

PUBLIC REPORT 2011

Part 1 - Corporation Details

Controlling Corporation

Stockland Corporation Limited

Period to which this report relates

From

1 July 2010

To

30 June 2011

Table 1.1 - Major Changes to Corporate Group Structure or Operations

Table 1.1 – Major Changes to Corporate Group Structure or Operations

Stockland's Energy Efficiency Opportunities first assessment cycle has focussed on identifying energy efficiency opportunities across the organisation, with the intent of meeting 80% coverage. Stockland has now commenced its second assessment cycle.

A significant change in Stockland's baseline has occurred as compared to previous reporting periods resulting in a change to the schedule of assessments as set out in the original Assessment and Reporting Schedule (ARS). This is due to the considerable volume of disposals, acquisitions and developments during this timeframe.

During this first assessment cycle, ownership and occupancy of some of the nominated assets changed through sale, vacancy or redevelopment prior to the nominated assessment date. Consequently, there are a number of assets where partial or no assessments were undertaken. For example, a complex of five buildings has become largely unoccupied and will be demolished as part of a future development. A nominated shopping centre asset has since commenced redevelopment with the entire centre being demolished in stages. In these situations, there has been no opportunity or purpose to undertake a complete assessment.

Additional changes occurred with the introduction of the EEO Amendment Regulations, aligning the EEO program with the National Greenhouse and Energy Reporting Scheme (NGERS). These amendments include the alignment of energy sources and conversion factors, and changed reporting definitions from financial to operational control. This shift in reporting boundary has changed and increased Stockland's energy baseline. Under operational control, Stockland accounts for energy use from its Residential Communities business (principally diesel fuel used by contractors in earthmoving machinery). Stockland has limited control over this increased energy use added through the introduction of the definition and boundary change.

Due to the cumulative impact of:

- sales, disposals, acquisitions and developments in Commercial Property;
- the acquisition of a Retirement Living organisation; and
- the potential inclusion of diesel fuel use in the Residential Communities business,

Stockland will not meet the 80% coverage requirement as set out in its original ARS. Additional assessments were scheduled for alternative assets in the 2010/2011 period in order to decrease the gap created by the disposal and development activity associated with nominated assets.

Stockland has met with DRET representatives regarding reporting coverage and the challenges associated with undertaking sufficient EEO assessments within a dynamic organisation (with considerable disposal, acquisition and development activity) compounded by the shift in reporting boundary.

The government's expressed intent on aligning EEO with NGERs definitions and boundaries was intended to streamline the burden of reporting.

Stockland has been in correspondence with the DRET Client Liaison Officer. The inclusion of diesel fuel use in this current reporting cycle is acknowledged as an unintended consequence of the change of reporting definitions. Due to the limited influence that Stockland has over how the diesel fuel is used by its civil contractors within its Residential Communities business, detailed EEO assessment will yield limited results. As such, it has been requested that this fuel use activity not be assessed within this assessment cycle.

Stockland was advised that it should continue to conduct assessments as per its original ARS and financial control boundary. Additional assessments were undertaken to meet the 80% financial control boundary coverage.

If required, Stockland will include detailed assessment of energy efficiency opportunities of diesel fuel use in the organisation's second assessment cycle, and will set out how these assessments will be undertaken in the second cycle ARS due in 2012.

Table 1.2 – Aggregate energy assessed covered in this report

Total FY10/11 energy use covered by all assessments in this report	427,825	GJ
Total FY10/11 energy assessed as percentage of total FY10/11 energy use of the corporate group relative to the last financial year*	77.3	%
Total FY10/11 energy assessed as percentage of total baseline energy use of the corporate group[#]	80.3	%

*, # As noted above, due to the late acquisition and the limited ability to influence energy use, contractor energy consumption associated with developments within the Residential Communities and Retirement Living business units has been excluded from the total energy use by the corporate group. This was discussed with DRET. Further, Stockland has assessed more than 80% of the energy consumption in the baseline year, which aligns with the original intent outlined in the Assessment and Reporting Schedule submitted to the government.

% As per the EEO Regulations, assessed energy use is determined in "regard to the baseline energy used by the group". Where assessed sites do not appear in the ARS, baseline at the time of the site assessment has been included.

Declaration

Declaration of accuracy and compliance

The information included in this report has been reviewed and noted by the board of directors and is to the best of my knowledge, correct and in accordance with the *Energy Efficiency Opportunities Act 2006* and *Energy Efficiency Opportunities Regulations 2006*.



