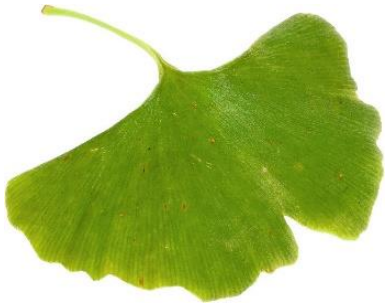

UNIVERSITY OF CAMBRIDGE

Department of Plant Sciences

Energy efficiency monitoring & light

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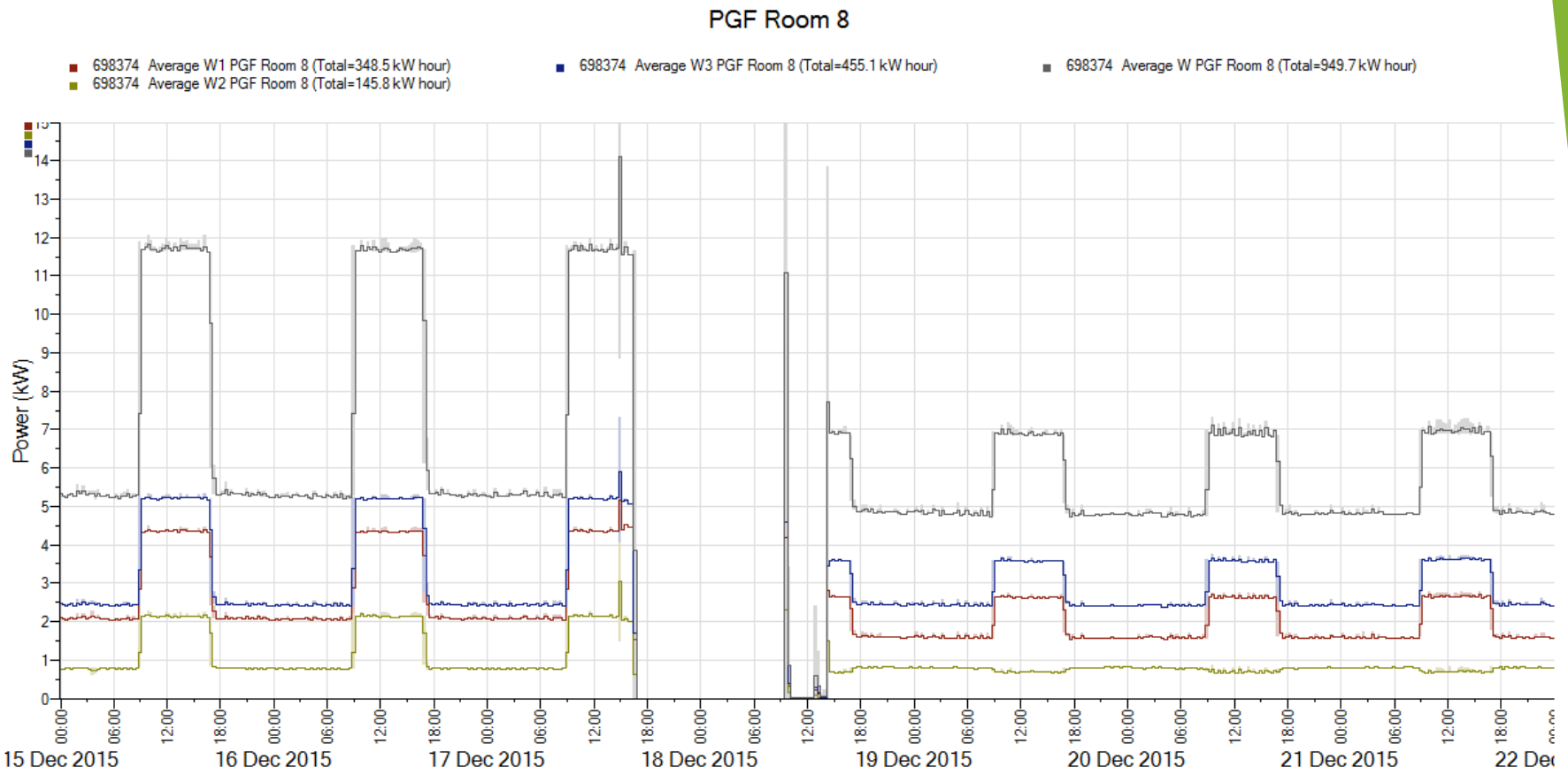
Considerations

