ICP Street Lighting 2nd Technical Forum Meeting
Protocol Drafts Review

February 15th, 2018
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Agenda

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

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Protocol scope

To conform to the ICP Protocols, projects must meet the specified procedural and documentation requirements detailed in this document. In order to ensure the protocol requirements optimally fit the project, it is crucial that the project developer selects the correct ICP protocol.

This protocol covers the energy associated with both controlling, powering and lighting the luminaire, and with energy associated with providing additional functionality such as wifi connectivity.

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Table 1 - Illustration of typical street lighting ECMs and ancillary equipment

Typical street lighting equipment	Controls including timing and dimming
	Sensors including presence detection and light level detection
	Central management system (CMS) and associated communications modules
	Ballasts or drivers
	Lighting fixtures
	Power supply including cable losses
Typical ancillary equipment	Wi-fi hotspots
	Mobile phone cell sites
	Low power wireless networks
	~~Electric vehicle charging points~~
	Public information systems
	Sensors (e.g. pollution monitoring, traffic management)
	Other non-lighting-related ancillary load

Baselining approaches

Two approaches to baselining and M&V are permitted under this protocol.

- **IPMVP compliant measurement-based** approach - Options A, B or C may be appropriate

- **Deemed savings** - only for systems where electricity billing is based on an inventory of asset charge codes

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Deemed savings approach (baselining)

- **Establish which charge codes apply** to the equipment that is currently installed. The charge code identifies the energy drawn by the unit.
- **Ensure that charge codes have been properly developed,** such that the requirements of the in-force charging regime are met, and that the following standards apply as a minimum (refer to *Elexon Guidance, The Unmetered Supply (UMS) Charge Code Process*):
  - Equipment has been tested by an ISO 17025 accredited test house.
  - Equipment has been tested under normal service conditions.
  - Minimum accuracy of the measurements will be 2% of the recorded value.
  - The sample size of the piece of equipment to be tested is 1% of the expected first year's manufacturer's production subject to a minimum of five and a maximum of fifty.
  - Overall the accuracy of the inventory must be +2.5% to -3.5% of the consumption.
  - Any other lighting functionality (e.g. dimming) must be tested in accordance with the above criteria to determine energy consumption under a range of typical operational scenarios.
- **Calculate the estimated power consumption** under baseline operation according to the appropriate charge code for each piece of equipment within the project boundary.

Savings calculations

Energy savings calculations **must be developed using open source tools**. However, supporting calculations may require the use of proprietary tools. Where these are used, the documentation must include history of previous use, detailed description of the calculation methodologies and assumptions used by the tool, as well as papers, studies or documentation demonstrating the technical rigour of the tool and methodologies employed.

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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 **five years experience** in developing energy savings calculations, documented in the form of a CV outlining relevant project experience.

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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 street lighting projects, documented in the form of a CV outlining relevant project experience.

Develop a Operational Performance Verification Plan(pre-construction)

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Operations, Maintenance and Monitoring

Select and document ongoing management regime such as either periodic inspection, or remote management and monitoring systems.

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

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Measurement and Verification

Measurement-based approach

The M&V procedures for this approach 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.*

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Measurement and Verification

The pre-retrofit baseline for a deemed savings project is the **estimated annual baseline energy consumption,** calculated by multiplying the annual operating hours by the power consumption for each type of equipment within the project boundary.

Post-upgrade energy consumption is estimated via an equivalent calculation for the system once the energy efficiency project has been implemented, replacing the asset charge codes and estimated annual operational hours with their new post-upgrade values.

The realised energy savings are given by the following calculation:

Energy savings (kWh) = Estimated annual baseline energy consumption MINUS Estimated post-upgrade energy consumption

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Next steps

- Your comments– Till February 21st
- Third FG Meeting – February 27th
- Third TF Meeting (Final Approval) – March 14th
- Protocol public release – March 20th
- Develop PD and QAP training materials – Till May

Other issues?

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thank you
gracias
danke
merci
obrigado
謝謝
ngiyabonga
teşekkür ederim
рахмат
Баярлалаа
спасибо
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mersi
kia ora
barka
welalin
tack
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