Matthew Quinn
Managing Director

Date 24.10.2011

Part 2 - Assessment Outcomes: Office and Industrial

Table 2.1 – Assessment Details

Name of group member or business unit or key activity	Office and Industrial		
Total energy use for Office and Industrial in the last financial year (FY10/11)	270,486		GJ
Total energy use in the baseline period	275,956		GJ
FY10/11 energy use assessed in this entity as a percentage of total entity FY10/11 energy use	88		%
FY10/11 energy use assessed in this entity as a percentage of total corporate FY10/11 energy use	43		%
FY10/11 energy use assessed in this entity as a percentage of total entity baseline energy use	87		%
FY10/11 energy use assessed in this entity as a percentage of total corporate baseline energy use	45		%
Accuracy of above estimates related to energy use assessed - <u>only required if not ±5% or better</u>			%
Period over which assessment was undertaken		1/07/2007	30/06/2011

Description of the way in which the entity carried out its assessment

Stockland has a strong commitment to sustainability, energy conservation and the reduction of carbon emissions across its business. As part of this commitment, Stockland has invested significant time, resources, and capital to improve energy management and energy efficiency. Stockland has continued to undertake energy efficiency opportunity assessments over the 2010/11 reporting period in conjunction with its third party energy services consultants. A total of 17 office and retail sites have had assessments completed during 2010/2011. This was in addition to the previously assessed sites that continue to engage with the sustainability team to achieve energy efficiency outcomes.

As with prior assessments, a comprehensive process was employed, addressing the requirements of the Energy Efficiency Opportunities (EEO) program. Detailed analyses of energy usage and factors affecting energy use was carried out for each site, with ideas and opportunities identified and evaluated. Outcomes of the assessments have been communicated to relevant employees for further action.

Stockland has now assessed more than 80% of the energy used by its corporate group in 2010/11 excluding diesel use associated with its Residential Communities business (captured as a consequence of NGERs reporting and the shift from financial to operational control reporting boundaries). As indicated above, detailed EEO assessment of this consumption will yield limited results, and has not assessed within this assessment cycle.

Since the commencement of the EEO Program Stockland's implemented savings have reached in excess of 71,000 GJ. Highlights from this review are set out in this EEO report.

The same assessment approach has been applied to each of the asset class portfolios (office, retail and industrial) within Stockland's Commercial Property business unit.

Leadership

- The Commercial Property business has committed to a 20% energy intensity reduction (relative to FY09) and a portfolio average NABERS Office Energy rating of 4.5 stars by 2014.
- Over \$1 million awarded to Stockland in co-funding from the Federal Government's Green Building Fund to implement energy efficiency initiatives such as building tuning, sub-metering, lighting upgrades and solar installations on three projects.
- In FY11, a significant 7 per cent greenhouse gas emissions intensity reduction was achieved across the office portfolio, and a modest two per cent greenhouse gas emissions reduction was achieved across the retail portfolio
- Stockland has achieved a 3.9 star NABERS Office Energy average for its office portfolio. This is an increase of 0.3 stars (from 3.6 stars for Stockland managed buildings) from 2010.
- Stockland joined the Retail NABERS Technical Advisory Group to engage with peers and government in order to improve the efficacy of the NABERS Retail tool prior to implementing assessments across its portfolio. Stockland supported the NABERS Rating Scale Expansion to 6 stars, rewarding those buildings that exceed the 5 star benchmark.
- Three shopping centre NABERS ratings have been undertaken using the NABERS for Retail tool:
 - Stockland Forster achieved a 6 star NABERS Retail Energy rating and a 4 star Water rating; and
 - Stockland Caloundra achieved a 4 star NABERS Energy rating.
 - Stockland Hervey Bay achieved a 3.5 star NABERS retail Energy and 3.5 star Water rating
- Stockland continues to use its bespoke online carbon management tool to aid climate change planning, reporting and forecasting. The tool also supports Stockland's EEO and NGERs reporting obligations.
- Stockland is transferring responsibility for greenhouse gas data collection from its sustainability teams to its group and business unit finance teams, further embedding carbon and energy reporting into standard business practices.

