Welcome to the ICP Technical Forum Webinar

Using the control panel provided, please select your audio preference – either 'mic and speakers' if you want to follow the webinar on your computer, or 'by phone', if you would like to call in. Please follow the directions given.

The control panel can also be used for the following during the webinar:

- If you would like to ask a question, please click on the hand icon or 'call out' at the bottom of the tool bar. This will go red and alert the presenter that you want to speak.
- Alternatively, if you would like to write a question or comment, there is a text box that you can expand or shrink using the arrow at the top of the tool bar.

The presentation will start today at 15:05 (CET)

This presentation will be recorded.

Investor Confidence Project Europe

Technical Forum
February 2nd, 2016

Luís Castanheira, ICP Europe Technical Director

Welcome to the ICP Europe 4th Technical Forum

Agenda:

- ICP Europe – Where we are at and the next six months
- Final release of Apartment Blocks protocols
- Final release of Targeted protocols
- First developments on Project Development Specification (PDS)
- Annex A - update on research
- Timeline
- Next steps and your participation

Welcome to the ICP Europe 4ᵗʰ Technical Forum

Outcomes

Understanding of:

- Present status of ICP in Europe
- Opportunities coming soon
- Update on status of protocols
- Update on PDS development
- Present situation of Technical Research
- Next steps and how you can participate

INVESTOR CONFIDENCE PROJECT

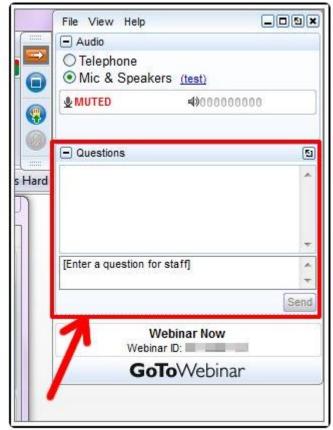# If You Do Have Questions During the Webinar…..

- **Q&A session will be held at the end of the presentation**

- If you would like to ask a question verbally, please **raise your hand**

- Please don't forget to briefly introduce yourself by stating your name and organisation!

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ICP Europe Update and Look Ahead

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 and building owners 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.

INVESTOR CONFIDENCE PROJECT

europe.eeperformance.org

Help **Governments** reduce programme process and costs

Help **Developers** deliver more bankable projects

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

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ICP Energy Performance Protocols

Baselining	Savings Projections	Design, Construction, Commissioning	Operations, Maintenance, Monitoring	Measurement & Verification (M&V)

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

MEASUREME

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

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Protocol Building Types

Tertiary

Apartment

Large
Whole building retrofit, dynamic modeling

Standard
Whole building retrofit, no dynamic modeling

Targeted
Single or limited number of EE measures

Google: ICP Europe Protocols

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INVESTOR READY ENERGY EFFICIENCY ™

Project Development and Engineering

Project Lifecycle Management

Third Party Verification

Investor Ready Energy Efficiency™

IREE is the" logo in the lobby", like BREEAM or LEED but for a building retrofit project.

