

b.ssec

Energy Savings Opportunities Scheme
(ESOS Update)

-
-
-
-
-
-
-





Introduction

1. ESOS explained
2. ESOS Phase 1
3. Our experience
4. Recommendations
5. Key findings
6. ESOS & Facilities Management



ESOS

Explained

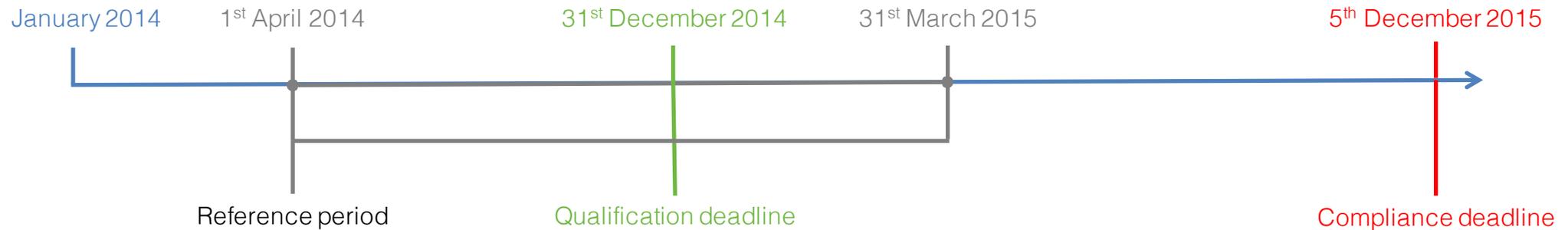


- Implementation of the EU Energy Efficiency Directive Article 8 by UK Government
- Scheme administrator is the Environment Agency
- Applies to all large enterprises in the UK who have:
 - *More than 250 employees or*
 - *Turnover > €50m/£42.5m and*
 - *Balance sheet > €43m/£36.5m*
- Roughly **10,000** organisations in the UK



ESOS

Explained



- ESOS runs on a yearly cycle:

- Phase 1: 6th Dec 2011 – 5th Dec 2015
- Phase 2: 6th Dec 2015 – 5th Dec 2019

- Phase 1 dates:

- Qualification Deadline – 31st December 2014
- Compliance Deadline – 5th December 2015
- Compliance Deadline (extended) – 29th January 2016



ESOS Explained

- Appoint an accredited Lead Assessor
- Review of a minimum of 90% of total energy use
- Identification of Energy Saving Opportunities based on representative site surveys
- Reporting of Disclosure of the results to the Environment Agency by 5th December 2015
 - *Requires Director level sign off*



ESOS

Phase 1 | Statistics

- 9,600 companies captured by scheme
- 65% compliant as of 15th April 2016
- ISO 50001 compliance route deadline is 30th June 2016
- Approximately 3,000 companies still to show compliance or make notification
- Environment agency issuing non-compliance notifications from 15th April 2016
- 20% average cost effective energy savings with less than 2-year payback



ESOS

Our experience

- ESOS are lead assessor for 17 companies
- Total energy use audited: 722,325,033 kWh
- Transport audits: 7
- Energy audits for 28 companies to BS EN 16247 covering the following sectors:
 - *Datacentres*
 - *Construction sites*
 - *Emergency services*
 - *Retail*
 - *Farming*
 - *Haulage (transport audits)*
 - *Offices*
 - *Historic buildings*
 - *Pharmaceuticals*
 - *Manufacturing*
 - *Energy production*



ESOS

Recommendations

Type	Number of audits	Savings (£)	Savings (CO2)	Savings (kWh)	Estimated cost
Datacentres	17	£5,831,653	31,894	65,925,787	£7,816,327
Offices	5	£66,179	262	522,742	£59,576
Construction sites	9	£55,282	263	689.600	£77,980
Historic buildings	10	£62,589	279.3	1,198,062	£253,210
Emergency services	4	£89,233	426.3	972,884	£243,110
Pharmaceuticals	3	£425,973	2,110	4,267,533	£1,650,266
Retail	18	£511,759	2,713.2	5,527,597	£1,455,963
Manufacturing	10	£545,310	3,283.3	8,971,644	£1,407,914
Farming	4	£173,725	877.1	2,189,435	£580,534
Energy production	1	£110,466	1,177.8	2,209,384	£517,500