- 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

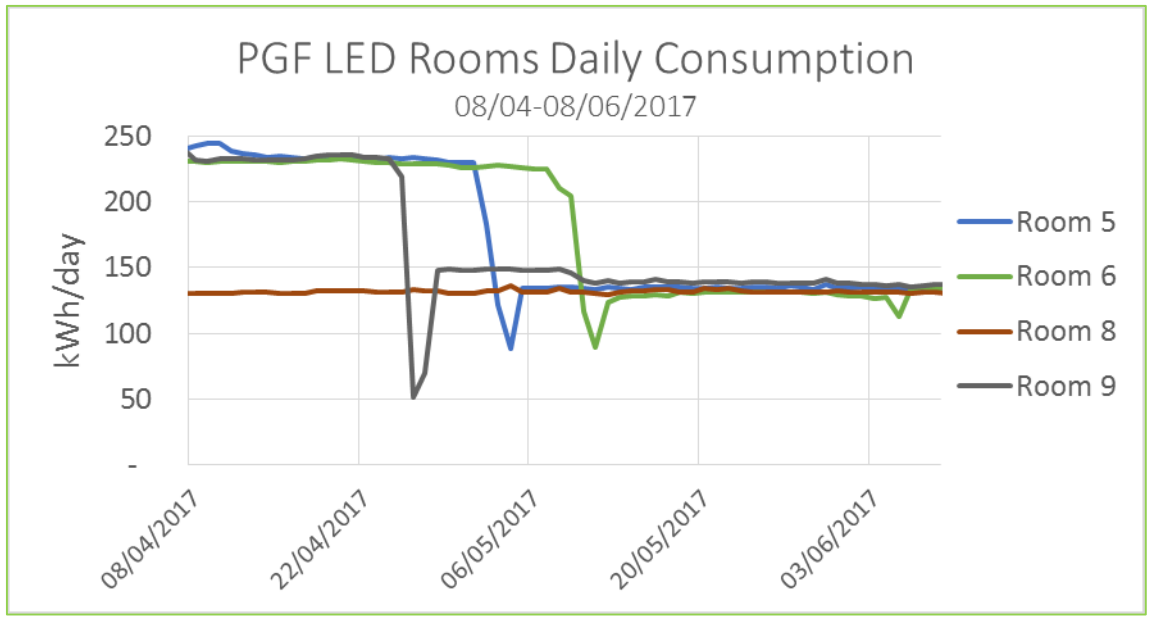
Priorities

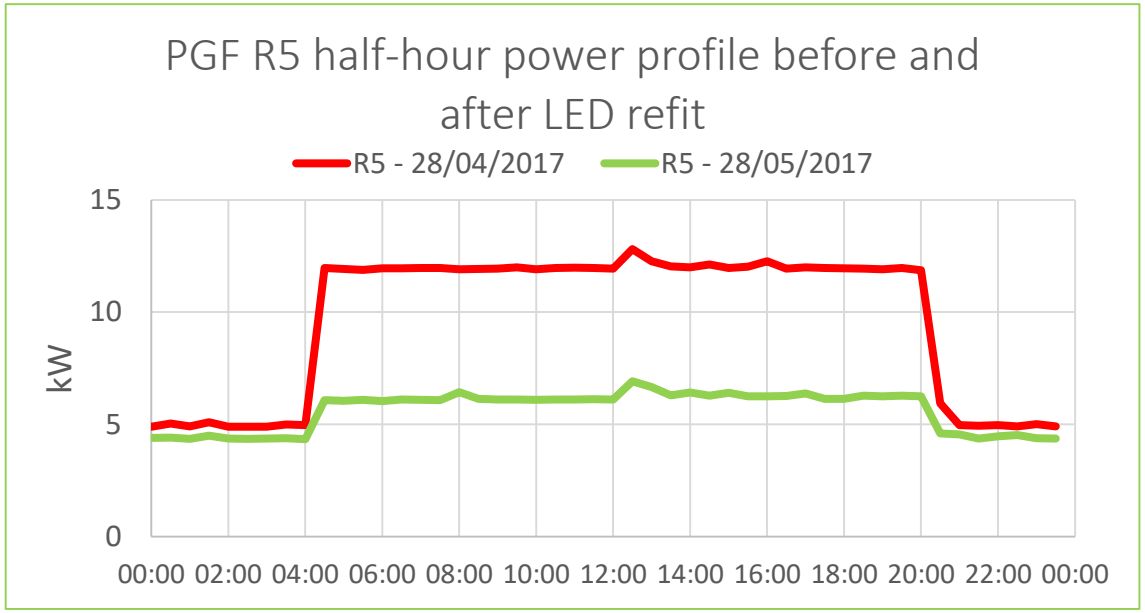
- Energy data capturing light usage.
- Environmental variables records for cross-reference.
- Energy data of ancillaries (if available).