ICP Credentialed Project Developers
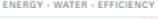
ICP Credentialed Quality Assurance Provider
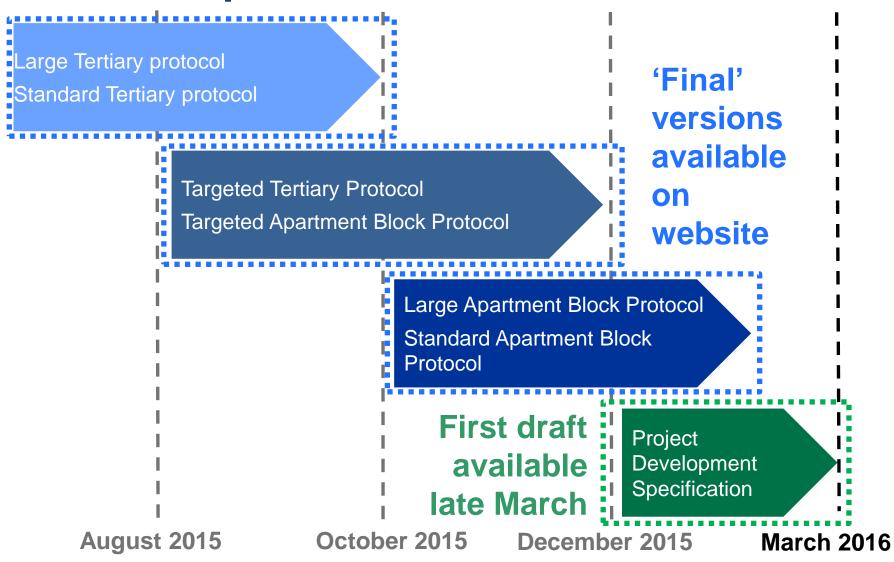
ICP Credentialed Software Provider
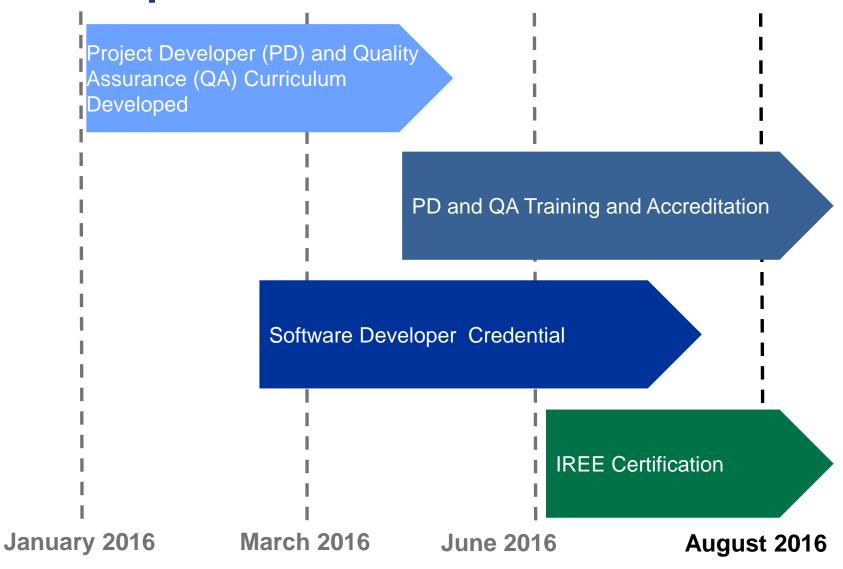
ICP Europe Protocol Timeline – 2015-16

Large Tertiary protocol
Standard Tertiary protocol

Targeted Tertiary Protocol
Targeted Apartment Block Protocol

Large Apartment Block Protocol
Standard Apartment Block Protocol

'Final' versions available on website

First draft available late March

Project Development Specification

August 2015   **October 2015**   **December 2015**   **March 2016**

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ICP Europe Roll-out Timeline – 2016

Project Developer (PD) and Quality Assurance (QA) Curriculum Developed

PD and QA Training and Accreditation

Software Developer Credential

IREE Certification

January 2016 — March 2016 — June 2016 — **August 2016**

INVESTOR CONFIDENCE PROJECT
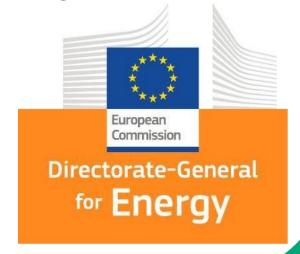
ICP Investor Network

Implementation of EEFIG recommendations

1. Build a **database of energy efficiency projects across Europe** (buildings and industry)

- Evidence base for financial institutions that EE is a good investment

2. Develop **a common framework/language for underwriting energy efficiency projects**

- Standardise language and understanding, using ICP
- Plug into existing internal underwriting processes

End result: **EC and major financial institutions sign up**

ICP Europe Ally Network Members

If you are not here you should be. Become an Ally!

europe.eeperformance.org/join-icp-europe

How You Can Continue to Stay Involved

- Take the PD and QA training

- Tell your project software developer about the ICP accreditation

- Pilot the protocols on a project or programme

- Join the Ally Network

- Tell investors about the Investors Network.

