

IHEA PD Seminar No 2/2012

Findings from Energy Use Studies

Spira Stojanovik

Energy & Data Manager

We want your data!!!

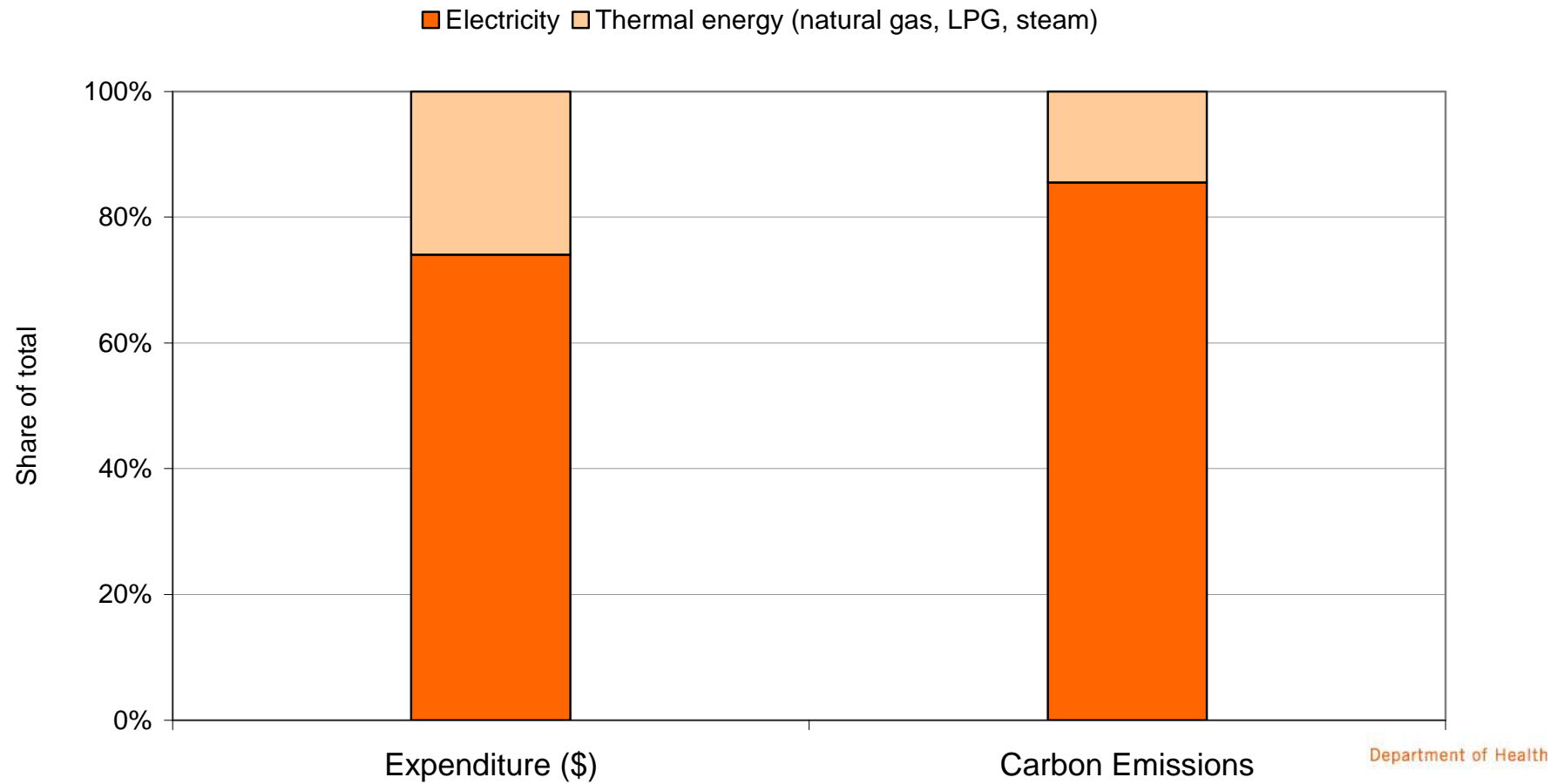
health

More specifically granular electricity data.

Why electricity?

