

Practical Approaches to Achieving Net Zero in Health Care

IHEA NATIONAL CONFERENCE 2024



INTRODUCTION

- Net Zero, what does it mean?
- Science based net zero targets
- Australian Sustainability Reporting Standards (ASRS)
- Health sector emissions
- The pathway to net zero emissions
- Driving to the target – what do the opportunities look like?
- Emissions reductions in operations
- Monitoring and reporting



NET ZERO, WHAT DOES IT MEAN?

- As the world respond to the threat of global warming and acts to minimise climate change risks, more and more organisations are announcing their own emissions reduction targets.
- Net zero is a state of balance between the amount of greenhouse gas produced and the amount removed from the atmosphere (Energy Savings Trust 2021).
- Achieving net zero represents the most critical step in addressing climate change and reducing greenhouse gas emissions to levels that the planet can sustain.

SCIENCE-BASED NET ZERO TARGETS

- Certified by Science Based Target Institute (SBTi) <https://sciencebasedtargets.org/>
- Carbon emissions are reduced in alignment with climate science, to limit global temperature rise to 1.5° C above pre-industrial levels (Paris Agreement).
- Requires short term (2025 -2030) and long term targets (2050).
- Minimum ambition targets required to align with climate science.
- Limited carbon offsets only permitted.
- Australia has pledged to reduce GHG emissions by 43% below 2005 levels by 2030.

Australian Sustainability Reporting Standards

- Australian Accounting Standards Board released draft reporting standards October 2023
- ASRS 1 - General Requirements for Disclosure of Climate-related Financial Information
 - Require an entity to disclose information about its climate-related risks and opportunities that is useful to primary users of general purpose financial reports in making decisions relating to providing resources to the entity.
- Core Requirements
 - **Governance**—the governance processes, controls and procedures the entity uses to monitor and manage climate-related risks and opportunities.
 - **Strategy**—the approach the entity uses to manage climate-related risks and opportunities.
 - **Risk management**—the processes the entity uses to identify, assess, prioritise and monitor climate-related risks and opportunities.
 - **Metrics and targets**—the entity’s performance in relation to climate-related risks and opportunities, including progress towards any targets the entity has set or is required to meet by law or regulation

Australian Sustainability Reporting Standards

Table 1 – ASRS Reporting Thresholds for Companies

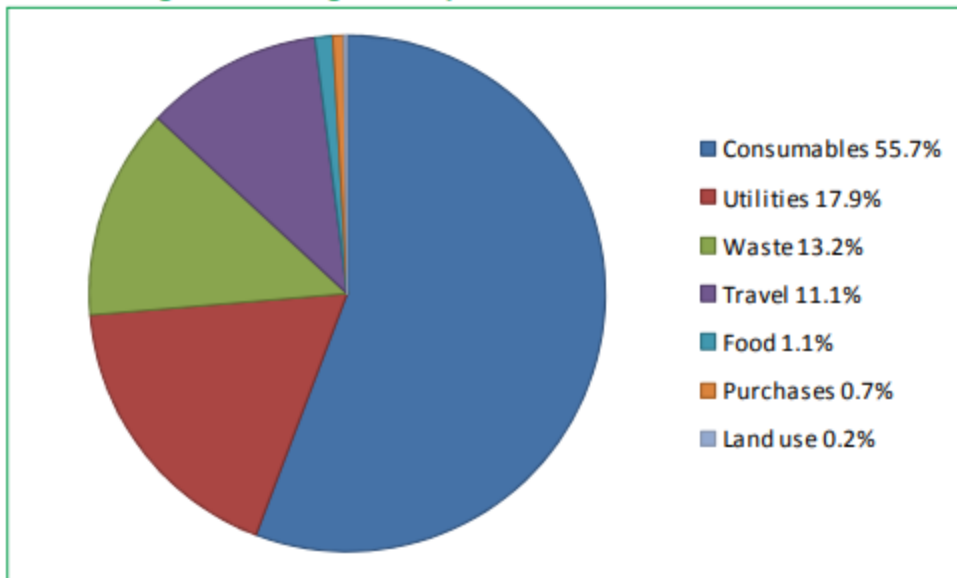
	NGERS Reporters	Group 1	Group 2	Group 3	
Reporting Year	2024/25 onwards	2024/25 onwards	2025/26 onwards	2026/27 onwards	
Employees	N/A	>500	>250	>100	Companies must be required to report under Chapter 2M of the Corporations act and fulfill at least 2/3 to be captured under threshold
Consolidated Gross Assets	N/A	>\$1b	>\$500m	>\$25m	
Consolidated Revenue	N/A	>\$500m	>\$200m	>\$50m	