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ICP Europe Technical Forum

Technical forum so far…

- Four forums already held

- Active and crucial participation on ICP product market shaping

- One to one basis communication

- Main body to assure product consistency with market needs and specifics

> " [Europe needs the] Launch of an EU-wide initiative to develop a common set of procedures and standards for energy efficiency and buildings refurbishment underwriting for both debt and equity investments. "
>
> - Energy Efficiency Financial Institutions Group, a European Commission and United Nations Environment Program Financing Initiative Working Group

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Technical forum

Technical Forum Meeting - 29 October, 2015

ICP Europe Technical Forum Meeting. Status update on Large Tertiary Building and Standard Tertiary Building Protocols. Presentation of Targeted Tertiary and Targeted Apartment Blocks Protocols. Status update on Member State national resources

PLAY RECORDING

Technical Forum Meeting - 24 September, 2015

ICP Europe Technical Forum Meeting. Covered the first drafts of the first two protocols released for the European market, Large Tertiary and Standard Tertiary, Protocol Structure and Project Development Specification. Ongoing European Standards Research results.

PLAY RECORDING

http://europe.eeperformance.org/call-recordings.html

Germany

Portugal

Denmark Latvia

Spain

Malta UK USA

Europe France

Africa South

Norway Turkey Romania

Ireland Switzerland

Italy Greece Israel

Sweden Singapore

Canada

Finland Belgium

Bulgaria

Netherlands

Austria

ICP Europe protocols

Large Tertiary

Large Apartment Block
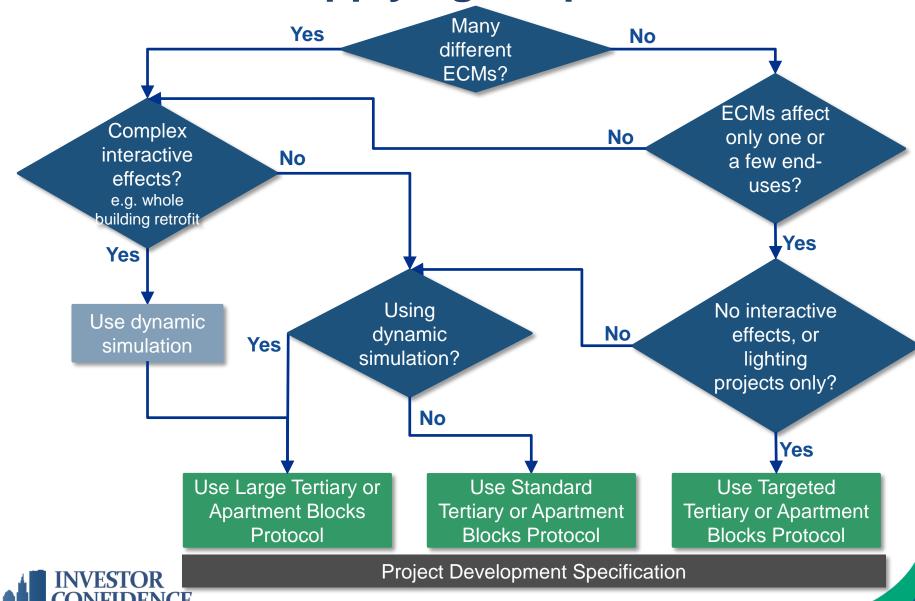
Standard Tertiary

Standard Apartment Block

Targeted Tertiary

Targeted Apartment Block

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Guidance on applying the protocols

Many different ECMs?
- Yes →
- No →

Complex interactive effects? e.g. whole building retrofit
- Yes → Use dynamic simulation
- No →

ECMs affect only one or a few end-uses?
- No →
- Yes →

Using dynamic simulation?
- Yes → Use Large Tertiary or Apartment Blocks Protocol
- No → Use Standard Tertiary or Apartment Blocks Protocol

No interactive effects, or lighting projects only?
- No →
- Yes → Use Targeted Tertiary or Apartment Blocks Protocol

Project Development Specification

INVESTOR CONFIDENCE PROJECT

Large and Standard Apartment Blocks status update

IT IS
FINISHED.

John 19:30

by RyanTate

"Knowing is not enough;
We must apply.
Willing is not enough;
We must do."

J.W Van Goethe

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What are potential drivers of future changes?

- Market uptake of the protocols, and in particular pilot projects, some of them already ongoing;

- Project Developers and Third Party Quality Assurance certification processes;

- Software development;

- New standards and supporting resources.

