

From the Department of Environment, Food and Rural Affairs

## **FURTHER BENEFITS OF BUSINESS RESOURCE EFFICIENCY**

### **Project Summary**

In September 2007 Defra published a report prepared by Oakdene Hollins and Grant Thornton on the quantification of the no cost / low cost savings opportunities from resource efficiency activities by UK business. The study estimated that the UK savings opportunities associated with no cost / low cost resource efficiency interventions, i.e. the 'quick wins', were £6.4 billion per year in 2006. Five sectors were found to account for around 70% of the estimated savings: road freight, food and drink, retail, chemicals, rubber and plastics and construction. Further work revealed that, if the opportunities were to be realised, the total annual resource efficiency benefits of £6.4 billion would be the equivalent of more than half the average year-on-year growth in profitability of the total UK economy that was achieved in the five years to 2006. This study recalculates this figure using new sources of data and attempts to determine the financial and environmental benefits from resource efficiency activities requiring more investment, i.e. with a payback period over 1 year. The context for the work is that of the Climate Change Act and the legally binding target to reduce the UK's greenhouse gas emissions to at least 80% below 1990 levels by 2050.

### **Key Findings**

#### **Financial savings opportunities**

- No cost / low cost savings opportunity has been estimated at a total of around **£23billion** in 2009. Savings opportunities with a payback greater than one year have been estimated at **£33billion**. This gives a total opportunity of around **£55billion** (when figures are rounded).
- The greatest savings opportunities exist within waste, particularly in waste prevention through lean manufacturing. Total savings opportunities for waste (no/low cost plus longer payback) in 2009 were around £40billion. The most significant four sectors are chemicals/non-metallic minerals, metals manufacturing, power & utilities, and construction. Between them, they account for 78% of the no cost / low cost savings opportunity total of £18billion.
- Total savings opportunities for energy in 2009 were around £11billion. The largest opportunity within energy was identified in road freight. Total savings opportunities for water in 2009 were around £530million. The sectors with significant savings opportunities for water are public administration, agriculture and food and drink, which together represent 60% of the total water savings opportunities.
- When compared like-for-like (without the additional sources of data now available) 19% of the no cost/low cost financial savings originally identified in 2006 had been realised.

#### **Carbon savings opportunities**

- The carbon benefits achievable from implementing these resource efficiency measures are estimated at 90 MtCO<sub>2</sub>. This represents around 13% of the UK's annual greenhouse gas emissions, which stood at 700 MtCO<sub>2</sub>e in 2008.
- Significant opportunities still exist in diverting waste from landfill, with a mean carbon saving of 0.32 tCO<sub>2</sub> per tonne.

### **Barriers and opportunities to achieving savings**

- Resource efficiencies will help to maintain UK companies' competitiveness if they are realised at a rate above that of their international competitors, and at the very least will help maintain the status quo.
- Decisions are typically taken on economic grounds and in many cases the decision-making process is based only on the visible costs and savings, and hence the true financial opportunity is not quantified. Barriers to the realisation of opportunities can lie outside the control of the sector.
- It is worth noting that the hidden savings associated with waste reduction interventions can be significant, especially in cases where the raw material savings have not been considered. Some interventions are more difficult to implement due to the need for specialist advice or because of the prevalence of behavioural barriers.

### **Researchers' Suggestions**

Further work is required to target SMEs regarding resource efficiency measures. Policy options include:

- Information awareness campaigns targeted at SME networks such as suppliers and trade associations,
- Low cost loans for SMEs to reduce the cost of capital,
- Benchmarking of SME resource efficiency performance, and
- Voluntary agreements.

### **Methodology**

The approach taken in this study to quantify the no cost / low cost savings differed from that used in generating the 2006 estimates, since it did not involve the use of case studies or site audit data. Instead the study investigated the change in resource efficiency in each business sector since the 2006 baseline. Objectives around calculating the longer term potential savings and subsequent analysis of barriers and opportunities were calculated using multiple and varied sources of existing data on the issue of resource efficiency in UK businesses. For the last project objective, which focused on the effect on competitiveness of the UK economy, the study analysed the opportunities as a proportion of a sector's GVA. This was the same methodology as used in the original 2006 study.

### **Robustness & Limitations**

Due to the nature of the study in bringing together data and existing research from numerous sources it has not been possible to generate robust confidence intervals for the estimated savings opportunities. A number of key sensitivities are important to bear in mind when interpreting the results:

- The study focussed on quantifying the savings opportunity from resource efficiency. As such the interventions considered within the scope of the study were those that were either cost-neutral or would generate a financial saving. Due to poor accounting of hidden costs and savings, there is significant scope for error in this assessment.
- Given the volatility in commodity prices during 2009, it is possible that GVA may not accurately reflect physical output in some sectors.
- As with the original study, water consumption data were considered the least robust dataset, especially for non-public water abstraction and the long term forecasts, which rely on top-level estimates.

- As the data available for analysis in this study differed from the data used in the original 2006 study, the two calculations of potential no / low cost efficiency savings are not directly comparable.

The findings are not based on primary research and thus sensitive to the various assumptions used in the existing reports and data sets that form the basis of this work. The figures presented in this report should therefore be considered estimates, especially in the case of the savings from resource efficiency activities requiring longer payback where data was less available.

**Full reference:**

Lee, P., MacGregor, A., Willis, P., *Further Benefits of Business Resource Efficiency*, 2011, Oakdene Hollins for the Department of Environment, Food & Rural Affairs (Defra).