Estimated Carbon Savings and Diesel Savings Calculations

Estimated Carbon Savings =

Estimated CO_2 Emission from a comparable Diesel Generator [A]
– Estimated CO_2 Emission of Enertainer [B]

[A] Estimated CO_2 Emission from a comparable Diesel Generator ($kgCO_2$)

- Estimated Diesel Savings (in Litre) x CO_2 Emission Intensity Factor of Diesel Fuel (in $kgCO_2$/Litre)
- Estimated Diesel Savings (in Litre): Approximate amount of diesel fuel consumption by Diesel Generator (DG) assumed to be replaced by the Enertainer

[B] Estimated CO_2 Emission of Enertainer ($kgCO_2$)

- Grid-charge Scenario
  Energy consumption (i.e. **Energy In** shown on Enernet in kWh) x CO_2 Emission Intensity Factor of Electricity (in $kgCO_2$-e)
- DG-charge Scenario
  Energy consumption (i.e. **Energy In** shown on Enernet in kWh) divided by the diesel generator efficiency x CO_2 Emission Intensity Factor of Diesel Fuel (in $kgCO_2$/Litre)

Key Assumptions and Limitation

1. The quantity and size of DG replaced by the Enertainer are assumed as follows:
   - 1 Enertainer L replaces 2 x 270kVA DG;
   - 1 Enertainer M replaces 1 x 350kVA DG;
   - 1 Enertainer F replaces 1 x 200kVA DG.
2. To avoid overestimation on the amount of diesel fuel consumption by DG assumed to be replaced by the Enertainer, the following factors are deducted from the calculation:
   - Energy consumption of the Enertainer out of nominal operation hours;
   - Internal energy consumption of the Enertainer
3. The Diesel Fuel and Electricity CO_2 Emission Intensity Factors are retrieved from recent publications and grid operators.
4. For the scenario when the Enertainer is powered by a small diesel generator, the energy consumption of diesel generator:
   - is included in the Estimated CO_2 Emission of the Enertainer;
   - but is not counted in the Estimated Diesel Savings.

Typical Example

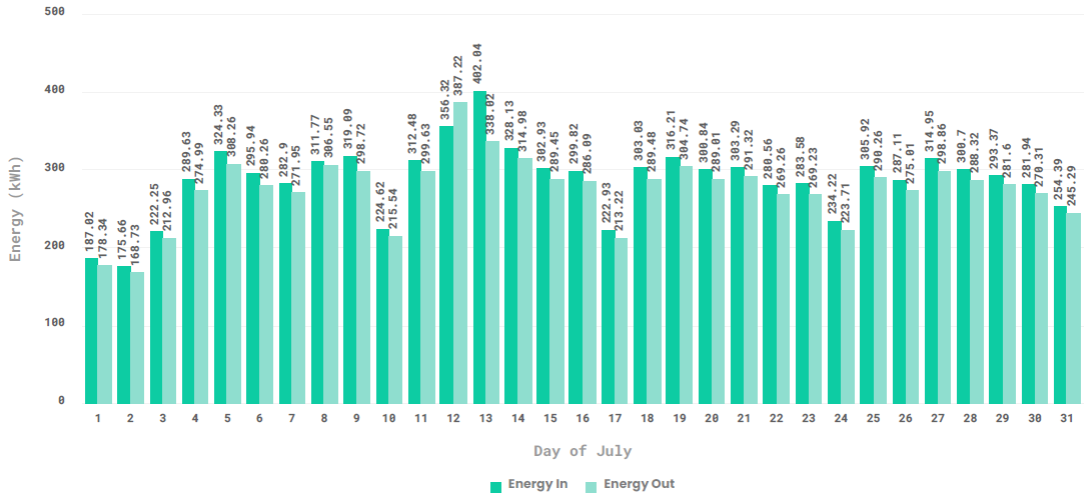
This example illustrates a real case using the Enertainer L to power 2 tower cranes, charged by grid power in New Territories, Hong Kong in July 2022.

Estimated CO_2 Emission from a comparable Diesel Generator
= 8,147 Litre (Estimated Diesel Savings) x 2.64 $kgCO_2$/Litre (CO_2 Emission Intensity Factor of Diesel Fuel)
= 21,508 $kgCO_2$

Estimated CO_2 Emission of Enertainer
= 8,918 kWh (Energy In in July recorded in Device Report) x 0.39 $kgCO_2$-e (CO_2 Emission Intensity Factor from CLP Electricity, CLP Sustainability Report 2021, p.79)
= 3,478 $kgCO_2$

Estimated Carbon Savings in July
= (21,508 – 3,478) $kgCO_2$
= 18,030 $kgCO_2$
= 18 tonsCO_2 (84% savings)

Daily Energy



Total Energy In	Total Energy Out
8,918 kWh	8,531 kWh

Estimated Carbon and Diesel Savings

Monthly CO2 Saved	CO2 Saved Since First Launch	Monthly Diesel Saved	Diesel Saved Since First Launch
18 Tons	355 Tons	8,147 Litres	162,429 Litres

If you have any questions on the calculations, please contact us at bd@ampd.energy.

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