Measuring your CCA Base Year Data

2ND JUNE 2014
Background

- A meeting was held on 2\textsuperscript{nd} June 2014 with the Environment Agency to agree how base year and target period data should be reported in the Data Centre CCA.

- The information contained in this document explains what was discussed and agreed as a result of that meeting.

- Please refer to the techUK CCA guidance documents for final guidance on how to apply for a CCA in the Data Centre sector.

- Data Centre CCA Application Packs issued by Friday 6\textsuperscript{th} June 2014.
Objective:

- To understand how PUE is currently measured across the sector and to therefore identify how PUE can/should be measured in the CCAs.
Measuring PUE

Industry norm: \[ PUE = \frac{(ME \text{ power use} + IT \text{ power use})}{IT \text{ power use}} \]

CCAs will not follow the Green Grid definitions of PUE, therefore we will call the PUE in CCAs the ‘CCA PUE’.

\[ CCA \text{ PUE} = \frac{\text{Total eligible primary energy use}}{\text{IT eligible primary energy use}} \]

*If the site passes the 70/30 rule this becomes:*

\[ CCA \text{ PUE} = \left[ \frac{(\text{total site imported electricity} \times 2.6) + \text{Generator fuel}}{\text{IT electricity} \times 2.6} \right] \]
Metering at a data centre

- This diagram shows the ideal position of electrical sub-metering at a data centre.
- To measure IT energy, a meter needs to exist at some point within the leg circled.
- For CCAs: it does not matter whether the meter is before or after the UPS or PDU, as long as that measuring point is used throughout the life of the CCA.
What happens if a site does not have 12 months of sub-metered data to identify the base year ‘IT energy’?

- The EA want to see a robust measurement of the IT energy.
- They *may* accept spot kW readings multiplied by hours run during a particular period. In your application you need to describe how you have measured the IT energy and justify how it is robust and representative of the IT energy value it is.
- If the value for IT energy is not considered robust enough by the EA then the site will not be allowed a CCA until it has 12 months of sub-metered data to determine the IT energy value.
**Generator fuel usage**

*If the site passes the 70/30 rule:*

\[
\text{CCA PUE} = \left[ (\text{total site imported electricity} \times 2.6) + \text{Generator fuel} \right] \\
\quad \left( \text{IT electricity} \times 2.6 \right)
\]

What if fuel to the generators is not metered?

- It can be estimated. Estimation techniques include:
  - You have the hours run for the base year and multiply it by a value for hourly fuel consumption (based on design or observed operation).
  - You have the total electricity generated for the base year and divide it by a generation efficiency factor.
  - You know that the generators were (or should have been) run for X hours during the base year and multiply it by a value for hourly fuel consumption (based on design or observed operation).
What if the site does not pass the 70/30 rule?

If the site does not pass the 70/30 rule:

CCA PUE =

\[
\left[ \left( \text{electricity to the CCA facility} \times 2.6 \right) + \text{proportion of Generator fuel to the CCA facility} \right] \\
\left( \text{electricity to the eligible IT} \times 2.6 \right)
\]

Key

- Energy in CCA (and gets CCL discount)
- Energy not in CCA (and does not get CCL discount)

Eligible Energy (>70%)

(inc. Directly Associated Activities)

Extra bit of Non-Eligible Energy Use – \(\frac{3}{7}\)ths of the 70%