

Key Environmental Performance Indicators (KPIs)

1.0 Introduction

- 1.1 Anglia Ruskin University developed an Environmental Policy to address its significant environmental impacts, ensure legal compliance, prevent pollution and embed continual environmental improvement into our operations and culture
- 1.2 To meet the aims of the policy an environmental strategy was developed in 2007 with both quantitative and qualitative KPIs. In each case objectives were set and a list of actions identified to achieve these objectives and fulfil the requirements of the policy
- 1.3 Our Environmental Policy and Strategy can be viewed on the home page of our website at www.anglia.ac.uk/environment
- 1.4 There were four quantitative KPIs outlined in section 2 of the Environmental Policy (Energy, Water and Carbon) and in section 3 (Waste and Recycling).
- 1.5 The current Environmental Strategy is coming to an end and a new one is being developed. This document outlines the progress made to date in meeting these targets.
- 1.6 Target comparisons are against Full Time Equivalent (FTE) student and staff. There are also additional metrics included against Gross Internal Area (GIA) and Absolute (i.e. total figures on their own)
- 1.7 Symbols have been used to state whether the target has been 'met and exceeded', 'missed but the trend is an improving one', 'missed and the trend is a deteriorating one' as follows



Target met or exceeded



Target not met but trend improving (e.g. consumption decreasing)







Target not met and trend increasing (e.g. consumption increasing)

2.0 To reduce energy consumption per FTE student/staff numbers by 10% within four years with the financial year 04/05 as the base reference year





- 2.1 **Gas consumption:** Overall gas consumption has declined across the spectrum in absolute and relative terms over the last four years (Table 1 and Appendix A, Figures 1-4). The above target has been met for staff FTE and missed for Student FTEs, although the trend is one of decreasing gas consumption across the board
- 2.2 This is mainly due to improvements on controls for boilers and the Building Management Systems (BMS). As well as installing thermostatic radiator valves, the replacement of old boilers, windows and insulation upgrades.

Table 1 Gas kWh

Category	Percentage Change 2004/05 vs. 2008/09	Outcome against Target
Gas kWh per Student FTE	- 6% ↓	
Gas kWh per Staff FTE	- 10% ↓	
Gas kWh per Meter Square of GIA	- 9% ↓	
Absolute kWh Gas	- 4.14% ↓	





- 2.3 **Electricity Consumption:** The picture for this KPI is one of an increasing trend in consumption for both relative and absolute metrics (Table 2 and Appendix B, Figures 5-8).
- 2.4 The reasons for this are increasing IT demands, more electrical equipment in our classrooms, longer opening hours for some buildings/activities and increased air conditioning requirements. The commissioning of the Faculty building has also added significantly to the load as the building is heated and cooled via an electrical source.

Table 2 Electricity kWh

Category	Percentage Change 2004/05 vs. 2008/09	Outcome against Target
Electricity kWh per Student FTE	+ 17% ↑	
Electricity kWh per Staff FTE	+ 12% ↑	
Electricity kWh per Meter Square of GIA	+ 13% ↑	
Absolute kWh Electricity	+ 19% ↑	

2.5 All Energy Sources (Electricity, Gas and Heating Oil): The general trend is a downward one when compared to the relative metrics of FTE staff and students. This is due to the improvements made in gas consumption and the replacement of Central campus with more efficient buildings (Table 3, Appendix C, Figures 9 to 12)

Table 3 Energy Sources





Category	Percentage Change 2004/05 vs. 2008/09	Outcome against Target
Energy kWh per Student FTE	- 2.3% ↓	
Energy kWh per Staff FTE	- 6.6% ↓	
Energy kWh per Meter Square of GIA	- 5.5% ↓	
Absolute Energy kWh Electricity	- 0.41% ↓	

3.0 To reduce water consumption per FTE student and staff numbers by 10% within four years with the financial year 04/05 as the base reference year

3.1 Water consumption has fallen as measured against all KPIs whether relative or absolute (Table 4, Appendix D, Figures 13 to 16). The targets set have been met and exceeded for staff FTE and against GIA.

3.2 In the past four years the replacement of old buildings with new and the refurbishments of washrooms have seen inefficient systems replaced. Detectors, systemisers and improved flushing regimes along with the trial of waterless urinals and improved maintenance to prevent leaks have all helped to reduce consumption. In addition, liquid soap dispensers across our sites have been replaced with foam dispensers. The latter is more hygienic and antibacterial, last longer and requires far less water to wash it off hands.





Table 4 Water Consumption

Category	Percentage Change 2004/05 vs. 2008/09	Outcome against Target
Water M ³ per Student FTE	- 7% ↓	
Water M ³ per Staff FTE	- 11% ↓	
Water M ³ per Meter Square of GIA	- 11% ↓	
Absolute M ³ Water	- 5% ↓	

4.0 To reduce carbon emissions from energy use per FTE student/staff numbers by 20% within four years with the financial year 04/05 as the base reference year





4.1 Carbon emissions Scope 1 & 2: From energy sources (Scope 1 Gas/Fuel Oils, Scope 2 Grid Electricity) have risen on the back of rising electricity consumption. The carbon intensity of grid electricity in grams per kWh is nearly three times that of gas. With electricity consumption increasing it is no surprise that our carbon emissions from energy sources have risen accordingly (Table 5, Appendix E, Figures 17 to 20).

Table 5 Carbon Emissions from Energy Sources (Scope 1 & 2)

Category	Percentage Change 2004/05 vs. 2008/09	Outcome against Target
Carbon Tonnes equivalent per Student FTE	+ 4.6% ↑	
Carbon Tonnes equivalent per Staff FTE	0% No Change	
Carbon Tonnes equivalent per Meter Square of GIA	+1.2% ↑	
Absolute Carbon Tonnes equivalent	+6.62% ↑	

4.2 Carbon Emissions Scope 1,2 and 3: If carbon emissions are included from Scope 3 sources as well, such as water, waste and fleet vehicle fuel then our actual overall emissions have declined (Table 6, Appendix F, Figures 21 to 24).

Table 6 – Carbon Emissions from Scopes 1, 2 and 3

Category	Percentage Change 2004/05 vs. 2008/09	Outcome against Target
Carbon Tonnes equivalent per Student FTE	- 8.47% ↓	
Carbon Tonnes equivalent per Staff FTE	- 12.51% ↓	
Carbon Tonnes equivalent per Meter Square of GIA	- 11.51% ↓	
Absolute Carbon Tonnes equivalent	- 6.74% ↓	

- 4.3 HEFCE is encouraging Universities to start including the carbon emissions from scope 3 sources in their carbon foot-printing and reporting. This covers emissions associated with waste, water, travel and in particular the supply chain. The latter has a lot of embedded energy associated with it and sector estimates suggest it could double an institution's carbon footprint.
- 4.4 Methodologies and protocols for calculating these scope 3 emissions are at an early stage but Anglia Ruskin has taken a proactive approach and decided to include water, waste and corporate fleet fuels in our carbon footprint. The actions and investments we have made in our Estate and the changes we have made to our operational activities have seen waste to landfill, gas and water consumption fall. This has reduced our carbon emissions for these categories and in turn reduced our overall carbon emissions as they stand.

5.0 Conclusion

- 5.1 In 2007 the targets set were done so to reverse the trends of increasing consumption and waste. They also took into account the significant changes and upheaval that would occur as we re-developed our Estate to make it fit for the 21st Century and meet the expectations of our students.
- 5.2 The general trend is a downward one with the exception of electrical consumption which is impacting on our reported carbon emissions. We have recently participated in the Higher Education Carbon Management programme and will use this to further develop our carbon reduction strategy with a particular emphasis on electricity.
- 5.3 We are now at a stage when our environmental strategy needs updating and new targets and KPIs set. These will need to continue to meet the key themes of our Environmental Policy with clear strategies and targets to address:-
1. Legal compliance and industry codes of practice issued by HEFCE
 2. Energy, water and carbon management
 3. Waste Management
 4. Site accessibility
 5. Procurement and the supply chain
 6. Contractors and third party providers of essential services
 7. Sustainable design for new build and refurbishment
 8. Biodiversity and landscape management
 9. Education into Sustainable Development
 10. Awareness raising and communication with Stakeholders
 11. Benchmarking, reporting and transparency