Energy Logging (temporary)

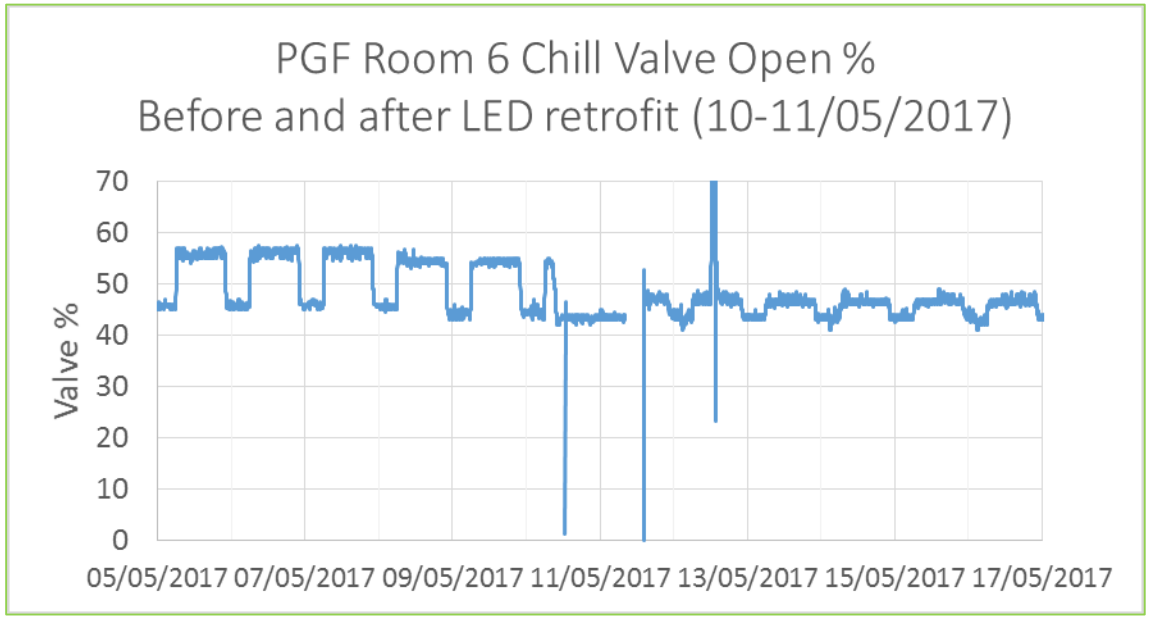


Energy Logging (permanent)

