

Investor Confidence Project

Europe Technical Forum

The presentation will start promptly at 14:05 CET

Audio instructions:

After joining the conference you must connect to an audio source by **clicking on the telephone symbol** at the top of the screen. You will be given two options - phone or via computer. If you choose by phone, you will find your country-specific call-in number in the drop-down menu provided on your screen. Once connected please enter the ID code at the top of the screen to access the webinar.



Investor Confidence Project Europe

Technical Forum

June 30th, 2015

Luís Castanheira, ICP Europe Technical Director



Welcome to the Investor Confidence Project (ICP) Europe 1st Technical Forum



Luís Castanheira
Technical Director
ICP Europe

Agenda:

- ICP and ICP Europe
- ICP Europe Technical Forum
- Product Structure and Overall Scheme
- Protocol Structure and PDS
- Initial European Research Results
- Documentation package
- Next steps and timeline

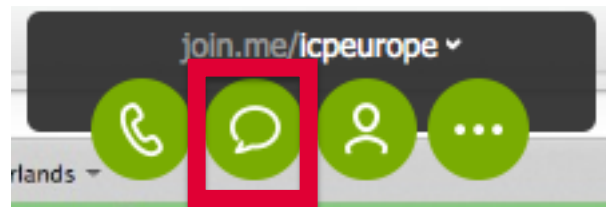
Welcome to the Investor Confidence Project (ICP) Europe 1st Technical Forum

Outcomes

- Understanding of:
 - ICP Europe's technical goals
 - Role of Technical Forum
 - Tools ICP Europe is creating
 - Product development schedule
 - Next steps and how you can participate

If You Do Have Questions During the Webinar.....

- Please click the “chat” button at the top of the screen, in the Join.me control panel:



- Please address your questions to “@host”,
- As much as possible questions will be answered during the presentation.

This presentation is being recorded and will be posted at europe.eepperformance.org and emailed to registrants

ICP Europe

ICP and ICP Europe

A critical mismatch has been identified locally and globally in the energy efficiency (EE) markets between project promoters and investors.

Relevant financial sector stakeholders have identified lack of project standardization as the main market barrier supporting this mismatch.

ICP is seeking to bring this STANDARDIZATION to the market, with a suite of products, implementation procedures and partners.



Help **Administrators** reduce
programme process and
costs



Help **Developers**
deliver more bankable
projects



Help **Investors** manage
risk so they can invest in
energy efficiency

ICP Europe Steering Group

ARUP



SIEMENS



ICP Europe Funding



European Commission
Horizon 2020 Programme



Private Foundations

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ICP Europe and the ICP Europe Technical Forum

Technical forum - What

Voluntary advisory group that ensures that ICP Europe staff produce relevant products and services for the European renovation markets. The Forum does this through:

1. Providing market insight and feedback on draft products;
2. Providing local, national and European knowledge on relevant standards, best practices and initiatives, and
3. Identifying projects and programmes for piloting of ICP Europe products and services.