Emissions footprint of the Health Sector

At a global level, the health sector is responsible for an estimated 4.4% of greenhouse gas emissions. For context, this is more than double the greenhouse gas emissions of the aviation industry (1.9%).... This varies by country: healthcare in Australia contributes 7% of emissions and 10% in the USA, compared to 3% in the UK

(Source: <https://www.pwc.com.au/health/health-matters/net-zero-emissions-in-health.html>)

Figure 1: Ecological footprint results for Southern Health



Source: Ecological footprint of Victoria's public hospitals – Victorian Department of Health

Table 1: Energy consumption and carbon emissions of a large hospital

Functional end use	Energy consumption (MJ/m ² /annum)	Carbon emissions (Kg CO ₂ -e/m ² /annum)
Ward	1,350	293
Surgery areas	844	268
Back of house	619	176
Consulting	510	166
Administration & office	474	154
Corridors (24hrs)	349	95
Weighted Average	918	224

Source: Energy consumption and carbon emissions of hospitals – Victorian Department of Health

THE PATHWAY TO NET ZERO EMISSIONS



STEP 01
Prepare a carbon inventory



STEP 02
Identify opportunities for improvement



STEP 04
Determine reductions required to achieve targets



STEP 03
Define reduction target and target year



STEP 05
Prepare and implement a decarbonisation strategy

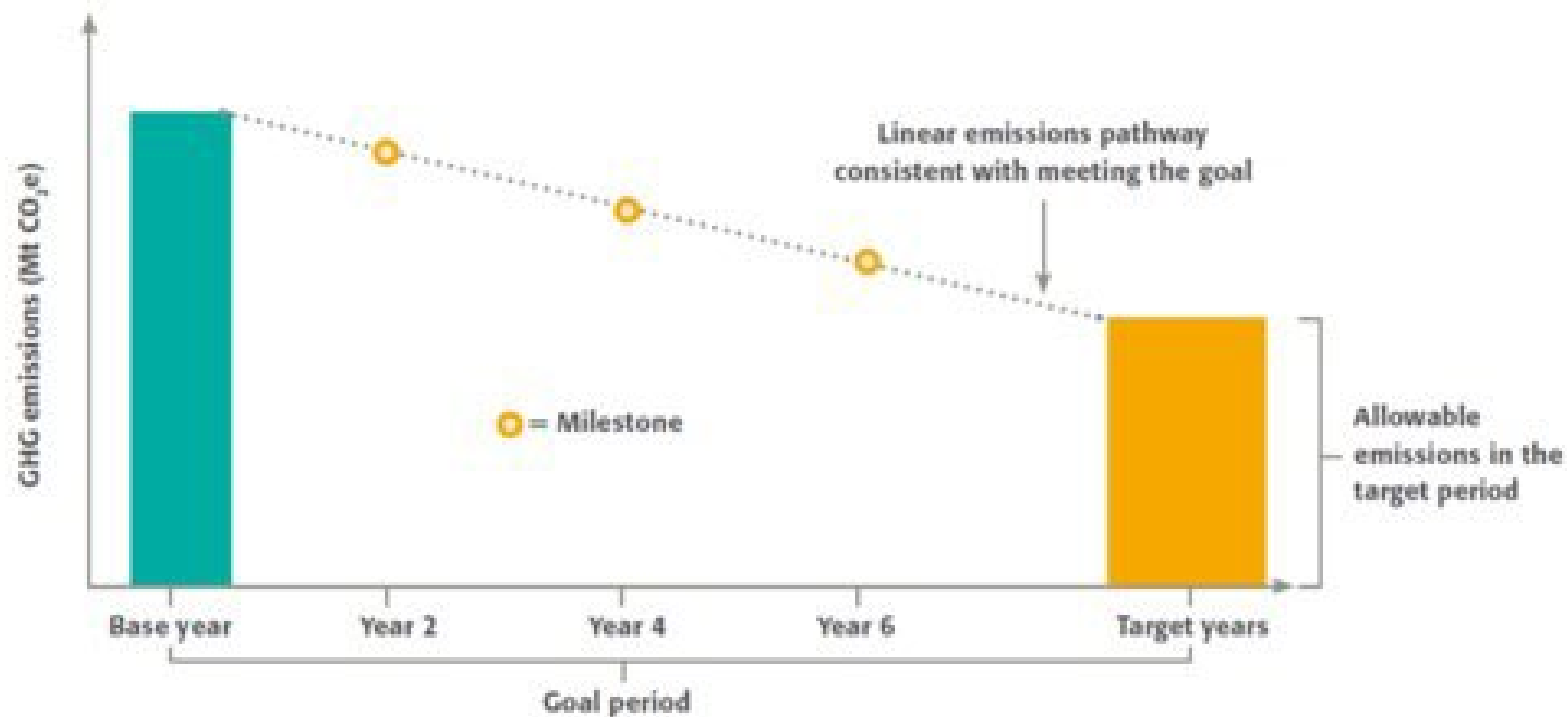


STEP 06
Track progress

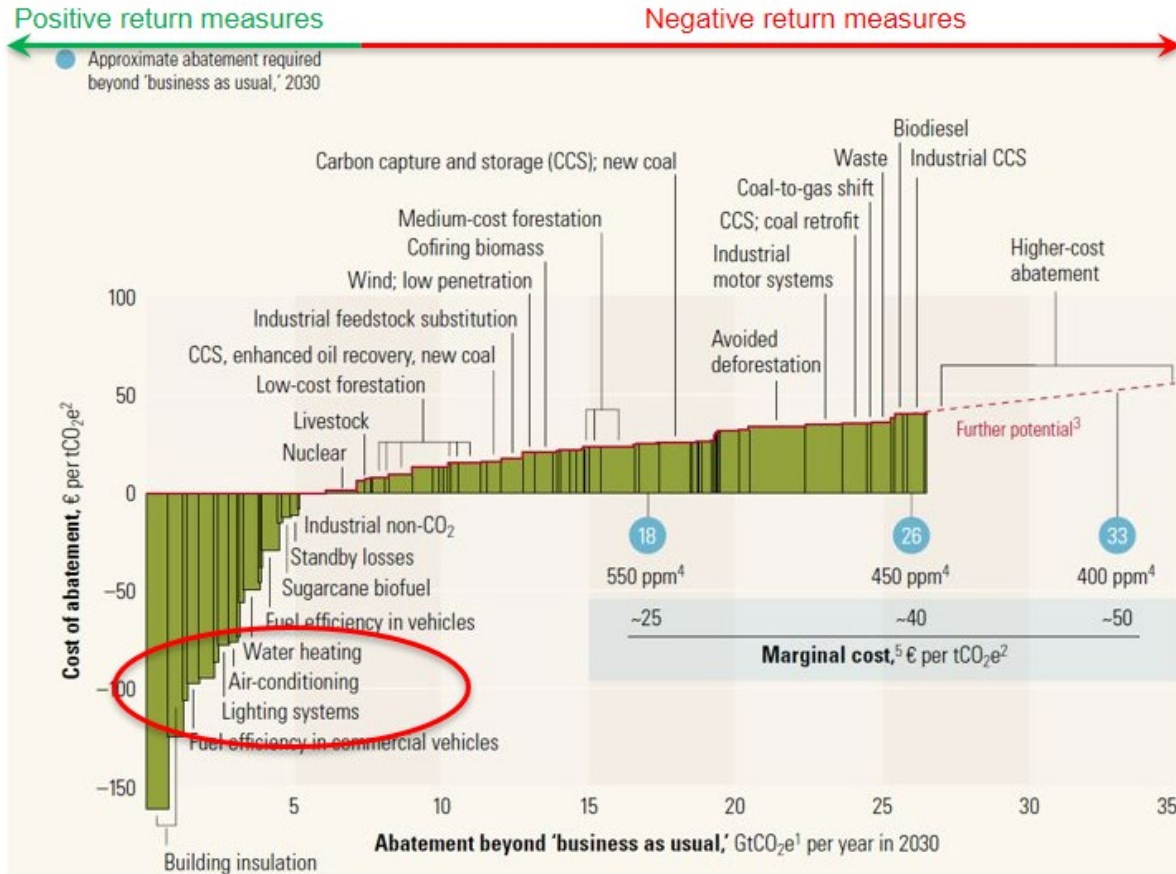
STEP 07
Disclose target progress annually

