european council for an energy efficient economy

Seminar on Ecodesign and innovation

Arranged by eceee on 22 January 2013 in Brussels, in cooperation with the Swedish Energy Agency and Clasp Europe, with additional support from Energifonden. All presentations are available at http://www.eceee.org/events/eceee_events/seminar-ecodesign-and-innovation

Highlights from the seminar



Agneta Persson from the eceee board wished everyone welcome and pointed out that Energy efficiency policies for products are usually considered to have many virtues such as reducing consumer bills, limiting fuel dependency and creating jobs. One recurrent question is about their impact on innovation. This seminar invited an audience of decision-makers, industry leaders, NGO representatives and other experts to reflect upon the way the EU Ecodesign and Energy Labelling Directives interact with innovation.

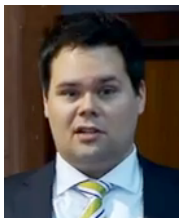


In his introductory presentation entitled *When you wish upon a star*, Hans Nilsson (Fourfact) reminded a few basics about innovation dynamics in firms. Innovation should be seen as a (virtuous) circle rather than a chain. This circle works well for those who understand and anticipate market dynamics. The case study of Electrolux on fridges shows that market leaders can expect higher revenues and put themselves in a position to reinvest in new innovation. Policies such as technology procurement, labels and standards can influence the playing field. Creating a market for energy efficient technologies therefore relies on a *triangulation model* involving industry, customers and governments.



Kevin Lane (Oxford University) introduced the example of a radical policy option in this field: legal requirements that would bring forward technologies that are currently not available or commercialised. Such *technology-forcing standards (TFS)* are a direct prerogative on market actors to innovate. The way the 1970 Clean Air Act in the US triggered the development of catalytic converters is an illustration. There are pros and cons to consider. In some cases, pure TFS can be relevant. In other cases, it can be more appropriate to instil the spirit of TFS in existing policies. A recent IEA report explores how it could be done for TVs and lighting. In the context of the EU Ecodesign policy, this could take the form of ambitious long-term requirements focusing on the energy service to provide (not technology categorised), and a more stringent use of life-cycle cost calculations. In any case, TFS need to be complemented by a package of market transformation interventions (rebates, endorsements, procurements, etc.)

Ecodesign to boost innovation



It was a timely moment for Ruben Kubiak (European Commission) to provide a state of play of the implementation of the EU policy process. Among the 17 Ecodesign and 7 new Energy Labelling regulations adopted since 2005 (and expected to save more than 400 TWh of electricity per year), some had clear technological impacts. The promotion of LED TVs or heat pump laundry driers were mentioned as positive outcomes. However, sometimes energy efficiency innovation can experience hiccups. For instance, the Ecodesign regulations on lighting foresee that only mains-voltage halogen lamps of energy class B will be left on the market by 2016. The technology is there, and some products were available on the market, but have now disappeared. Why is policy intervention not working effectively here?



Martijn Dekker (NTL Lemnis, a SME producing LED lamps) suggested an answer in his presentation: in order to stimulate innovation properly, Ecodesign measures need to be well balanced and designed to the very details. Forces influencing the technical content of regulations are driven by policy, company and consumer concerns. Only when these forces are well kept in balance can the policy deliver its objectives. For the promotion of energy efficient lamps, this supposes that regulatory requirements are adjusted to the right level.

For instance demands on colour quality, equivalence to incandescence, power factor or stability of light are not at all secondary. Setting them wrongly can hamper the development and deployment of innovative and quality products.

There are examples of great successes achieved by Ecodesign measures. Niels Bidstrup (Grundfos) gave an inspiring presentation on how innovation has been further boosted in the circulator sector. In fact, the policy intervention took place in a sequence that started ten years ago with voluntary commitments from the industry to label their products and communicate on energy efficiency. A path for innovation had been traced. Already in 2004, Grundfos challenged its engineers internally to develop 'pole position' circulators ready for mass production. This explains why the Ecodesign regulation could be confidently bold and delivering. Only circulators of top efficiency will be left on the market: innovate front-runners are rewarded and more than 10 Mt of CO_2 should be saved annually. Interestingly, Grundfos does not stop here and has set itself further innovation objectives to surpass the legal requirements by 2015.



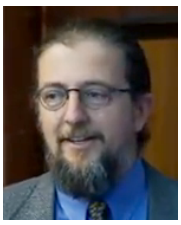
Innovation to boost Ecodesign

The morning session illustrated the need to understand and account for innovation drivers in policy formulation. The afternoon session investigated how this could be better achieved.

