**London Borough of Wandsworth: Example Energy Strategy Tables**

These tables are Wandsworth’s preferred template for the reporting of predicted site energy consumption and CO2 emissions in new applications and as such should be provided in place of the tables in sections 7 and 12 of the GLA’s *Energy Planning Greater London Authority guidance on preparing energy assessments* (March 2016).

The graphs from section 7 of the GLA’s *Energy Planning Greater London Authority guidance on preparing energy assessments* (March 2016) should be submitted in addition to the tables.

For **domestic developments** please complete tables 1, 3a (where zero carbon has not been achieved), 5 (where sample dwellings have been modelled), 6, 7 & 8.

For **non-domestic developments** please complete tables 2, 3b (where a 35% reduction in emissions has not been achieved), 5 (where sample units have been modelled), 6, 7 & 8.

Please complete all tables for **mixed use developments** ensuring that figures are specific to the elements of the build. A total development summary should also be provided.

All energy strategies should include details of the assumptions made and the carbon factors used.

**The information requested in sections 1-4 ensures that the information required by the GLA is provided.**

1. **Domestic Carbon Dioxide Emissions and Regulated Carbon Dioxide Savings after each stage of the Energy Hierarchy**

The table below includes the details required by the GLA for domestic developments in tables 1 & 2 of section 7 of the GLA’s *Energy Planning Greater London Authority guidance on preparing energy assessments* (March 2016).

This table should only be completed for the **domestic** elements of the development.

**Table 1 – Domestic Carbon Dioxide Emissions and savings**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Regulated emissions (Tonnes CO2/yr)** | **Saving (Tonnes CO2/yr)** | **Saving (%)** | **Unregulated Emissions (Tonnes CO2/ yr)** |
| **Baseline: Part L 2013** | A1 |  |  | G1 |
| **Be Lean** | B1 | A1 – B1 | (A1 – B1) / A1 x 100 | G1 |
| **Be Clean** | C1 | B1 – C1 | (B1 – C1) / A1 x 100 | G1 |
| **Be Green** | D1 | C1 – D1 | (C1 – D1) / A1 x 100 | G1 |
| **Cumulative** |  | A1 – D1 = E1 | (A1 – D1) / A1 x 100 |  |
| **Annual Saving from off-set payment** |  | A1 – E1 = F1 |  |  |

**What we expect to see:**

* A1 should be equal to domestic E7 (see table 7).
* B1 should be equal to domestic F7 (see table 7).
* C1 should be equal to domestic G7 (see table 7).
* D1 should be equal to domestic H7 (see table 7).
* G1 should be equal to Appliances/Unregulated energy totalled for domestic (see table 8).
* In the absence of a satisfactory mechanism to quantify the impacts of sustainable energy measures on unregulated emissions, it is acceptable to assume that these will remain unchanged throughout the hierarchy and this can be reflected in the table.

1. **Non-domestic Carbon Dioxide Emissions and Regulated Carbon Dioxide Savings after each stage of the Energy Hierarchy**

The table below includes the details required by the GLA for non-domestic developments in tables 3 & 4 of section 7 of the GLA’s *Energy Planning Greater London Authority guidance on preparing energy assessments* (March 2016).

This table should only be completed for the **non-domestic** elements of the development.

**Table 2 – Non-domestic Carbon Dioxide Emissions and savings**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Regulated emissions (Tonnes CO2/yr)** | **Saving (Tonnes CO2/yr)** | **Saving (%)** | **Unregulated Emissions (Tonnes CO2/yr)** |
| **Baseline: Part L 2013** | A2 |  |  | F2 |
| **Be Lean** | B2 | A2 – B2 | (A2 – B2) / A2 x 100 | F2 |
| **Be Clean** | C2 | B2 – C2 | (B2 – C2) / A2 x 100 | F2 |
| **Be Green** | D2 | C2 – D2 | (C2 – D2) / A2 x 100 | F2 |
| **Cumulative** |  | A2 – D2 = E2 | (A2 – D2) / A2 x 100 |  |

**What we expect to see:**

* A2 should be equal to non-domestic E7 (see table 7).
* B2 should be equal to non-domestic F7 (see table 7).
* C2 should be equal to non-domestic G7 (see table 7).
* D2 should be equal to non-domestic H7 (see table 7).
* F2 should be equal to Appliances/Unregulated energy totalled for non-domestic (see table 8).
* In the absence of a satisfactory mechanism to quantify the impacts of sustainable energy measures on unregulated emissions, it is acceptable to assume that these will remain unchanged throughout the hierarchy and this can be reflected in the table.

1. **Carbon off-set payment**

**The table below should be completed for domestic developments that do not save 100% of regulated emissions on site and non-domestic developments that do not achieve a 35% reduction in emissions on site**.