Appendix A: Gas Figures 1 to 4

Figure 1

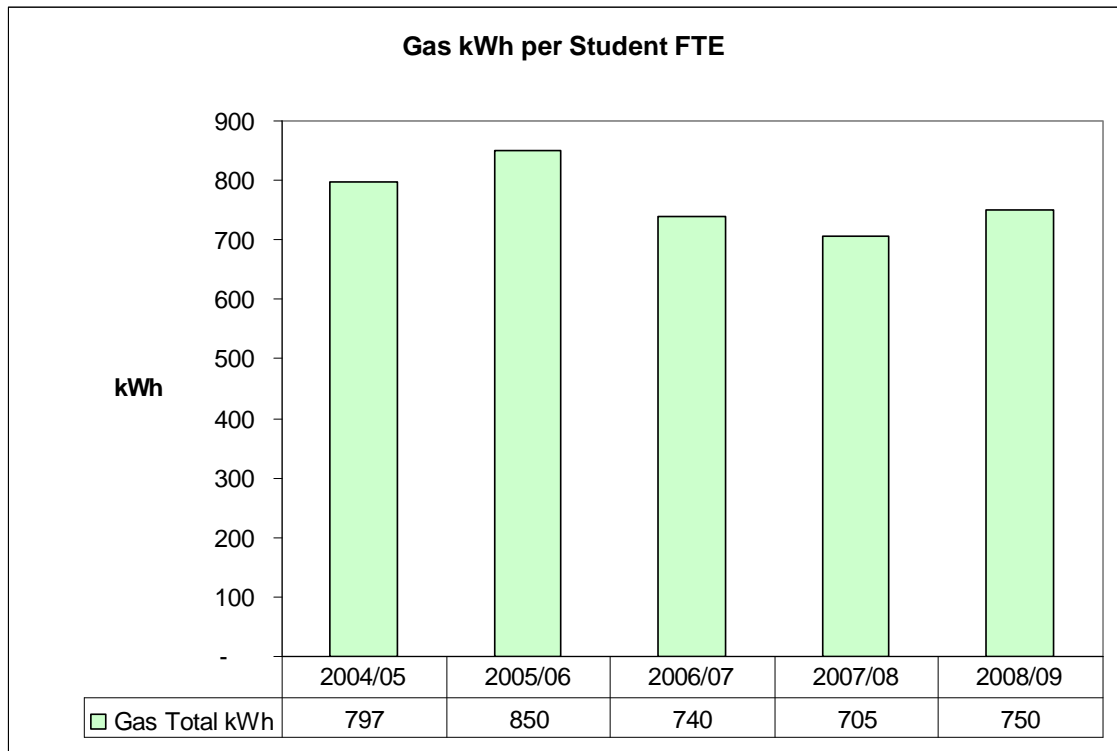


Figure 2

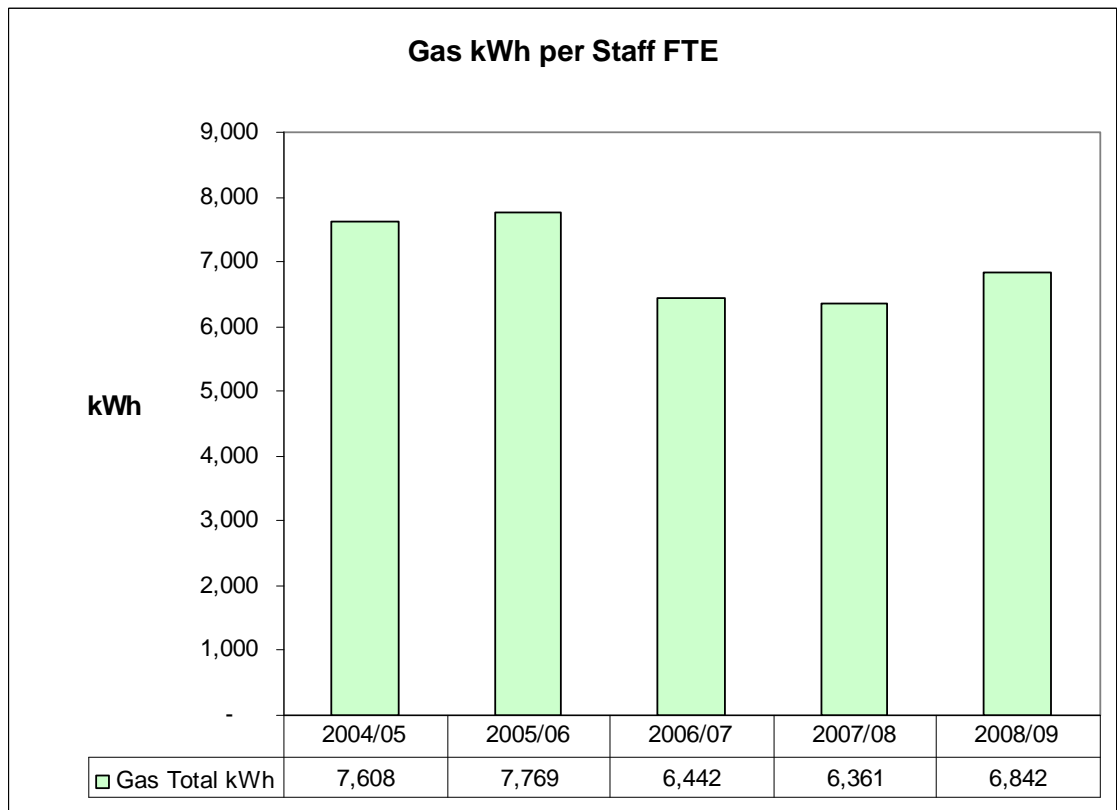


Figure 3

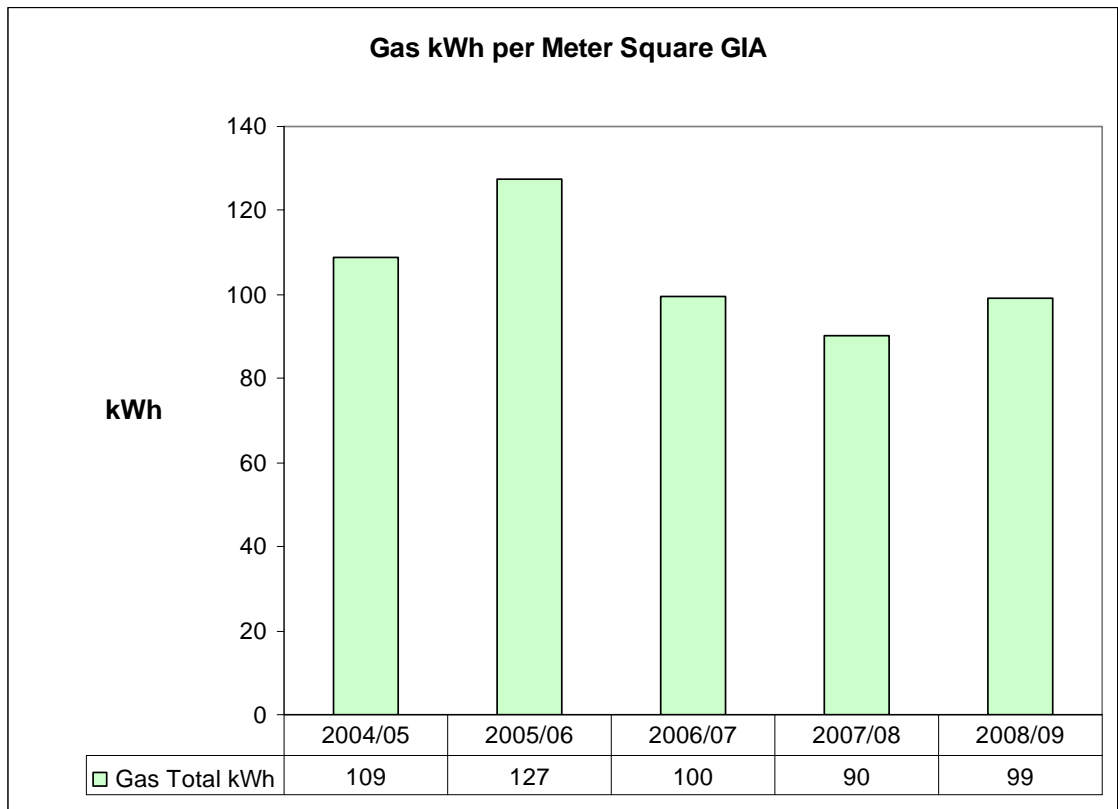
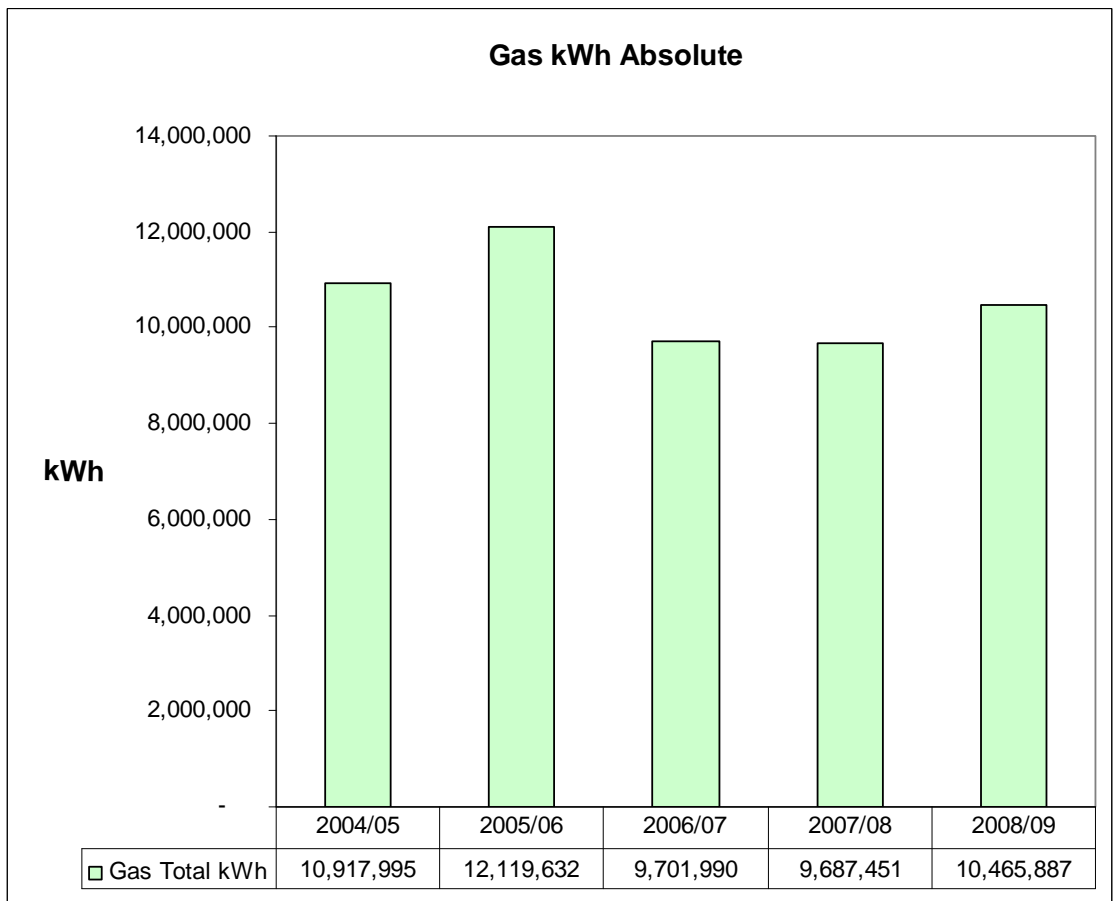