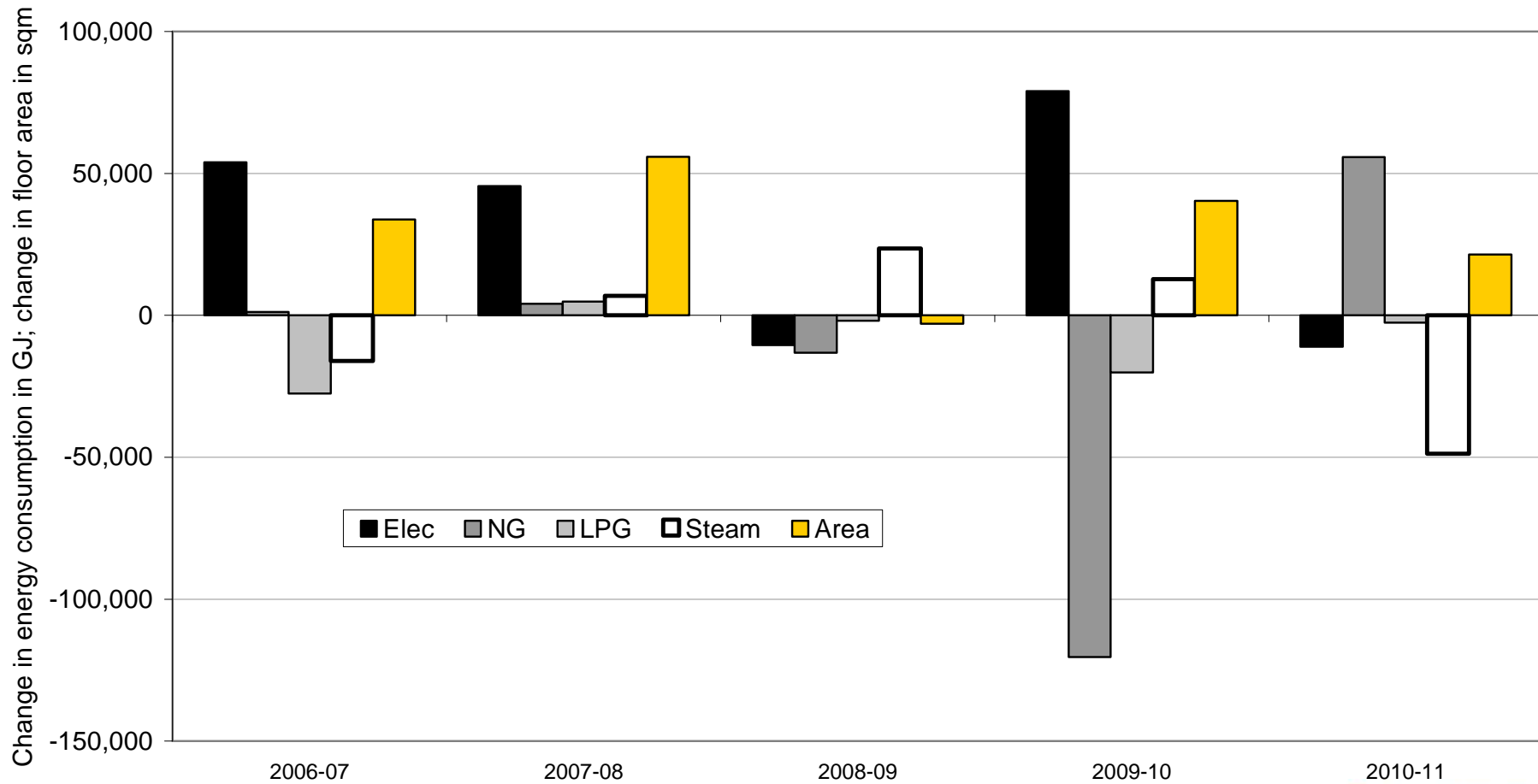
health

Electricity contribution to 2010-11 energy expenditure and emissions



Why electricity?

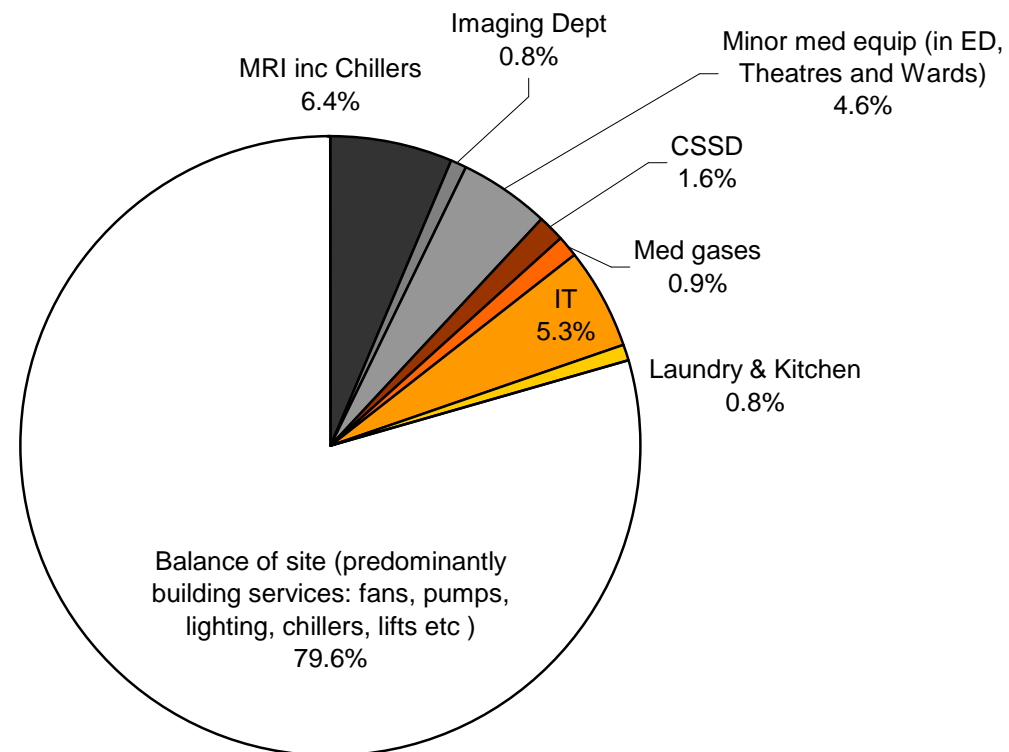
Energy consumption - change on year before



