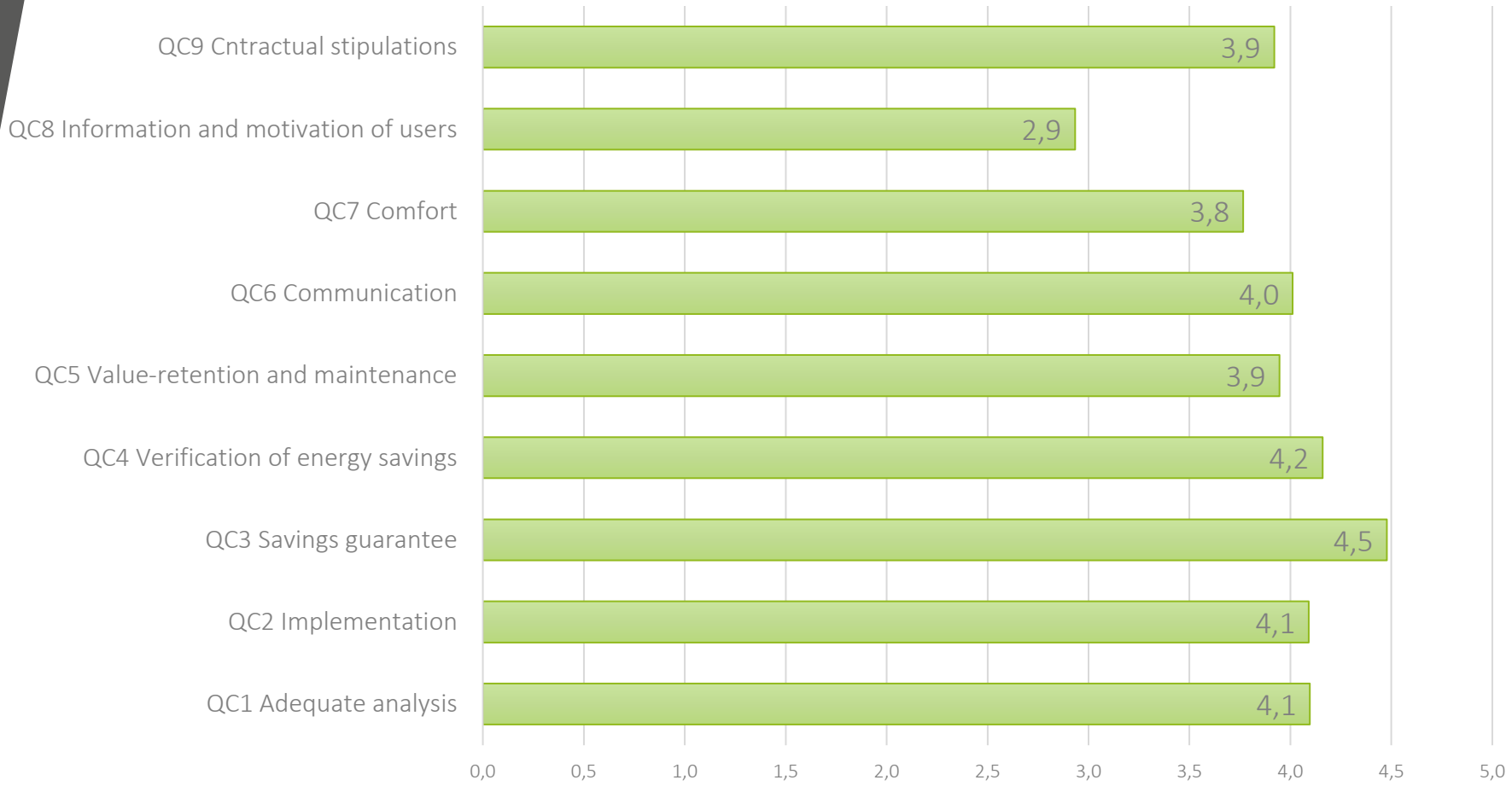
Re-design of the indoor lighting in Greece