ESOS

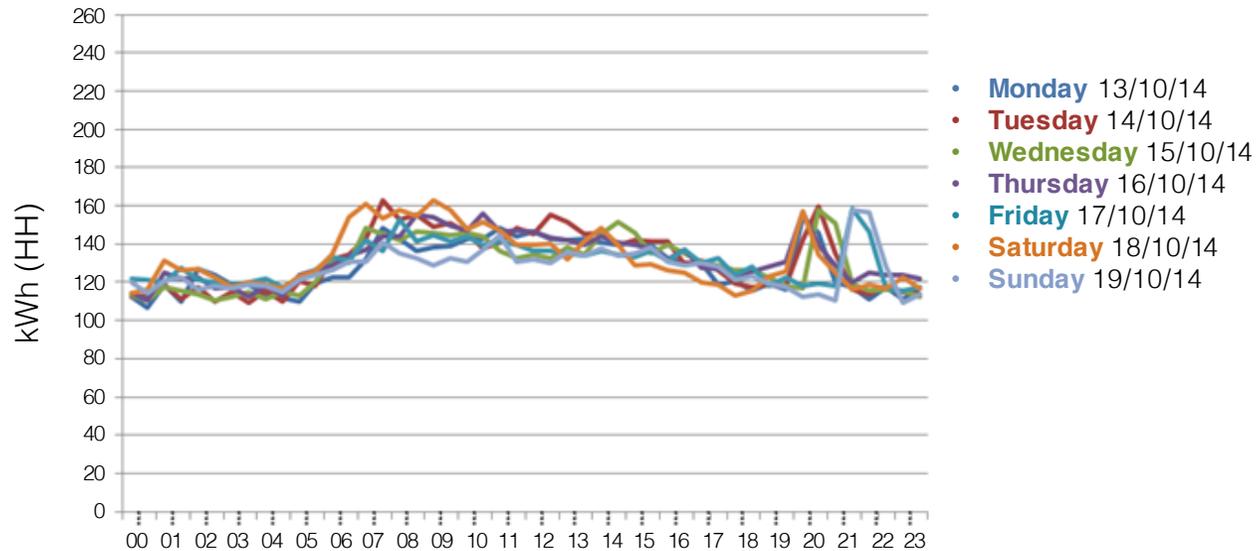
Key findings | Data centres

- Policy objectives
- Equipment schedules, life cycle, renewal spec.
- Data hall temperature set points & control strategies
- Lack of data on energy intensity, use & by main plant & equipment
- Automatic control & scheduling of plant & lighting, LED lighting
- Compartmentation of cool and hot zones, free cooling opportunities
- Renewable energy opportunities

ESOS

Key findings | Offices

MPAN 7933 Electricity HH Consumption Profile – Week 13/10/14



- Submetering, especially on landlord provided energy
- Occupation based energy use
- Control of small power and IT equipment
- Understanding HVAC
- Lighting replacement programmes
- Hot water timing & control



ESOS

Key findings | Construction Sites



- Site energy monitoring
- Ventilation heat loss to site cabins
- Lighting and heating control (timer & occupation)
- Drying room solutions
- Procurement lead
- LED site lighting



