WHY DO REAL ESTATE OWNERS CARE ABOUT METERING?

Regulatory drivers

- NGERs: corporate CO2 footprint reporting
- CBD Scheme: NABERS for commercial offices – extend to: tenants; retail?
- s180 Corporations Act: directors duties
WHY DO REAL ESTATE OWNERS CARE ABOUT METERING?

Monitoring & reporting to key stakeholders

> Metering enables us to transparently disclose performance to...

- **Investors**: who want to understand their exposure to energy / water / waste costs as part of their investment
  - Impact investors – e.g. CEFC impact investors CEFC invest to create certain outcomes
  - SRI investors – invest in the belief belief that investing in more responsible companies delivers higher returns. Sustainability as a proxy for good management
  - ESG risk mitigation – sustainability as a hygiene factor – a basic part of doing business – want to see sustainability being managed to ensure we’re not going to be prosecuted for an environmental breach, or suffer huge brand damage that could have a material impact on investor value
- **Tenants**: higher sustainability performance can attract companies with CSR / Sustainability targets as customers
- **Managers**: fund, asset and facility managers want to know how their assets are performing to know if we’re doing well, and to report back to Investors and Tenants
  - Benchmarking: using NABERS “league tables” to enable comparison between assets
    - within our portfolio; and
    - against competitors’ portfolios
WHY DO REAL ESTATE OWNERS CARE ABOUT METERING?

Corporate sustainability reporting schemes

- We use
  - GRESB: note Whole Building v Base Building data discussion.
  - Currently GRESB only rewards coverage (% of GFA metered) not granularity i.e. the ability to split BB from Tennant loads. In future, GRESB may require us to measure GFA, use mains meters to calculate whole building energy consumption, then subtract BB energy consumption to identify tenant consumption (or sub-meter tenancies).
  - PRI
- Others also do
  - DJSI
  - CDP
WHY DO REAL ESTATE OWNERS CARE ABOUT METERING?

Tuning and optimisation to deliver energy cost savings & CO2 reductions

> Mains data – easy to get data directly from utility
> Sub-meter data via BMS – getting data exported from site can be problematic: may need a separate gateway. IT security concerns.

> Energy optimisation
  • by engineers
  • by algorithms / machine learning
> Metering as a commissioning tool
> Using system level actual consumption data to compare against design/construction stage energy model predictions, understand variances and set targets
ISSUES REAL ESTATE OWNERS ENCOUNTER WITH METERING

Metering for NABERS
> Can be costly and time consuming to install meters for NABERS exclusions
> Sometimes done just to get a NABERS rating without considering how metering can be used for tuning & optimisation

Lot’s of data, no analysis
> Even in sites with excellent metering, FM’s don’t typically make use of the data
> Need energy specialists / AI systematically analysing data and identifying optimisation opportunities

Some analysis, but…
> Even if you are getting FDD alerts & alarms or recommendations from a consultant
> FM’s may not have time / or be equipped with the right training to do tuning activity
> Or if they do identify changes, they may face blockages in preparing the business case to unlock capex to spend on the works required to deliver identified savings.
ISSUES REAL ESTATE OWNERS ENCOUNTER WITH METERING

Naming conventions

> Haystack
  • it's hard to get good insights using current BMS data feeds.
> 1 Thomas Holt Drive example
  • Major refurbishment in 2015/16, recently commissioned
  • Got BMS data exported so it could be analysed by a monitoring company
  • Analytics provider could only recognise 2,000 out of 13,000 data points
WHAT WE’RE CURRENTLY DOING

Limited automated monitoring

> Energy
  • web-based monitoring platform to display
    – Mains meter data and
    – Sub-meter data for some sites
  • Tracking NABERS BB Energy ratings as a moving annual total
    – Communicating “real-time” NABERS performance to facility managers in a weekly email

> Water
  • NABERS ratings are being used to measure performance, aiming to connect water meters to export data into an online monitoring platform

> Waste
  • Waste consultant gets data from cleaning company or waste contractors
  • Displayed in an online dashboard
  • Ranks sites by recycling rate and waste intensity / m2

> IEQ
  • Invested in SAMBA sensor trial at 6 sites for 1 year
  • Getting data feed into a web-platform to visualise IEQ data
WHAT WE’RE CURRENTLY DOING

Bill validation using metering

> Energy consultant uses meter data to check consumption against bills
WHAT WE’D LIKE TO BE DOING

Automated monitoring for more systems
> We’d like to see key performance metrics being tracked automatically across a wide range of sustainability indicators against established intensity targets. This would improve visibility of performance for all stakeholders.

- Energy
  - NEM12
  - BMS
  - Solar
  - EV charging
- Water – shopping centre example: Thai restaurant using as much as 1 of the 3 cooling towers
- Waste
- IEQ
- Travel – flight information
- Ratings e.g. GBIG for LEED, something similar for Green Star?
- Social e.g. absentee rates, diversity stats
WHAT WE’D LIKE TO BE DOING

Benchmarking
> Using an industry agreed common set of intensity-based performance metrics to facilitate comparison between properties and against other portfolios
  • ideally with climate data to enable international comparison
WHAT WE’D LIKE TO BE DOING

**Automated reporting**
- Automated data entry into reporting systems like NGERS & GRESB
- Improved transparency for auditors
WHAT WE’D LIKE TO BE DOING

Comparing design predictions v actual performance

> Setting up virtual meters that correlate to design stage energy modelling consumption predictions – and setting seasonal performance targets using these predictions

> Providing a feed-back loop to the development team, and to designers & principal contractors about performance outcomes compared against design expectations
WHAT WE’D LIKE TO BE DOING

Co-optimising energy & comfort

> Energy
  • Detailed system level monitoring data, with virtual meters correlated to the design energy model
  • Algorithm based FDD & tuning recommendations – moderated by an engineer, supporting the FM

> Comfort
  • IEQ sensors (e.g. SAMBA)
  • Occupant satisfaction surveys (e.g. BOSSA)
WHAT WE’D LIKE TO BE DOING

Better measurement & verification
> Measurement and verification of savings from energy improvement initiatives is still very difficult.
> Working with monitoring providers to be able to flag events on the energy consumption graph
> Aim to correlate project implementation with energy savings and compare actual v predicted paybacks.
WHAT WE’D LIKE TO BE DOING

Condition based maintenance
> Automated FDD linked to performance based service contracts for BMS, Mech & Elec, Hydraulic, Waste contractors
WHAT WE’D LIKE TO BE DOING

Improved capital works planning
> Metering linked to system level asset registers
> Asset registers with detailed service life information which can be used for 10 year capex planning processes
  • Once service life data is known, is readily accessible, and is continuously updated for every piece of equipment
  • the end of life dates could be automatically imported into a 10 year capex plan so Funds and Asset Managers have full visibility over upcoming expenditure, and can synchronise (bring forward or delay) works with leasing expiries / renewals
  • Metering can help identify excessive run times to prolong service life & reduce capex
WHAT WE’D LIKE TO BE DOING

Building information modelling with augmented reality

> Fully federated BIM updated with all system changes / upgrades over time
> Real time data updating a BIM AR model to inform system level attributes
> 3D visualisation of energy & water consuming equipment including
  • Equipment level asset information including age, expected service life & energy / water performance
  • To support operations team and technicians in fault finding and maintenance activity
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