People

- Stockland has dedicated sustainability personnel in each of its business units. In Commercial Property where much of Stockland's energy usage occurs, the sustainability team has direct accountability for the management of energy efficiency assessment and improvement projects.
- The sustainability team analyse energy data and co-ordinate, with the assistance of an external energy consultant, its EEO assessment and reporting obligations. Other external resources are used to monitor energy use trends in its portfolio of assets. Direct engagement occurs with site facility teams to examine operational energy use, identify opportunities and implement corrective actions.
- Stockland's sustainability team follows up the progress of actions through monthly regional teleconferences, and meetings with facility managers to review opportunities.
- Facilities Managers are actively engaged in energy efficiency opportunities identification workshops, verification, and implementation of initiatives.
- Energy efficiency opportunities assessment reports are used to develop action plans. Reports also inform budget and decision making processes.

Information & Data Analysis

- Data management systems have been streamlined, enabling the production of integrated Commercial Property energy and greenhouse gas emissions reporting.
- Reporting for operational assets is accessible to all Stockland Commercial Property employees.
- Stockland continues to benchmark the energy efficiency performance of each office and retail asset individually due to the diverse nature of the portfolio. Stockland also assesses, monitors and discloses the performance of the overall portfolio using rating tools such as NABERS as part of



its annual Corporate Responsibility and Sustainability reporting program.

- A continued commitment to sub-metering has led to ongoing roll-outs to four additional office sites and 22 retail sites as well as upgrades on 10 existing metered sites.

Opportunities Identification and Evaluation

- Energy efficiency opportunity identification is an ongoing and embedded process for Stockland.
- Since commencing participation in the EEO program, Stockland has completed EEO assessments on 49 office and retail assets. Opportunities assessment reports are used to assist in the development of action plans, budgeting and ongoing decision-making processes.
- Opportunities that involve capital expenditure are investigated. Where feasible, these energy efficiency opportunities are considered for inclusion into maintenance capital budgets.

Decision Making

- Energy efficiency projects are evaluated based on existing simple payback and financial hurdle rates analysis.
- Over the first assessment cycle, most opportunities implemented have involved existing capital commitments to energy efficiency projects, or projects requiring little or no capital expenditure (typically operations related).
- Opportunities identified in past and current assessment periods will be evaluated for inclusion in future capital budgets.
- The evaluation of effectiveness of completed projects to date is measured in terms of reduced energy usage on utilities accounts, sub-metering data and improvement to NABERS ratings on office buildings.
- Effectiveness of projects completed to date is evaluated in terms of reduced energy usage (via utilities accounts), sub-metering data and improvements to NABERS ratings.

Communicating Outcomes

- The Stockland Board is presented with a quarterly report that summarises the organisation's majority energy usage and greenhouse gas emissions and how this is tracking to its stated targets.
- The annual Stockland Corporate Responsibility and Sustainability (CR&S) Report is the primary communication channel by which the organisation communicates its annual eco-efficiency performance. The content of the CR&S report is reviewed by Stockland's CR&S Committee and is independently assured to AA1000AS. In FY11, Stockland's greenhouse gas emissions and energy data was independently assessed by KPMG to a reasonable level of assurance.
- A monthly CR&S report is submitted to the Executive Committee and to the Board detailing initiatives, implementation progress and all major stakeholder issues.
- EEO assessment reports are distributed to Facilities Management teams immediately after assessment and via the Commercial Property Operations Team Site through Stockland's Intranet. Progress is monitored via monthly regional teleconferences and opportunities included in annual asset planning and expenditure budgets.
- Recommendations for investments in energy efficiency are made depending on the level of expenditure relative to the delegation for management approval.
- Case studies are produced for communicating energy savings successes and lessons learnt, for both internal and external stakeholders.

Table 2.2 - Energy efficiency opportunities identified in the assessment

Table 2.2 – Energy efficiency opportunities identified in the assessment									
Status of opportunities identified to an accuracy of better than or equal to ±30%		Total Number of opportunities	Estimated energy savings per annum by payback period (GJ)						Total estimated energy savings per annum (GJ)
			0 – < 2 years		2 – ≤4 years		> 4 years		
			No of Opps	GJ	No of Opps	GJ	No of Opps	GJ	
Business Response	Implemented	66	38	25,323	12	2,930	16	12,700	40,953
	Implementation Commenced	6	0	0	2	2,727	4	1,922	4,649
	To be Implemented	16	5	557	5	291	6	490	1,338
	Under Investigation	143	55	11,800	26	6,970	62	25,497	44,268
	Not to be Implemented	22	10	2,148	2	46	10	1,528	3,722
Outcomes of assessment	Total Identified	253	108	39,829	47	12,964	98	42,137	94,930
Status of opportunities identified to an accuracy of worse than ±30%									
Business Response	Implemented	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Implementation Commenced	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	To be Implemented	29	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Under Investigation	109	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Not to be Implemented	19	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Outcomes of assessment	Total Identified	242	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Please note that Corporate Groups **are not required** to report opportunities with a payback greater than 4 years. Reporting this data is voluntary.



