

# Introduction to Panel 6

## Business models to improve industrial efficiency, global perspective

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### Introduction

Energy is one of the relevant components of the industrial costs. For energy intensive industry it may even be one of the prevailing sources of cost. Optimising its use should be a natural attitude for any business. But it is not happening at its highest potential.

While there are many known, low-cost opportunities to save energy in industry, the greatest potential for energy efficiency improvements will require increasing investments in technologies and techniques. The new EU Energy Efficiency Directive from 2012 has many elements dealing with industrial energy efficiency, mainly relating to energy audits and energy management systems, but this is only a beginning. There is the question of money: how high in investment priorities is energy efficiency? Where does the funding come from? On the one hand, the measures are considered to be cost effective and thus it should be in the interest of business to improve their cost structure and benefit eventually the consumers. However, energy efficiency investments have a high up-front cost, and compete in the making of the business case with other investment needs (product innovation, markets development, production facilities, M&A, etc.), making it difficult to justify such expenditure, particularly in a fragile economic situation.

The EED refers to financial support from energy efficiency obligations and energy service companies; however, this is not enough to move energy efficiency up in the investments priorities.

It is necessary to find appropriate funding sources. And those sources need to have a long-term, sustainable framework. This panel discusses and analyses: financing options that are available, how effective these financing options are, what innovative options are starting to show up in the market,

and the role of energy efficiency in the energy price formation mechanisms.

In addition it should be considered that the articulation of the value chain at worldwide level makes the assessment of the energy efficiency of production even more difficult and generate competitive constrains. Companies may be reluctant to imbed in their business case costs that their competitors over the world externalise.

### Knowing the policy context

None of papers deal specifically with the policy context, as important as it is. However, these papers would not have the same impact if it were not for the new Energy Efficiency Directive approved in 2012 and its requirement for mandatory audits for large industry and the promotion of energy management systems for all. Separately, the policy context also includes the need to improve Europe's global competitiveness. As mentioned above the EED has other articles that can influence the improvement of energy efficiency in industry: energy efficiency obligations, promotion of energy service companies, better use of waste heat to be used for cogeneration, development of demand response for better integration of energy demand and supply, etc.

### Understanding the non-energy benefits from improved energy efficiency

Increasingly we hear of the non-energy benefits (NEBs) to companies individually and to economies as a whole and, yet, there is a lot of confusion how to define them, how NEBs to

economies can get into the business case models and to what extent the analysis of the benefits can be used to make investments in industrial energy efficiency more cost effective.

For starters there is confusion over the term: some use multiple benefits, others co-benefits, while still others call them non-energy benefits. No doubt there are even more terms.

The papers provide a comprehensive approach to addressing these non-energy benefits and provide a strong analytical foundation for further work.

Rasmussen (paper 6-037-14) provides a strong methodological approach to assessing non-energy benefits. The paper argues that energy efficiency on its own is not a driving factor for investments and the value of the energy savings related to an investment is mostly less than the non-energy benefits. This means that quantifying NEBs can show the financial possibilities of energy-efficient technologies and increase the probability of adopting these investments.

The paper both identifies the range benefits and particularly those that are quantifiable. Following that, when the NEBs are identified and quantified to the extent possible, they argue that the next step would be to incorporate them into the investment analysis.

Nehler et al (paper 6-030-14) also assess the non-energy benefits and uses Sweden as an example. The paper argues that, while barriers have been analysed at great length, non-energy benefits have not. It discusses the methods for analysing NEBs as well as the categories that are most often used. It then applies the methodology to quantify the benefits in Sweden and if they are used in investment decisions by Swedish business. The result from the interviews revealed that NEBs do exist in the studied companies. However, results from this study show that the companies did not monetize NEBs in a structured way. In fact, the respondents mentioned that few of the NEBs they state exist are monetized.

In the paper by Zhang et al (paper 6-031-14), the authors analyse the co-benefits of best available energy efficiency measures that jointly tackle energy security, greenhouse gas emissions and air pollutant emission mitigation problems, in contrast to end of pipe technology. They analyse the co-benefits in Chinese iron and steel industry using energy conservation supply curve (ECSC) and the Greenhouse Gas and Air Pollution Interactions and Synergies (GAINS) model.

