

# Getting ISO 50001 – Aston's story

2<sup>nd</sup> May 2017 – Andrew Bryers

# Content

- Aspects you don't need to create
- Aspects you may need to slightly change
- Aspects you are probably already doing elsewhere
- Aspects that you need to create



# Aspects you don't have to create

Items you don't need to replicate as its in ISO14001:

- Roles and Responsibilities
- Legal Register
- Objectives and Targets
- Operational Control
- Training records and competency
- Awareness and events log
- Key Stakeholders and Management Representative documents
- Corrective Action forms
- New groups to approve policies etc.

# Aspects you may need to slightly change

- Procedure documents
  - **Numbering**
  - **EnMS instead of EMS**
  - **Content the same as the same procedure is 14001**
- Energy Policy
- Include any subsidiary policies/ codes of practice that mentions energy e.g. Heating Policy
- Internal Audit to include some new procedures

Procedure
<b>PROCEDURE:</b> 10.1 Management Responsibility (ISO 50001 clause 4.2)
Date: 25 <sup>th</sup> April 2016
Department: Estates and Capital Development
Site: Aston University
Author: Energy, Environment and Sustainability Manager
Approved by: <u>EnMS</u> Manager
<b>PURPOSE:</b> <ul style="list-style-type: none"><li>• To show how top management shall demonstrate its commitment to support</li></ul>

## Aspects you are probably already doing elsewhere

- Annual Energy reports – showing last (3) years of consumption and cost including emissions summary, degree days and some comparison i.e. consumption per floor area and per FTE staff and student
- Historic total energy data over as many years as you can go back
- Utility Forecasting – what will you use and spend the remaining year and next
- Map of master boiler locations and oil storage
- Copies of current energy contracts
- Carbon Management Plan Data and how you will meet targets
- Refurb and New Build Building Specifications including energy efficiency requirements

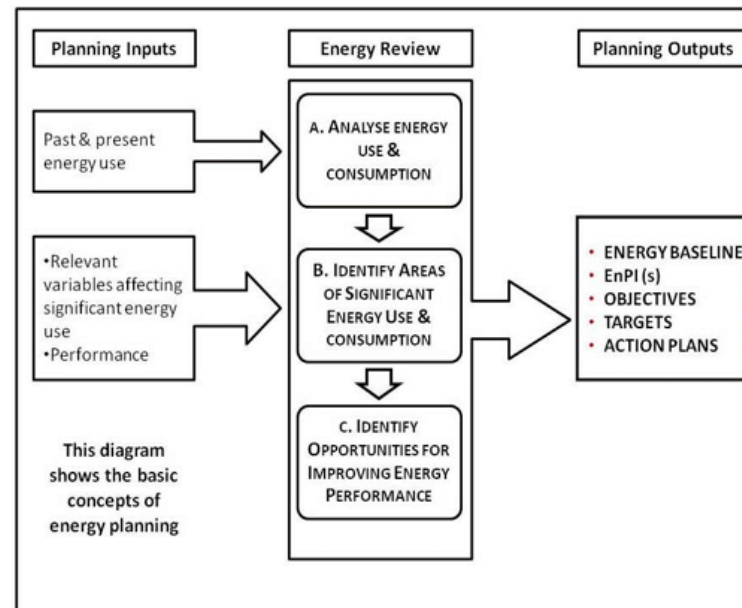
# Aspects that you need to create

- **Energy Planning Process**

## Energy Planning Process

Aston University shall conduct and document an energy planning process. This should be consistent with our Energy Policy and lead to activities that continually improve performance.

The below diagram can be used to improve the understanding of the planning process in general, but is not site specific.



# Aspects that you need to create

- Energy Review - Current and future projects that are most likely going to happen and then validating complete projects