Table 2.3 - Details of significant opportunities identified in the assessment

Description of Opportunity	Voluntary Information	
<p>Durack Centre, Perth, WA</p> <ul style="list-style-type: none"> • NLA: 17,168 m² • NABERS Offices Base Building Energy Rating: 4 stars (previously 3 stars) <p>Energy efficiency upgrades to achieve a NABERS rating improvement include:</p> <ul style="list-style-type: none"> - Replacement of the pneumatic HVAC control system with intelligent BMS control strategies including VAV control systems / AHU controllers; - Replacement of VAV controllers, installation of air handling unit controls and VSD's; - Replacing the low load chiller and installing an automatic condenser tube cleaning system; - Replacing house and tenancy lighting with high efficiency lighting and control systems; - Installation of intelligent sub-metering to monitor and track energy consumption against targets. <p>Sub-metering provides an improved understanding of electricity use in base building lighting, power and mechanical systems. A system referred to as 'The Edge' has been installed to allow for rapid identification of operational problems or energy wastage and allows for these to be rectified immediately.</p> <p>The package of energy efficiency upgrades was originally predicted to reduce base building emission by 29% and increase the building's NABERS rating from 3.0 stars to 4.5 stars. The current NABERS energy rating for calendar year 2010 is 4 stars, with ongoing efforts to achieve further improvements. It is expected the next NABERS rating will be 4.5 stars.</p> <p>To date, energy usage has reduced significantly from approximately</p>	Business Response	Implemented
	Energy saved (GJ p.a.)	2,450GJ
	Greenhouse gas abated (tCO ₂ -e)	728
	Cost savings (\$ p.a.)	\$130,000 p.a.
	Payback period	>20 years



1,850,000 kWh per annum in June 2008 to approximately 1,150,000 kWh per annum in June 2011. This is an energy reduction of approximately 38%.

Description of Opportunity	Voluntary Information	
<p>66 Waterloo Road, Macquarie Park, NSW: 10,000m² A-grade office building.</p> <p>It was built as a “standard” office building with a standard Variable Air Volume (VAV) HVAC system. There were no superior design features to enhance the buildings eco-efficiency such as chilled beams, operable façade or on-site energy generation.</p> <p>66 Waterloo Road was completed in late 2006 and was originally designed to achieve a 4 star NABERS Energy rating, however the building easily passed the 4.5 star performance benchmark in the first 12 months of operation and in January 2009 the building achieved a 5 star NABERS Energy rating.</p> <p>The NABERS rating improvement process consisted of a number of stages, with each stage focusing on one particular aspect of the building’s major energy users. The stages of work undertaken included:</p> <ul style="list-style-type: none"> - Recommissioning the chiller plant and modifying the BMS controls; - Recommissioning the lighting systems which were not behaving to design intent; - Fine-tuning of the air-conditioning plant; and - Installing lighting motion sensors in the car park and lobby areas. <p>Stockland also worked with the building tenants to ensure that cleaners did not turn on the air conditioning whilst cleaning the tenancy areas overnight.</p> <p>66 Waterloo Road is an excellent example of how new buildings can be transitioned into operation to achieve outcomes that exceed original design intent. It demonstrates that a standard office building does not always have to have the latest cutting edge technology in order to deliver excellent energy efficiency.</p> <p>The work done for this case study highlights the benefits of focussing attention on quality commissioning, building tuning and operational</p>	Business Response	Implemented
	Energy saved (GJ)	1,750GJ
	Greenhouse gas abated (kgCO ₂ -e/m ²)	37
	Cost savings (\$ p.a.)	\$82,000
	Payback period	N/A



<p>management, to turn a conventionally designed office building with a standard VAV air-conditioning system into a high-performing 5 star building.</p> <p>The building industry contributes about 25% of Australia's GHG emissions and existing buildings make up 98% of current building stock. Increasing energy efficiency through better operation and management is a valuable way for the property industry to realise their commitments to reducing Australia's GHG emissions.</p>		
---	--	--