ESOS

Key findings | Historic buildings

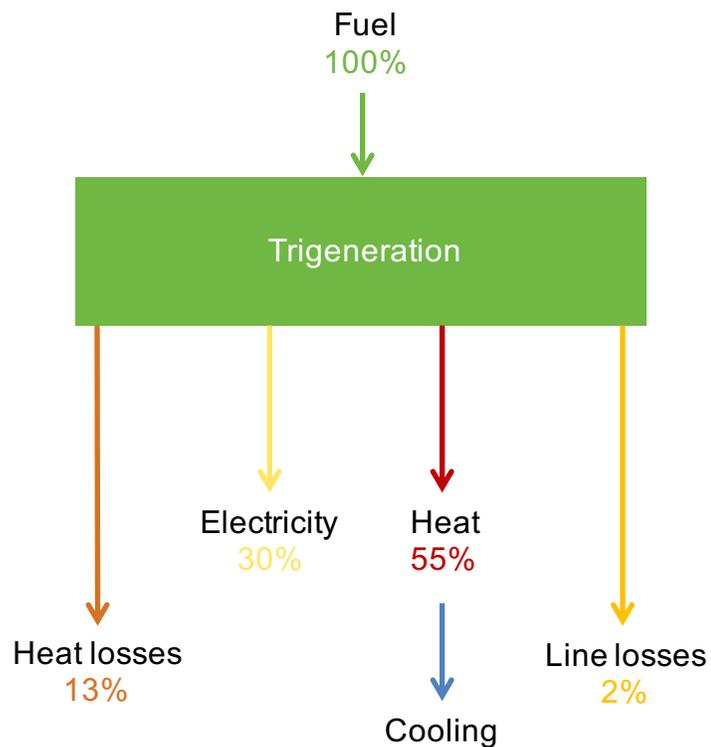


- Maintenance & repair
- Fabric improvements
- Ventilation control
- Lighting improvement & upgrading
- Occupancy control
- Timed control of hot water



ESOS

Key findings | Pharmaceuticals



- Policy objectives, monitor energy use of key plant & equipment
- Energy use profiling & baseload analysis
- Maintenance of compressed air equipment
- VSDs, upgrade older plant
- Recovery of process heat
- CHP
- Control of localised air conditioning, HVAC & lighting services
- Lighting replacement programmes



ESOS

Key findings | Retail

- Submetering key plants
- Scheduling of services to meet operational hours, implementation of standard operating procedures
- Control of small power
- Fabric improvements & thermal control at display windows
- Seasonal commissioning
- Lighting upgrade programmes
- Holiday shutdown procedures



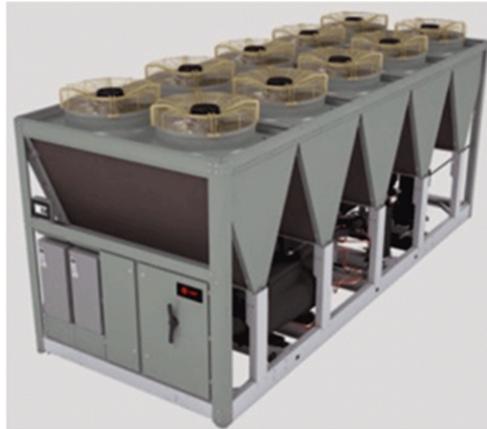
ESOS

Key findings | Manufacturing

- Closer union of services to productivity & occupational requirements
- Compressor maintenance & leak detection
- Motor control
- Lighting review & replacement
- BMS review and control strategies
- Understand energy & shut down protocols
- Zoning of services to suit activities
- CHP & renewables opportunities
- Equipment maintenance & replacement

ESOS

Key findings | Farming



- Control of lighting
- Anaerobic digestion opportunities
- Control of motors and conveyors
- Waste heat recovery
- Natural ventilation
- Renewables opportunities



ESOS & FM (Facilities Management)



- The majority of affordable opportunities would come under an FM remit
- A board director should have signed off the ESOS audit & understand the opportunities
 - *Who are they?*
- Obtain copies of ESOS lead assessor reports & site energy audits
- Understand energy use
 - *consider measurement & verification protocols, submetering & reporting*



ESOS & FM (Facilities Management)

- Understanding hierarchy of energy efficiency effect in maintenance
- Consider contract clauses for energy savings
- Consider business case for energy efficiency upgrades of plant & equipment
 - *understand energy efficiency potential*
- It's a long term commitment requiring monitoring to ensure savings are maintained
 - *this suits you & your clients*

b.ssec

Thank you for your time.



Wayne Ward
Managing Director

11 Pierrepont Street
Bath
BA13 4HR
07815 82 44 62

wayne.ward@bssec.co.uk

www.bssec.co.uk