School renovation in Bulgaria

Main questions studied

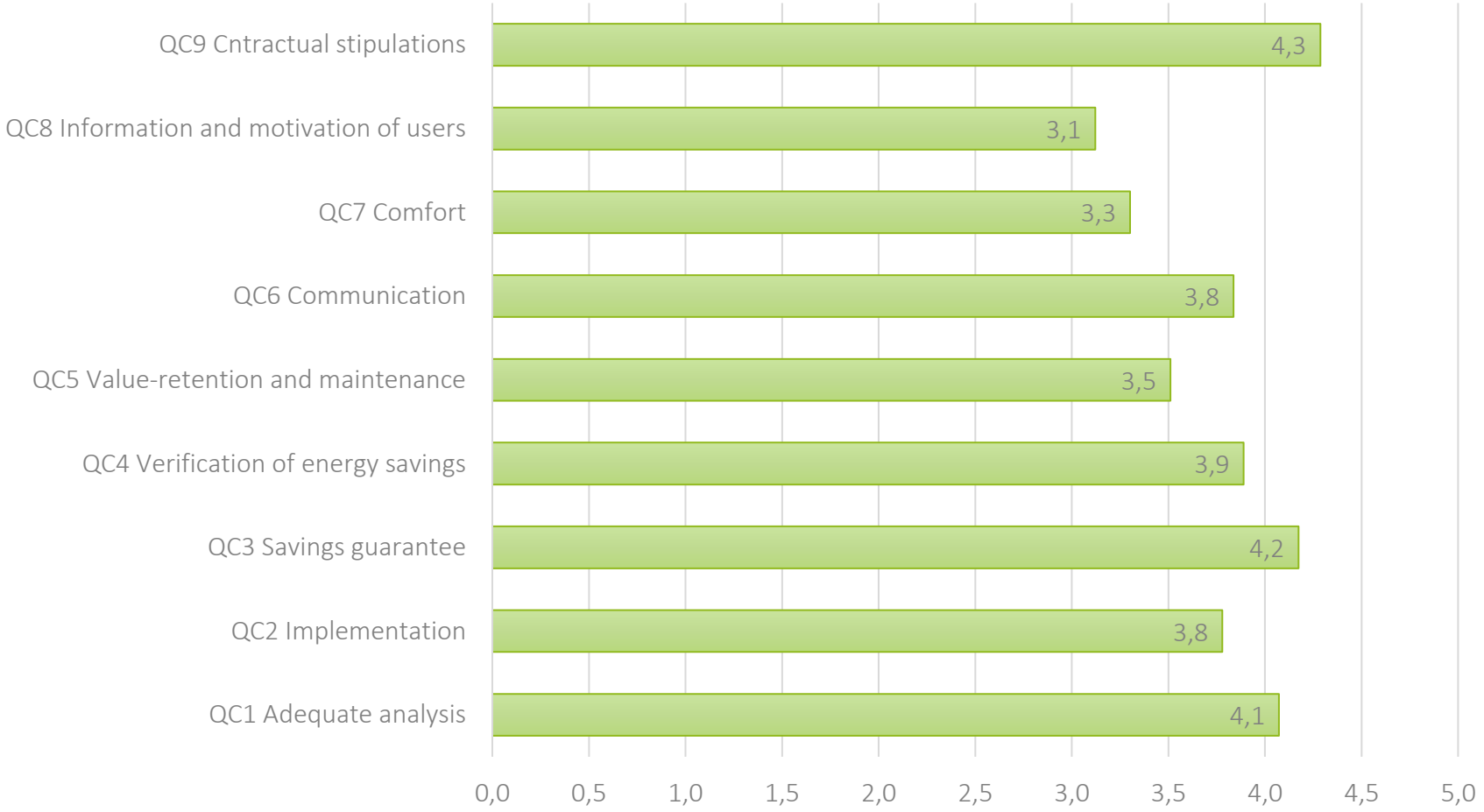
- **Importance** of criteria
- Possibilities to **assess** and **provide evidence**
- **Time and resources** needed to evaluation criteria
- **How many and which** of the criteria were used
- Something needs to be changed **removed / added**

