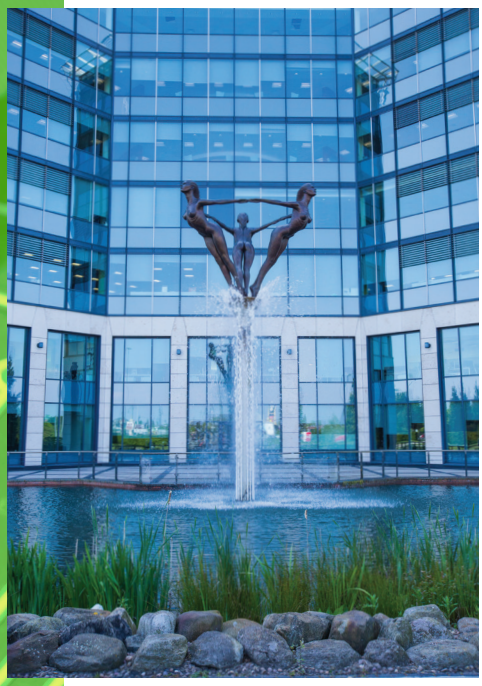


Venus sub-metering success

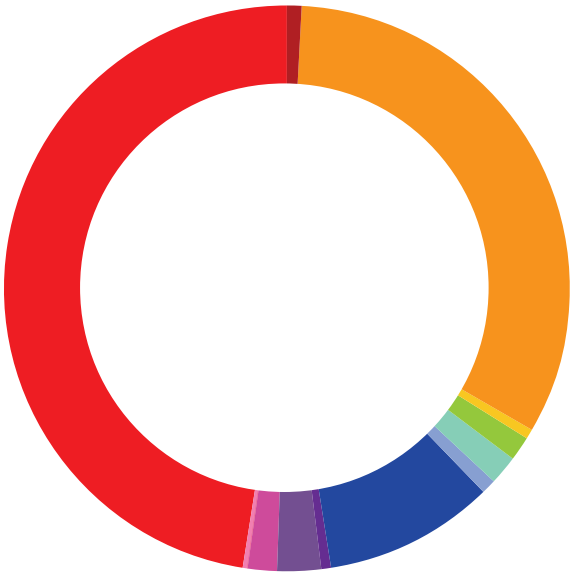
At the start of April 2017 an investment was made at our prestigious Venus office building to improve the electricity metering strategy and identify energy saving opportunities at the site.

The project started with sixteen electricity meters being installed on Venus' low voltage (LV) supplies. This meant that more accurate half hourly data could be collected and then exported to our energy management tool, Carbon Desktop, for greater analysis. It was anticipated that greater visibility of the electricity use in the building would help to improve monitoring and targeting undertaken at the site, leading to reductions in energy use and carbon emissions. However, the findings were much more revealing that expected.

Electricity use in Venus

Chart 1

Chart 1 demonstrates the split of electricity in Venus. Nearly 50% of the electricity is being used by the tenants' Rising Main Bus-Bar, with other notable contributions from chillers (B and G). Insight provided by the sub-metering becomes particularly valuable when the tenants' Rising Main Bus Bar meter is removed from the chart, leaving only the meters that measure the landlord's equipment.



- **A:** Chiller 1 **(6,373kWh, O.94%)**
- **B:** Chiller 2: **(221,239 kWh, 32.65%)**
- **C:** External Lighting Feeder Pillar: **(3,690 kWh, 0.54%)**
- **D:** Landlord Roof Level D8: **(9,207 kWh, 1.36%)**
- **E:** Lift Section **(11,490 kWh, 1.7%)**
- **F:** LV Switch Room 12 W TPN MCB DB: **(5,615kWh, 0.83%)**
- **G:** MCC 1 - Chilled water pumps: **(64,850 kWh, 9.57%)**
- **H:** MCC2 - LTHW Pumps: **(4,289 kWH, 0.63%)**
- **I:** Mech. Plant 3: **(16,356 kWh, 2.41%)**
- **J:** Mech. Plant 4: **(12,389 kWh, 1.83%)**
- **K:** Overflow Car Park: **(146 kWh, 0.02%)**
- **L:** Sub station DB: **(363.4 kWh, 0.05%)**
- **M:** Way 10 @Spare': **(0 kWh, 0%)**
- **N:** Way 13 'Fire Fighting Lift': **(924 kWh, 0.14%)**
- **O:** Rising Main Bus Bar: **(320,667 kWh, 47.32%)**