82 Members

Belgium

Luxembourg Canada

Portugal Greece

France Germany

Turkey United States

Finland Sweden Singapore

Italy Switzerland

Netherlands

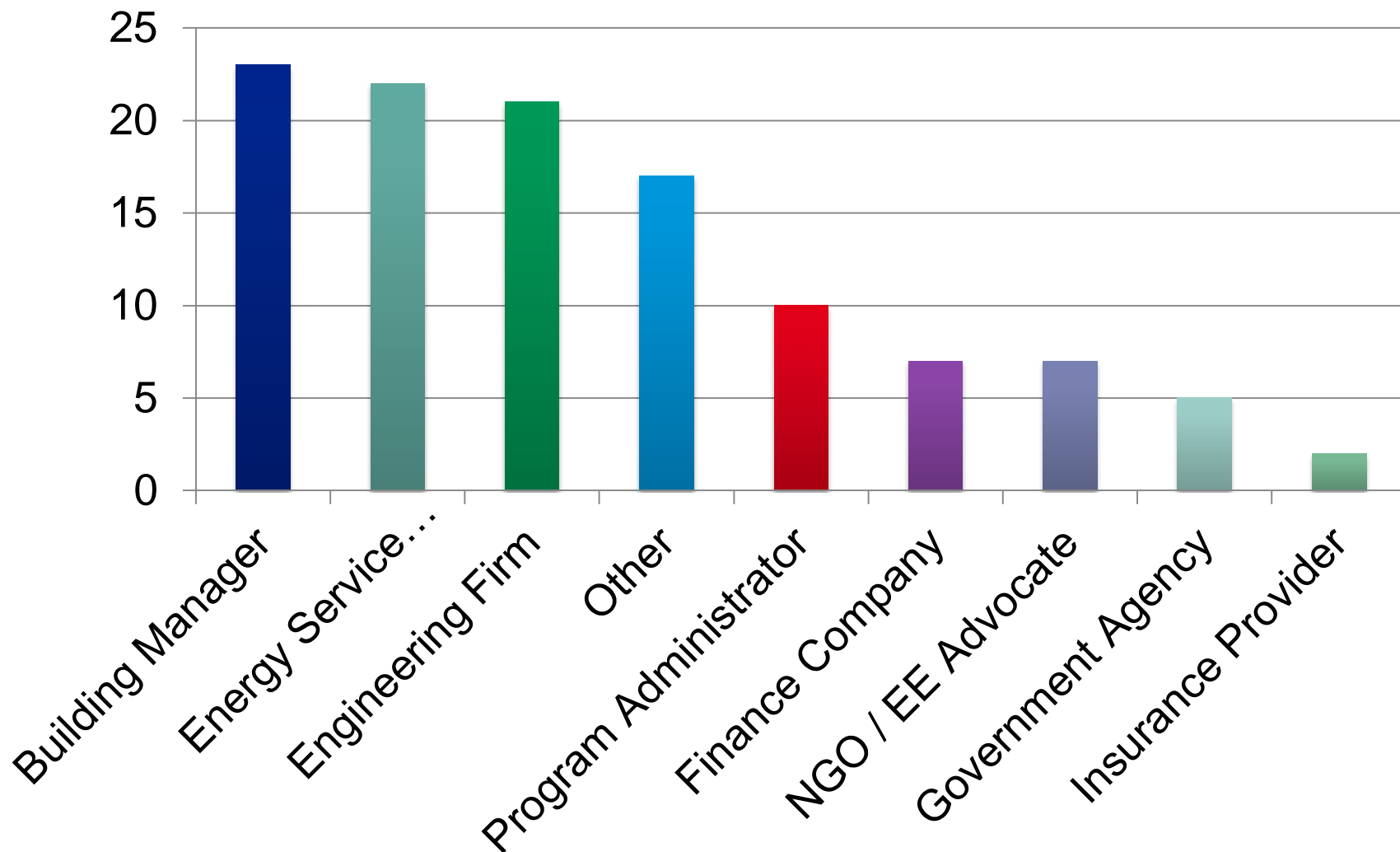
Spain Ireland

Denmark

UK

Technical forum - members

June 30 ICP Europe Technical Forum



Technical forum – Process

- Monthly 1.5-2 hour webinars
- Materials distributed before webinars
- Comments during webinars or informally after
- Edits and suggestions for ICP Europe products will be collected via direct edits to documents and emails