Figure 4



Appendix B: Electric Figures 5 to 8

Figure 5

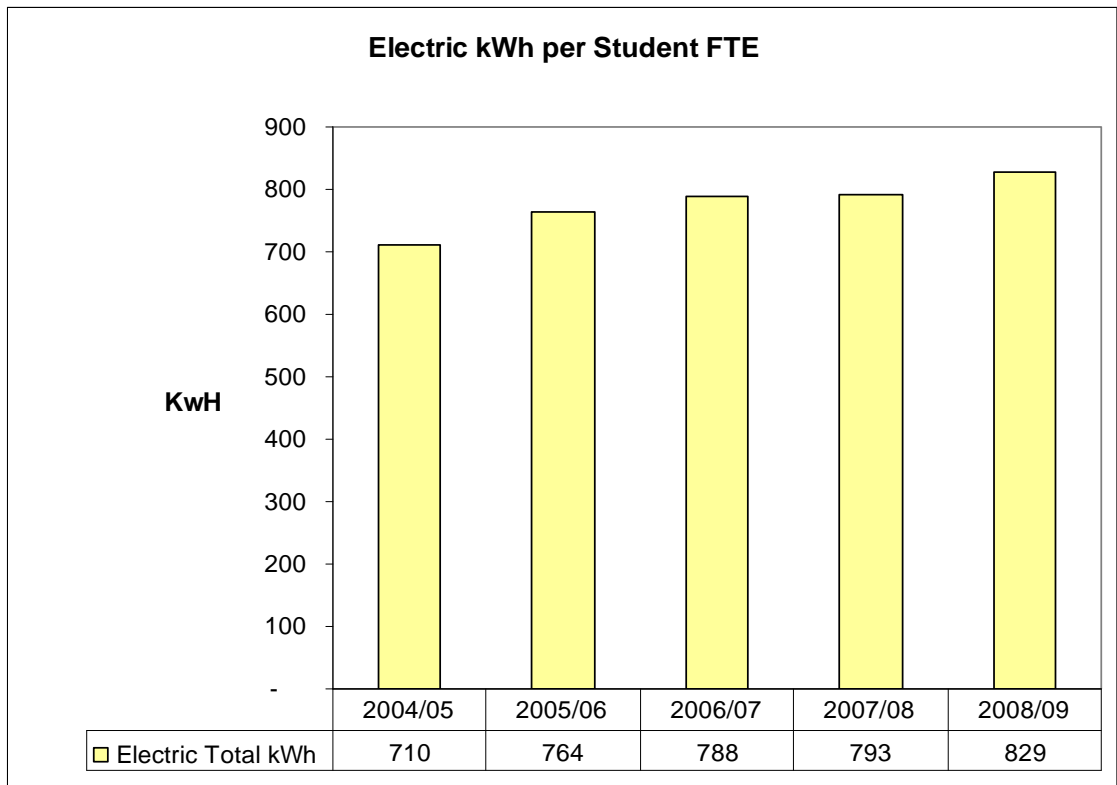


Figure 6

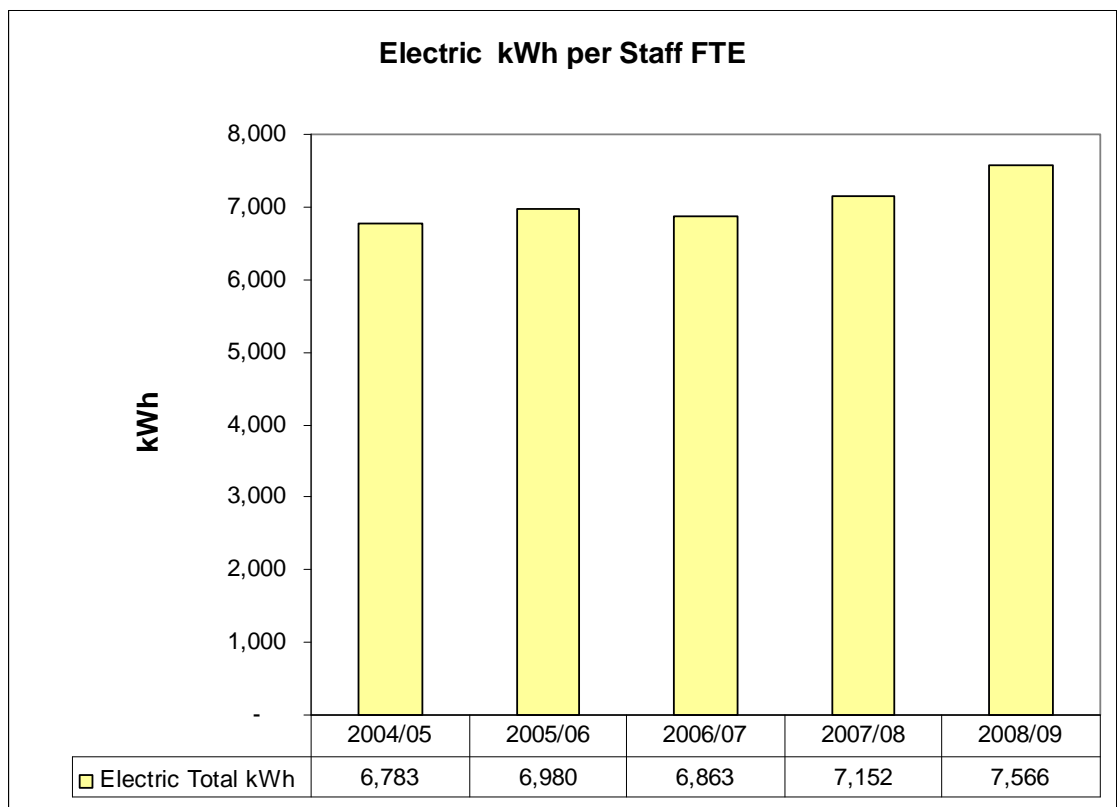