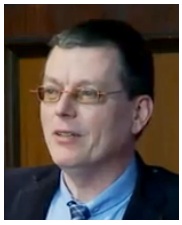
Shailendra Mudgal (Bio Intelligence Service) presented the conclusions of a report on the impact of innovation on costs faced by manufacturers to comply with EU energy efficiency regulations. These perceived costs influence policy decisions. However, they are usually estimated based on engineering approaches. In reality, there are market dynamics and engineering costs are not simply passed through to consumers; experience curve effects can be evidenced. Results from modelling on four case studies suggest that policy intervention can accelerate the rate of innovation without disrupting long-term trends in price decline. Forecasting models ought to better reflect the market-driven aspects of innovation.



Robert Van Buskirk (Lawrence Berkeley National Laboratory) confirmed identical observations in the US context. Assumption of flat costs contradicts historical evidence. The US administration decided in 2011 to incorporate experience curves in the methodology underpinning policies similar to the EU Ecodesign. Through extensive literature and data collection, better modelling has been developed and shows that consumer benefits were undervalued in previous analyses. Yet, price trend estimates are still likely conservative, and the methodology will be improved. The next challenge is in refining the modelling of incremental costs of energy efficiency improvements.



How could experience curve approaches be used in the EU? Hans-Paul Siderius (Dutch NL Agency) reminded that at present the methodology supporting the EU Ecodesign assumes fixed product prices in the calculation of the least life-cycle cost point (LLCC). Through including a *learning ratio* (e.g. reduction in cost each time the production volume is doubled), the methodology would lead to different results. Ecodesign could either continue setting its requirements based on such an improved LLCC calculation, or adopt a more *Top-Runner* spirit. Applied to two product groups (driers and fridge-freezers), this would double the expected energy savings. The approach may be more tricky when product prices are not correlated to energy efficiency (such as for TVs). Yet, learning curves can still be useful for discussing the timing of requirements.



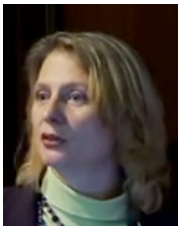
Martin Forsén (EHPA) then addressed through a case study the challenges of promoting innovative products adequately in areas where different technologies compete. The preparation of EU Ecodesign and Energy Labelling regulations for space heaters proved difficult. In order to allow effective and fair product comparison, a good definition of the system boundaries and energy performance rating had to be elaborated. All challenges have not been solved yet, especially to further promote innovative developments in the heat pump sector, such as better compressors or refrigerants.

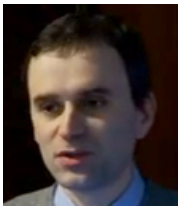


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How could Ecodesign measures better take innovation into account?





Exchanges with the audience highlighted a number of critical points, notably the way to financially support innovation in complement to regulatory decisions.

Eveline Durieux was invited to provide a quick overview of the EU framework to support green innovation. Three main instruments are available: the R&D framework program, the LIFE program (for demonstration projects) and the CIP Eco-Innovation for access to market. On top of this, funds may also be mobilised through the EU cohesion policy.

Introducing the final panel session, Edouard Toulouse (ECOS) remarked that the innovation argument is sometimes used negatively by manufacturers to oppose too stringent policy intervention, while in reality available evaluation highlights a rather positive role of Ecodesign on innovation. There are also missed opportunities when innovation trends are insufficiently accounted for. Edouard presented illustrations on TVs, computer graphic cards and game consoles. This is not limited to electronics; too conservative estimates can also be suspected for instance for cloth driers.

The panellists then answered questions from the conference chair and the audience. Discussions covered some of the suggestions to boost EU policies and innovation, such as setting ambitious longer-term targets or requirements based on improvement rates (instead of incremental tiers), accessing more up-to-date data to inform policy decision, and reducing 'asymmetry of information'.

Issuing Ecodesign regulations takes several years, and predicting the market five years ahead will remain challenging. This can explain the risk felt by policy makers to take bold decisions. A consequence could be that in some areas, more innovative countries could take the leadership and threaten a less competitive European industry (the example of power transformers was mentioned by a participant).

Policy indecision could be reduced by accelerating procedures, setting more robust policy evaluation and market monitoring instruments (through databases, web crawlers or harmonised certification data). Another cause for insufficient ambition lies in the fact that while innovation is natural at the level of a company, federations that are representing them in policy debates can be constrained by their most conservative members. More positively, it seems that sometimes the simple fact of announcing and preparing an Ecodesign measure for a product already triggers movement on the market and can stimulate innovation.

Other conditions for success were addressed by the panellists. In particular the necessity to take into account the needs of innovative SMEs, the importance of credible market surveillance and enforcement activities to make sure innovators feel rewarded. In addition, innovation for energy efficiency should be promoted not only in products themselves, but also in their surrounding controls and systems, as well as in business models and organisations.

In his concluding remarks, Hans Nilsson invited policy makers to '*follow the stars*', that is get inspired by those producers who innovate most and those consumers who buy the most efficient equipment.

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