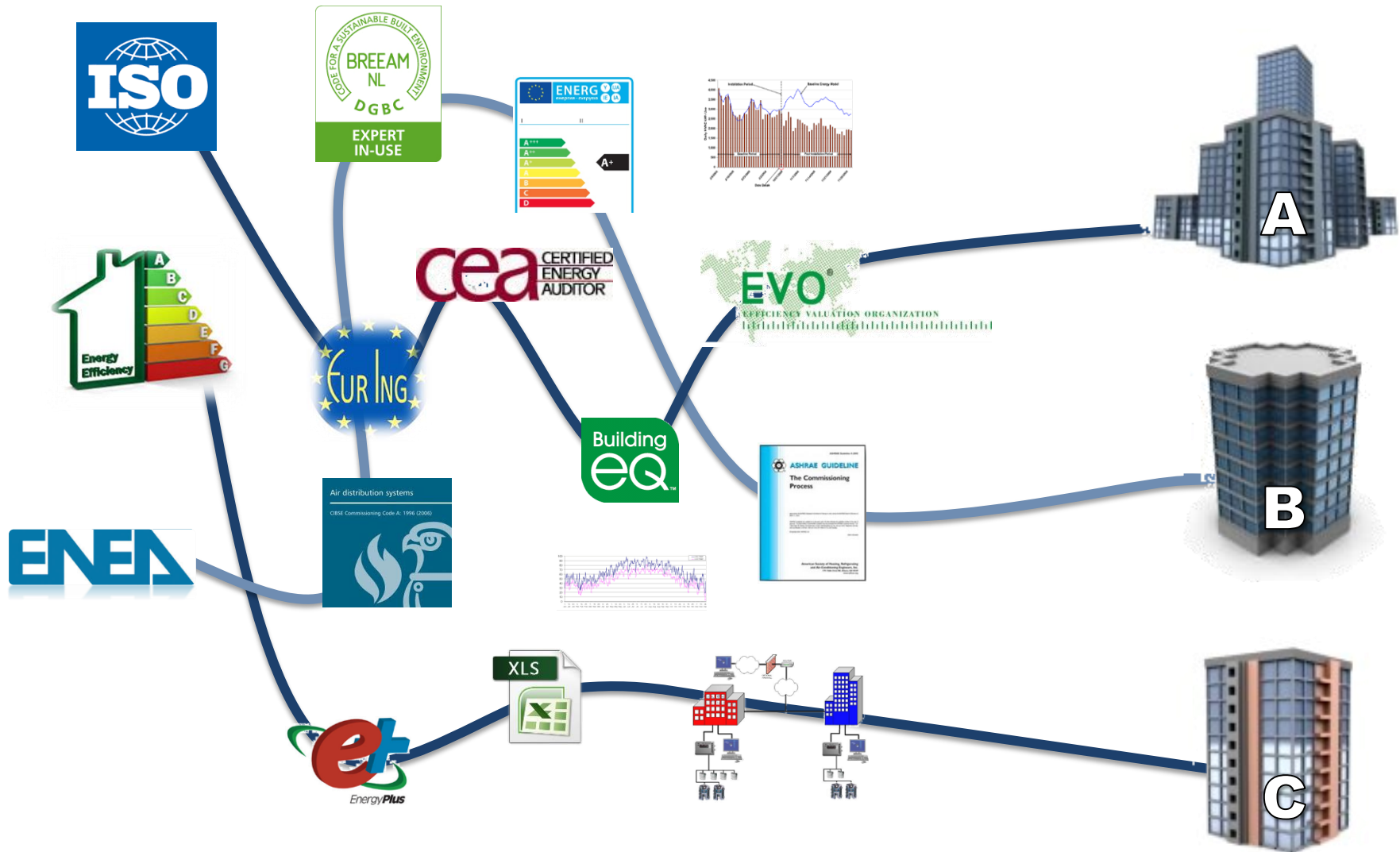
Technical forum – Participation Benefits

- Members will have the opportunity to shape ICP Europe products to their needs;
- Among the first market actors to have full knowledge about the system;
- Participate with a network of other industry leaders