THE PATHWAY TO NET ZERO EMISSIONS

- Net zero targets are set at organisational level (Top Down) but achieved at business unit level (Bottom Up).



DRIVING TO THE TARGET

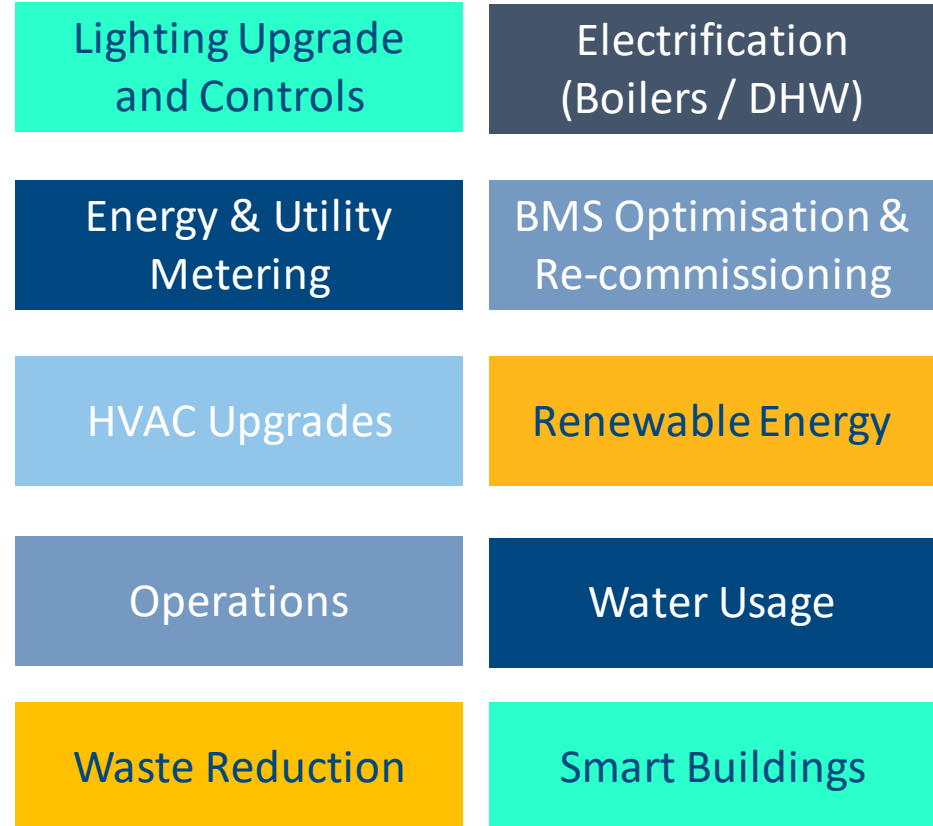


Carbon Reduction Hierarchy

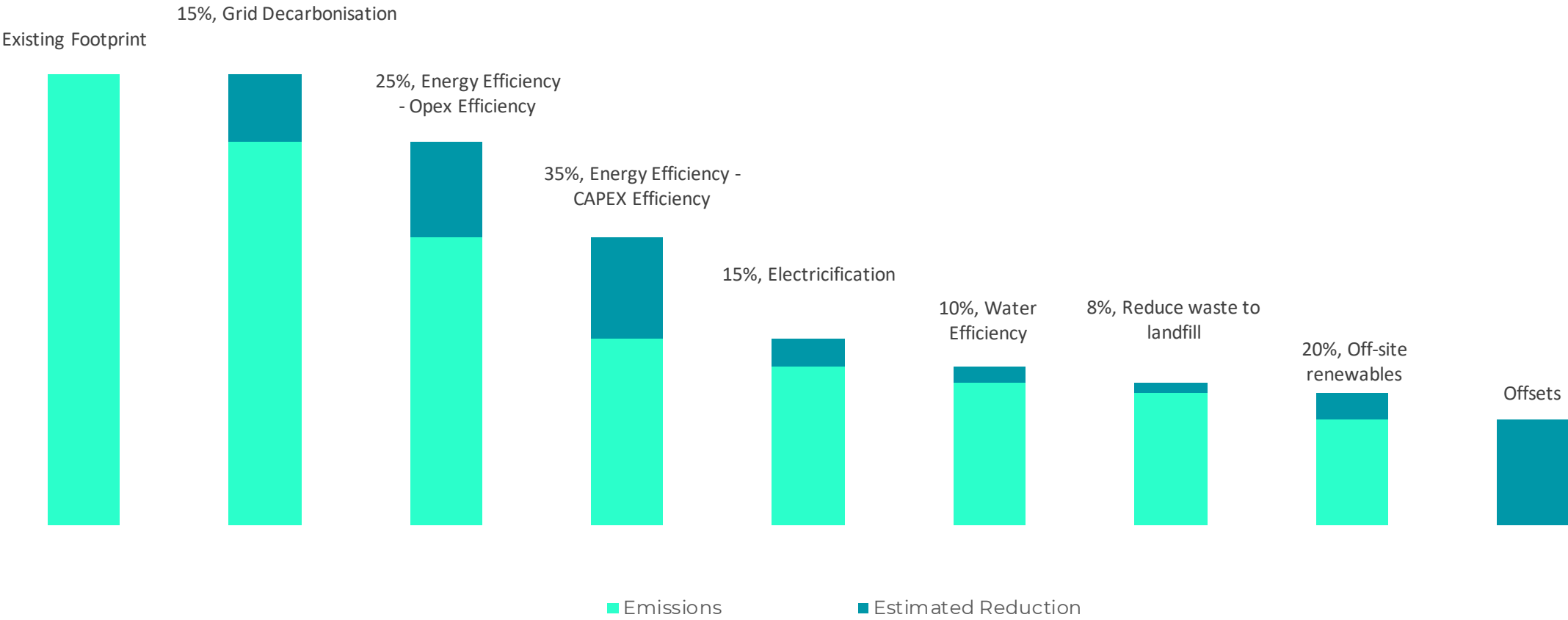
The McKinsey Quarterly 2007 No 1 (Enkvist, Tomas Naucler, Rosander)

DRIVING TO THE TARGET

- Solar (On-site Electricity Offset)
- Electricity Reduction
 - Building Controls optimisation and re-commissioning
 - Sustainable building operations
 - Smart Building Control
 - HVAC Energy Efficiency Upgrade
 - Lighting Energy Efficiency Upgrade
- Natural Gas
 - Electrification of domestic hot water, air conditioning heating & kitchens.
- Water
 - Reduce water consumption and wastewater
- Waste
 - Reduce waste & increase recycling rates



THE PATHWAY TO NET ZERO EMISSIONS



REDUCTION OPPORTUNITIES IN OPERATIONS

- Embed into Facility Management BAU
- Target Avoid & Reduce, the elements of reduction hierarchy
 - Scheduling / AHAC
 - Optimum Start / Stop
 - BMS / HVAC Review and recommission
 - Occupancy based control
 - Seasonal space setpoint reset
 - Night Audits
- Demand side opportunities
 - Demand reduction agreements
- Data driven operations and maintenance