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Targeted Protocols status update

IT IS
FINISHED.

John 19:30

Project Development Specification status update

What?

- Roadmap for Project Developers to correctly implement each requirement specified in the protocols

- Covers all protocols

- Comprehensive description of minimum requirements - use of referenced documents not essential

- References additional resources which may be useful for a best practice approach

How?

- Living document

- To be used together with other ICP Europe products – protocols, index of national resources and software packages

- Guidance on protocol application – what protocol is best for my project?

- Critical path methodologies and resources

- Templates for plans and other supporting elements

- Glossary

How?

- Structured in a similar way to the protocols, with some **critical additions**:
  - **Protocol selection**
  - Baselining
  - Savings calculations
  - Design, construction and verification
  - Operations, maintenance, and monitoring
  - Measurement and verification
  - **Other project development topics**
    - **Owner's representative/third party involvement**
    - **Uncertainty and risk**
  - **Project documentation package**
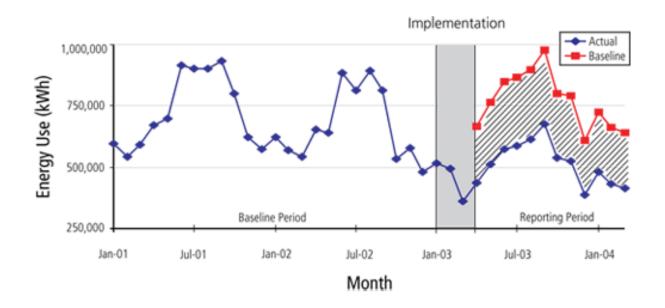 - **Comprehensive list of resources**

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How? The process…

- We are developing the tool on a section by section approach;

- We are collecting feedback in a different way to the protocols;

- Releasing final version in April;

- If any of the Tech Forum members want to get involved and get first view over section development, we would be glad to share drafts.

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When?

- First draft March 2016
- Commenting period following release of the first draft
- Final issue April 2016

'Final' versions of the protocols…

Completed Energy Performance Protocols

Please find below the final version Energy Performance Protocols available to download for immediate use. If you have any questions about the Protocols please contact **Luis Castanheira (Technical Director, ICP Europe)**

Large Tertiary Energy Performance Protocol - FINAL

- This Protocol is designed for large scale tertiary projects that involve whole building retrofits involving multiple measures with interactive effects.

Standard Tertiary Energy Performance Protocol - FINAL

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- This Protocol is designed for targeted tertiary projects that involve building retrofits with only one or a limited set of energy conservation measures, without major interaction between them.

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Standard Apartment Blocks Energy Performance Protocol - FINAL

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….comments always welcome!

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Annex A: Index of National Standards – Update on research

Cross protocol national resources reference document

INVESTOR CONFIDENCE PROJECT

ENERGY PERFORMANCE PROTOCOL

ANNEX A: INDEX OF NATIONAL STANDARDS

VERSION EU 0.1 – SEPTEMBER 2015

EDF ENVIRONMENTAL DEFENSE FUND
Finding the ways that work

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 649836. The sole responsibility for the content of this document lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission are responsible for any use that may be made of the information contained therein.

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National Resources – UK example

