2018 Energy Efficiency Expo & Seminar
22 August 2018

Case Study: A Noble & Son Ltd
Adam Rogers
Nobles Overview

• Australia’s leading specialist provider of lifting & rigging equipment, technical services & engineering design for complete solutions to your heaviest and most complex lifting requirements

• Our state warehousing and production centres carry substantial stock and can undertake the manufacture and testing of our products

• Provides a range of in-house customer engineering and technical services for all your highly specialised and complex lifting/rigging needs

• Suppling the Mining, Oil & Gas, Cranes and Construction, Shipping & Transport, Manufacturing, Defence, Utilities and other Agricultural and Industrial sectors
Nobles Lines of Business

Product Merchandising

Manufacturing & Assembly

Technical Services

Customer Engineering

Digital Solutions
Why Nobles considered an Energy Audit

• Electricity rates keep on rising, eating into bottom line
• Initially considered solar
• Difficult to compare proposals
• Systems were oversized for the site, unnecessary capex
• Eutility advised Nobles of the SAEPP assessment and implementation grants
Type II Energy Audit (AS/NZ 3598:2014)

- Conducted by Eutility
- Type 2 Audit Cost: $6,990
- SAEPP Energy Productivity Audit Grant: 75%
- Nobles paid: $1,747 for the audit
# Energy Efficiency Main Opportunities

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Viable</th>
<th>Investment</th>
<th>Payback</th>
<th>Energy Savings</th>
<th>Cost Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Network Tarif Change</td>
<td>Yes</td>
<td>$0</td>
<td>Immediate</td>
<td>Energy Neutral</td>
<td>$1,327</td>
</tr>
<tr>
<td>2  Load Shifting Forklifts</td>
<td>Yes</td>
<td>&lt; $500</td>
<td>&lt;1yr</td>
<td>Energy Neutral</td>
<td>$304/forklift</td>
</tr>
<tr>
<td>3  <em>Lighting Upgrades</em></td>
<td>Yes</td>
<td>$78,037</td>
<td>3.5 years</td>
<td>68.4 MWh</td>
<td>$22,103</td>
</tr>
<tr>
<td>4  Power Factor Correction</td>
<td>Yes</td>
<td>$9,400</td>
<td>6.0 years</td>
<td>Energy Neutral</td>
<td>$1,549</td>
</tr>
<tr>
<td>5  Solar PV</td>
<td>Yes</td>
<td>$78,561</td>
<td>3.6 years</td>
<td>139.6 MWh</td>
<td>$18,575</td>
</tr>
<tr>
<td>6  Lighting Controls</td>
<td>No</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>7  HVAC</td>
<td>No</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

*Net of subsidies / grants*
• Lighting upgrades prioritised due to shorter payback:
  • 3.5 years without grant
  • 1.8 years with grant

• Capex: $78,037

• SAEPP Implementation Grant: 50% in Nov 2017

• Nobles paid: $39,018

• Quick turnaround time, lights upgraded in Dec 2017
LED Lighting Upgrade

- 305 Luminaires replaced with LEDs in Dec 2017 by Vivid Ilumalite
  - High bays
  - Floodlights
  - Troffers and Battens
  - Some luminaires repositioned

Before:  

[Image of the before condition]

After:  

[Image of the after condition]
Energy Consumption Reduction

- **Before (2017)**
  - January: 20,556 kWh
  - February: 19,863 kWh
  - March: 23,557 kWh
  - April: 18,507 kWh
  - May: 22,688 kWh
  - June: 24,074 kWh
  - July: 24,367 kWh
  - Jan - July Total: 153,611 kWh

- **After (2018)**
  - January: 16,597 kWh
  - February: 16,429 kWh
  - March: 16,215 kWh
  - April: 15,859 kWh
  - May: 16,291 kWh
  - June: 16,154 kWh
  - July: 17,445 kWh
  - Jan - July Total: 114,992 kWh

**Percent Change in Consumption**
- January: -19.3%
- February: -17.3%
- March: -31.2%
- April: -14.3%
- May: -28.2%
- June: -32.9%
- July: -28.4%
- Jan - July Total: -25.1%

**Annual Consumption (estimate for 2018)**
- Before Upgrade, 2017: 263,333 kWh
- After Upgrade, 2018: 197,128 kWh
- Percent Change in Consumption: -25.1%

**Estimated Annual Cost Savings**
- Before: $59,197
- After: $44,321
- Estimated Annual Cost Savings: $14,876

*Extrapolated from Jan-Jul data*
**Demand Reduction**

**SmartEnergy™**

Comparison of Demand (kVA) per unit for NMI 2002245287 over two 212 day periods

<table>
<thead>
<tr>
<th>Month</th>
<th>Before LED Upgrade (2017)</th>
<th>After LED Upgrade (2018)</th>
<th>Percent Change in Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>102.1</td>
<td>85.9</td>
<td>-15.9%</td>
</tr>
<tr>
<td>February</td>
<td>105.4</td>
<td>86.7</td>
<td>-17.7%</td>
</tr>
<tr>
<td>March</td>
<td>105.9</td>
<td>83.1</td>
<td>-21.6%</td>
</tr>
<tr>
<td>April</td>
<td>102.0</td>
<td>83.2</td>
<td>-18.5%</td>
</tr>
<tr>
<td>May</td>
<td>107.3</td>
<td>69.9</td>
<td>-34.9%</td>
</tr>
<tr>
<td>June</td>
<td>108.0</td>
<td>79.5</td>
<td>-26.4%</td>
</tr>
<tr>
<td>July</td>
<td>116.8</td>
<td>66.9</td>
<td>-42.7%</td>
</tr>
<tr>
<td>Jan - July Average</td>
<td>106.8</td>
<td>79.3</td>
<td>-25.7%</td>
</tr>
</tbody>
</table>

**Average Demand Reduction**

27.5 kVA

**Estimated Demand Cost Savings (Capacity Reset)**

$2,021
Total Annual Cost Savings due to Lighting Upgrades

Annual Cost Savings:
• Consumption reduction: $14,876
• Demand reduction: $2,021
• Maintenance savings: $4,032
• Total savings: $20,929

• Potential further saving – tariff change: $2,672