ARE THE CRITERIA SPECIFIC ENOUGH?
SCALE: 1=NOT SPECIFIC - 5=VERY SPECIFIC



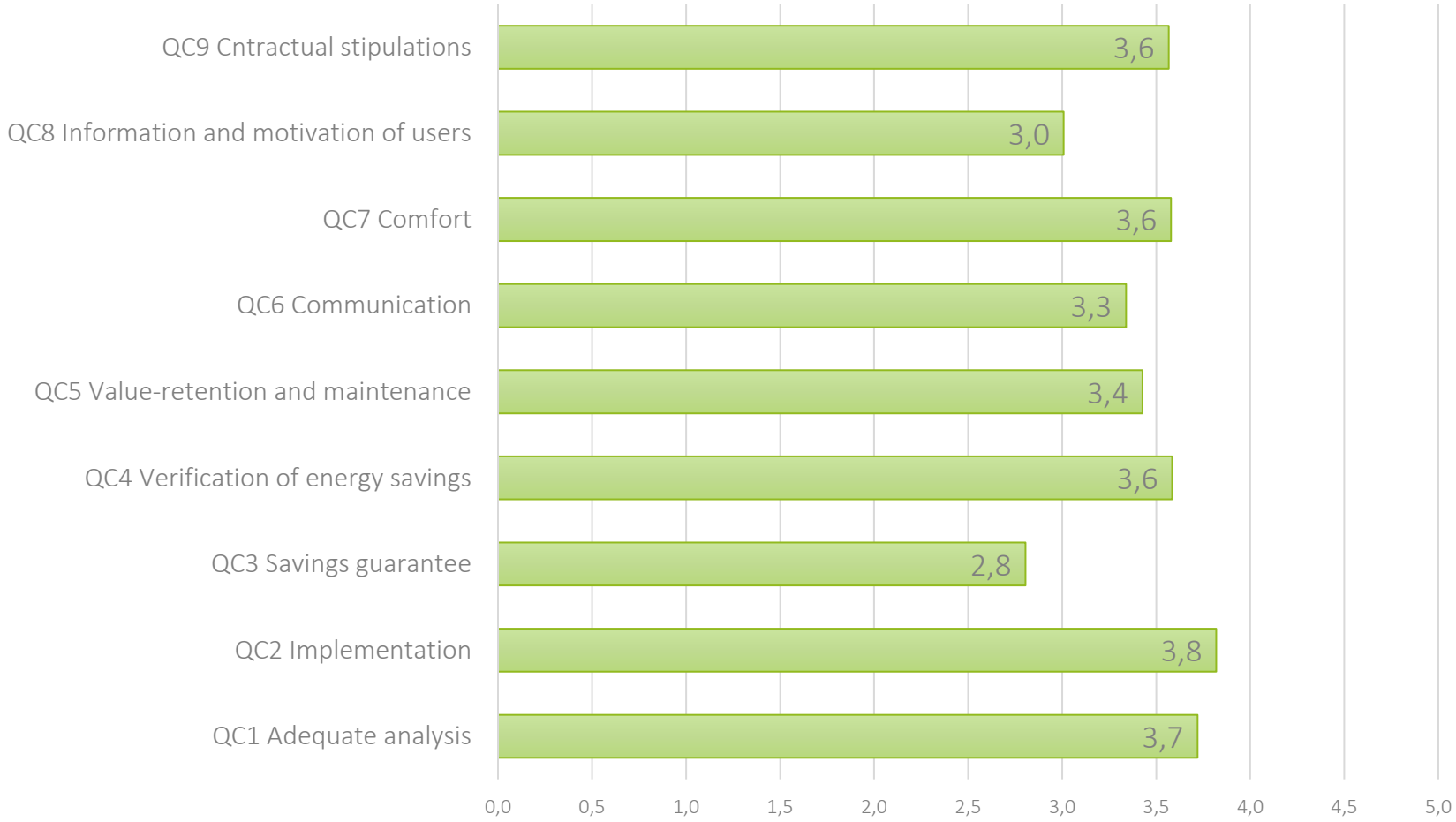
HOW EASY IS IT TO FIND EVIDENCE?