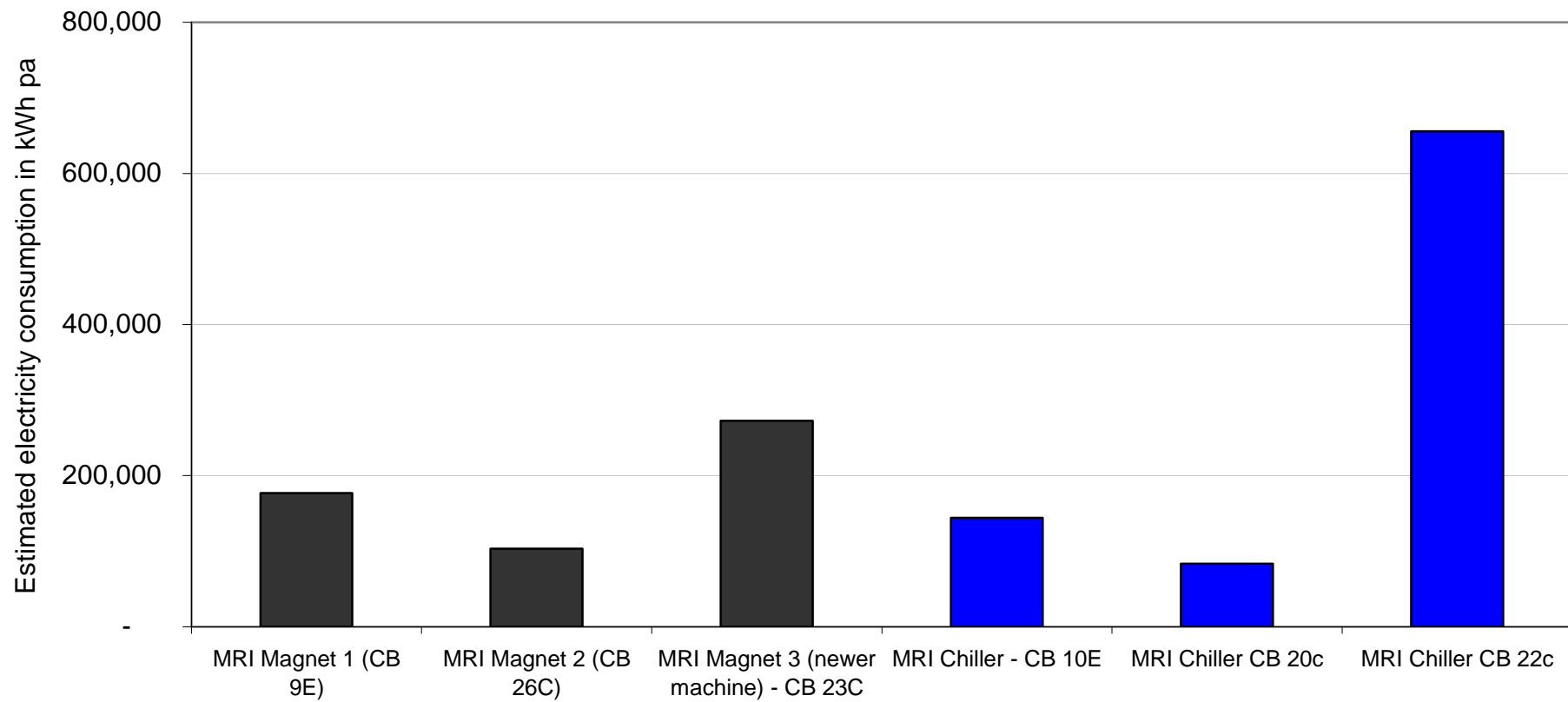
Why granular data?

- Understand reasons for growth in electricity consumption
- Understand & set targets e.g. what are the components that make up a realistic measure?
- Improve metering strategies
- Set process level/ end-use group intensity indicators to compare design solutions or operating practices
- Locate, estimate and verify savings
- Share information with people that influence electricity usage

