Energy efficiency monitoring & light

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Considerations

- Energy savings are a key driver for seeking LED plant growth solutions.
- The impacts of changes need to be quantified to be taken into account.
- Appropriate monitoring:
  - Time resolution
  - Variables logged
  - Level of metering
  - Temporary or permanent
Priorities

• Energy data capturing light usage.
• Environmental variables records for cross-reference.
• Energy data of ancillaries (if available).
Energy Logging (temporary)
Energy Logging (permanent)

PGF LED Rooms Daily Consumption
08/04-08/06/2017

kWh/day

08/04/2017 22/04/2017 20/05/2017 08/06/2017

Room 5
Room 6
Room 8
Room 9

PGF R5 half-hour power profile before and after LED refit
R5 - 28/04/2017  R5 - 28/05/2017

kW
00:00 02:00 04:00 06:00 08:00 10:00 12:00 14:00 16:00 18:00 20:00 22:00 00:00

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kW
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Quantifying knock-on effects

PGF Room 6 Chill Valve Open %
Before and after LED retrofit (10-11/05/2017)
Quantifying knock-on effects
Quantifying knock-on effects
• Plant Sciences will soon retrofit two sections of glasshouse.
• The ratio of additional heating and additional cooling to maintain the required temperature band will be altered.
• Electrical Heating is easier to meter!
• Be careful when modelling the savings of LED solutions.
Concluding points

• Investing in appropriate sub-metering or quality temporary logging equipment is worth it (finding faults in the long-term as well as confirming savings in the short-term).

• Benchmark before you make changes.

• With correct metering, establishing the savings of the lights themselves is straightforward.

• Quantifying the knock-on effects is more difficult and can lead you down rabbit holes.
Thank you

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