Excerpt from Annex A showing Protocol stage 2 national standards/rsources

Protocol stage	Applicable protocols	Protocol component	European Reference Provision	Relevant European reference (where available)	National equivalent standard: tertiary	National equivalent standard: residential
2. Baselining – Core Requirements	All	Accurate total floor area	How to calculate total conditioned floor area (e.g. measured from inside, outside or middle of walls)	EN ISO 13790-2008 (Section 3.2.6)	CIBSE TM47: Operational Ratings and Display Energy Certificates	CIBSE TM47: Operational Ratings and Display Energy Certificates
		Occupancy data	Different occupancy (number of people) times/patterns, extended hours behaviour and internal loads. Also includes information such as previous energy audits, details on when the building was built and refurbished, set points and occupant behaviour.	EN 16247-2 Energy audits buildings - Part 2: Buildings (Section 5.3.2)	CIBSE TM47: Operational Ratings and Display Energy Certificates	CIBSE TM47: Operational Ratings and Display Energy Certificates
		Material specifications/inventories	Detailed checklist of information to collect during a survey (e.g. light fitting type, heating system type, controls information etc.), including by building type e.g. industrial, multi-family	EN 16247-2 Energy audits - Part 2: Buildings (Section 5.3.2 and Annex D)	CIBSE Guide F: Energy Efficiency in Buildings, Table 18.2	CIBSE Guide F: Energy Efficiency in Buildings, Table 18.2
		Data calendarisation	How periods are consolidated to the integer years/months periods applied. Determine average daily usage during each partial month covered, and summing the daily average usage over the number of days in the calendar month.	ISO 16346:2013 Energy Performance of Buildings – Assessment of Overall Energy Performance (section 8.2.2)	CIBSE TM47: Operational Ratings and Display Energy Certificates	CIBSE TM47: Operational Ratings and Display Energy Certificates
		Baseline regression model methodology	Explains the concept of normalisation (linear regression), and provides examples.	ISO 50006:2014 Energy Management Systems – Measuring Energy Performance Using Energy Baselines and Energy Performance Indicators methodology (Annex D)	CIBSE Guide F: Energy Efficiency in Buildings (Section 19)	CIBSE Guide F: Energy Efficiency in Buildings (Section 19)
		Accuracy (appropriate goodness of fit of energy data to independent variables)	Explains Uncertainty Analysis, including how to calculate CV (RMSE).	IPMVP vol1 2012 (Appendix B)	CIBSE Guide F: Energy Efficiency in Buildings (Section 19)	CIBSE Guide F: Energy Efficiency in Buildings (Section 19)
	Residential and targeted only	Baseline energy use characteristics of the equipment	Summarises how to estimate energy savings based on energy use characteristics i.e. load and hours-of-use, and the significant of whether components are constant or variable.	IPMVP vol1 2012 (section 4.7.1)	CIBSE TM22 - Energy Assessment and Reporting Methodology	CIBSE TM22 - Energy Assessment and Reporting Methodology
	All	Commercial benchmarking of energy end use	Database which can be filtered based on building type and country. Outputs total energy consumption data and energy end use data (heating, cooling, lighting and total) to give a reality check against estimates.	Buildings Performance Institute Europe's Data Hub for the Energy Performance of Buildings (see http://www.buildingsdata.eu/)	CIBSE TM46 - Energy Benchmarks	CIBSE TM46 - Energy Benchmarks

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National resources – we need your help!

- We still need support from these specific countries to complete our questionnaire

- However, additional completed questionnaires from other countries would always be appreciated!

- **Please contact us if you can complete a questionnaire or if you can put us in touch with someone you think can help**

No questionnaire responses, no active contacts (highest priority)	**Malta**
Limited questionnaire responses, one or more active contacts (high priority)	**Finland**
	France

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Annex A – The future

- Final release this month;

- Optional alternative to resources listed in the protocols and PDS; the intention is not to increase transaction costs and disturb established practices;

- To be fine tuned within the framework of Project Development, including trainings and QA practices;

Help Us Identify the Right National Standards

europe.eeperformance.org/standards-research

luis.castanheira@eeperformance.org

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Next steps

How can you help:

- Tell us if these drafts fully respond to the needs and specificities of your markets – please comment;

  http://europe.eeperformance.org/protocols-under-development.html

- Deploying application on your projects – we are here to support you;

- Help us reaching experts to identify best practices;

