Climate Change Agreement for Data Centres

Note 05: Explaining the figures in your UnA

September 2016

We have identified some common issues which arise during the registration process. These rough notes identify these issues and provide some pointers to help you address them without delaying your application. This note covers the figures and schedules at the end of your Underlying Agreement (UnA), which have confused a number of applicants. We take the schedules in turn.

Schedule 2
Here you should find your address; Schedule 2 simply identifies the company signing the UnA.

Schedule 3
This lists techUK’s details as the administering association.

Schedule 4
Schedule 4 confirms that you meet the eligibility criteria.

Schedule 5
Schedule 5 lists the address or addresses of the facility or facilities that the agreement includes. If more than one facility it listed here it means that they are being “bubbled” into a single Target Unit (or TU). It is called a TU because the facility or group of facilities is being given a single efficiency target. If a company has more than one facility in the scheme but does not bubble them under one agreement then a separate agreement is needed for each facility, with separate targets.

Schedule 6
Schedule 6 is where it gets interesting. CCAs have to have some measure of productivity so they can compare energy use against production over time to measure efficiency. Because our productivity measure is PUE, then the measure of “throughput” is the energy to the IT (cumulative, over a year, in MWh). We are a bit unusual here; in other sectors the “throughput” would be say the number of cans of baked beans produced or the tonnage of processed wood. No other sector has both measures expressed as energy. (At this point you should start to see why the CCA for data centres took four years to negotiate!) So, the figure here should represent your energy to IT in whatever base year you are using.

Then you need total energy, which is called the “primary energy” to the target unit (combined energy to all sites listed). This has been given different units, KWh, for reasons of data accuracy (see below). So you convert these into MWh and by dividing “primary” energy by “throughput” energy you get your base year efficiency, which is actually your base year PUE. (All you are doing of course is dividing energy to site by energy to IT across all your listed sites).

Just remember that you submitted data for your “primary” energy not as the energy you actually paid for but the energy that was required to generate the electricity that you paid for- do you remember using the multiplier of 2.6? So if you see a huge figure here that does not represent your power purchasing, divide it by 2.6 and the figure should start to tally with your actual electricity consumption. This is because BEIS is interested in primary energy, not what you happened to pay for. Simples!
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So as an example:

- Your Throughput is 30,000 MWh
- Your Primary power is 45,000,000KWh – equivalent to 45,000 MWh
- Your Base Year PUE is therefore 1.5

So far so good, now it gets a bit more complicated.

You will see a little table in schedule 6. This sets out your targets over the four target periods of the scheme. It may help you to look at Note 01: What’s a CCA? (see Box 2, reproduced below, and the accompanying explanation). For a company with PUE of 1.5 the reduction target is going to be adjusted to below the sector average. (The sector average base year PUE is 2 against which the sector reduction target of 15% is set but we have amortised the target over the sector so that those sites with lower PUE get lower reduction percentages and vice versa). So a PUE of 1.5 will attract a reduction target of 10%.

The EA’s IT Register for CCA only presents target values to 3 decimal places. This means that target values have to be greater than 10.000 or there could be problems with the accuracy of results. For this reason PUE figures on the Register are presented as PUE x 1000 (this is why total energy is presented in kWh but IT energy in MWh). So the target figures you see in schedule 6 have to be divided by 1000 to see them in PUE terms¹. You will see that there are different figures for each target period and that they jump about a bit. This is because we requested a non-linear target for the sector – see: non linear target proposal. So what you should expect to see is target PUEs multiplied by 1000 with equivalent target percentage PUE reductions underneath. Simples! (See endnote for technical explanation.)

Important: Don’t delay Assent

There is limited scope for getting your lawyers to look over the agreement because you cannot change it, but obviously if there is an error in the figures or a typo this should be pointed out.

Just to remind you, your rebate / exemption clock only starts ticking when you have indicated that you assent, so do not delay confirming assent. The person named on the agreement must do this.

¹ Techspert note: There are very sound reasons why PUE has to be multiplied by 1000. Basically if the target value is less than 10.000 then it’s possible in some cases for someone to fail a target to 3 decimal places, even if they have passed as a direct percentage. So for example if the base year PUE were 1.5 and the target was 1.5 x (1 – 6.333%) = 1.405005, this would be presented as exactly 1.405 in the register. If someone got 1.405002 they would FAIL, even though this is better than 1.405005. By using 1405.005 as the target, and performance of 1405.002 this problem goes away.
Handling base years later than 2011

When a Target Unit (TU) consists of a ‘bubble’ of several facilities, these facilities may not all have data for the same base year. A common base year value is needed, however, to calculate the overall targets for the TU.

To do this the following process is followed:

1. The base year for the TU is set to the year for which we have the most baseline energy data (for example, in the table below Facility 2 (F2) has more energy use in its base year than either F1 or F3, so 2012 is used as the overall TU baseline).
2. For the other facilities, the energy for the TU baseline is calculated from the facility baseline data by assuming the facility has followed the agreed target profile for the sector as a whole and assuming the IT energy remains unchanged.
3. The sector profile corresponds to a reduction in the ratio of ME/IT energy of 0% in 2011, 2% in 2014, 16.67% in 2016, 27.5% in 2018 and 30% in 2020. We assume the performance is a straight line between these values, i.e. the 2012 figure is 0.667%.
4. In reality the facilities will not have performed this way but we have no data for the actual performance.
5. So in the example, for F1 the ME value for 2012 is assumed to be 0.667% lower than in the facility base year of 2011 and the ME value for F3 is assumed to be (1.33-0.667) = 0.667% higher than in the facility base year of 2013.
6. The total base year energy for the TU in 2012 is then given by adding all these facility values together (in the example this means the adjusted value for F1 + the actual value for F2 + the adjusted value for F3).

The result of this is that the energy figure for the base year for the TU as a whole as shown in the registry will not necessarily equal the total of all the facility base year energy figures.

See over....
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<table>
<thead>
<tr>
<th>ME/IT Profile</th>
<th>0%</th>
<th>0.667%</th>
<th>1.33%</th>
<th>2.0%</th>
<th>...</th>
<th>...</th>
<th>...</th>
<th>...</th>
<th>30.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td>2012</td>
<td>2013</td>
<td>2014</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>2020</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F1 BY</th>
<th>15,190kWh</th>
<th>ME : 9,690kWh</th>
<th>IT: 5.5MWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012 TU BY</td>
<td>15,125.4kWh</td>
<td>9,625.4kWh</td>
<td>5.5MWh</td>
</tr>
<tr>
<td>F1 BY*</td>
<td>13,527.2kWh</td>
<td>7,027.162kWh</td>
<td>6.5MWh</td>
</tr>
<tr>
<td>F3 BY</td>
<td>13,480kWh</td>
<td>ME : 6,980kWh</td>
<td>IT: 6.5MWh</td>
</tr>
<tr>
<td>TU Baseline</td>
<td>48,652.562 kWh</td>
<td>ME : 24,652.562 kWh</td>
<td>IT: 24.0MWh</td>
</tr>
</tbody>
</table>

Total data provided: 48,670 kWh, ME: 24,670 kWh, IT: 24.0 MWh

Therefore, you may see a baseline primary energy figure that is higher or lower than you actually reported. You should accept the agreement but we recommend that you also add a caveat such as:

‘I accept this agreement with the caveat that it is noted that the actual primary energy figure reported was xxxx (enter actual primary total). I understand the figure shown on the agreement differs due to the agreed Sector methodology required to derive the TU targets’