Description of Opportunity	Voluntary Information	
<p>Sub-metering of energy use allows a site to better understand and manage their energy consumption and where it is used. Monitoring consumption at an interval relevant to the level of investigation will allow usage anomalies to be identified and energy wastage to be reduced. Similarly, monitoring allows energy management strategies to be implemented to help reduce total site costs.</p> <p>Having experienced the benefits of sub-metering, Stockland has continued to install sub-metering systems across HVAC, lighting and other site end uses at in excess of 45 sites. In the 2010/2011 period, Stockland invested over \$3 million in sub-metering to an additional 22 shopping centres, four office buildings and upgrades to ten existing office sub-metering sites.</p> <p>The installed sub-metering includes an on-going monthly reporting and alarm service to provide an assurance that inefficiencies are identified early and that savings will continue to be realised. Ongoing reporting will review sub-metering information to inform:</p> <ul style="list-style-type: none"> - energy efficiency; - optimum plant operating strategies; - potential equipment efficiency upgrades; - (energy) bill verification; - High-level KPIs; and - Outcome of any actions taken to analyse and rectify anomalies. 	Business Response	Implemented
	Energy saved (GJ)	14,000GJ
	Greenhouse gas abated (tCO ₂ -e)	4,000
	Net cost savings (\$ p.a.)	\$738,000
	Payback period (capital / net savings)	3.5

Part 2 - Assessment Outcomes: Retail

Table 2.1 – Assessment Details

Name of group member or business unit or key activity

Retail

Total energy use for the Retail business unit in the last financial year (FY10/11)

241,371

GJ

Total energy use in the baseline period

250,361

GJ

FY10/11 energy use assessed in this entity as a percentage of total entity FY10/11 energy use

77

%

FY10/11 energy use assessed in this entity as a percentage of total corporate FY10/11 energy use

44

%

FY10/11 energy use assessed in this entity as a percentage of total entity baseline energy use

96

%

FY10/11 energy use assessed in this entity as a percentage of total corporate baseline energy use

45

%

Accuracy of above estimates related to energy use assessed - only required if not $\pm 5\%$ or better

%

Period over which assessment was undertaken

1/07/2007

30/06/2011

Description of the way in which the entity carried out its assessment

The assessment approach for the Retail business unit has been described above.

Table 2.2 - Energy efficiency opportunities identified in the assessment

Table 2.2 – Energy efficiency opportunities identified in the assessment									
Status of opportunities identified to an accuracy of better than or equal to ±30%		Total Number of opportunities	Estimated energy savings per annum by payback period (GJ)						Total estimated energy savings per annum (GJ)
			0 – < 2 years		2 – ≤4 years		> 4 years		
			No of Opps	GJ	No of Opps	GJ	No of Opps	GJ	
Business Response	Implemented	65	27	1,906	16	7,161	22	11,645	20,711
	Implementation Commenced	6	0	0	2	2	4	7,426	7,428
	To be Implemented	66	29	35,807	16	2,577	21	2,404	40,789
	Under Investigation	189	72	7,764	37	5,909	80	12,911	26,584
	Not to be Implemented	23	6	115	0	0	17	16,643	16,757
Outcomes of assessment	Total Identified	349	134	45,592	71	15,649	144	51,029	112,269
Status of opportunities identified to an accuracy of worse than ±30%									
Business Response	Implemented	58	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Implementation Commenced	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	To be Implemented	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Under Investigation	32	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Not to be Implemented	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Outcomes of assessment	Total Identified	146	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Please note that Corporate Groups are not required to report opportunities with a payback greater than 4 years. Reporting this data is voluntary.

Table 2.3 - Details of significant opportunities identified in the assessment

Description of Opportunity	Voluntary Information	
<p>Sub-metering of energy use allows a site to better understand and manage their energy consumption and where it is used. Monitoring consumption at an interval relevant to the level of investigation will allow usage anomalies to be identified and energy wastage to be reduced. Similarly, monitoring allows energy management strategies to be implemented to help reduce total site costs.</p> <p>Having experienced the benefits of sub-metering, Stockland has continued to install sub-metering systems across HVAC, lighting and other site end uses at in excess of 45 sites. In the 2010/2011 period, Stockland invested over \$3 million in sub-metering to an additional 22 shopping centres, four office buildings and upgrades to ten existing office sub-metering sites.</p> <p>The installed sub-metering includes an on-going monthly reporting and alarm service to provide an assurance that inefficiencies are identified early and that savings will continue to be realised. Ongoing reporting will review sub-metering information to inform:</p> <ul style="list-style-type: none"> - energy efficiency; - optimum plant operating strategies; - potential equipment efficiency upgrades; - (energy) bill verification; - High-level KPIs; and - Outcome of any actions taken to analyse and rectify anomalies. 	Business Response	Implemented
	Energy saved (GJ)	3,400GJ
	Greenhouse gas abated (tCO ₂ -e)	1,000
	Net cost savings (\$ p.a.)	\$179,000
	Payback period (capital / net savings)	4.7