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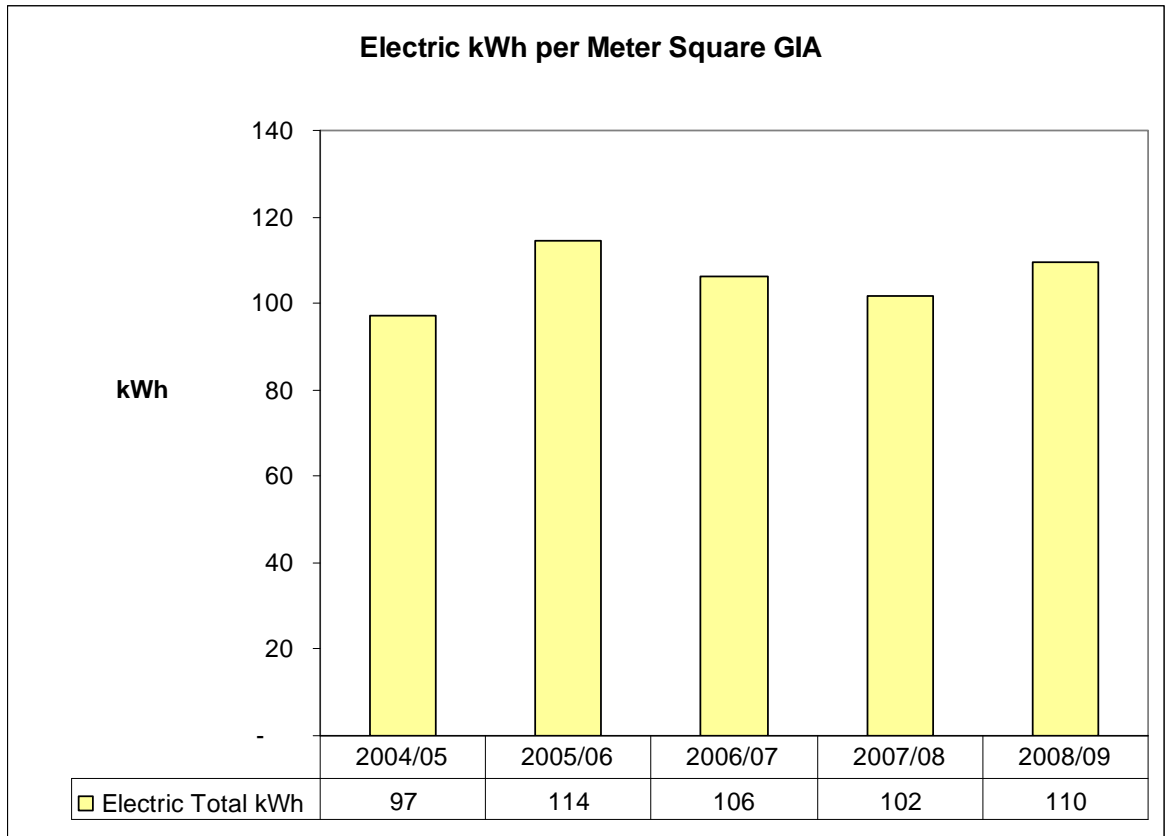
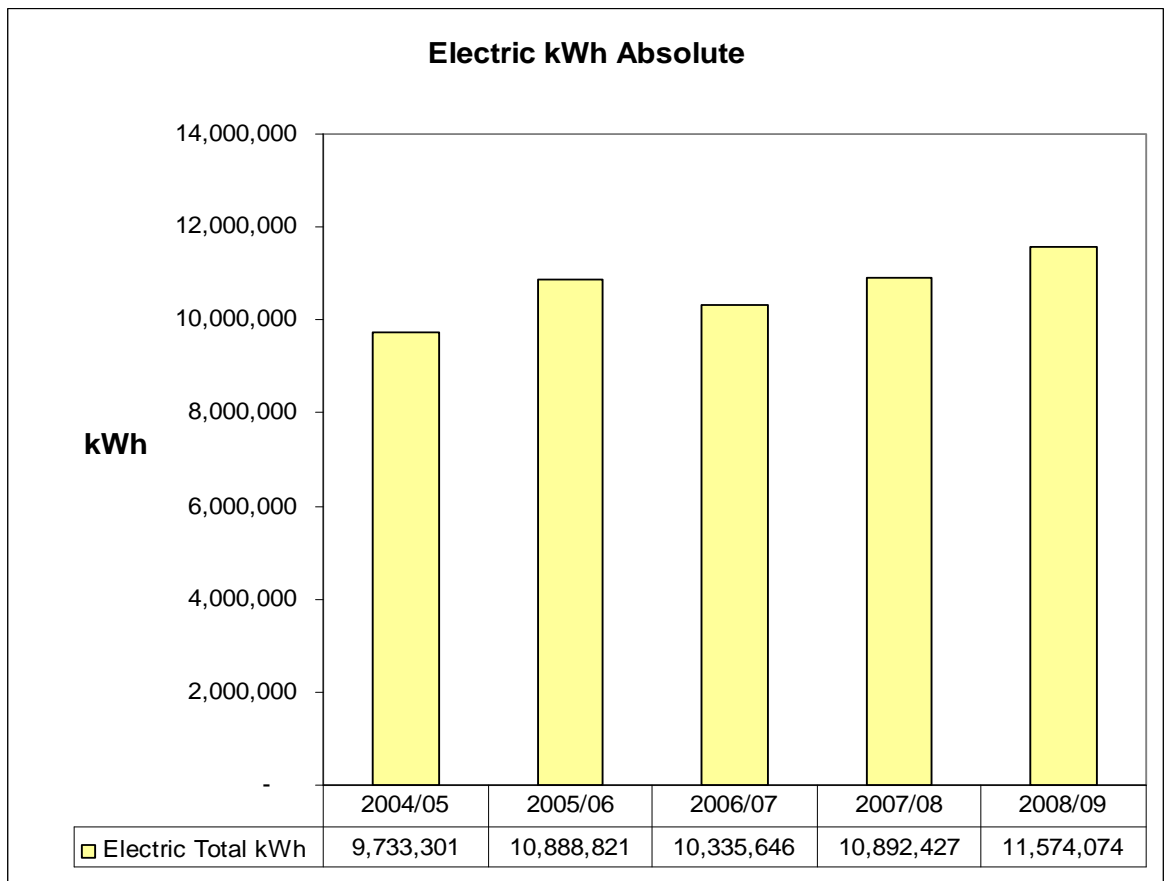


