Understanding Lighting Systems in Realistic Settings

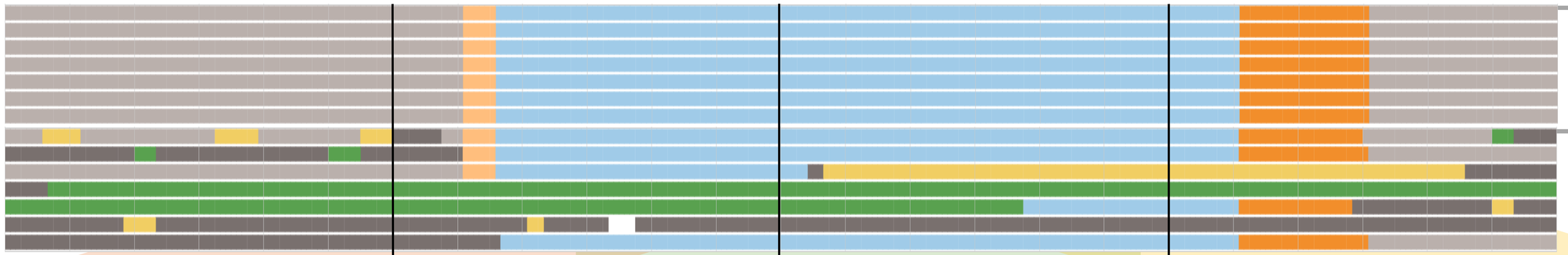
Evolving analysis of system performance and occupant feedback

Energy calculations, surveys, and verbal feedback have served as a primary form of assessing the performance of a lighting system in realistic settings in the past.

Lighting controls and sensor technology allows for more detailed assessments of the usage of tunable lighting systems by capturing large quantities of objective data.

NICU Patient Room: Design vs. Reality

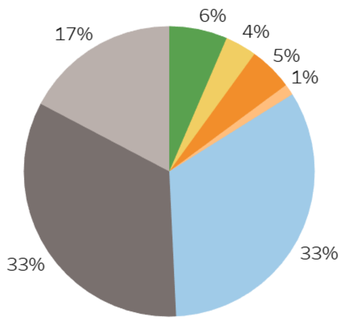
Daily reports of the lighting state in a patient room, taken every 5 minutes via the control system:



Unoccupied *– lighting system operating using programmed settings*

Occupied *– lighting system operating using programmed settings and manual adjustments*

What percent of time is spent in each control state?



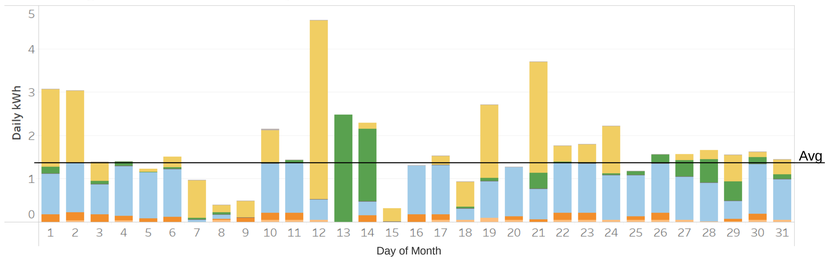
The pie chart sums the total time spent in the various controls states over a 6-month timespan for 5 different NICU patient rooms.

Objective controls data supplemented with subjective data provides new opportunities for optimizing lighting system designs.

When are occupants using the most energy?

The bar chart sums the energy use per day of the month in one patient room, with the control state indicated by color.

Controls feedback allows for clearer understanding of energy use, making it easier to identify opportunities for optimization.



Commissioning and design improvements?

Detailed lighting control data can aid in the commissioning process by answering questions such as:

- Are the control buttons operating as expected?
- Are the luminaires operating as expected?
- Are the rooms operating as expected?

Detailed lighting control data allows for improvements to current and future lighting systems, providing insight regarding:

- System adjustments to decrease energy use
- Labeling, location and layout of controls
- Sequence of operations
- Occupant training.

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