Efficiency

It's in the core

Kingspan
AGENDA

– Kingspan Group

– What is ISO50001

– Getting own house in order – Kingspan’s NZE Plan

– Kingspan Energy
KINGSPAN GROUP

Founded 1965 now a plc. with market value of €2.5bn+

€ 1.9b
Turnover

€ 138m
Trading Profit

85
Countries of sales

62
Countries of manufacturing

~7,000
Employees worldwide
## KINGSPAN IN A NUTSHELL

<table>
<thead>
<tr>
<th>Revenue</th>
<th>Products</th>
<th>Drivers</th>
<th>Geography</th>
<th>Sector</th>
<th>End Market</th>
<th>Channel</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>€ 1.9 Billion</td>
<td>Insulated Panels 58%</td>
<td>Energy Efficiency &amp; Conversion 85%</td>
<td>Mainland Europe 39%</td>
<td>Commercial &amp; Industrial 60%</td>
<td>New Build 70%</td>
<td>Direct 75%</td>
<td>€ 138 Million</td>
</tr>
<tr>
<td>Insulation 25%</td>
<td></td>
<td>UK 34%</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Access Floors 9%</td>
<td></td>
<td>North America 13%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental 8%</td>
<td></td>
<td>Middle East/Turkey 4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Australasia 4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ireland 4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other 4%</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

- **Drivers:**
  - Mainland Europe 39%
  - UK 34%
  - North America 13%
  - Middle East/Turkey 4%
  - Australasia 4%
  - Ireland 4%
  - Other 4%

- **Geography:**
  - Mainland Europe
  - UK
  - North America
  - Middle East/Turkey
  - Australasia
  - Ireland
  - Other

- **Sector:**
  - Commercial & Industrial 60%
  - New Build 70%

- **End Market:**
  - New Build 70%
  - Refurbishment 30%
  - Office & Data 20%

- **Channel:**
  - Direct 75%
  - Via distribution 25%

- **Profit:**
  - € 138 Million

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**Brand > Specification > Differentiation**
The purpose of ISO50001 is to enable organisations to establish the systems and processes necessary to:

• Improve energy performance,
• Improve energy efficiency,
• Improve energy use and consumption.

Implementation of ISO50001 is intended to lead to reductions in greenhouse gas emissions and other related environmental impacts and energy cost through systematic management of energy.
What is ISO50001?

ISO50001 is applicable to all types and sizes of organisations, irrespective of geographical, cultural or social conditions.

Successful implementation depends on commitment from all levels and functions in the company, and especially from top management.
COMMITMENT TO NET ZERO

In 2011 the group embarked on its own net zero initiative – aiming to have all facilities running on renewable power by 2020.

Achievements reported through carbon reporting programme

2012 | 2016 | 2020
---|---|---
10% | 50% | 100%
**KINGSPAN NZE FORECAST SUMMARY**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Use GWh</th>
<th>Total Renewable Energy GWh</th>
<th>% of Target</th>
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</thead>
<tbody>
<tr>
<td>2012*</td>
<td>317</td>
<td>27</td>
<td>9</td>
</tr>
<tr>
<td>2013*</td>
<td>327</td>
<td>60</td>
<td>18</td>
</tr>
<tr>
<td>2014*</td>
<td>310</td>
<td>86</td>
<td>28</td>
</tr>
<tr>
<td>2015**</td>
<td>335</td>
<td>125</td>
<td>37</td>
</tr>
<tr>
<td>2016**</td>
<td>342</td>
<td>155</td>
<td>45</td>
</tr>
<tr>
<td>2017**</td>
<td>346</td>
<td>177</td>
<td>50</td>
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</table>

*Actual  
**Forecast
Digital Envelope Approach

Kingspan ISO50001 Approach

Seattle Commercial Hangar Seattle, Washington
Insulated Panels
Kingspan ISO50001 Approach

Vision

• Carbon Negative Building
• Real-time Energy Monitoring
• Electric Vehicle Charging

An Envelope Approach with 6 elements

• Renewable Energy Generation: Solar PV & Wind
• Reduce Energy Consumption: LED Lighting
• Reduce Energy Loss: Insulated Panels
• Reduce Water Usage: Rainwater Recovery
• Renewable Transportation: Electric Car charging
• Integrated Management: ISO50001

Kingspan aims to be a Carbon Zero Company
Energy Generation: Solar PV

Issue to address

• Rising energy demand

Solution:

• 1000 M2 Kingspan Integrated Panel: Solar PV + Insulated Panel

• 130 kW generation capacity

Benefit:

• Move to Carbon Negative

• Cost Control

Kingspan Solar PV is growing fast in the market
Energy Consumption : Lighting

Issue to address

• 1000 M2 floor area, Halogen Lighting
• € 2,930.00 annual bill for lighting

Solution:

• Kingspan iLED lighting upgrade
• Motion detection, dimming functions
• € 708.00 annual bill for lighting

Benefit:

• 76 % reduction in annual cost
• Low maintenance
• Convenience

Kingspan iLED Lighting is ideal for high-ceiling buildings
Energy Monitoring : Data Management

Issue to address

• 2000 M2 Office and Lab area
• 58 staff, varying energy usage-types
• Multiple energy generation sources, loads

Solution:

• Data Collection hub : Intel Quark
• Data Presentation : Microsoft SharePoint

Benefit:

• One stop shop for all Data
• Globally Accessible
• Integrated Approach

Kingspan has a strong track-record in Data Management Solutions
In August 2014 Kingspan attained ISO 50001 Accreditation for the Energy Management System at our Group Office & Innovation Centre in Kingscourt. The lead auditor from Certification Europe completed the Stage 2 audit on Friday 15 August 2014.