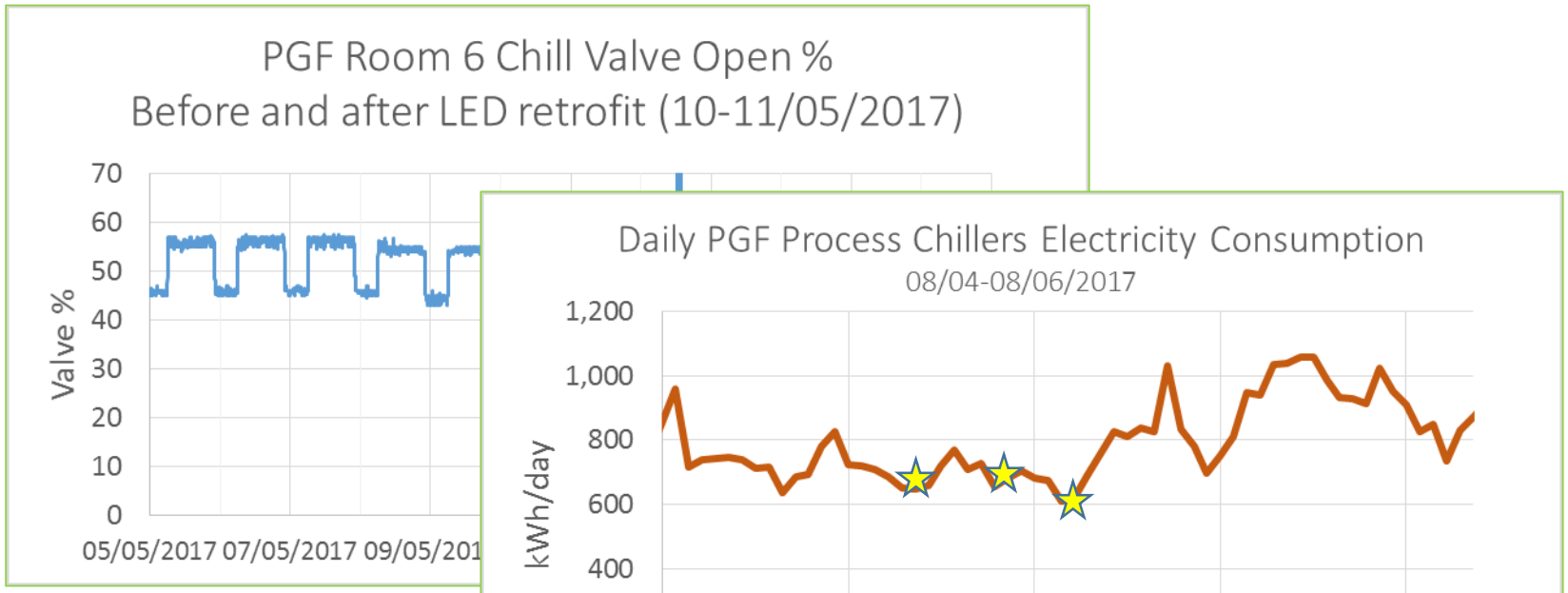




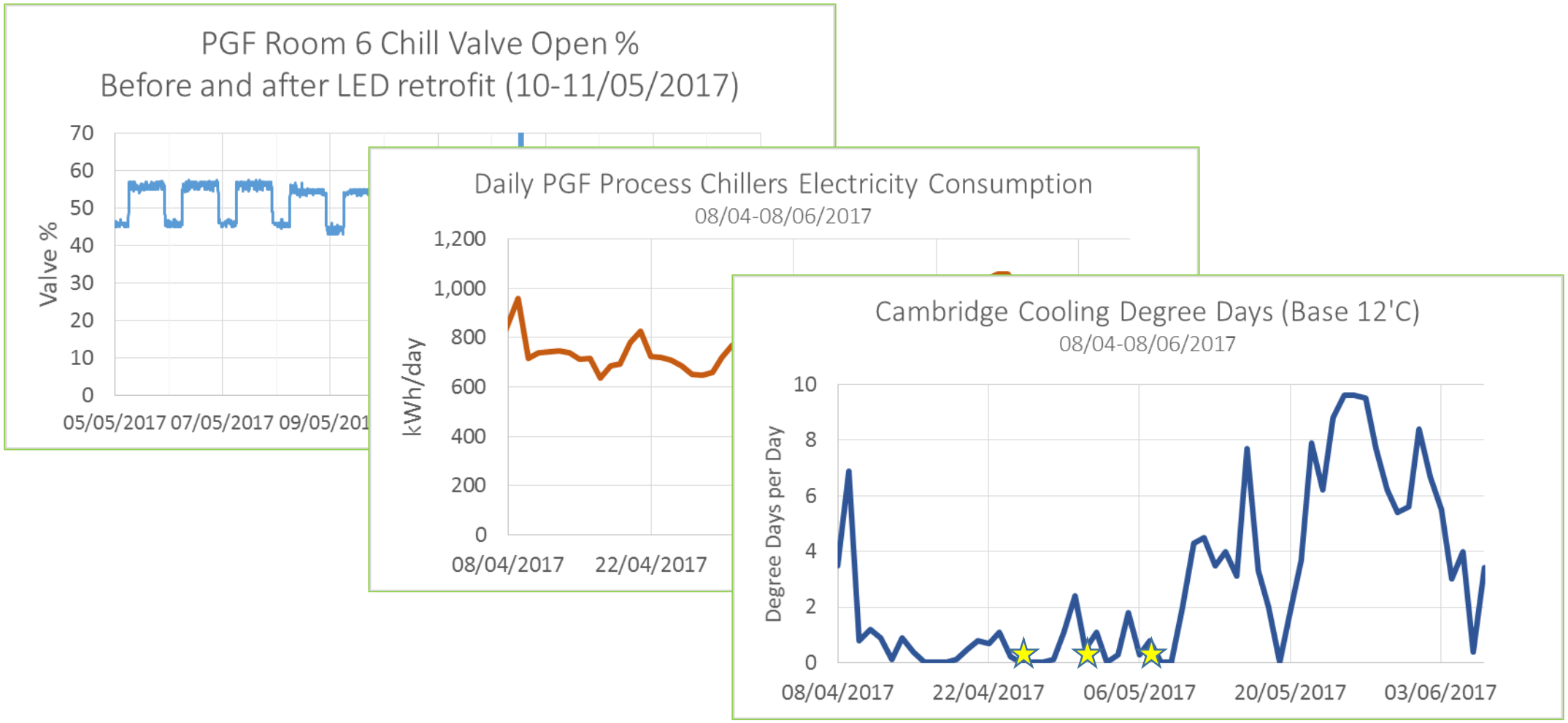
Quantifying knock-on effects



Quantifying knock-on effects



Quantifying knock-on effects

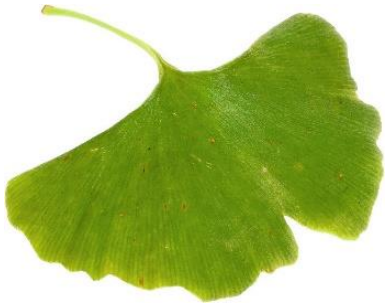


Glasshouses

- 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.



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Thank you

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