These table provides the information requested in table 5 of section 7 of the GLA’s *Energy Planning Greater London Authority guidance on preparing energy assessments* (March 2016).

**All 3 tables should be completed** **for mixed use developments** to provide figures for domestic elements, non-domestic elements and the whole development.

**Table 3a – carbon off-set payment domestic**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Annual Shortfall (Tonnes CO2)** | **Cumulative Shortfall (Tonnes CO2 over a 30 year period)** | **Carbon off-set payment (£60/ tonne over 30 years)** |
| **Total Target Savings** | A1 |  |  |
| **Shortfall** | F1 | F1 x 30 | F1 x 30 x 60 |

**Table 4b – carbon off-set payment non-domestic**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Annual Shortfall (Tonnes CO2)** | **Cumulative Shortfall (Tonnes CO2 over a 30 year period)** | **Carbon off-set payment (£60/ tonne over 30 years)** |
| **Total Target Savings** | A2 x 0.35 = F3 |  |  |
| **Shortfall** | F2 – E2 = G3 | G3 x 30 | G3 x 30 x 60 |

**Table 5c – carbon off-set payment whole development**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Annual Shortfall (Tonnes CO2)** | **Cumulative Shortfall (Tonnes CO2 over a 30 year period)** | **Carbon off-set payment (£60/ tonne over 30 years)** |
| **Total Target Savings** | A1 + F3 |  |  |
| **Shortfall** | F1 + G3 | (F1 + G3) x 30 | (F1 + G3) x 30 x 60 |

1. **Site wide regulated carbon dioxide emissions and savings**

This table provided the information requested in table 6 of section 7 of the GLA’s *Energy Planning Greater London Authority guidance on preparing energy assessments* (March 2016).

**For single use developments this table is not applicable.**

**Table 6 – Site wide emissions**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Regulated emissions (Tonnes CO2/yr)** | **Saving (Tonnes CO2/yr)** | **Saving (%)** |
| **Baseline: Part L 2013** | A1 + A2 |  |  |
| **Be Lean** | B1 + B2 | Total A – Total B | (Total A – Total B) / Total A x 100 |
| **Be Clean** | C1 + C2 | Total B – Total C | (Total B – Total C) / Total A x 100 |
| **Be Green** | D1 + D2 | Total C – Total D | (Total C – Total D) / Total A x 100 |
| **Cumulative** |  | Total A – Total D | (Total A – Total D) / Total A x 100 |
|  |  | **Saving (Tonnes CO2)** |  |
| **Off-set** |  | (F1 + G2) x 30 |  |

**What we expect to see:**

* A1 + A2 should be equal to E7 (see table 7).
* B1 + B2 should be equal to F7 (see table 7).
* C1 + C2 should be equal to G7 (see table 7).
* D1 + D2 should be equal to H7 (see table 7).

**The information requested in sections 5-7 allows LB Wandsworth to verify the figures presented in the tables above.**

1. **Units modelled**

On large repetitive developments it is acceptable to model a sample of representative units. In these cases applicants should provide information on the units which have been modelled in the form of the table below.

**Additional rows should be added for each unit modelled**.

**On smaller developments where all units are modelled this table is not applicable.**

**Table 7 – Units modelled**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit reference** | **Floor area (m2)** | **Number of units represented** | **Represented floor area (m2)** |
|  | A5 | B5 | A5 x B5 = C5 |
|  |  |  |  |
| **Total** | Sum A5 | Sum B5 | Sum C5 |

**What we expect to see:**

* A5 should correspond to the floor areas shown on SAP and SBEM calculations.
* Calculations should be submitted with the energy strategy report. It should be possible to carry out spot check to ensure the figures in this table match the calculations provided.
* Sum B5 should represent the whole development.
* Sum C5 should represent the whole development.

1. **Summary of calculations results**

This table should be completed for each domestic and non-domestic element of the scheme that has been assessed using SAP or SBEM (or other NCM software).

**Each row should represent an element of the scheme which has been assessed, additional rows should be added where required.**

**Table 8 – Dwelling/Building Emissions Rate**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Unit** | **Baseline**  Target Emissions Rate  (kgCO2/m2/yr) | **Be Lean**  “Interim” Dwelling/Building Emissions Rate (with energy efficiency)  (kgCO2/m2/yr) | **Be Lean**  % CO2 reduction below TER | **Be Clean**  “Interim” Dwelling/Building Emissions Rate (with energy efficiency and efficient supply of energy – if applicable)  (kgCO2/m2/yr) | **Be Clean**  % CO2 reduction below TER | **Be Green**  “Final” Dwelling/Building Emissions Rate (with energy efficiency, efficient supply of energy and renewable energy technologies)  (kgCO2/m2/yr) | **Be Green**  % CO2 reduction below TER |
|  | A6 | B6 | =(B6/A6) x 100 | C6 | =(C6/A6) x 100 | D6 | =(D6/A6) x 100 |
|  |  |  |  |  |  |  |  |

**What we expect to see:**

* Figures A6, B6, C6 and D6 should come directly from SAP and SBEM calculations.
* Copies of all calculations should be provided with the energy strategy report. It should be possible to carry out spot check to ensure the figures in this table match the calculations provided.