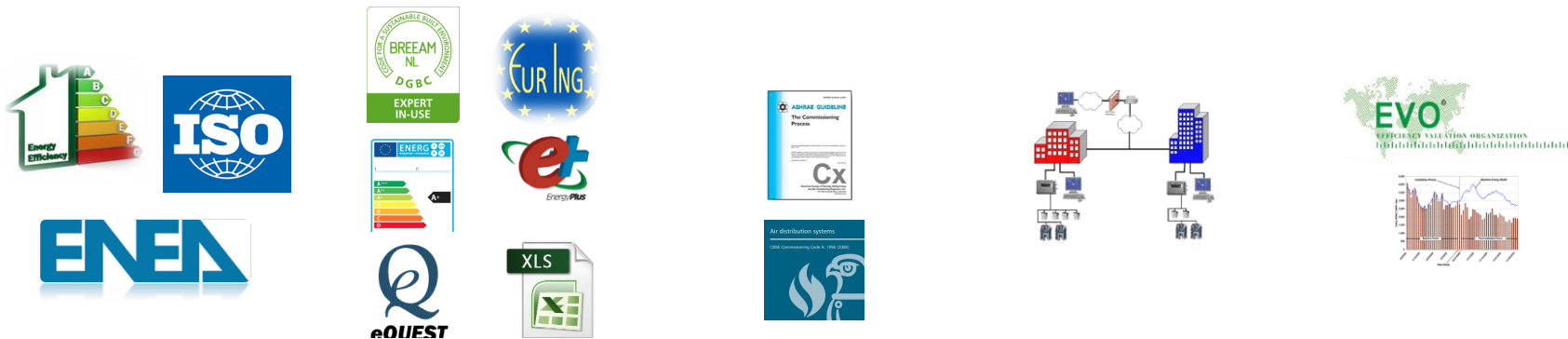


ICP Europe Energy Project Protocols

Lack of Standardisation = Greater Risk



ICP Energy Performance Protocols



BASELINING

- Existing Building
- Drawings
- Weather File
- Energy Usage
- Energy Rates
- Occupancy

SAVINGS

- Model File
- Calibration Data
- Bid Packages
- Certifications

COMMISSION

- Cx Plan
- Cx Authority
- Test Procedures
- Facilities Req.

OPERATIONS

- BMS Points
- Fault Plan
- Maintenance Plan

MEASUREMENT

- M&V Model
- Regression Model
- Adjustments
- Impact
- Baseline Adjustments

ICP Energy Performance Protocols



Developers

- Use as project guidance to manage performance risk
- Reduces engineering costs
- Increases investment attractiveness of project



Programme Administrators

- Streamlines programme processes and data collection
- Builds local contractor capacity
- Transition programme to market

Investors

- Streamlines diligence process
- Clear message to market
- Facilitates a project pipeline



ICP Europe Protocols Structure

Large Tertiary

Large Apartment
Block

Project capex > €1m, whole building retrofit

Standard Tertiary

Standard Apartment
Block

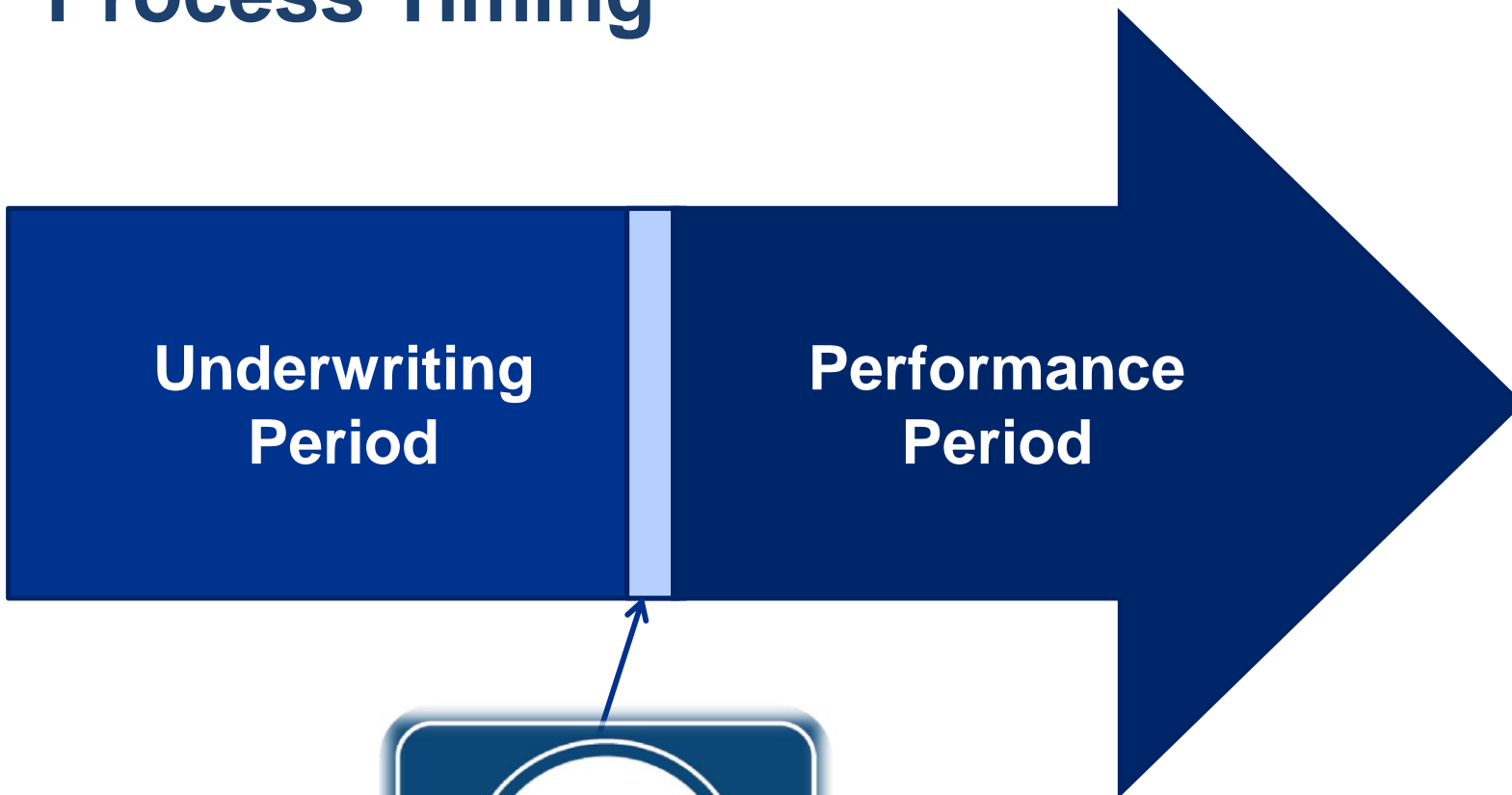
Project capex < €1m, whole building retrofit