Importantly for all the papers, the methodology and analysis are being refined to a point where industry should be able to use the approach in refining their own business models and how energy efficiency investments can be more clearly and comprehensively assessed.

### How do we invest in energy efficiency improvements?

As we asked before, where does the funding come from? How can governments encourage such investments? At this point in time, finding adequate financing is a major concern for policy-makers. For the EED, while there is a requirement for mandatory audits from large industry, there is no need to actually invest in the identified measures. There are several concerns. Some relate to whether there is funding available and some relate to whether consumers are adequately motivated. Analysing non-energy benefits, as shown above, should provide some motiva-

tion for management to better judge the full range of benefits from such investments. But there is more involved.

Nilsson & Ruhbaum (paper 6-022-14) look at energy efficiency from the perspective of those providing energy efficiency services. The paper looks into the more recent insight on decision making processes from behavioural economics and asks which implications these have for the “framing” of energy efficiency solutions by their providers of those services. The problem is that the market is mostly relying on that the users of energy act completely rational in their decisions or at least respond to the attempts to alleviate market failures. The providers of the energy efficiency services are not sufficiently aware of the client’s investment priorities and of the need to frame energy efficiency investments within the wider company business case. In addition it should not be ignored that the customer may have a high perception of risk that leads it to make biased and often totally irrational decisions that are hampering the development. The business-models are often inadequate and the policies to remedy these are not sufficiently developed. Providers still mostly argue with the return on energy efficiency investments and energy cost reductions. This is not wrong, but not sufficient either. They need to frame the propositions to the customers to better help them realize their opportunities.

The crucial issue is then, will the market develop naturally to deliver energy efficiency in a way that suits the clients and their abilities or is there a case for government regulation? Or is there even a middle ground: “Can the government somehow induce firms to nudge effectively [...] because firms may have nudges available that the government has not?”

Nudges are important and so is money on the table. Fankhauser (paper 6-061-14) provides the view from those working in the financial services sector. While he is involved in a sustainable investment house in Switzerland, and has its own Energy Efficiency Fund, he considers Energy Performance Contracting as an ideal solution for investors, ESCOs and customers to foster energy efficiency projects. He provides strong evidence to support this view. Despite all these benefits that the Energy Performance Contract model offers to all involved parties, there are still significant challenges that need to be addressed until EPC will get widely spread. These include: integrated sourcing models, adequate guarantees, scalable contracts for big portfolios and innovative financing solutions.

### Conclusions and key messages

How does one bring all the pieces of the puzzle together? There seems to be strong agreement that NEBs is the most appropriate benefit concept to use in an industrial energy-efficiency context. Moreover, a framework for defining and categorising NEBs according to their level of quantifiability and when in time they are expected to arise, is important. Applying this framework can help firms to decide which NEBs to include in the decision-making process and at which stage. Including NEBs in the decision-making process may be one way to meet and hopefully overcome known barriers for energy-efficiency investments and thus enhance the probability rate of adoption for this investment category. Understandably, further research is needed in order to determine whether the adoption rate of energy-efficiency investments actually is im-

proved when NEBs are included in the decision-making and evaluation processes.

Successfully framing energy efficiency means not only talking about costs and energy savings but understanding how non-energy benefits can create a bridge between strategic management goals and energy efficiency investments.

While there is much that can be said about financing, the energy performance contract model offers an excellent chance in increasing the amount of energy efficiency investments and every effort should be made to use it to its full potential. In that

way investments in energy efficiency can become an important lever in reducing CO<sub>2</sub> emissions and in tackling climate change.

Looked at in its entirety, current business models need to be broader and more comprehensive. They should apply to both large companies and SMEs. The behaviour of consumers (businesses) is complex and companies have many competing priorities. However, by better understanding the full range of non-energy benefits, especially if they can quantitatively be integrated into investment calculations, without distortion of competition.