  http://europe.eeperformance.org/standards-research.html

- Get in touch with us on a one to one basis, through myself if you would like to address any particular issue or just to discuss ;
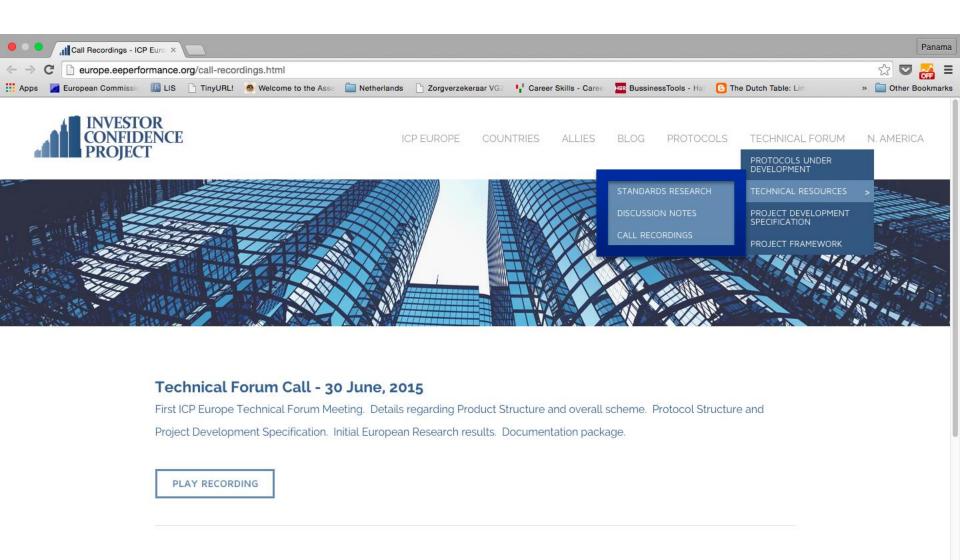
  luis.castanheira@eeperformance.org

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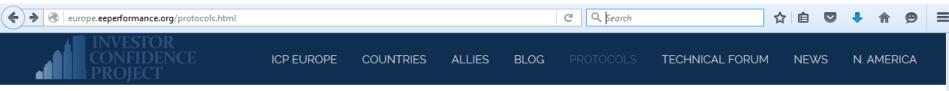# The future of the Tech Forum…

- Protocols and PDS released in the next two months;

- Training/certification programs and software development on the way;

- Tech Forum will have periodical meetings on the basis of feedback needed.

Technical Forum Resources Webpage
europe.eeperformance.org/technical-resources

Completed Protocols Webpage
europe.eeperformance.org/protocols

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ICP EUROPE   COUNTRIES   ALLIES   BLOG   PROTOCOLS   TECHNICAL FORUM   NEWS   N. AMERICA

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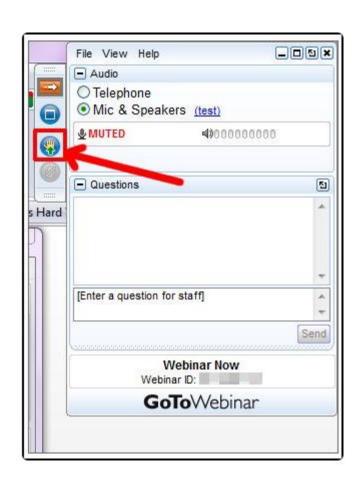
Standard Apartment Blocks Energy Performance Protocol - FINAL

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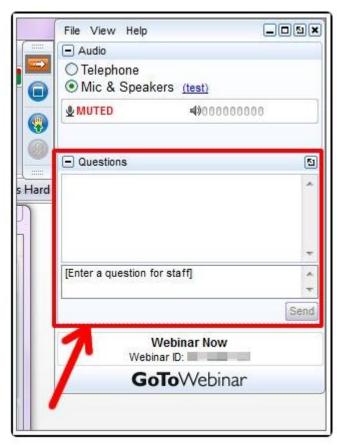# Questions?

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Investor Confidence Project Europe

www.EEperformance.org

For More Information:

Panama Bartholomy
ICP Europe Director
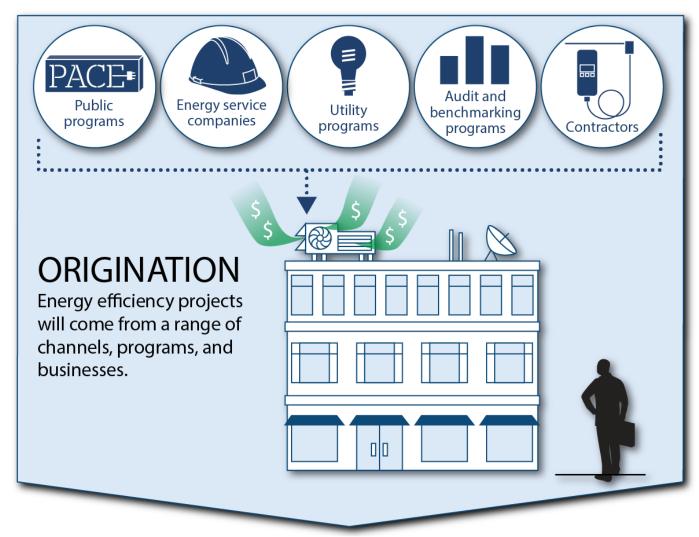
Luís Castanheira
ICP Europe Technical Director