Targeted Tertiary

Targeted Apartment
Block

Single or limited number of EE measures

ICP Process Timing

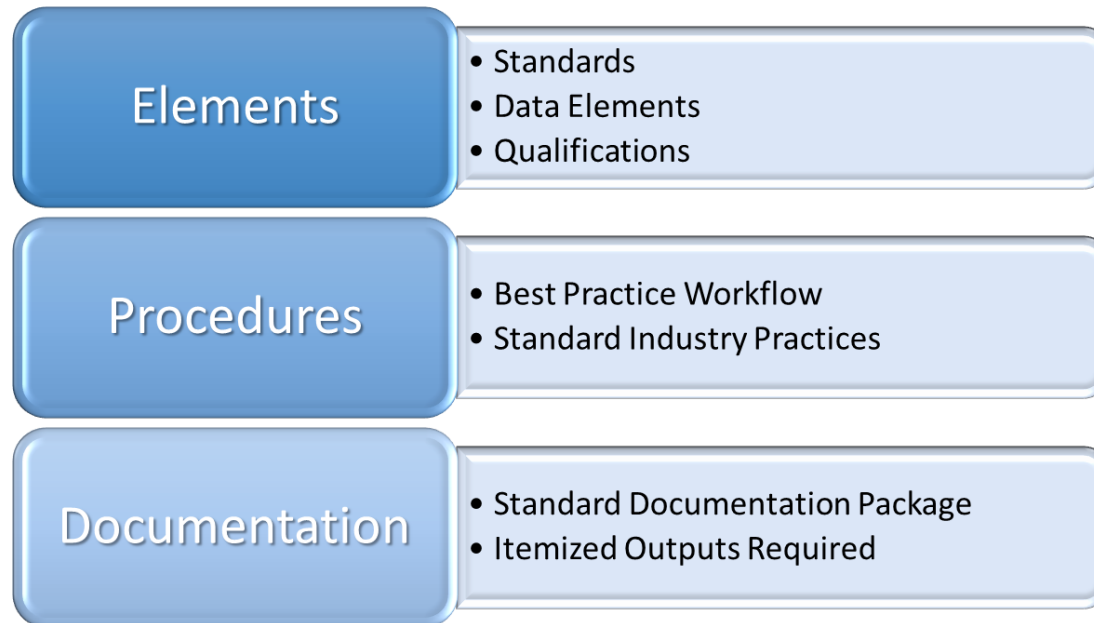


ICP Europe Protocol Structure

Design principles for the EU protocols

- Pan-European system
- Accommodate national Member State specificities/resources
- Rely upon EU directive objectives and statutes, in particular EPBD and EED

Energy Performance Protocol Framework



ICP Europe Product Structure

Protocols do NOT:

- invent new standards
- attempt to impose national standards in another country
- restrict engineering solutions
- define a set level of energy savings