Electricity consumption breakup at a large metro acute hospital

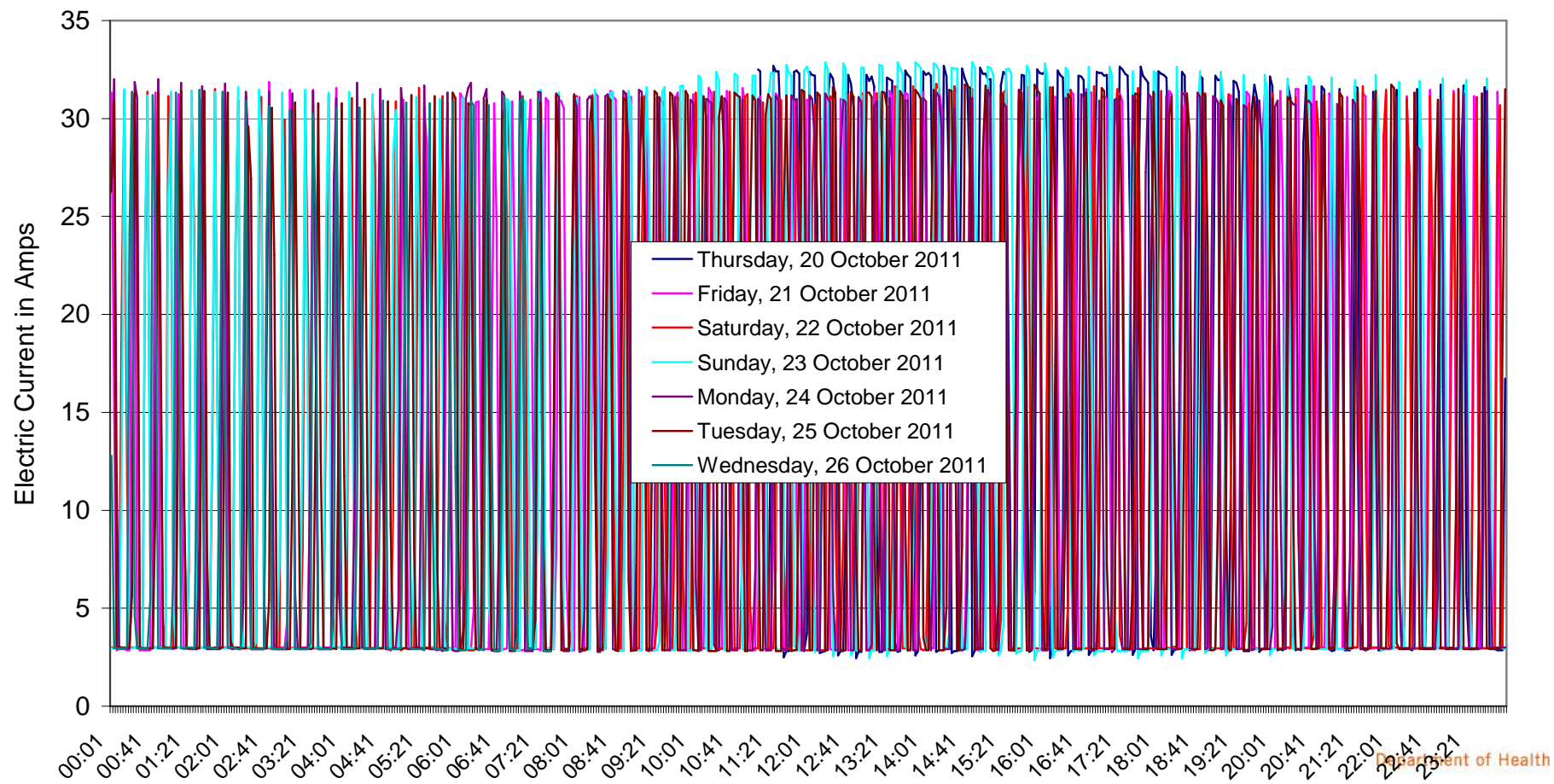


MRI electricity consumption at a large metro hospital



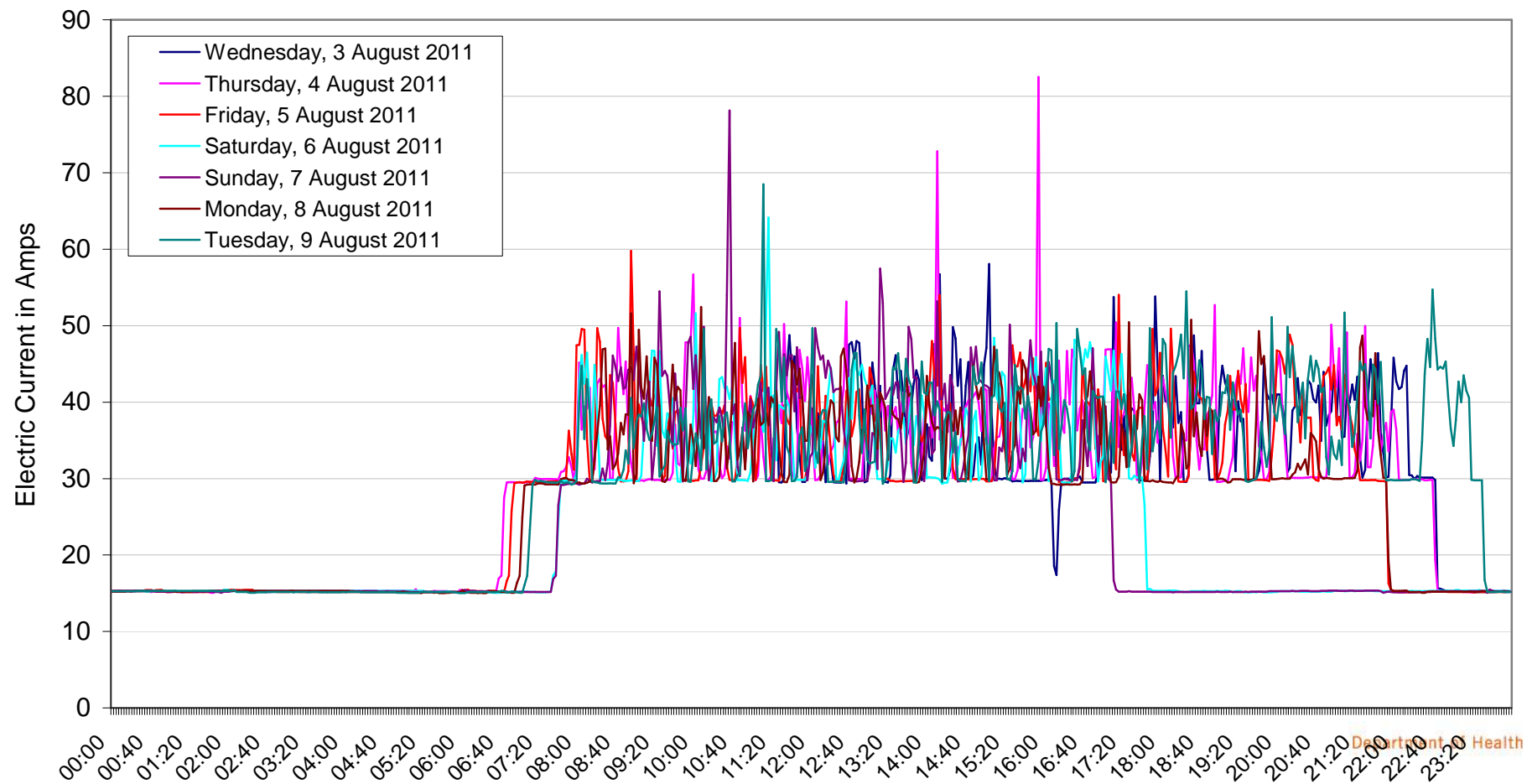
Source: 7-days data logging of individual loads

Medical imaging - chiller

MRI Chiller Load Profile
(CB 20c)