B	C	D	E	F	G	H	I	J	K
<b>Overall Energy Target: Reduce our carbon emissions from energy consumption by 48% by 2020 from a 2005/6 baseline as outlined in the University Carbon Management Plan</b>									
Target	Significant Energy User	Action Plan	Person Responsible	Resources Required	Deadline	Work Status Complete?	Energy Reduction Achieved?	Method for measuring energy improvement and method of verification	Notes
Improve efficiency of main building lighting	Lighting	Upgrade lighting to LED throughout projects within the Campus Redevelopment 2020 Strategy.	Adam Reilly	Cost of project	Ongoing	Ongoing		Main building lighting energy consumption. Verified through AMR over 12 month period.	This is included in the refurbishment spec.
Improve energy efficiency of external lights	Lighting	Replace external street lights with LEDs	Adam Reilly	Cost of project	2016-2021	Ongoing		External lighting consumption. Verified through AMR over 12 month period.	Funding has been approved (2017)
Improve energy efficiency of Main Building circulation spaces	Lighting	Replace lighting in main building circulation spaces with LEDs	Adam Reilly	Cost of project	2016-2021	Ongoing		Main building lighting energy consumption. Verified through AMR over 12 month period.	Funding has been approved (2017)
Reduce ventilation in ABC through installation of motion sensors	Ventilation	Installation of motion sensors so ventilation is reduced when the building is unoccupied	Andrew Bryers	Cost of project	Nov-15	Complete		ABC energy consumption. Verified through AMR over 12 month period.	Installation complete, need to monitor consumption during 2016
Install CO2 sensors and reduce energy consumption of library by 25%	Ventilation	Installation of CO2 sensors to reduce air flow during low occupancy periods.	Andrew Bryers	Cost of project	Dec-15	Complete		consumption. Verified through AMR over 12 month period.	Installation complete, need to monitor consumption during 2016
Improve energy efficiency of lighting in Woodcock	Lighting	Installation of light level sensors in areas with natural light and motion sensors in squash courts.	Andrew Bryers	Cost of project	Nov-15	Complete		Woodcock energy consumption. Verified through AMR over 12 month period.	Installation complete, need to monitor consumption during 2016

# Aspects that you need to create

- Significant Energy Use

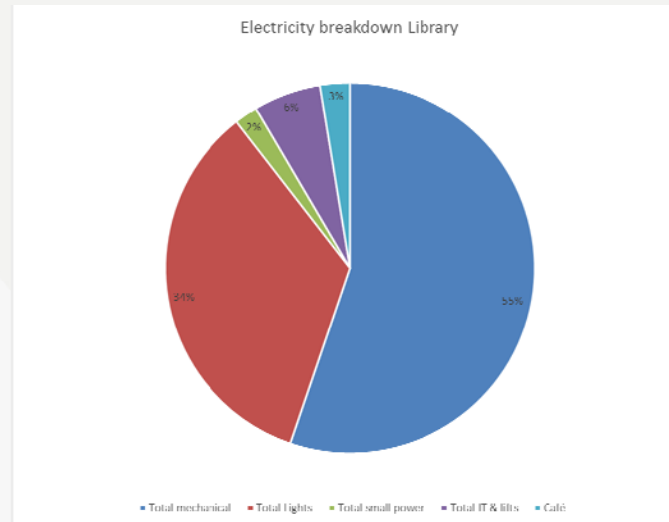
Significant Energy Use	Reason for Significance
Ventilation	In every building ventilation represents a considerable proportion of the energy consumption
Lighting	Makes up a considerable proportion of energy for most buildings. Significant potential for saving energy through installation of energy efficient lighting.
EAS and LHS labs	Labs have key energy consuming equipment such as fume cupboards, -80 freezers, industrial machinery etc. where changes in use and running will save energy.
ABS (including Conference Aston)	ABS is consumes the most amount of energy after the Main Building. There is also potential to engage with the third party Conference Aston who are within our scope to reduce energy use, especially in the kitchen and their hotel spaces.
Buildings with DEC ratings below a D	This currently includes the Day hospital, EBRI and the library. These are the least energy efficient buildings according to their DEC ratings.



# Aspects that you need to create

- Energy Review – annual consumption per building of any sub meters e.g. Aston Library

Electricity	2014/15		2015/16	
	Main meter	Sub meter	Main meter	Sub meter
Meter name	kWh		kWh	
Main Incomer	1,347,591		1,189,537	
(Below doesn't cover 100% of the metered building)				
Café		19708		19572
Phase 1 AHU		147,160		97,060
3rd FCU units 1		113391		120254
3rd FCU units 2		120258		137424
Phase 2 ahu		149,775		46,600
2nd mechanical 1		3645		4831
2nd mechanical 2		2078		3171
3rd mechanical 1		2740		3337
3rd mechanical 2		1881		2330
IT server etc		42973		41638
Lift		2460		2567
3rd Lighting plantrm		1024		1103
2nd lights 1		71696		69285
2nd lights 2		51762		49939
3rd lights 1		81837		77400
3rd lights 2		60353		59612
3rd small power		2		0
2nd floor power 1		0		0
2nd floor power 2		10054		8079
3rd power 1		0		0
3rd power 2		6875		7191
Total sub				751,392