ICP Europe Project Development Specification



ICP Europe Roll-out

CREATE TOOLS

Protocols

Project Developer Specification

TAKE TOOLS TO MARKET

Private investors, Public programmes,
Developers, Property owners, Utilities

BE A CATALYST FOR CHANGE

Connect projects to capital
Facilitate pilot projects and programmes

2015

2016

2017

Protocol Structure

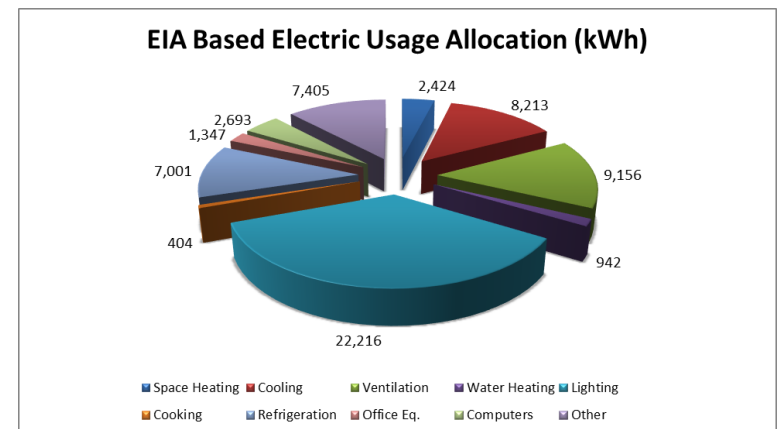
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- 1. Baseline Development**
- 2. Savings Calculations**
- 3. Design, Construction & Verification**
- 4. Operations Maintenance & Monitoring**
- 5. Measurement & Verification**



Baselining

- 12-36 months of utility data (minimum 12)
- All energy uses data types
- No major renovations
- Develop 12 month baseline
- Determine end-use energy use
- Collect building asset, operational and performance data
- Weather data
- Occupancy data



Baseline Documentation

Documentation

Weather data

Baseline period (start and end dates)

Energy data

Access to all building asset, operational and performance data

Utility rate structure

Interval data; sub-metered data; load profiles; monthly peak demand

On-site weather data

Owner's rent roll

1. Baseline Development

2. Savings Calculations

3. Design, Construction & Verification

4. Operations Maintenance & Monitoring

5. Measurement & Verification



Savings calculations

- Energy modeling software or calculation methods
- Modeler credentials
- Supporting model files
- Model calibration
- Model process description
- Key metric benchmarks
- ECM model variables
- Individual savings results, and packaged results



Savings Calculation Documentation

Documentation

Energy modeler qualifications

Energy consultant qualifications

Calibrated model inputs and calibration results

Model input files; output files; weather file

Workbooks, calculation tools; weather file

Basis for cost estimates

Quality control statement and savings (% end-use energy use)

1. Baseline Development

2. Savings Calculations

3. Design, Construction & Verification

4. Operations Maintenance & Monitoring

5. Measurement & Verification



Design, Construction and Verification

- Operational performance verification (OPV) Plan
- OPV Effort (targeted commissioning)
- OPV approaches
 - inspection, spot measurements data logging
- Training
- Systems manual



Design, Construction & Verification Documentation

Documentation

Qualifications of the OPV provider

OPV Plan

OPV concise report

Systems manual

Statement that project conforms to intent of scope

Training materials and record of training

1. Baseline Development
2. Savings Calculations
3. Design, Construction & Verification
- 4. Operations Maintenance & Monitoring**
5. Measurement & Verification



Operations, Maintenance & Monitoring

- OM&M plan
- OM&M process
 - Inspections, RCx, ongoing Cx, monitoring-based Cx
- OM&M management framework
- Operations manual
- OM&M training



Operator's Manual and Training

- Operator's manual
- Training
 - ECM maintenance
 - Performance metrics
 - Automated management
 - Preventative maintenance
 - Issue resolution
- Can be combined with OPV training and Systems Manual