Medical imaging - magnet

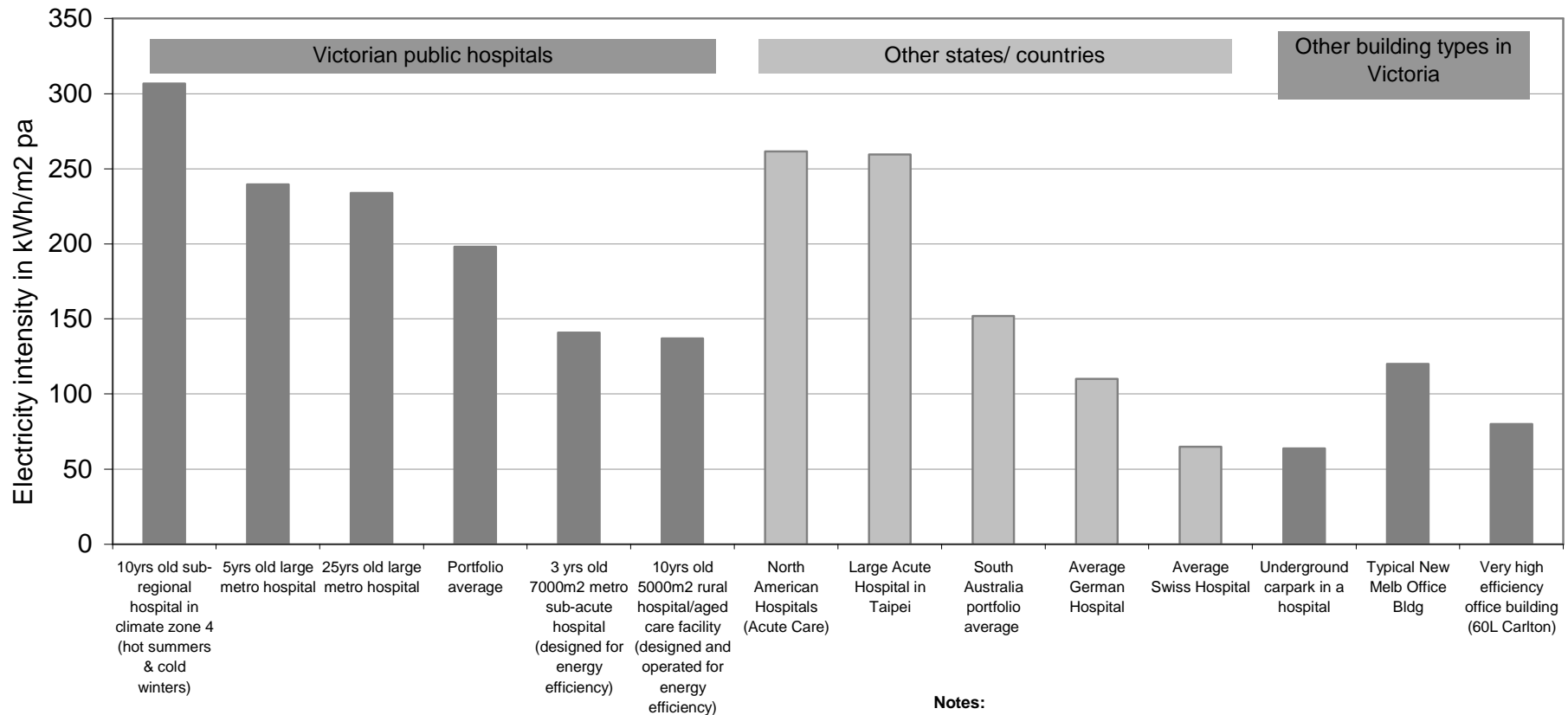
MRI Magnet Load Profile



Set targets

health

How do Victorian hospitals compare?



Notes:

1. Thermal energy (natural gas, LPG, steam) excluded. Assumed that thermal energy is used for space heating and DHW, and in laundries and kitchens.
2. Source of data: Dept of Health AIMS, Presentation by Alan Pears, Presentation by Siemens, Data from SA Dept Of Health, Paper by Hu et al (2004) in International Journal on Architectural Science V5-1., Env Science Centre, Augsburg, Germany.

Improve metering strategies

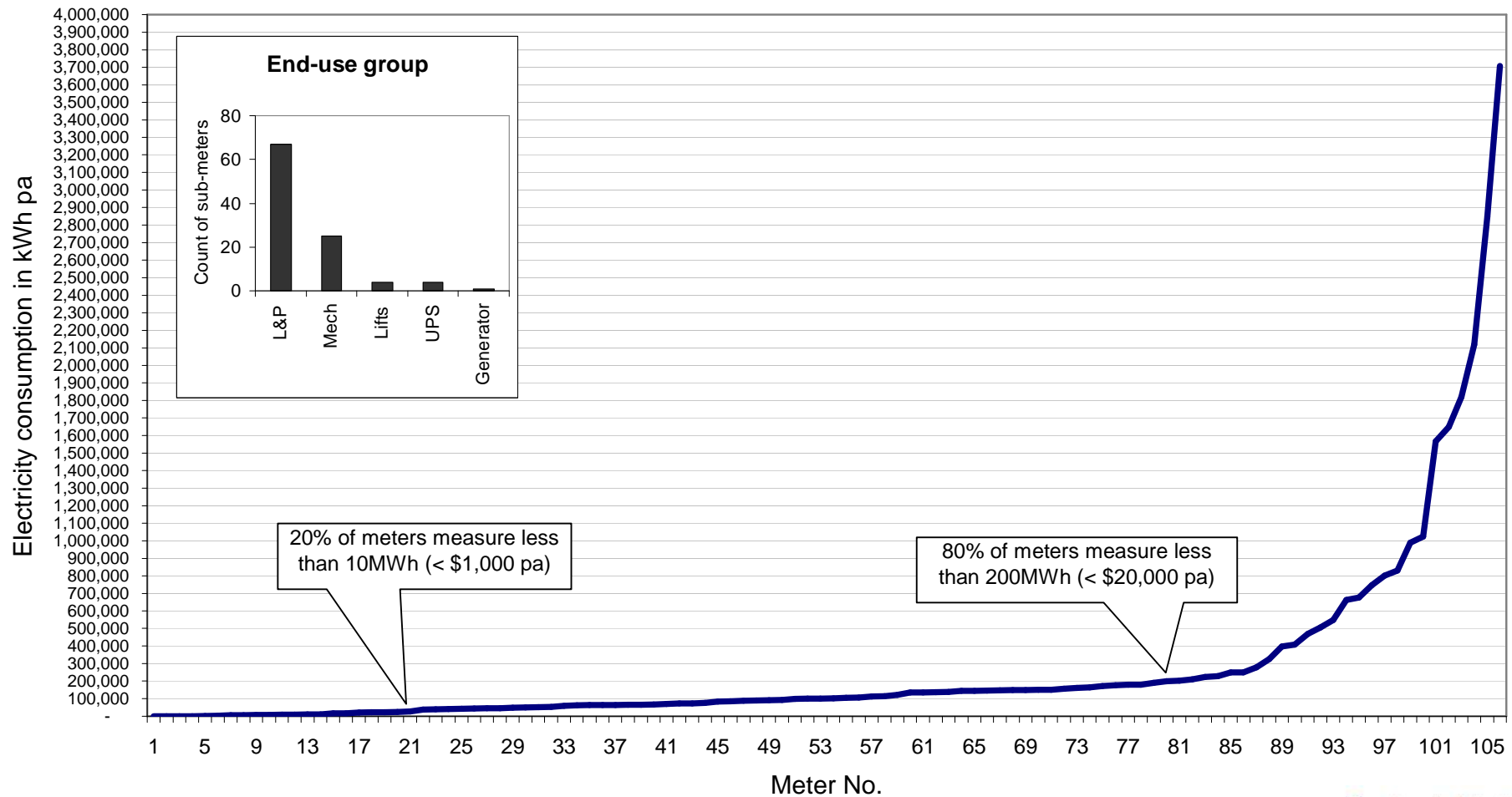
Metering strategy extracted from a tech spec for a new hospital