Figure 8



Appendix C – Energy (Gas, Oil, Electric) Figures 9 to 12

Figure 9

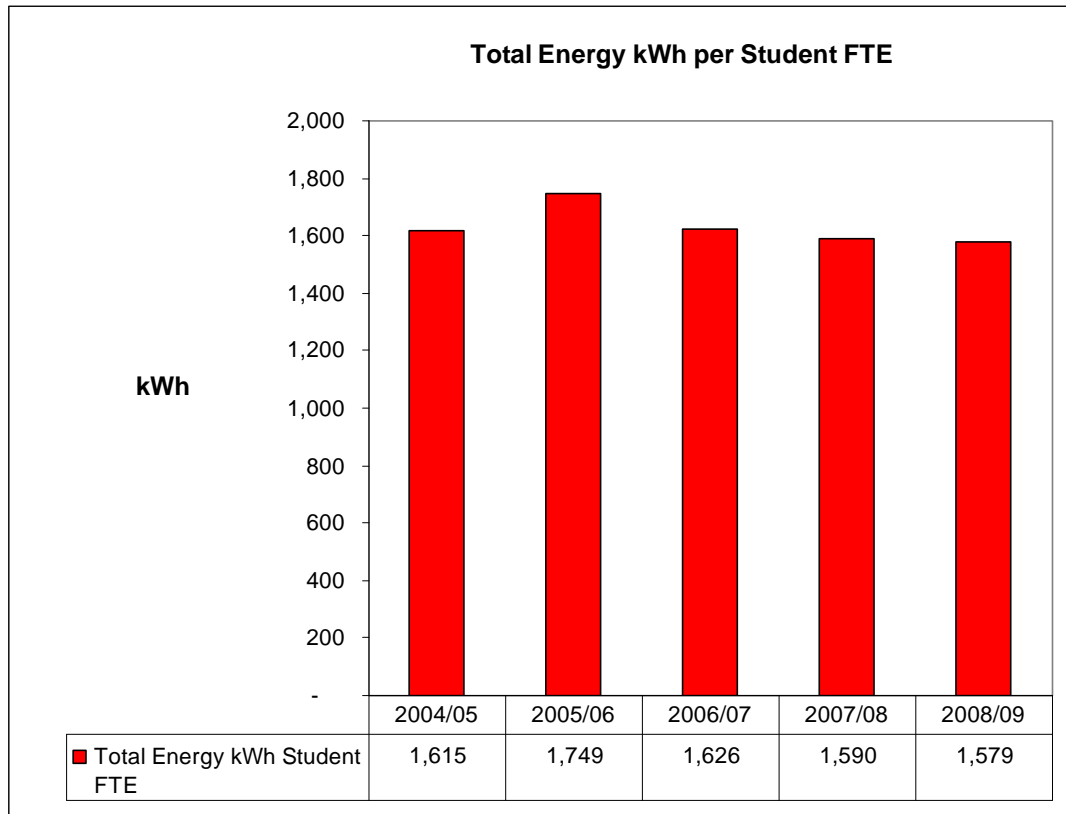


Figure 10

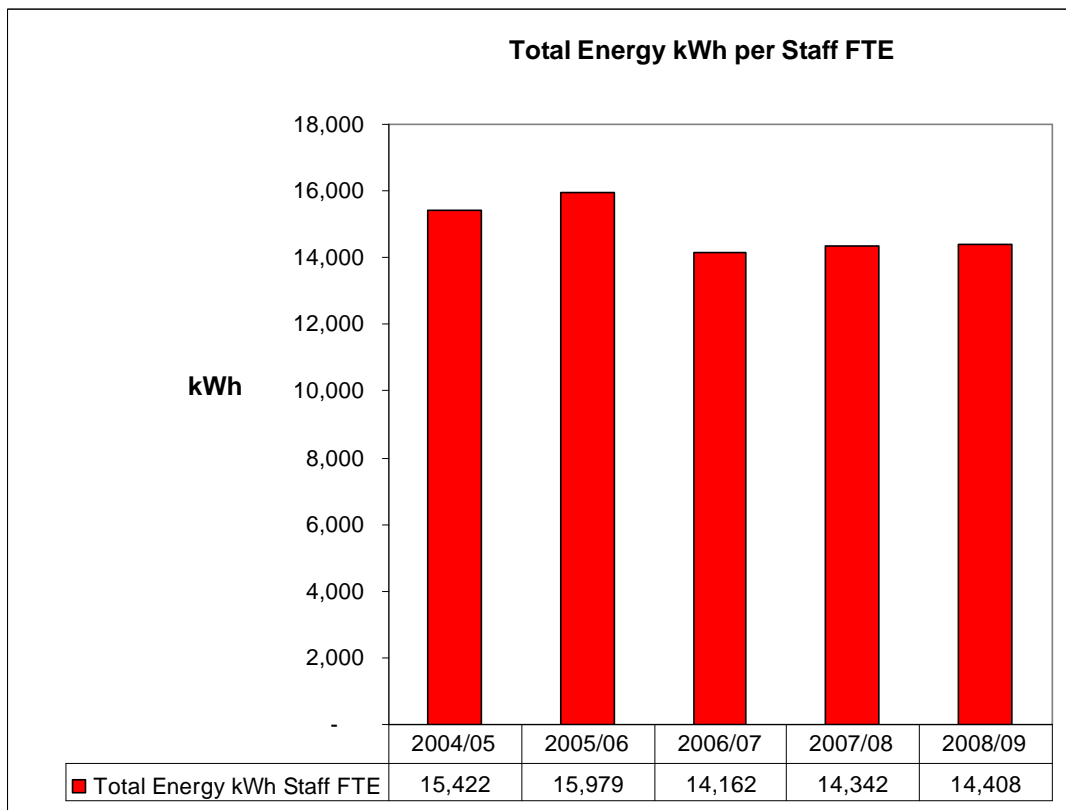


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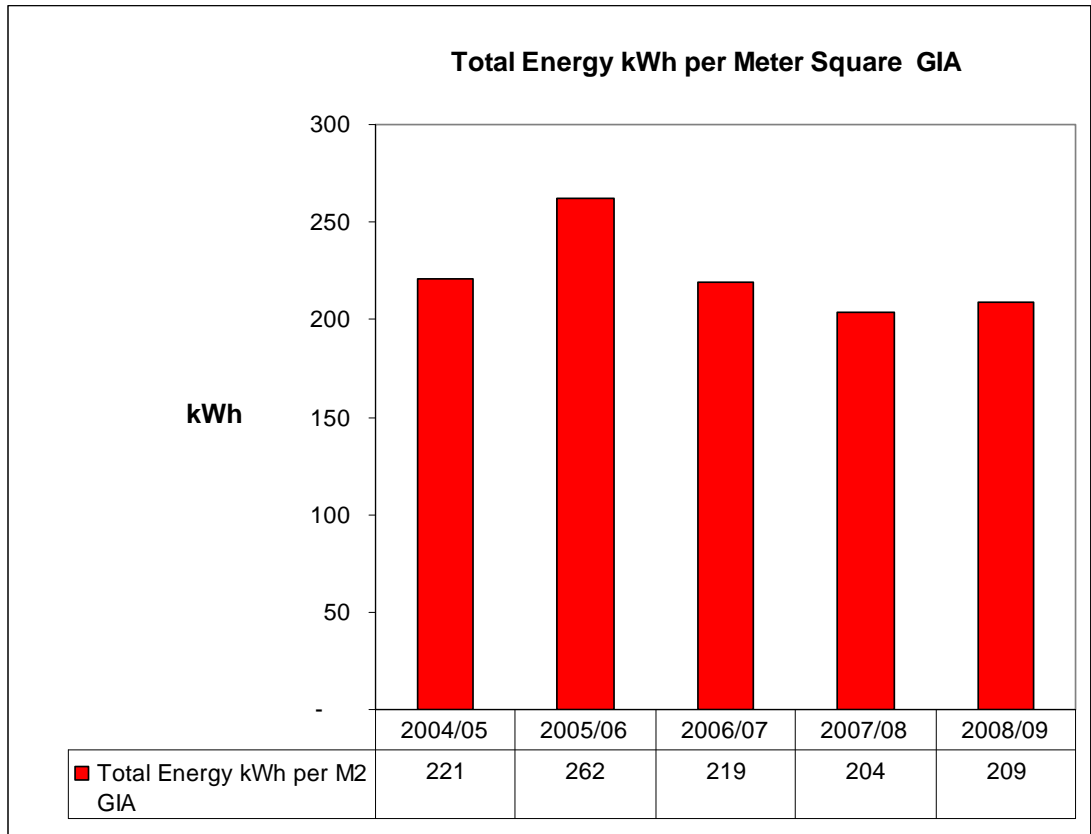
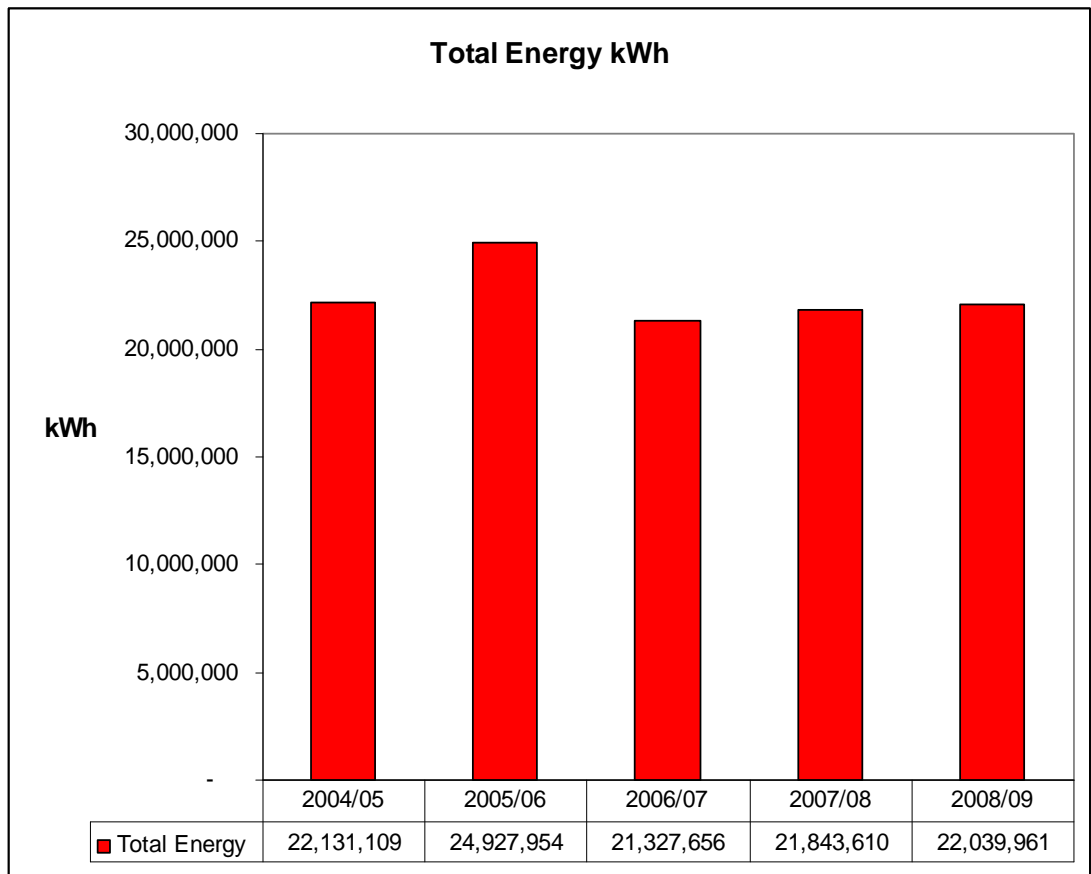