Building Name	2013/14	2014/15	2015/16	14/15 to '15/16 Change % diff
Main Building	5,653,489	5,462,292	5,025,278	-8.0
South Wing	796,271	703,169	641,261	-8.8
North Wing	1,579,678	1,581,500	1,436,412	-9.2
Aston Business School	1,421,438	1,397,932	1,144,598	-18.1
Student Union	214,622	208,307	212,043	1.8
Vision Science	165,283	173,202	171,637	-0.9
Day Hospital	516,252	647,086	666,417	3.0
Brain Centre	220,093	200,628	188,696	-5.9
Library	1,404,865	1,323,331	1,189,537	-10.1
EBRI	1,088,489	1,154,092	1,062,509	-7.9
Outdoor Recreational Centre	152,093	188,340	212,538	12.8

# Aspects that you need to create

- Some additional Procedures e.g. Procurement of energy

Procedure
<p><b>PROCEDURE:</b> 10.8 Procurement of energy services, products, equipment and energy (ISO 50001 clause 4.5.7) Date: 25<sup>th</sup> April 2016</p>
<p>Department: Estates and Capital Development Site: Aston University Author: Energy, Environment and Sustainability Manager Approved by: <u>EnMS</u> Manager</p>
<p><b>PURPOSE:</b></p> <ul style="list-style-type: none"><li>• To ensure that suppliers of energy services, products and equipment that have, or can have, an impact on significant energy use are informed that procurement is partly evaluated on the basis of energy performance.</li></ul>
<p><b>SCOPE:</b> All energy related activities at all sites.</p>
<p><b>METHOD:</b></p> <ul style="list-style-type: none"><li>- The EnMS Manager is responsible for setting the criteria for assessing energy use, consumption and efficiency over the planned or expected operating lifetime when procuring energy using products, equipment and services.</li><li>- Energy purchasing specifications are produced, documented and stored by the EnMS Manager.</li><li>- The University has a 25 year contract, from 2008, to purchase heat and electricity for the majority of its site through Birmingham District Energy Company (BDEC), which includes the looking at the supply, source and cost of the energy purchased.</li><li>- BDEC and the University use an external company, <u>Utilitywise</u>, to purchase gas and electricity on our behalf through a flexible energy contract. The Energy, Environment and Sustainability Manager meets the two parties every quarter to review the energy market.</li><li>- All tenders exceeding £50,000 are sent to the <u>EnMS</u> Manager who will provide input regarding any energy considerations. This information will be used to inform the questions that are asked within the tender.</li></ul>

# Aspects that you need to create

- ISO 50001 Management Review – may require a separate meeting with existing 14001 group to go through annual changes

## ISO 50001 Management Review – April 2016

- We are currently implementing the energy management standard ISO 50001 with the aim of achieving certification during summer 2016. The stage 1 audit was on 27.4.16. The stage 2 audit is in August 2016.
- The Energy Policy has been updated to meet ISO 50001 requirements and reviewed by SAWG. See Energy and Water Management Policy.
- The energy consumption of buildings at the University has been analysed and action plans have been put in place for areas of significant energy use. These are in line with the tasks set in the current carbon management plan. See Targets document.
- The Energy Performance Indicator used to measure our energy performance is our scope 1 and 2 carbon footprint, which is reviewed within the carbon management plan each year.
- As part of ISO 50001 and ISO 14001 we have to ensure continued compliance with energy legislation. Compliance was evaluated last summer (2015) and is due to be reviewed in June 2016.
- New legislation regarding EPCs is coming into force. This requires that buildings let out by Aston University must have an EPC of E or above for any new tenancy after April 2018 or for any continuous tenancy after April 2023.
- Sheffield Hallam University spent a day going through our documentation as part of our 'Internal Audit' process. Opportunities for improvement included:

# Behavioural Change

- Group discussion focused on aspects of behaviour change
- Some examples that Aston do to discuss:
  - **Sustainable Survey**
  - **Kitty the Kestrel Mascot**
  - **Monthly workbook for champions**
  - **Redevelopment of a lab champions certification**
  - **Monthly departmental electricity league**
  - **Monthly departmental electricity report**
  - **Meet with heads of school**
  - **Carbon Journey**
  - **Standard awareness events**
  - **Comparing holiday consumption**