Description of Opportunity	Voluntary Information	
<p>Stockland Townsville:</p> <ul style="list-style-type: none"> • GLA: 24,747m² • Initial assessments indicate this asset would most likely achieve a 	Business Response	Under investigation
	Energy saved (GJ)	6,700
	Greenhouse gas abated (tCO ₂ -e)	2,000
	Cost savings (\$ p.a.)	



<p>NABERS Retail Energy rating of 1.5 stars.</p> <p>It is anticipated that energy efficiency improvements will achieve a NABERS Energy improvement to 3 stars.</p> <p>An integrated approach is being taken with the energy efficiency upgrade proposed for Stockland Townsville. All major energy sub-systems are being reviewed, with the newly installed sub-metering system being used to analyse operational performance and compare against predicted benchmarks.</p> <p>The project includes the following:</p> <ul style="list-style-type: none"> - Upgrade the existing lighting and the lighting control system to reduce energy usage - Install new water-cooled air conditioning system to improve energy performance - Install sub-metering for energy <p>As the upgrades cover a wide range of savings opportunities within a retail building, the project team see that the project offers an exceptional opportunity to demonstrate the potential for energy saving measures to be adopted by retail centres at other sites. Tuning of existing retail buildings is a significant challenge and it is expected that this project will have excellent demonstration potential.</p>	<p>Payback period</p>	<p>6 years</p>
--	-----------------------	----------------

Description of Opportunity	Voluntary Information	
<p>The Pines:</p> <p>Feasibility studies have been undertaken around incorporating mixed mode ventilation in the existing HVAC system in the non-tenanted common areas at The Pines Shopping Centre. The feasibility of some additional energy efficiency upgrades was also investigated.</p> <p>The following HVAC options were investigated;</p> <ul style="list-style-type: none"> - Base case; - Economy cycle with/without CO₂-based outside air supply; 	Business Response	Under investigation
	Energy saved (GJ)	109GJ
	Greenhouse gas abated (kgCO ₂ -e)	32,260
	Net cost savings (\$ p.a.)	\$4,500
	Payback period (capital / net savings)	5 years



- Mixed mode ventilation of food court and mall;
- Night purge; and
- Central chilled water and heating hot water system.

These options were reviewed during preliminary modelling, and the following additional options were investigated;

- Mixed mode ventilation of food court and mall, with barrier between tenancies and mall; and
- Evaporative pre-cooling of outside air.

The night purge option was disregarded. Air conditioning during the day will reduce the heat within the space, leaving little heat to be purged overnight. It was also found that implementing a mixed mode system into the non-tenanted areas at the Pines shopping centre is unlikely to save energy.

However, the use of air curtains or similar in order to prevent air flow between zones in addition to the mixed mode is likely to save approximately 50% of the heating/cooling energy needed for the mall space (520GJ p.a.). This option has a high cost due to the provision of the air curtains, with a simple payback period of greater than 10 years.

The study identified that the most economical option studied was to modulate the outside air based on the CO₂ levels in the space (in addition to economy cycle). This option provides energy savings of approximately 109GJ p.a. (greenhouse gas emissions reduction of close to 32 tCO₂-e p.a.) with a simple payback period of less than 5 years.