Figure 12



Appendix D – Water, Figures 13 to 16

Figure 13

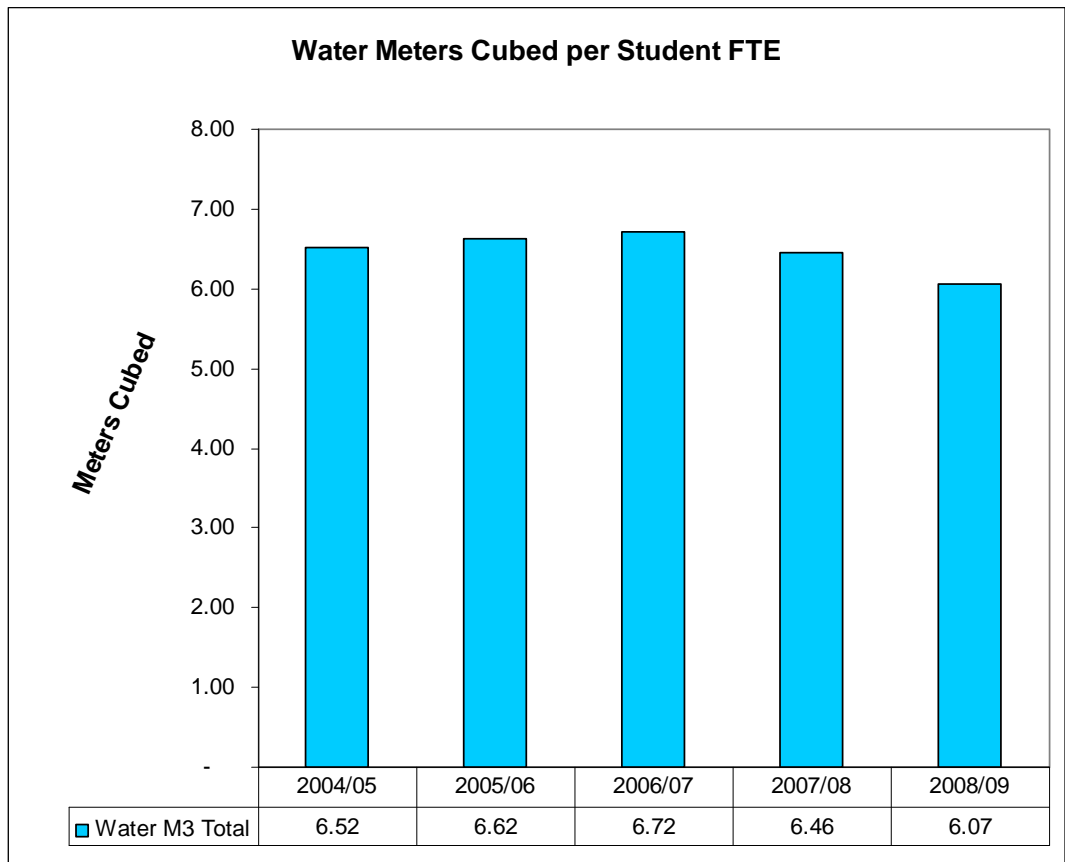


Figure 14

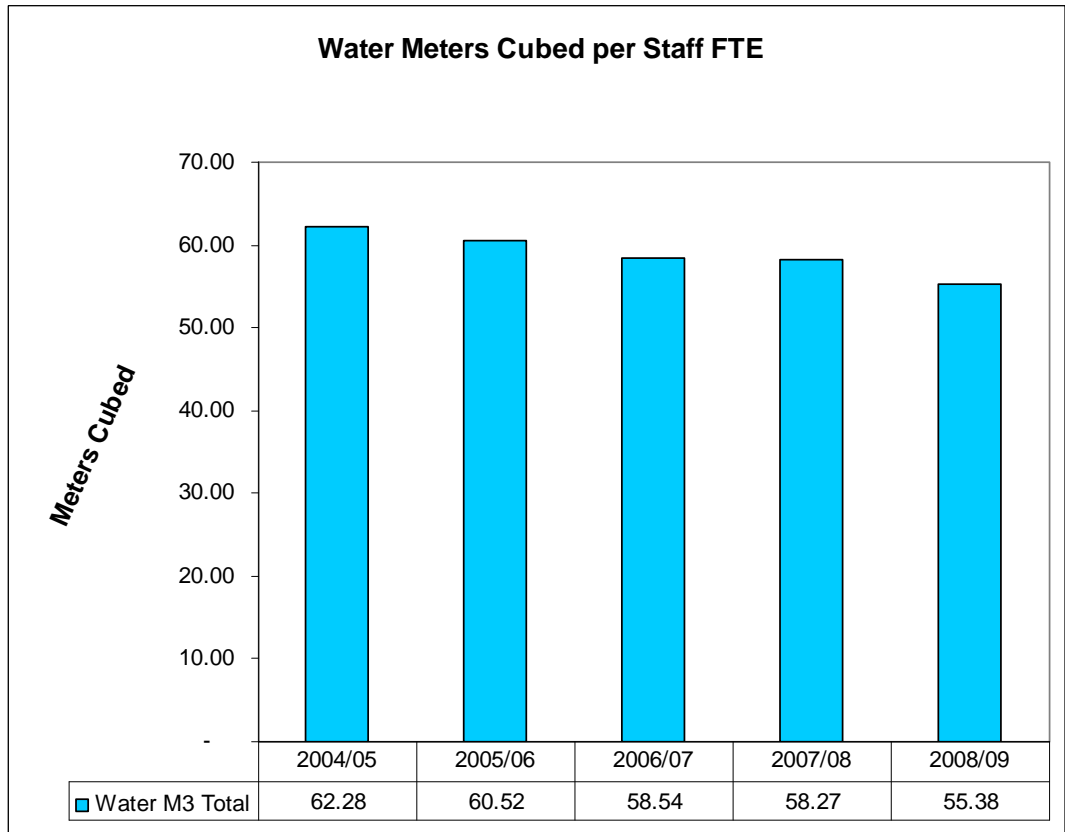


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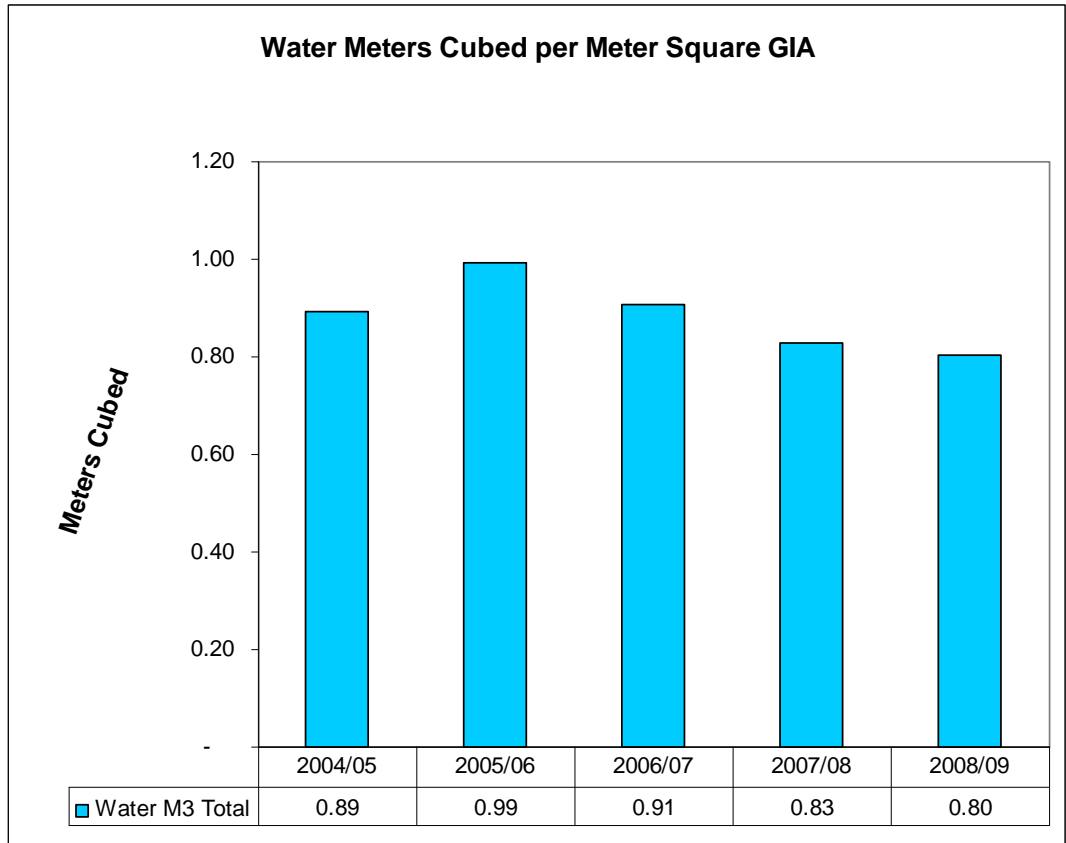
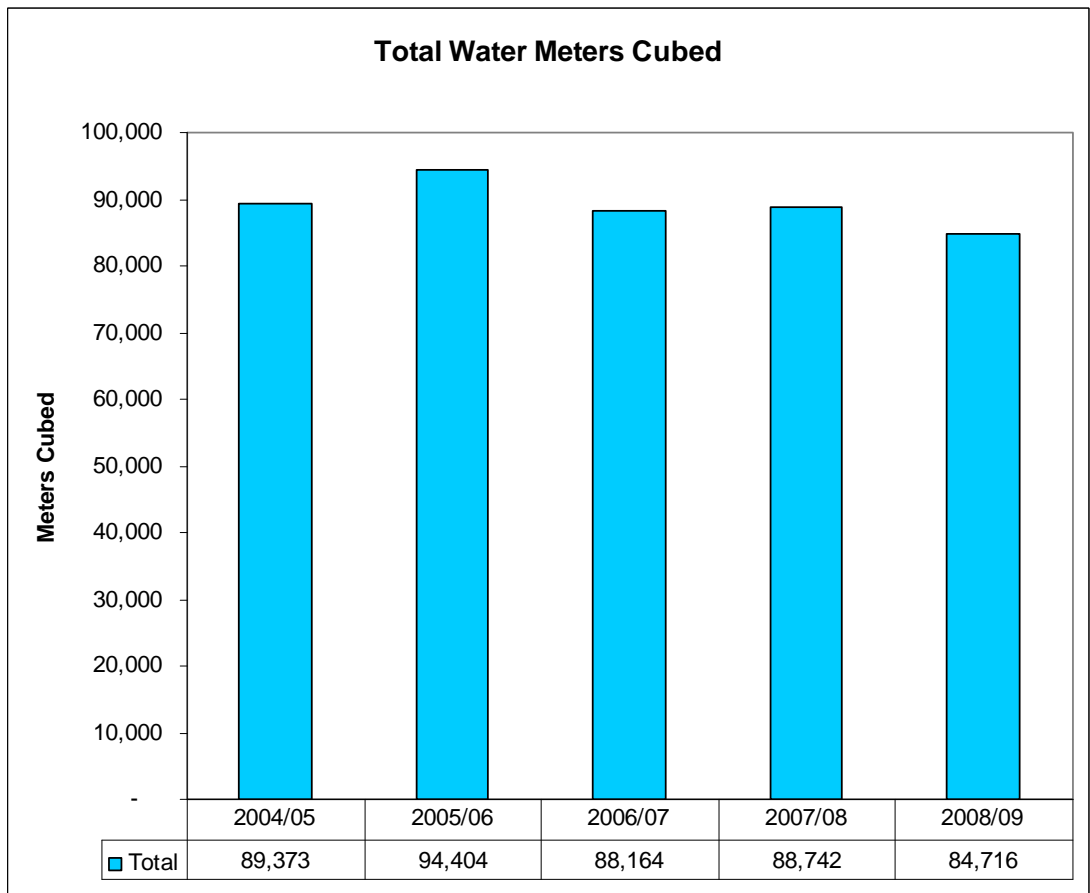


Figure 16



Appendix E – Carbon Emissions from Energy Sources, Figures 17 to 20.

