IEA Buildings, Energy Efficiency & Behaviour Workshop

Optimising Power @ Work

A Staff Energy Awareness Campaign

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Office of Public Works

- Property Management (Central Government Portfolio) is one of the main activities of the Office of Public Works (OPW)

- Approximately 2000 properties, many small, Total Floor Space of 1.4M m² (for 50,000 Staff)

- Predominantly office accommodation but also includes data centres, laboratories, heritage buildings, etc.

- Total Energy Spend = €35M - €40M
Our Clients

- OPW provides a central service in terms of technical expertise and management of buildings
- Work closely with all our customers on a day to day basis.
- OPW owns/leases the properties on behalf of the State
- Individual occupying Departments pay for Maintenance and Energy
Energy Conservation in the Public Service

- Ireland’s National Energy Efficiency Action Plan (NEEAP) requires Public Service Organisations to provide exemplary role

- Public Sector Target = 33% energy reduction by 2020

- Originally thought to be ambitious but OPW well on the way to achieving this goal

- No room for complacency

- Energy Conservation Programmes – easiest savings are the initial savings.
Background

- **2007**: 2 Pilot Studies in 10 Buildings
  - Demonstrated savings of up to 19% Possible

- **2008 - 2010**: Optimising Power @ Work 1

- **2010 – 2015**: Optimising Power @ Work 2
Main Focus of the Pilot Study:

- Switch Off
- Switch Off Early
- Identify Areas Of Energy Wastage
Concentrate on Electrical Consumption:

• Electricity = 59% Total Energy Consumption

• Electricity = 78% Carbon Dioxide Emissions

• Staff have direct influence

• Current Performance was ‘Poor’
Lessons from the Pilot:

- 35% Electrical Energy Used at Night
- 20% Electrical Energy Used at Weekends
- 55% Electricity used when building is unoccupied!
Unoccupied Buildings

Building 1
- Unoccupied: 55%
- Occupied: 45%

Building 2
- Unoccupied: 46%
- Occupied: 54%

Building 3
- Unoccupied: 42%
- Occupied: 58%

Building 4
- Unoccupied: 51%
- Occupied: 49%

Building 5
- Unoccupied: 49%
- Occupied: 51%
Optimising Power @ Work 1

- 250 Buildings in the campaign
- 2 Service Providers Appointed
- 15% Reduction Target
- Actual average savings of 12% achieved
• Target 20% average energy saving.

• Minimum saving of 15% in each building i.e. buildings that did not achieve a 15% in Phase 1 were intensively targeted.

• Buildings, which have already achieved >20%, a 5% further reduction
The key success factors:

• Three key elements to programme:

  1. Technology
  2. Specialist Resources
  3. Continuous Staff Engagement

• Endorsement at CEO & Senior Management level essential for success

• Active energy teams within participating buildings is the cornerstone of the campaign
1) Technology - Availability of up to date reliable energy data

- OPW installed dedicated energy monitoring equipment in all buildings which have floor areas over 1000m$^2$.

- Approximately 270 buildings in total

- Best estimates indicate that these are responsible for 80% of our expenditure on energy.
2) Specialist Resources: *The application of adequate and suitable resources*

- Potential net savings are up to three times the investment, per annum.

- Worthwhile and necessary to apply proper and adequate resources

- A proper resource is an experienced specialist

- By applying suitable resources it is reasonable to set targets and expect results.
3) **Continuous Staff Engagement**

- Senior Management buy-in
- Appoint Energy Officer
- Establish Energy Teams
- Campaign launch
- General Staff Involvement
- Set Targets and Benchmarks
- Monitor results against targets
Intensive Staff Engagement

- Monthly Energy Team Meetings
- Monthly Energy Reports
- Inter-Building Competitions
- National Awards Programme
- Night Audits
- BMS Audits
- Staff Energy Workshops/Lectures
- Energy Portal – Web based
- Staff Presentations / Quiz
Energy Awareness Campaign:

- Energy Teams
- Staff Feedback
- Competitions/Incentives
- Posters/Information
- Energy Reports
- Lectures/Workshops
- Energy Policy
- Optimising Power @ Work
Levels of Engagement

- **Excellent:** Full support from management, appropriate and proactive Energy Officer and team, good response to the programme, taking their own initiative in energy savings.

- **Good:** Good support from management, energy manager and team, medium/good response to the programme.

- **Fair:** Reasonable support from energy manager and team, medium/fair response to the programme.
Levels of Engagement:

- Excellent: -19%
- Good: -12%
- Fair: -2%
- Not Participating: 11%

Average Savings vs Level of Engagement
Results:

Average Annual Energy and Carbon Dioxide Savings

Year
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014

Average Annual Savings (%)
- Energy (%)
- Carbon Dioxide Reduction (%)
Results:

Building Energy Performance (2014)

Total Buildings (%)

-51% to -60% 5%
-41% to -50% 10%
-31% to -40% 15%
-21% to -30% 20%
-11% to -20% 25%
-1% to -10% 30%
0% to +9% -
+10% to +19% -
+20% to +29% -
+30% to +39% -
+40% to +49% -

Annual Energy Consumption Compared to Benchmark Year
# Summary of Results

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Saving</th>
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<tbody>
<tr>
<td>Average Annual Energy Savings (February 2015)</td>
<td>20.2%</td>
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<tr>
<td>Annual Cost Savings (February 2015)</td>
<td>&gt;€4.9M/annum</td>
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<tr>
<td>Electricity Portion of Overall Saving</td>
<td>55%</td>
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<tr>
<td>Heating Fuel Portion of Overall Saving</td>
<td>45%</td>
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The Future: New Public Sector Programme:

• Following the success of OPW’s existing *Optimising Power @ Work* Energy Conservation Campaign, Government Decision to use as a model for roll-out to wider public sector.

• OPW identified as the best organisation to deliver this.

• €9M allocated over a 3 year period.

• Hospitals, Prisons, Universities, Institutes of Technology, Local Authorities, etc.