SCALE: 1=NOT EASY - 5=VERY EASY



HOW TIME CONSUMING IS IT TO EVALUATE?

SCALE: 1=VERY TIME CONSUMING - 5=NOT TIME CONSUMING



General conclusions

- Most of the criteria were relevant and used during the pilot projects;
- The application of criteria depends from the project to project, for example sometime QC1 (Adequate analyses) is done by facilitator and not by the ESCO (CZ; BG). Work with users (motivation, comfort) are relevant only if the building operation is part of the contract (AT);
- **QC3 (Savings guarantee)** and **QC3 (Verification of energy savings)** were identified as the **most important categories in assessing the quality**;
- Criteria around QC3 (Savings guarantee) and QC4 (Verification of energy savings) were identified as the most specific. Although criteria around QC3 were consider most time consuming to evaluate;

General conclusions

- Criteria related to **QC8 (Information and motivation of users)** were considered less specific. However, most of the respondence considered QC8 as important often criteria were not used. Similar with criteria around **QC7 (comfort).**
- Respondents find it difficultly to find evidence for criteria related to QC8 (Information and motivation of users) and QC7 (comfort);
- Several respondents suggested that, although questions about **QC7 (C**omfort) and **QC8 (Information and motivation of users)** are very important, they are not often included as part of the EPC contract. *It seems that it is not really clear how to measure and assess such quality criteria. Some respondents recommended distinguishing between mandatory criteria and the rest of the criteria (EL; BG)*
- Quality criteria could be too technical if they should be analyzed by clients, in this case certified quality label should be developed and/or ESCO register (EL);

Real-world energy service projects across Europe. Q&A session

- Pilot project application reports: https://qualitee.eu/pilot-projects/

Country	Pilot projects
Austria	• Triumph International • Residential building Hörsching
United Kingdom	• South Cambridgeshire District Council • Dundee City Counci
Slovenia	• Centre for School and Outdoor Education, Bohinj • Dormitory building, Maribor
Germany	• Light Service for 20 offices in Wiebaden • Light Service fo Mainz-Kaste • Light Service factory building in Bochum • Light Service factory building in Bochum • Light Service administration building in Bochum
Greece	• Commercial shop, Parabita S.A (now have 16 months of measurements and results) • Office Building, Fysiko Aerio Attikis (Natural Gas Company of the Region of Attica) • Central offices of the ETHER Applications Ltd Company
Latvia	• Gulbene municipal building • Apartment building in Riga
Slovakia	• Service Centre in Nováky town • Psychiatric Hospital of P.Pinel • Building of student dormitory ŠD5 - Starohájska 2900/8 in Bratislava
Spain	• Swap&Play (monitoring and metering) • Grupo PRISA (PV plant)
Czech Republic	• Academy of Arts, Prague • Czech Tehnical University, Prague
Belgium	• Municipal buildings in City of St.Niklaas • University Campus VUB, Brussels
Bulgaria	• School in town of Kostinbrod; • Kindergarten in town of Katunits • Efficient refrigeration a distributional centre in a food retail enterprise

Wrap up

- Thank you to all speakers and participants
- Presentations and recordings will be sent in a follow up email and available on our website. qualitee.eu > publications > final conference
- **Session 3: How can we build trust in Energy Efficiency Services?**
  Date: 19 June 2020
  Time: 10:00 – 11:00 Central European Time