Operations, Maintenance & Monitoring Documentation

Documentation

OM&M Plan

Organizational chart

Maintenance plans and service response log

Training curriculum

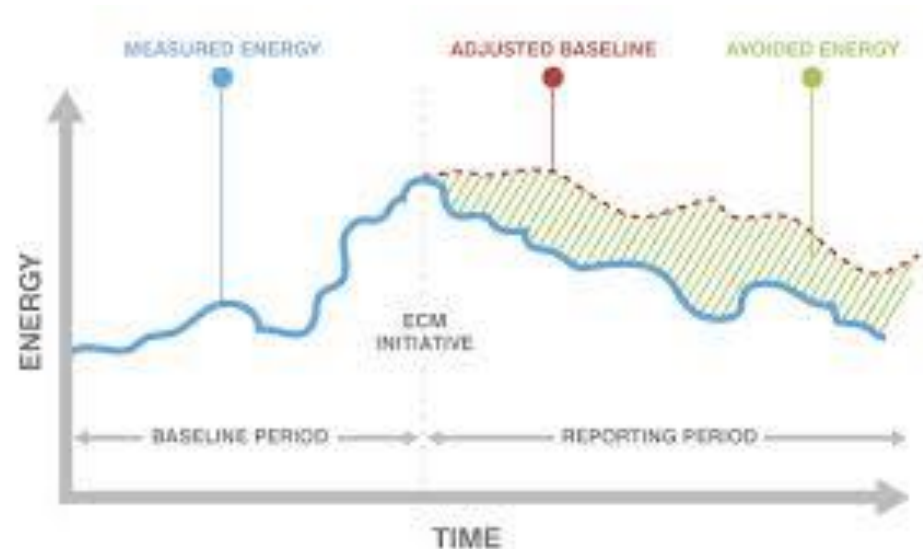
Operator's manual

1. Baseline Development
2. Savings Calculations
3. Design, Construction & Verification
4. Operations Maintenance & Monitoring
- 5. Measurement & Verification**



Monitoring & verification

- M&V provider credentials
- Options A and B: Retrofit Isolation
- Option C: Whole facility
- M&V report



Measurement & Verification Documentation

Documentation

M&V Plan

Routine adjustments

Pre- and post-retrofit collected data

Non-routine adjustments

Description of regression model and verified savings

Revised savings calculations

M&V Report

ICP Europe Technical Research

Initial Research Results – EU level

- EU/International resources – 1st strand of research for main building blocks of EPP

Example:

- ISO 50002: Energy Audits
- EN 16247-1: Energy Audits General Requirements
- EN 16247-2: Energy Audits Buildings

Initial Research Results – national standards and best practices

- Researching standards and best practices for 30 European countries in an annex to each protocol
- We have received over 20 responses to the questionnaire from EU experts covering 16 countries
- Need to contact experts for remaining countries (Croatia, Denmark, Estonia, Finland, France, Luxemburg, Malta, Norway, Poland, Romania, Slovakia, Slovenia and Sweden)

Initial Research Results – example

Scope / country	Standard for Baseline – historical energy use and building asset data
Purpose and scope	Conducting a building energy performance assessment (BEPA) on a building.
North America	ASTM E2797-11 Building Energy Performance Assessment (BEPA) Standard
Austria	- OENORM EN 15255 Energy performance of buildings.
Germany	For non-residential buildings: DIN V 18599.
Portugal	Portaria nº60 / 2013 and Portaria No. 349-D / 2013
UK	CIBSE Guide F: Energy Efficiency in Buildings (Section 19: Benchmarking, Monitoring and Targeting)

Research Questionnaire

- Offer feedback on national Best Practices and Standards used in their markets
 - europe.eepperformance.org/standards-research



Next Steps

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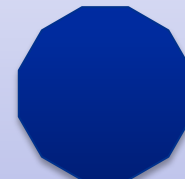
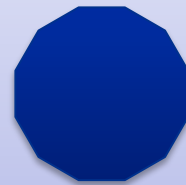
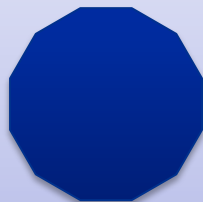
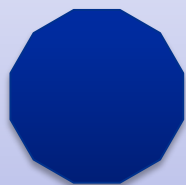
ICP Europe Protocol Timeline – 2015-16

Release Draft
Large and
Standard Tertiary
Protocols

**Finalise
Tertiary
Protocols**

**Finalise
Targeted
Protocols**

**Finalise
Apartment
Block
Protocols**



June

October

December

February

Release Draft
Targeted
Protocols

Release Draft
Large and
Standard
Apartment
Block
Protocols

Draft Protocols

- First draft protocols released for preview
 - Large Tertiary: over €1 million capex
 - Standard Tertiary: under €1 million capex

europe.eepformance.org/protocols

Next steps and timeline

Technical Forum

- Provide feedback on the material covered today
 - europe.eepperformance.org/technical-resources
- Offer feedback on national Best Practices and Standards used in their markets
 - europe.eepperformance.org/standards-research
- Review draft Tertiary Protocol previews
 - europe.eepperformance.org/protocols