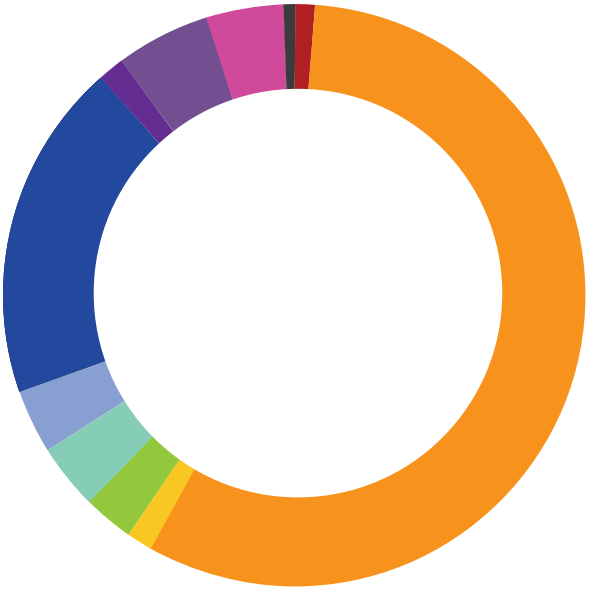
Total electricty use: 677,600 kWh

Venus
sub-metering continued...

Landlord's electricity use

Chart 2

Chart 2 shows electricity used by the landlord's equipment only. Over 60% of the electricity is being used by Chiller 2 (B) and nearly 20% by the chilled water pumps (G). This means that 80% of the landlord's electricity is used to chill water.

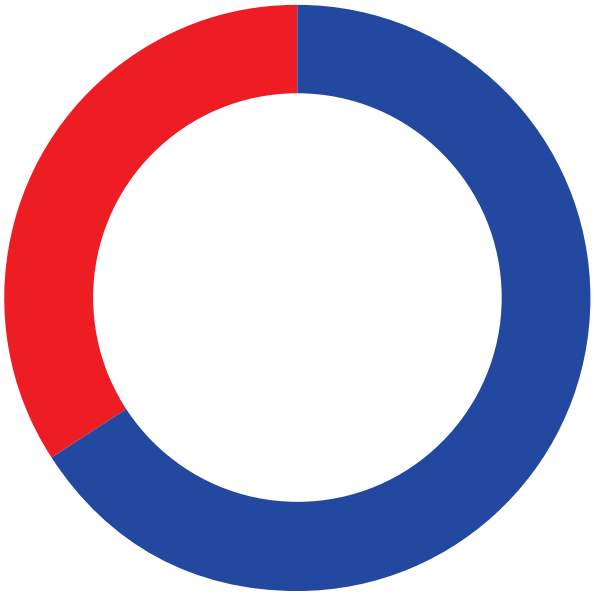


- **A:** Chiller 1 **(6,373 kWh, 1.79%)**
- **B:** Chiller 2: **(221,239 kWh, 61.98%)**
- **C:** External Lighting Feeder Pillar: **(3,690 kWh, 1.03%)**
- **D:** Landlord Roof Level D8: **(9,207 kWh, 2.58%)**
- **E:** Lift Section **(11,490 kWh, 3.22%)**
- **F:** LV Switch Room 12 W TPN MCB DB: **(5,615 kWh, 1.57%)**
- **G:** MCC 1 - Chilled water pumps: **(64,850 kWh, 18.17%)**
- **H:** MCC2 - LTHW Pumps: **(4,289 kWH, 1.2%)**
- **I:** Mech. Plant 3: **(16,356 kWh, 4.58%)**
- **J:** Mech. Plant 4: **(12,389 kWh, 3.47%)**
- **K:** Overflow Car Park: **(146 kWh, 0.04%)**
- **L:** Sub station DB: **(363.4 kWh, 0.1%)**
- **M:** Way 10 @Spare': **(0 kWh, 0%)**
- **N:** Way 13 'Fire Fighting Lift': **(924 kWh, 0.26%)**

Total electricty use: 356,933 kWh

Night time electricity use

Chart 3



Drilling down into the data on chiller use further revealed that Chiller 2 uses nearly 35% of its daily usage out of hours, between 7 pm and 7 am. This clearly highlighted the impact of the single tenant who was using the building out of hours.

As a result of this key finding, a strategy has been put in place to improve the efficiency of the chilled water system whilst still meeting the night time needs of the tenant. The potential for reduced energy use is significant and as a result, this example of best practice will be applied across other buildings in Peel Land and Property's portfolio.

- **A:** Chiller Day Use **(191,295 kWh, 65.41%)**
- **B:** Chiller Night Use **(101,168 kWh, 34.59%)**

Total electricty use: 292,463 kWh