Figure 17

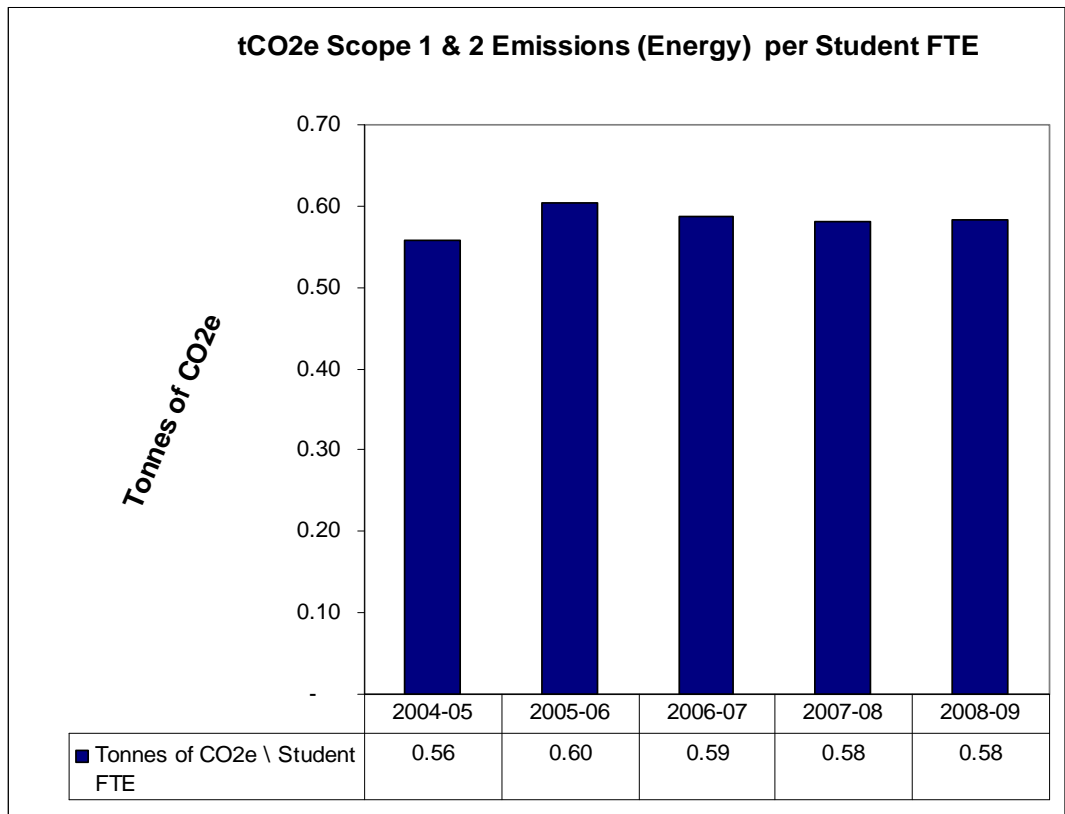


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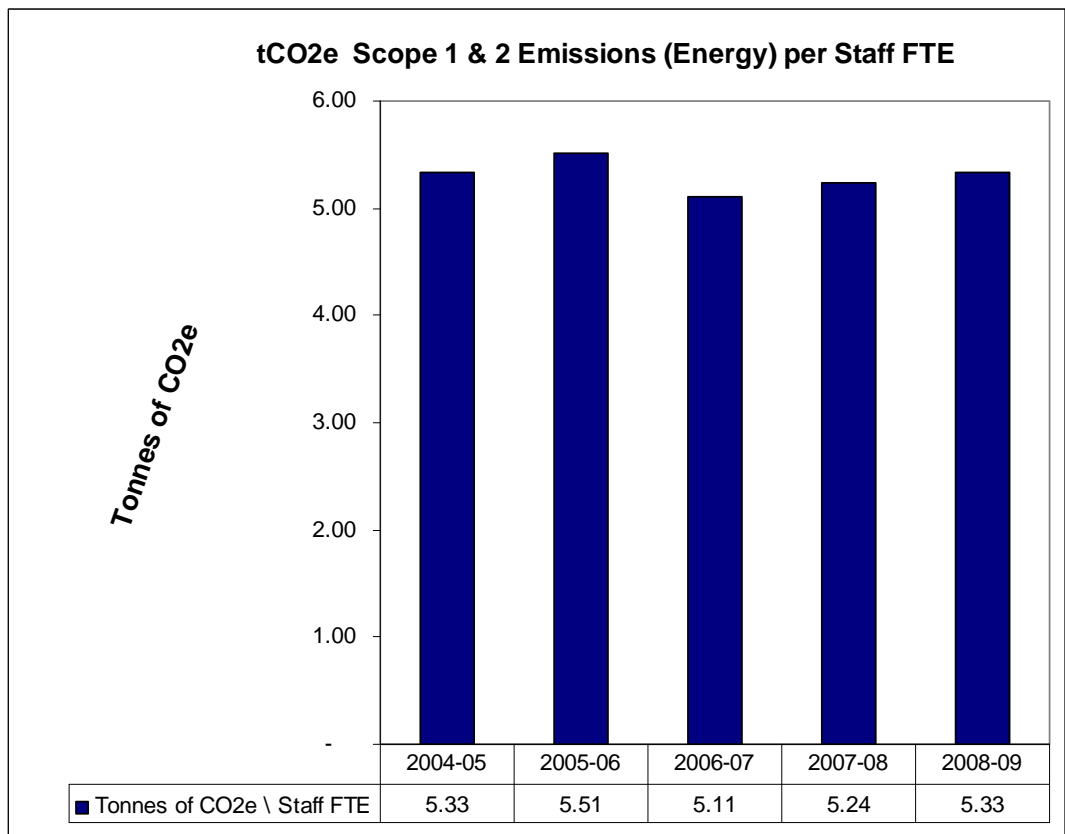


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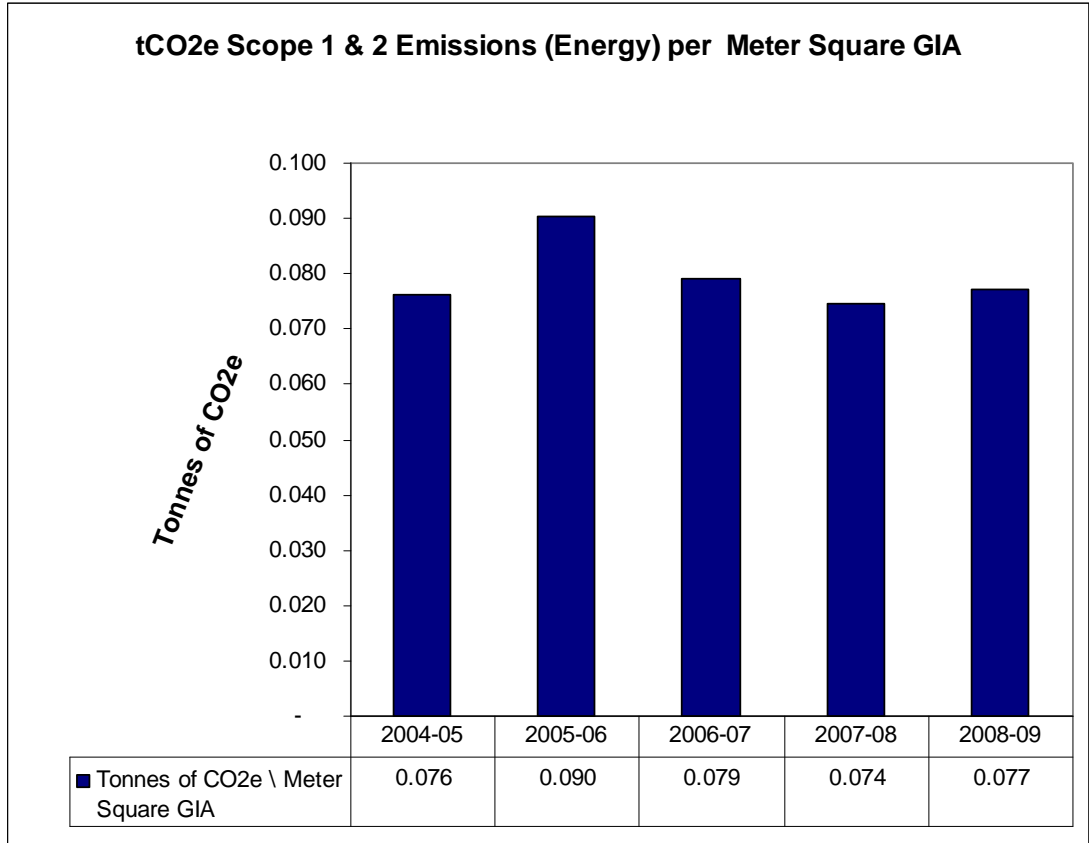
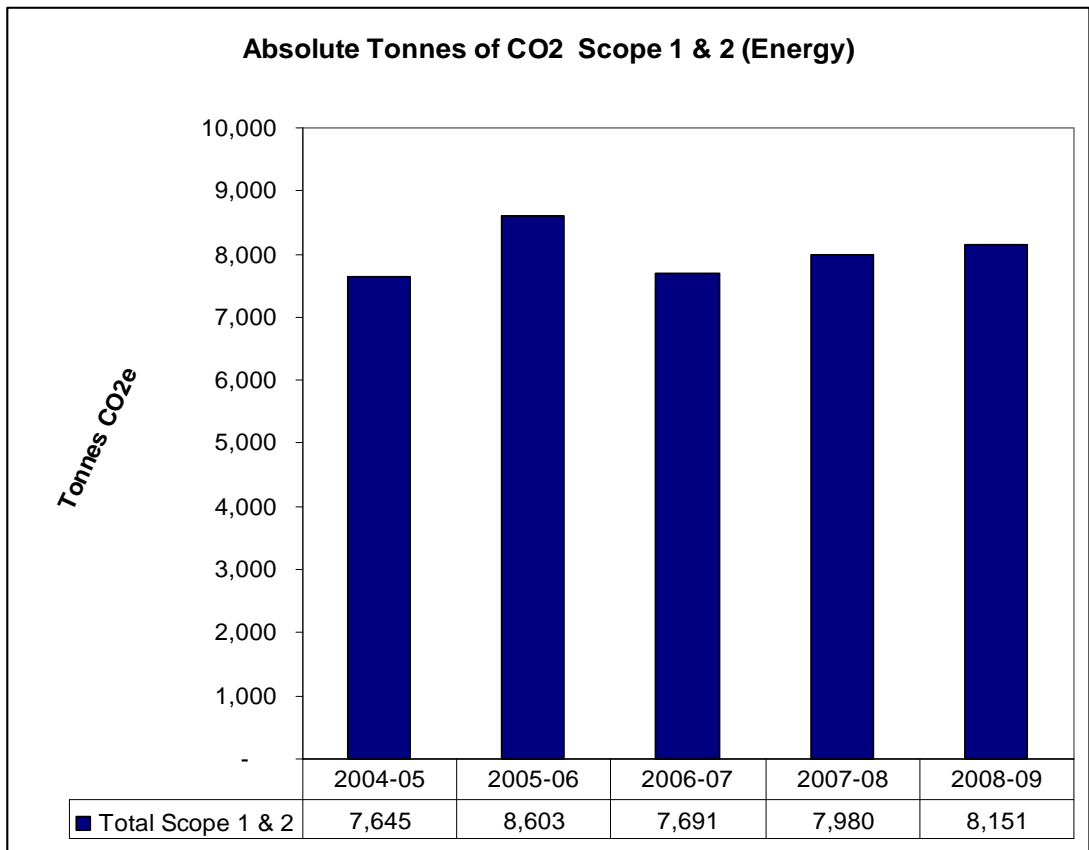


Figure 20



Appendix F – Carbon Emissions Scope 1 to 3, Figures 21 to 24 .

