

ICP District Energy 2nd Technical Forum Meeting Protocol Drafts Review

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Agenda

1. Protocol drafts presentation and discussion
2. Next steps
3. Other issues

**YOUR
OPINION**

This protocol is intended for District Energy (DE) projects that include:

- **Operational optimisation:** improvements to the energy performance of an existing DE system. The Energy Conservation Measures (ECMs) are likely to include, for example: network insulation, optimising flow volumes and temperatures, reducing network water and heat loss, reducing pumping electricity costs, improving building systems, or reducing ancillary energy loads.
- **Scheme extension:** extension of an existing district energy network to supply new customers, where baseline data is available which meets the requirements of section 1.0 of this protocol. This is likely to entail investment in additional energy centre capacity, network extensions and connections to new customers.



Protocol scope

A third type of project is the development of a new district energy network or extension of an existing scheme to supply existing and/or new buildings/loads, where baseline energy data is not available.

There are **significant challenges associated with developing accurate and robust predictions of heating and cooling loads for such schemes.**

Furthermore, large scale, new build schemes are often phased, meaning that assumptions on when each new load comes online are critical, adding further complexity to predicting loads. For these reasons, this protocol does not yet provide an approach for these types of projects, although this may be developed in the future and we would welcome any suggestions on how this could be achieved.



Protocol scope

Baselining approaches

IPMVP Options A, B and C are appropriate M&V approaches under this protocol.

In selecting an appropriate measurement boundary, the practicalities of collecting explanatory variable data to give a sufficiently accurate baseline model should be considered.

Guidance on developing baselines can be found both in *EVO 10000 – 1:2016, IPMVP Core Concepts* and *ISO 50006:2014 Energy Management Systems – Measuring Energy Performance Using Energy Baselines and Energy Performance Indicators*.

Baselining approaches

Collect energy source data, independent data, and utility rate schedules for all energy sources and fuels entering or leaving the defined measurement boundary to inform baseline and savings calculations.

For scheme extensions, this will include the energy associated with the existing network, as well as the current energy consumption of the buildings or loads which will be connected to the network in the future.

Savings calculations

Improvements to the energy performance of an existing district energy system will result in energy savings, post-retrofit. However, **for district energy scheme extensions, a reduction between pre- and post-retrofit energy consumption is often not the primary objective of the project** and energy savings may not be achieved. **Calculations for this type of project should be based on primary energy including all transmission and distribution losses for a centralised energy supply.**

Should savings calculations be “cost savings calculations”?

Savings calculations

Calculations of **estimated savings for projects using this protocol must be based on transparent calculation methods or tools.** District energy projects may take many forms, with different approaches taken to calculate energy savings. However, all savings calculations must be based on sound engineering methods, and be consistent with the following core IPMVP principles: best practice, accuracy, completeness, conservativeness and transparency.

The results of the savings calculation process should also be calibrated to estimated or known energy end-use consumption. Energy savings calculations must be developed using open source tools.

Savings calculations (on qualifications)

Choose an individual to perform energy savings calculations with one of the following:

- **Nationally/Internationally recognised energy savings calculation certification,**

or

- At least **three years experience** in developing energy savings calculations for District Energy projects, documented in the form of a CV outlining relevant project experience.

Design, Construction and Verification

Appoint an Operational Performance Verification Resource: A specified OPV resource shall be named in the OPV Plan who has one of the following qualifications:

- Nationally/Internationally recognised commissioning certification,
- or**
- Three years or more of commissioning experience in district energy projects, documented in the form of a CV outlining relevant project experience.

Develop an Operational Performance Verification Plan(pre-construction)

Operations, Maintenance and Monitoring

Select and document ongoing management regime including either periodic inspection, automatic Monitoring and Targeting (aM&T) reporting, software-based monitoring and fault detection, periodic recommissioning, or a combination of these approaches.

Develop an Operations, Maintenance and Monitoring Plan(pre-construction)

Measurement and Verification:

M&V procedures are consistent with the methods outlined in *EVO 10000 – 1:2016*, *IPMVP Core Concepts-2016* **Option A** (Retrofit Isolation: Key Parameter Measurement), **Option B** (Retrofit Isolation: All Parameter Measurement) and/or **Option C** (Whole Facility).

Alternatively, projects may also follow an M&V approach which is compliant with *ISO 17741: 2016* *General technical rules for measurement, calculation and verification of energy savings of projects*.

Next steps

- Your comments– This meeting and till March 15th
- Third FG Meeting – April 10th
- Third TF Meeting (Final Approval) – April 13th
- Protocol public release – April 20th
- Develop PD and QAP training materials – Till May

Other issues?

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