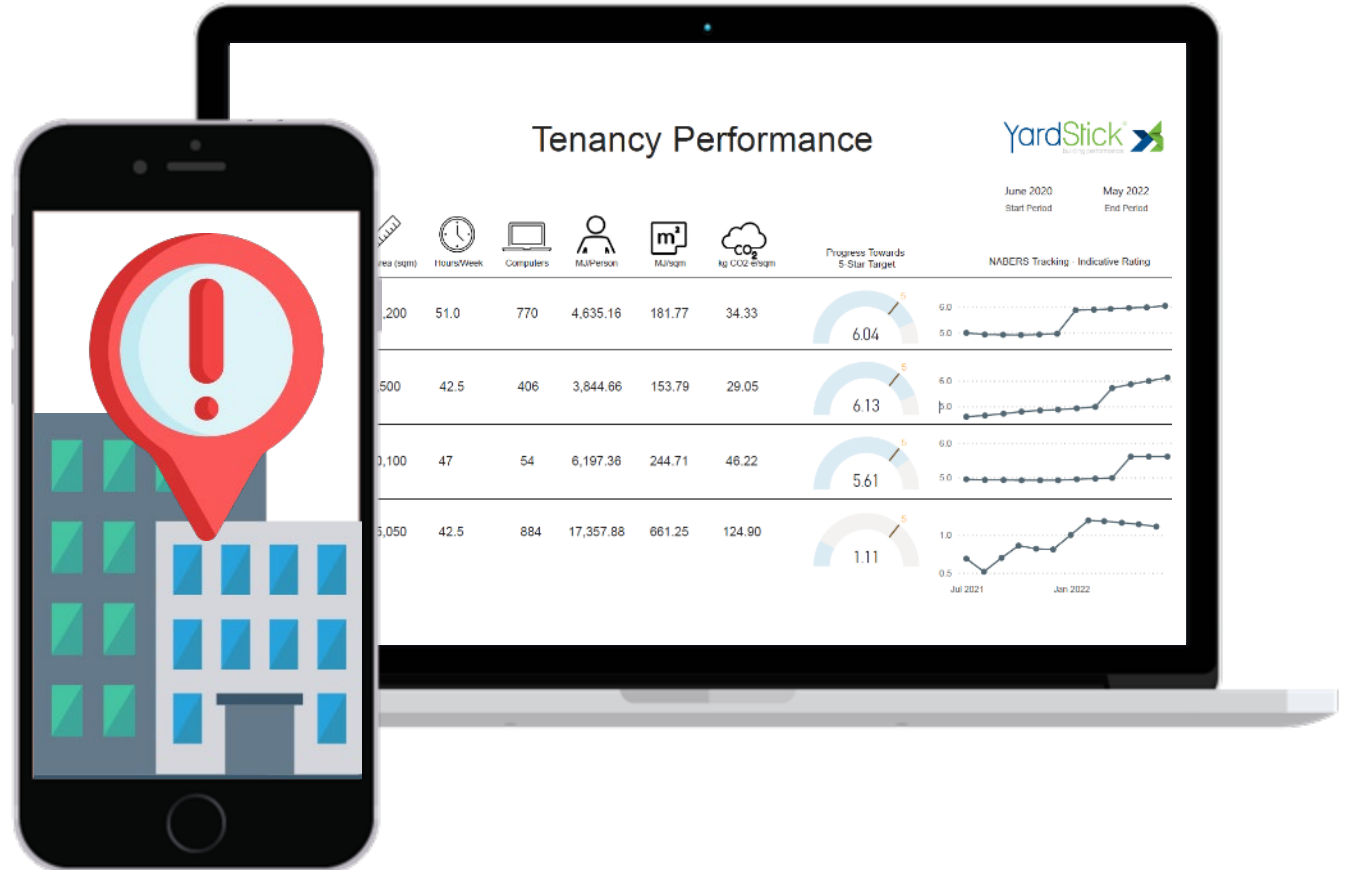
The image shows a laptop screen displaying a document titled "Monthly Building Operations Checklist for Sustainability". The document is part of "Engineering Procedures" and is identified by the number "M1.01". It includes a revision history table and a main checklist table with columns for Area, Sustainability Issue, Description, Actions, and Notes.