Part 2 - Assessment Outcomes: Retirement Living

Table 2.1 – Assessment Details

Name of group member or business unit or key activity	Retirement Living		
Total energy use for Retirement Living in the last financial year (FY10/11)	27,471	GJ	
Total energy use in the baseline period	N/A	GJ	
FY10/11 energy use assessed in this entity as a percentage of total entity FY10/11 energy use	40	%	
FY10/11 energy use assessed in this entity as a percentage of total corporate FY10/11 energy use	2	%	
FY10/11 energy use assessed in this entity as a percentage of total entity baseline energy use	N/A	%	
FY10/11 energy use assessed in this entity as a percentage of total corporate baseline energy use	N/A	%	
Accuracy of above estimates related to energy use assessed - <u>only required if not ±5% or better</u>		%	
Period over which assessment was undertaken		1/07/2010	30/06/2011
Description of the way in which the entity carried out its assessment	<p>Stockland has a strong commitment to sustainability, energy conservation and the reduction of carbon emissions across its business. This extends to the Retirement Living business. The assessment process for the Retirement Living business unit has utilised a similar approach to that of Commercial Property. The extent of energy use associated with this business unit has substantially increased in FY11 due to the acquisition of Aevum Retirement Living in late 2010. This has seen Stockland's Retirement Living business nearly double in size.</p> <p>A comprehensive assessment process was employed at four Retirement Living sites during 2010/2011 addressing the requirements of the Energy Efficiency Opportunities (EEO) program. Assessed sites were targeted based on the magnitude of consumption rates, largely impacted by services on site. Detailed analyses of energy use and factors affecting energy use were conducted to generate ideas and opportunities to improve energy management and energy efficiency. Assessments concurrently included a review of water consumption and water conservation opportunities.</p> <p>The four assessed sites cover 24% of the energy use associated with Retirement Living facilities. As indicated above, detailed EEO assessment of energy consumption associated with development (diesel fuel used by contractors in earthmoving machinery) will yield limited results, and it has been requested that this quantity of energy consumed not be assessed within this assessment cycle.</p> <p>Important aspects of Stockland's approach to the EEO key elements of people, information and data analysis, opportunities identification and evaluation and decision making as they relate to the Retirement Living business unit are reiterated below.</p>		

Leadership

- Stockland utilises an online carbon management tool to aid climate change planning, reporting and forecasting. The tool also supports Stockland's EEO and NGRS reporting obligations.
- Stockland's group and business unit finance teams are increasingly taking on responsibility for greenhouse gas data collection.

People

- In 2009, the Retirement Living business developed its first tailored sustainability strategy and policy aligned with the group approach.
- In FY11, Stockland undertook a review of the priority areas and actions identified in the strategy with a cross-functional group of internal Retirement Living stakeholders, including representatives from sustainability, strategy, finance, marketing, sales, operations, development and design.
- As a result of this workshop, one of the four priority areas of the strategy came to be energy and climate change, more precisely to improve energy efficiency, reduce costs for our business and residents, and manage climate change impacts.
- Stockland has dedicated sustainability personnel in each of its business units.
- The sustainability team analyse energy data and co-ordinate, with the assistance of an external energy consultant, its EEO assessment and reporting obligations. Other external resources are used to monitor energy use trends in its portfolio of assets. Direct engagement occurs with site facility teams to examine operational energy use, identify opportunities and implement corrective actions.
- Village and site managers are actively engaged in energy efficiency opportunities identification workshops, verification, and implementation of initiatives.
- Energy efficiency opportunities assessment reports are used to develop action plans. Reports also inform budget and decision making processes.

Information & Data Analysis

- Improvements have been made to Stockland's greenhouse gas emissions data systems for Residential and Retirement Living businesses.
- Stockland is working to benchmark energy efficiency performance of each of the Retirement Living assets; however, due to the diverse nature of the portfolio, a comparison across the range of assets is not always possible.
- Over the last 12 months Stockland has significantly improved collection of contractor data in the Residential and Retirement Living businesses (as required under the National Greenhouse and Energy Reporting System). As a result our scope 1 emissions have increased due to the inclusion of contractor fuel consumption, particularly diesel. Stockland will aim to develop a case study in FY12 to try and identify opportunities to reduce our direct emissions and influence contractors' emissions. A number of pilot and demonstration projects have been established across the country to aid understanding of how to best combine technical and capacity building solutions.

Opportunities Identification and Evaluation

- Energy efficiency opportunity identification is an ongoing and embedded process for Stockland.
- Stockland has assessed 24% of the Retirement Living site energy use. Opportunities assessment reports are used to assist in the development of action plans, budgeting and ongoing decision-making processes.
- Opportunities that involve capital expenditure are investigated. Where feasible, these energy efficiency opportunities are considered for inclusion into maintenance capital budgets.

Decision Making

- Energy efficiency projects are evaluated based on existing simple payback analyses and whether they meet financial hurdle rates.
- Opportunities identified in current assessments will be considered for broader implementation across the range of facilities. These will be evaluated on site for inclusion in future capital budgets.