The enabling technology for the Energy Management System is Intel Quark & Microsoft SharePoint.

An Envelope Approach to Energy Efficiency Management was taken at the facility, enabling a Carbon-Negative Building via 8 key Innovations:

- Kingspan Benchmark
- Kingspan Energy
- Kingspan Rainwater Recovery
- Kingspan Doors
- Kingspan Insulation
- Kingspan Wind
- Kingspan Access Floors
- Kingspan ILED Lighting

A fully Digitised Energy Management System
Energy Efficiency Performance : 2013

2013 Energy Footprint

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>Co2 Metric Tons</th>
<th>Target</th>
<th>Trend</th>
<th>Co2 Emission Metric Tons</th>
<th>Target</th>
<th>Trend</th>
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</thead>
<tbody>
<tr>
<td>Electricity Usage (kWh)</td>
<td>74480</td>
<td>52.5</td>
<td>0</td>
<td></td>
<td></td>
<td>42</td>
<td>0</td>
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<tr>
<td>Oil (Ltr)</td>
<td>6500</td>
<td>57.8</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
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<tr>
<td>Electricity Generation (kWh)</td>
<td>96823</td>
<td>68.3</td>
<td>120</td>
<td></td>
<td></td>
<td>0</td>
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</tr>
</tbody>
</table>

* Figures are from 1 Mar – 31 Dec 2013

2013 CO2 Emission offset

- 7,658 gallons of gasoline consumed
- 0.901 tanker trucks’ worth of gasoline
- 3.4 homes’ energy use for one year
- 9.4 homes’ electricity use for one year
- 0.294 railcars worth of coal burned
- 159 barrels of oil consumed
- 2,846 propane cylinders used for home barbeques
- 0 coal-fired power plants in one year

Annualised Solar Generation exceeds usage by 35 %
Energy Efficiency: Other Kingspan Sites

Energy efficiency

- JCI EPC at HW – saving 1.1GWh pa implemented Q4 2013
- EPC with Siemens being developed at Sherburn. £500k - £1M 2.5GWh pa saving potential. 4 year payback.
- Investment grade audits at Kingscourt complete – Aramark, Siemens - under review – 1GWh pa saving.

Renewables

- Holywell Wind – aviation issues may downsize original 2x 2.5MW plan
- Sherburn – Feasibility study indicates AD / Biomass potential.
- Holywell biofuel feasibility study about to start
- 5 MW PV system in Sherburn

Holywell Wind Turbine Development

Holywell Solar PV – 0.314GWH
KINGSPAN ENERGY

- Kingspan Energy is a sub-division of Kingspan Insulated Panels leveraging on the 50 years C&I roofing expertise
- 50 million m² of roof panel manufactured in 10 years in GB & Ireland
- 60-70% of C&I rooftop – significant Retrofit opportunity
- Kingspan Energy’s core business is the development and Installation of Commercial & industrial rooftop PV systems
- Completed >300 commercial and Industrial rooftops projects, totalling in excess of 50MW including largest in:
  - GB – JLR 5.8MW
  - AUS – IKEA 0.9MW
  - ROI – Kingspan Group 132kW
  - NI – Kingspan Environmental 1.32MW
HOW WE DO IT: SECTORS

NEW BUILD

- Aldi, Goldthorpe

RETROFIT

- JLR, Wolverhampton

REFURBISHMENT

- Kingspan Insulation, Selby
CASE STUDIES:
JAGUAR LAND ROVER

Jaguar Land Rover Engine Manufacturing Plant, Wolverhampton

- 5.8 MWp system covers 35,000 m² of roof space
- Expected to generate 30% of the annual energy requirements of the JLR plant
JAGUAR LAND ROVER – 5.8MW

- 21,480 x 270W modules
- 180 x Power One Trio 27.6TL inverters
- 12 week build period
KINGSPAN INSULATION SELBY

- New highly insulated Kingspan roof
- High efficiency LED lighting and improved natural lighting
- 2.467MW solar PV system
- EPC Rating enhanced from F to A rating
Refurbished Building Annual Energy Savings

<table>
<thead>
<tr>
<th></th>
<th>Post Refurb</th>
<th>Existing Build</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas Heating</td>
<td>1.06</td>
<td>8.81</td>
</tr>
<tr>
<td>Lighting</td>
<td>0.07</td>
<td>0.59</td>
</tr>
<tr>
<td>PV Generation</td>
<td>2.07</td>
<td>0</td>
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</tbody>
</table>
KINGSPAN PORTADOWN
BEFORE
KINGSPAN PORTADOWN DURING
KINGSPAN PORTADOWN AFTER

Kingspan

It's in the core

Kingspan ENERGY
SUMMARY

• Kingspan can play a key role in the sustainable construction agenda through

• Getting our own house in order
  • Net Zero Energy
• Commitment to delivering sustainable solutions for our customer via
  • Our products
  • Kingspan Energy
Kingspan are delighted once again to sponsor the ARC Run on Bank Holiday Monday May 4th at 10am in the Phoenix Park, Dublin.

This year they are also offering the option to do a 5K so for anyone that said last year they couldn’t do a 10K then there are no excuses this year!

Please following this link for registration
http://arccancersupportcentre10kand5krun.itsyourrace.com/
THANK YOU