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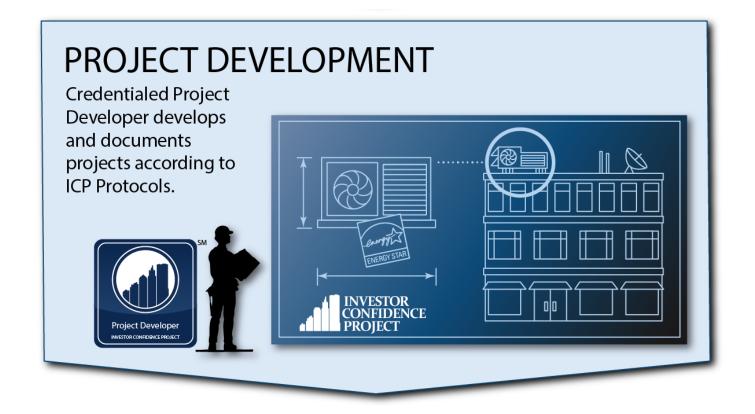
IREE™ Workflow - Origination

ORIGINATION
Energy efficiency projects will come from a range of channels, programs, and businesses.
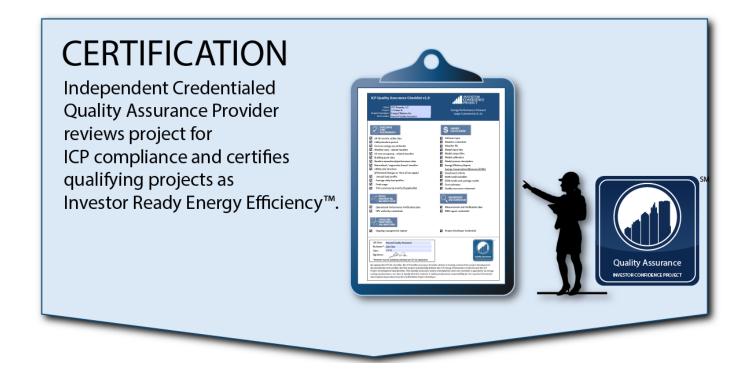
IREE™ Workflow – Project Development

PROJECT DEVELOPMENT

Credentialed Project Developer develops and documents projects according to ICP Protocols.
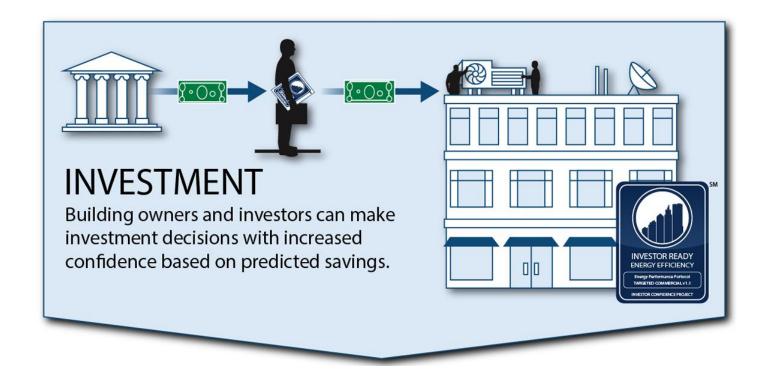
IREE™ Workflow – Certification

CERTIFICATION

Independent Credentialed Quality Assurance Provider reviews project for ICP compliance and certifies qualifying projects as Investor Ready Energy Efficiency™.

IREE™ Workflow – Investment

INVESTMENT

Building owners and investors can make investment decisions with increased confidence based on predicted savings.

INVESTOR READY
ENERGY EFFICIENCY

Energy Performance Portocol
TARGETED COMMERCIAL v1.1

INVESTOR CONFIDENCE PROJECT

INVESTOR
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IREE™ Workflow – Performance

PERFORMANCE

Building's energy performance is optimized and energy savings from retrofit are measured and verified according to ICP Protocols.