Communicating Outcomes

- Quarterly reports are presented to the Stockland Board summarising the organisation's majority energy usage and greenhouse gas emissions.
- The annual Stockland Corporate Responsibility and Sustainability (CR&S) Report is the primary communication channel by which the organisation communicates its annual eco-efficiency performance. The content of the CR&S report is reviewed by Stockland's CR&S Committee and is independently assured.
- A monthly CR&S report is submitted to the Executive Committee and to the Board detailing initiatives, implementation progress and all major stakeholder issues.
- EEO assessment reports are distributed to onsite management teams via Stockland's Intranet. Progress is monitored regularly.
- Recommendations for investments in energy efficiency are made depending on the level of expenditure relative to the delegation for management approval.
- Retirement Living takes benefit from relevant internal case studies focused on successes and lessons learnt from EEO assessments conducted across the group.

Table 2.2 - Energy efficiency opportunities identified in the assessment

Table 2.2 – Energy efficiency opportunities identified in the assessment									
Status of opportunities identified to an accuracy of better than or equal to ±30%		Total Number of opportunities	Estimated energy savings per annum by payback period (GJ)						Total estimated energy savings per annum (GJ)
			0 – < 2 years		2 – ≤4 years		> 4 years		
			No of Opps	GJ	No of Opps	GJ	No of Opps	GJ	
Business Response	Implemented	1	1	27	0	0	0	0	27
	Implementation Commenced	0	0	0	0	0	0	0	0
	To be Implemented	0	0	0	0	0	0	0	0
	Under Investigation	45	8	839	4	50	33	5,241	6,130
	Not to be Implemented	0	0	0	0	0	0	0	0
Outcomes of assessment	Total Identified	46	9	866	4	50	33	5,241	6,203
Status of opportunities identified to an accuracy of worse than ±30%									
Business Response	Implemented	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Implementation Commenced	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	To be Implemented	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Under Investigation	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Not to be Implemented	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Outcomes of assessment	Total Identified	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Please note that Corporate Groups **are not required** to report opportunities with a payback greater than 4 years. Reporting this data is voluntary.



Table 2.3 - Details of significant opportunities identified in the assessment

Description of Opportunity	Voluntary Information	
	An opportunity exists to replace common area light fittings within one of the NSW-based nursing homes with a more efficient alternative. Existing fittings include 40W round fluorescent tubes which are nearing end-of-life. A more efficient alternative to these are 12W LED lamps and fitting. The age of existing fittings makes fitting replacement a more attractive opportunity.	Business Response
Energy saved (GJ p.a.)		54
Greenhouse gas abated (tCO ₂ -e)		16
Cost savings (\$ p.a.)		\$1,590
Payback period		7.6

Description of Opportunity	Voluntary Information	
	<p>The assessment of equipment used to heat an indoor swimming pool had identified the potential to replace aging and rundown equipment.</p> <p>Design efficiency of the existing boilers is in the order of 78%, which indicates that at best, 12% of fuel delivered to the heating system is wasted. The overall system efficiency of the system was expected to be much lower due to poor condition of pipe insulation as well as suspected losses from the heat exchanger. Modelling of consumption using available gas use information suggests that the gas consumption for heating this pool is more than twice the expected level.</p> <p>Insulation (or 'lagging') is essential in reducing heat losses from the boiler, pipes and valves. Poor insulation can account for losses of up to 10%. Adding or replacing insulation is a simple and cost effective measure that can improve the heating system's efficiency, and proved to be an opportunity at this site.</p> <p>An additional opportunity associated with the hot water heating is the installation of heat pumps to service some of the heating load. Whilst used in the air conditioning industry for quite a number of years, heat pumps are relatively new to the swimming pool market.</p>	Business Response
Energy saved (GJ)		710
Greenhouse gas abated (kgCO ₂ -e/m ²)		47
Cost savings (\$ p.a.)		\$6,800
Payback period		6.5 years

Description of Opportunity	Voluntary Information	
	<p>Plant purchasing and replacement procedures were highlighted as a key energy management consideration across all of the sites assessed in this business unit.</p> <p>Two components of purchasing procedures have been identified for improving energy efficiency. These include:</p>	Business Response
Energy saved (GJ)		Indirect
Greenhouse gas abated (kgCO ₂ -e)		Indirect
Net cost savings (\$ p.a.)		In-kind
Payback period		N/A



- Apply guidelines based on life cycle costing to all repair/replace/retrofit decisions for energy-using equipment; and
- Establish protocols to ensure energy efficiency guidelines are routinely applied in the replacement of energy using equipment.

These efforts will provide a framework for ongoing energy savings.

(capital / net savings)