1. **Summary of CO2 emissions reductions**

This table should be completed for each domestic and non-domestic element of the scheme that has been assessed using SAP or SBEM (or other NCM software). **Each row should represent an element of the scheme which has been assessed, additional rows should be added where required.**

The figures in Table 8 should be multiplied by the **represented floor area** for each of the assessments to complete Table 9.

**Represented floor area** should either be the floor area of the unit taken from the SAP or SBEM calculations or where a sample of units have been modelled this should be multiplied by the number of units the calculation represents as shown in Table 10.

**Results should be totalled for all domestic elements (where applicable), all non-domestic elements (where applicable) and the whole development.**

**Table 9 – Dwelling/Building Emissions multiplied by floor area**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Unit** | **Represented floor area (m2)** | **Baseline Emissions (kgCO2/yr)** | **Be Lean Emissions**  **(kgCO2/yr)** | **Be Lean**  **% CO2 reduction below Baseline** | **Be Clean Emissions**  **(kgCO2/yr)** | **Be Clean**  **% CO2 reduction below Baseline** | **Be Green Emissions**  **(kgCO2/yr)** | **Be Green**  **% CO2 reduction below Baseline** |
|  | C5 | A6 x C5 = A7 | B6 x C5 = B7 | =(B7/A7) x 100 | C6 x C5 = C7 | =(B7/A7) x 100 | D6 x C5 = D7 | =(B7/A7) x 100 |
|  |  |  |  |  |  |  |  |  |
| **Total** | Sum C5 | Sum A7 = E7 | Sum B7 = F7 | =(F7/E7) x 100 | Sum C7 = G7 | =(G7/E7) x 100 | Sum D7 = H7 | =(H7/E7) x 100 |

**What we expect to see**

* E7 should be equal to: A1 (see table 1) for the domestic total, A2 (see table 2) for the non-domestic total and A1 + A2 (see table 4) for the whole development.
* F7 should be equal to: B1 (see table 1) for the domestic total, B2 (see table 2) for the non-domestic total and B1 + B2 (see table 4) for the whole development.
* G7 should be equal to: C1 (see table 1) for the domestic total, C2 (see table 2) for the non-domestic total and C1 + C2 (see table 4) for the whole development.
* H7 should be equal to: D1 (see table 1) for the domestic total, D2 (see table 2) for the non-domestic total and D1 + D2 (see table 4) for the whole development.

**The information requested in sections 8 allows LB Wandsworth to understand the technologies which have been recommended.**

1. **Energy Demand breakdown**

The table below includes the details required by the GLA for domestic developments in section 12 of the GLA’s Energy Planning Greater London Authority guidance on preparing energy assessments (March 2016).

**This table should be duplicated for mixed use development to provide domestic elements, non-domestic elements and the whole development.**

**Additional columns should be added if required for additional technologies.**

**Table 10 – Energy demand broken down by use**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Primary heating demand (kWh/yr)** | **Secondary heating demand (kWh/yr)** | **Cooling demand (kWh/yr)** | **Renewable technology output (kWh/yr)** |
| **Name of technology** | *30 kWe Gas CHP* | *Gas boilers* | *Ecodan 500kW* | *Solar PV 25kWp* |
| **Hot water / Chilled Water** | *540,000 (80%)* | *135,000 (20%)* | *0* | *0* |
| **Space Heating / Cooling** | *0 (0%)* | *800,000 (100%)* | *200,000* | *0* |
| **Fixed Electrical** | *170,000 kWh* | *0* | *0* | *20,000 kWh* |
| **(Any other energy consumption)** |  |  |  |  |
| **TOTAL REGULATED** | *540,000+170,000 = 710,000kWh* | *135,000+800,000=935,000kWh* | *200,000kWh* | *20,000kWh* |
| **Gas demand** | *750,000 kWh* | *985,000 kWh* | *0* | *0* |
| **Electricity demand** | *0* | *0* | *240,000kWh* | *0* |

**What we expect to see**

* Total regulated kWh should correspond to H7 (see table 7) when carbon factors and efficiency are applied.
* Where heating or cooling is delivered by electrical devices please input the parasitic load of the equipment (subject to CoP) in electricity demand.
* Gas demand should relate to the efficiency of boilers.