At a minimum, sub-metering is required in relation to the following items:

- *Chillers*
- *Power to each floor and / or functional area, whichever is smaller*
- *Lighting to each floor and / or functional area, whichever is smaller*
- *Cogen Plant output (if applicable)*
- *Distribution Board for each floor*
- *AHUs (off mechanical boards in each plant room)*
- *Distribution Boards to special medical equipment (e.g. MRI)*
- *External lighting*
- *Lifts*
- *Carpark lighting*
- *Medical Gases plant*
- *Carpark ventilation*
- *Any electrical reheats (if applicable).*

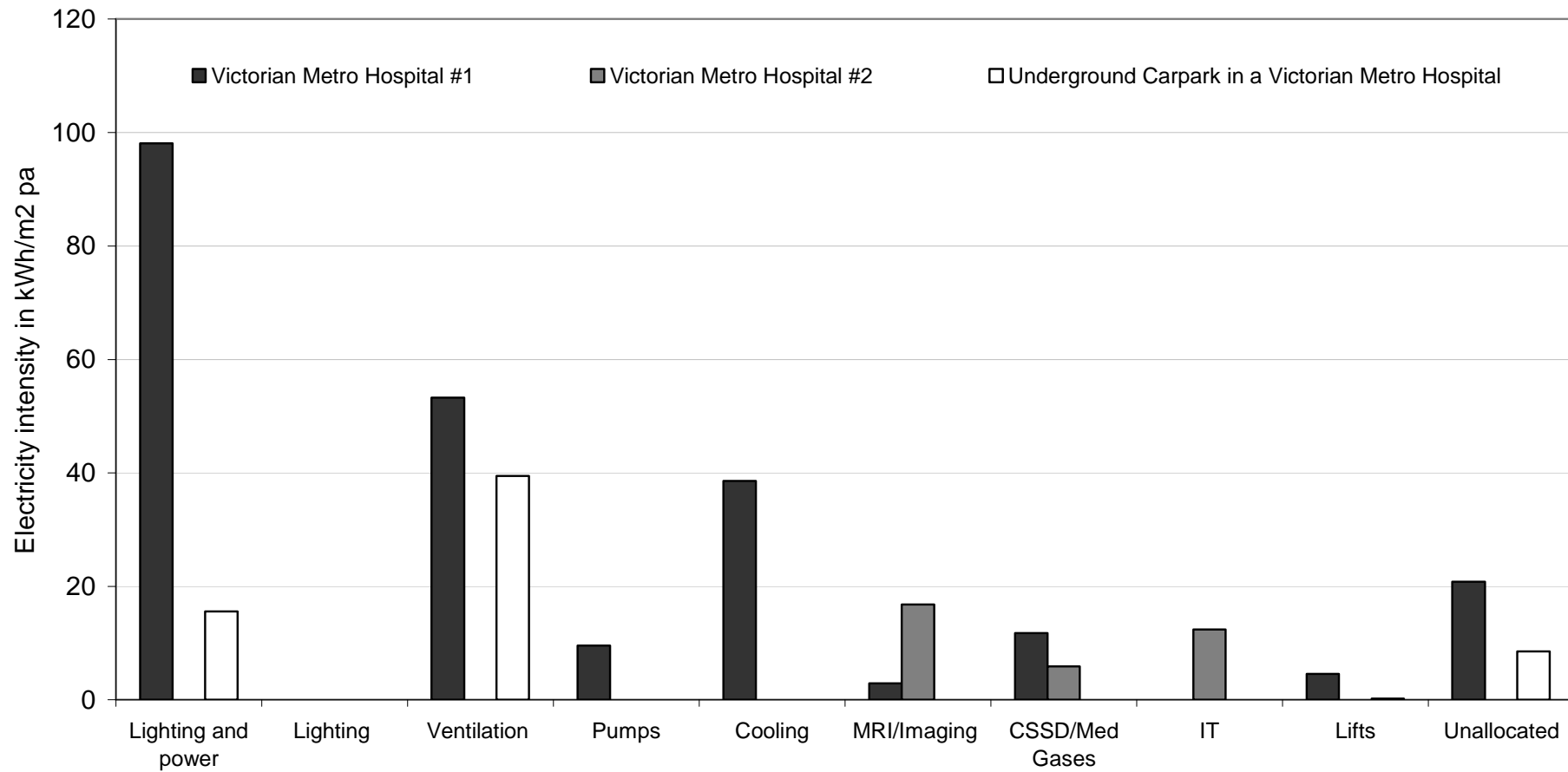
Improve metering strategies

What do sub-meters measure?