Next steps and timeline June-September

ICP Europe Technical Staff

- Complete national standards and best practices research by end of August
- Feedback from this webinar and informal discussions will be used to adjust protocol design
- Complete draft Large and Standard Tertiary Protocols released in mid-September
- Late September Technical Forum Meeting on Tertiary Protocols

Technical Forum Webpage

The screenshot shows a web browser window displaying the 'europe.eepformance.org/technical-forum.html' page. The browser's address bar and tabs are visible at the top. The webpage header features the 'INVESTOR CONFIDENCE PROJECT' logo, a search bar, and a 'Select Language' dropdown. A navigation menu includes links for 'ICP Europe', 'Countries', 'Allies', 'Blog', 'Protocols', 'Technical Forum', and 'N. America'. The 'Technical Forum' dropdown menu is open, showing options for 'Project Development Specification', 'Project Framework', and 'Technical Resources'. The main content area has a banner for the 'ICP Europe Technical Forum' with a cityscape background and the text 'Increased Deal Flow | Managed Performance Risk | Actionable Data'. Below the banner, a welcome message states: 'Welcome to the ICP Europe Technical Forum. The next Technical Forum meeting will be held on Tuesday 30th June at 14:00 CET. Webinar details: Join.me/icpeurope [ID code 107-099-016]. Please find the meeting agenda [here](#).' It also describes the forum as an industry leading technical advisory group and mentions the need to consider regional and member state needs for protocol use. At the bottom, a presentation viewer shows 'Slide 67 of 69' at 90% zoom.

europe.eepformance.org/technical-forum.html

Apps European Commission LIS TinyURL! Welcome to the Asso Netherlands TinyURL! Zorgverzekeraar VGZ Career Skills - Career BusinessTools - Har Other Bookmarks

INVESTOR CONFIDENCE PROJECT

a project of Environmental Defense Fund

Search Select Language

ICP Europe Countries Allies Blog Protocols Technical Forum N. America

Project Development Specification

Project Framework

Technical Resources

ICP Europe Technical Forum

Increased Deal Flow | Managed Performance Risk | Actionable Data

Welcome to the ICP Europe Technical Forum

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The ICP Europe Technical Forum is an industry leading technical advisory group that assists the ICP Europe staff in the development and maintenance of the ICP Europe **Energy Performance Protocols**. The Forum is an open attendance, transparent group that meets periodically via webinar and incorporates the broad range of interests, input, and skills in this diverse marketplace - please feel free join the discussion.

In order to facilitate the protocols use in Europe it will be necessary to consider regional and member state needs, including translation and local

europe.eepformance.org/technical-forum.html

Slide 67 of 69 90%

Slide 18 of 38 53%

European Ally Network Members

If you are not here you should be.

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PARTNERS

Become an Ally!

<http://europe.eepperformance.org/join-icp-europe>

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economic
energy
managing energy costs

CO₂ Estates
Maximising Real Estate Performance

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RdA
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EcoProsperity Capital Ltd
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abundance

Or Google "ICP Europe Ally"

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SMARTWATT
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LENDERS
COMMERCIAL FINANCE

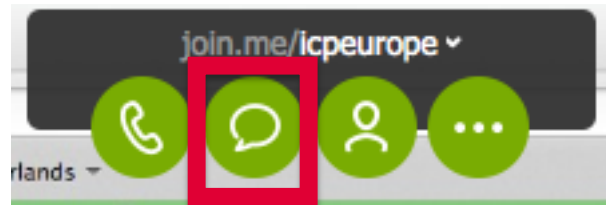
INVESTOR
CONFIDENCE
PROJECT

**THANK YOU ALL FOR YOUR TIME
AND
WELCOME TO ICP EUROPE TECHNICAL
FORUM**

**TOGETHER WE WILL UNLOCK THE
EUROPEAN EE INVESTMENT MARKET!**

If You Have Questions

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Investor Confidence Project Europe

www.EEperformance.org

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