Revision	Release Date	Initial Issue	Description	Page
1	3/2/2016			2 of 8

Area	Sustainability Issue	Description	Actions	Notes
Air Conditioning and Lighting Scheduling	Energy usage	Ensure that zone or floor schedules are programmed to suit leasing requirements for occupancy. Plant should not start more than one hours prior to occupancy.	<input type="checkbox"/> Reviewed zone or floor schedules <input type="checkbox"/> Plant not starting more than 1 hours prior to expected occupancy.	
After Hours Air Conditioning and Lighting	Energy usage	Tenant after hours manual override (via BMS or time-clock) can sometimes be set for up to 4 hour periods. If leasing arrangements allow, reduce after hours override times to 1 – 2 hours maximum. If After Hours is scheduled via BMS regularly review schedules to ensure that AHAC is not being run when not required.	<input type="checkbox"/> Review AHAC times and reduced override times. Provide details in notes. <input type="checkbox"/> Reviewed AHAC schedules and removed schedules no longer required.	
Public Holiday Scheduling	Energy usage	Ensure that all HVAC plant serving un-occupied areas on public holidays is shut down. Check BMS or Time Clocks to ensure holidays are programmed correctly.	<input type="checkbox"/> Reviewed and confirmed holiday dates and schedules are programmed correctly.	
Air Conditioning Optimum Start / Stop	Energy usage	Optimum Start / Stop is a feature of BMS systems that will start or stop the HVAC plant only as early or late as required to achieve set-point during the occupancy times. Typically the earliest start and stop times of the plant and the occupancy times are programmed into the BMS. Ensure that occupancy times and start times are in line with leasing agreements. Example: Earliest Start Time: 07:00	<input type="checkbox"/> Reviewed Optimum Start / Stop programming. <input type="checkbox"/> Not Applicable	

REDUCTION OPPORTUNITIES IN OPERATIONS

- Utility Sub-Metering
- Fault detection and analytics
- User friendly interface to deep dive into energy and utility usage.
- Waste to landfill reduction, re-use and recycling
- Water reduction and recycling



CAPEX OPPORTUNITIES

- Align with strategic asset management / lifecycle analysis
- Building upgrade assessment to be considered in terms of impact on carbon reduction targets
- Don't fall into like for like replacement trap
- Identify and prioritise the most cost-effective opportunities to reduce energy consumption
 - HVAC System Optimisation
 - HVAC Systems Replacement (Cooling / Heating / Ventilation)
 - Lighting System Control
 - Lighting System Replacement
 - Building Analytics
- ROIs driven lower by increasing energy costs

CAPEX OPPORTUNITIES

- HVAC Equipment Upgrade Opportunities
 - Variable Speed Drives
 - High Efficiency Motors
 - Airside Equipment
- Chillers
- Electrification of building heating and cooking
- Lighting Opportunities – LED, Occupancy Based Controls
- Data driven analytic and optimisation



MONITORING AND REPORTING

- Key to driving performance is accurate, near real time energy and emissions monitoring
- Integrating billing data, strategy level monitoring
 - Restricted by billing cycles
 - Detect and act on estimated bills
- Sub-metering, tactical, operational level monitoring
 - Near real time monitoring and corrective actions
- Simplify audit and assurance
- Manage and track KPIs
- Reporting platforms provide flexible approaches
- Align with emissions reporting schemes such as Carbon Disclosure Project (CDP) & Global Real Estate Sustainability Benchmark (GRESB), National Greenhouse & Energy Reporting (NGER)



CONCLUSIONS

- The challenge to achieve real and lasting carbon emissions reductions will increasingly drive strategic decision making in the built environment.
- Mandatory climate change reporting will accelerate pressure to achieve real and meaningful progress.
- Asset upgrade and replacement strategies and being driven by worldwide focus on driving carbon emissions to support 2030 and 2050 reduction targets.
- Careful and targeted optimisation and upgrades can preserve the investment in existing buildings and drive meeting ambitious net zero targets.
- Energy efficiency in operations continue to remain the single most cost-effective option for reducing emissions reductions
- All emissions reductions levers will be needed.



Thank you

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