Process level/ end-use group intensity indicators

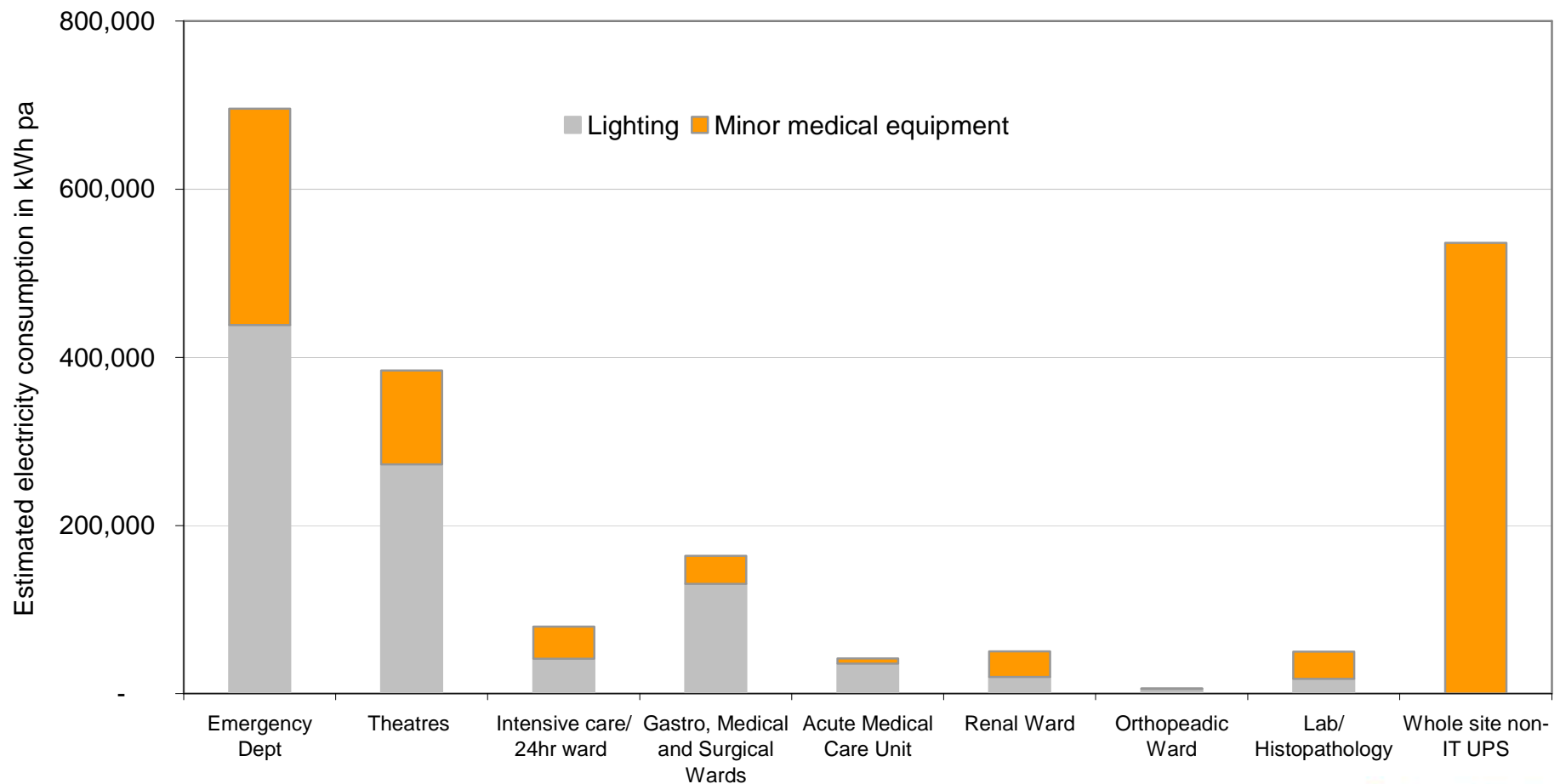
End-use breakup



Source: submeters & data logging

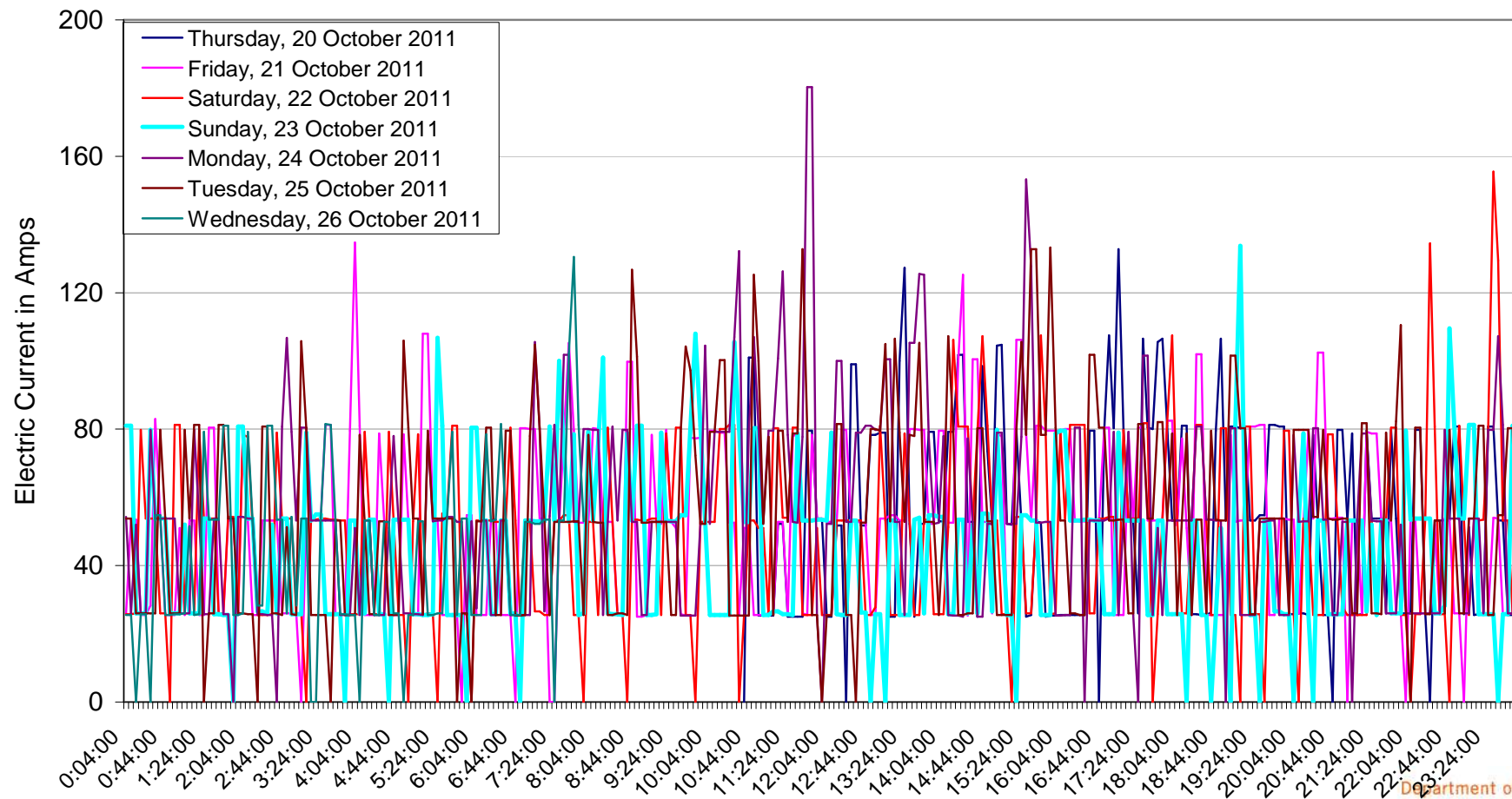
Light and power by functional area

Minor medical equipment electricity consumption at a large metro hospital



Source: 7-days data logging of individual essential L&P boards

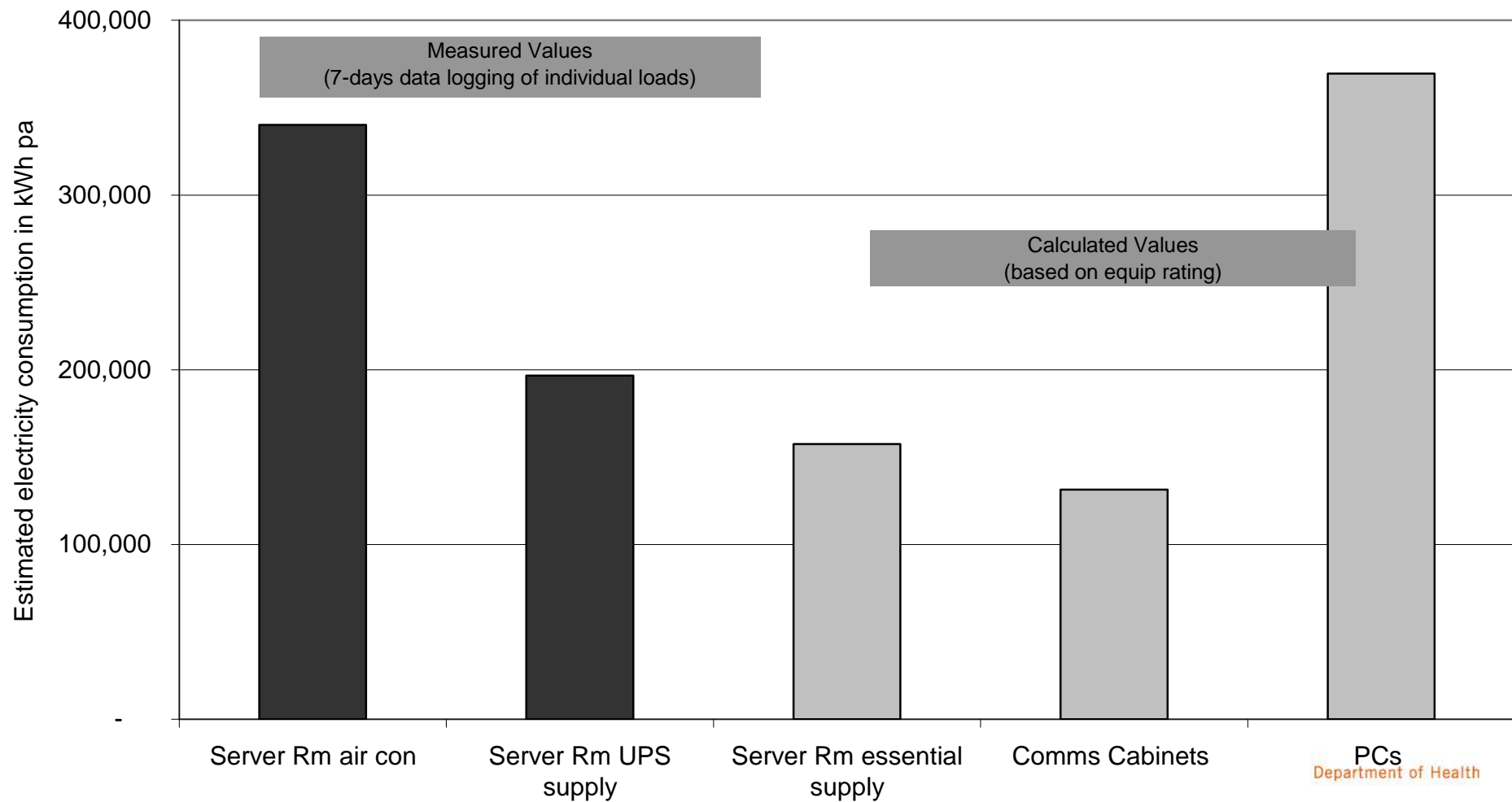
CSSD Load Profile



Share information with IT

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ICT equipment electricity consumption at a large metro hospital



Valuable data sources

Sub-meters

- Is data recorded on regular intervals?
- Is data available for 12 months?

Data logging of individual loads

- Is data on related activity available?

Billing meters dedicated to a building or energy plant

Any data format is ok.

Contact details

health

spira.stojanovik@health.vic.gov.au

(03) 9096 2063

www.health.vic.gov.au/sustainability