Figure 21

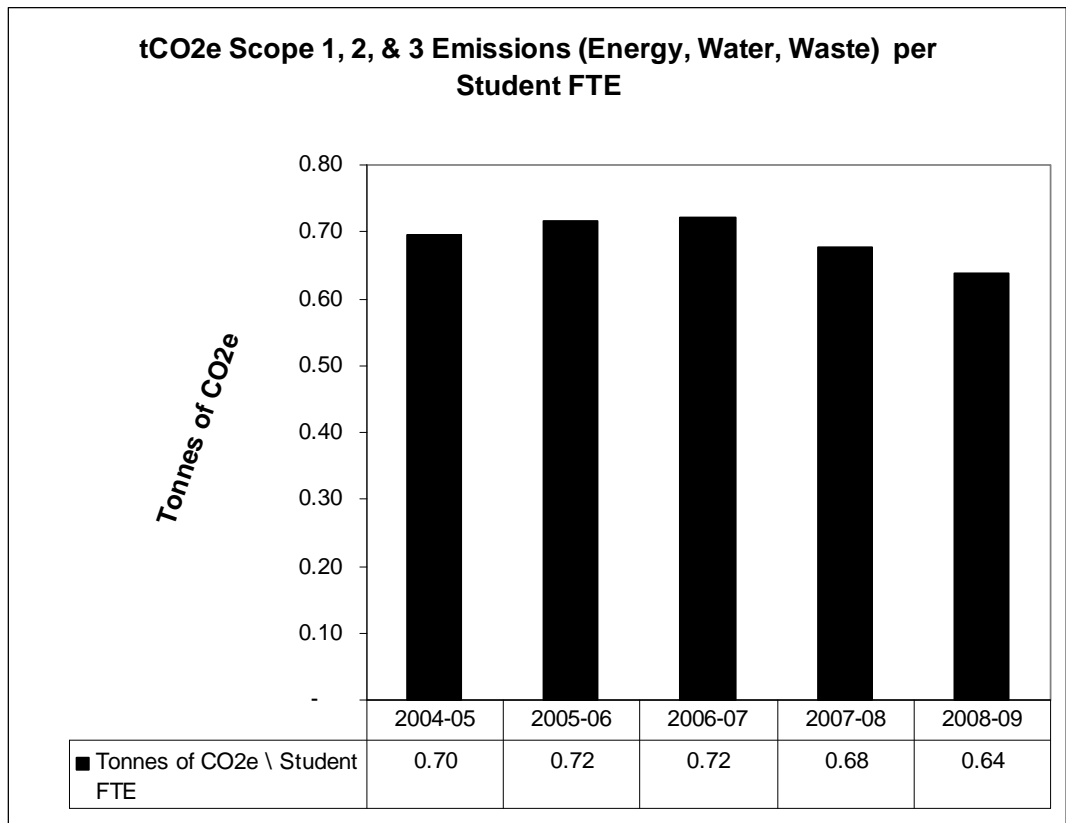


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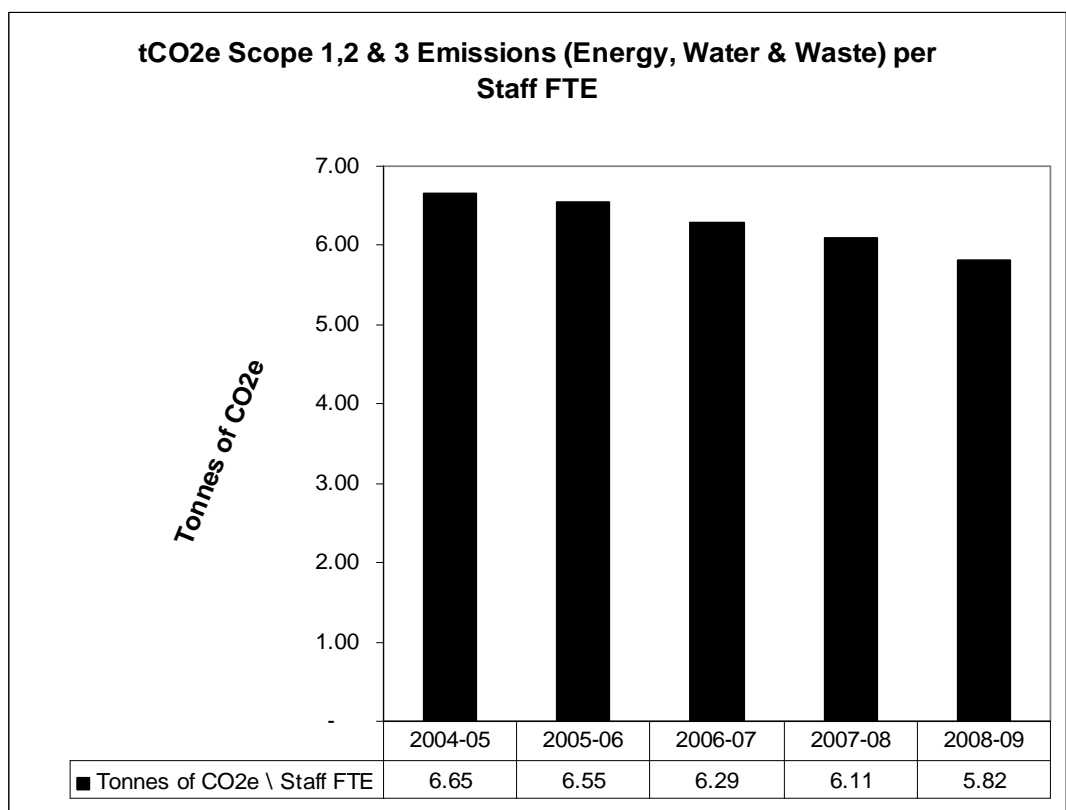


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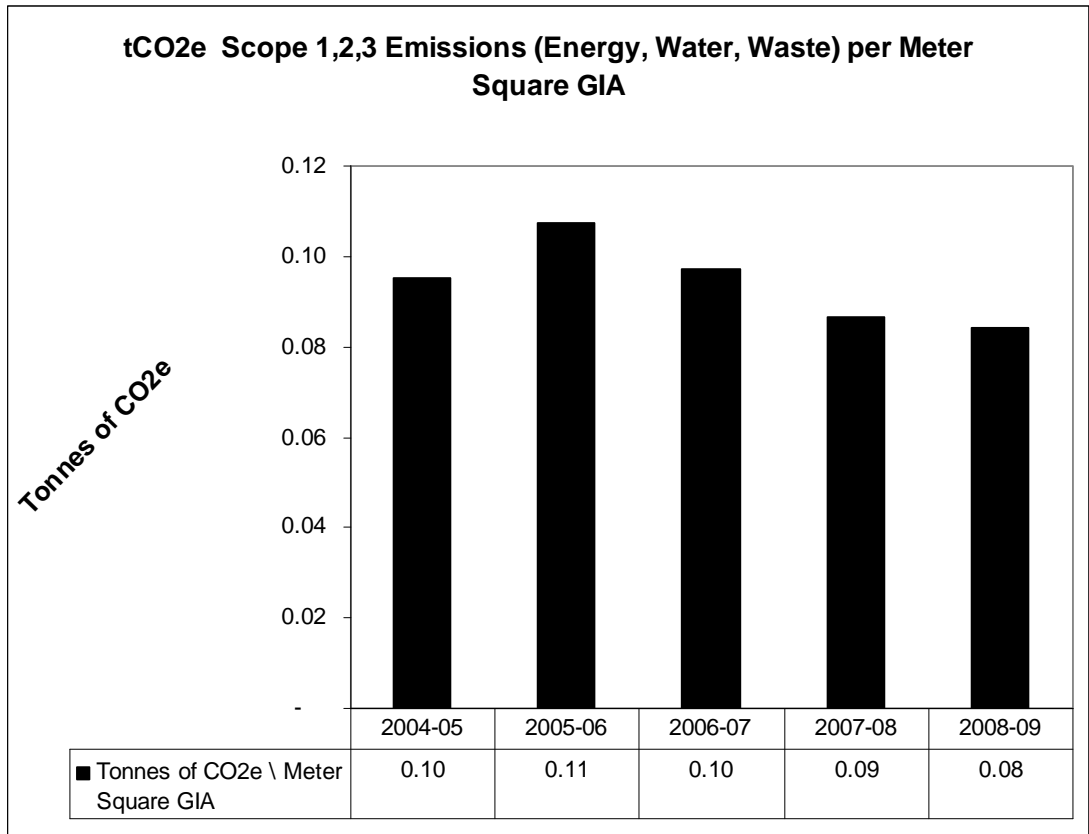


Figure 24

