



Mass Market Microgeneration in the Europe Union

From Vision to Reality



Micropower Europe

2010

Microgeneration in the European Union

Microgeneration has a unique role to play in contributing to solve the energy and environmental challenges faced by the European Union. At the launch of Micropower Europe in 2009, the Commissioner for Energy highlighted microgeneration by underlining the importance of 'buildings as power plants' and emphasised that existing and new homes in all Member States will benefit from the integration of sustainable energy technologies. Microgeneration also receives substantial support from senior Members of the European Parliament.

Micropower Europe promotes microgeneration in support of realising efficient and sustainable energy services. Micropower Europe's vision is for a consumer led energy future providing sustainability, awareness and jobs.

Microgeneration can provide:

- **Choice:** European citizens can make choices on the basis of affordable and certified microgeneration products suited to varying geographical circumstances and subject to certified manufacturing and installation standards.
- **Security:** Microgeneration offers increasing security of energy supply and decreasing investment risks for industry and consumers.
- **Sustainability:** Low carbon microgeneration technologies can help Europe contribute to a global commitment for a sustainable future.
- **Competitiveness:** Europe can be at the fore front of research and innovation in microgeneration technology development, to create and sustain new skilled jobs.

Microgeneration will benefit from a joined up policy framework supporting its market based development.

Find out more at www.microgenerationeurope.eu

Context

The European Commission has confirmed that microgeneration will be a key part of the community's future energy mix. Underlining the importance of 'buildings as power plants' at the launch of Micropower Europe in 2009, the Commissioner for Energy emphasised that existing and new homes will benefit from the integration of sustainable energy technologies. Microgeneration also receives substantial support from senior Members of the European Parliament.

'Mass Market Microgeneration in the European Union' serves to conceptualise the transition towards microgeneration as a key part of the future energy mix. The benefits enjoyed by consumers and wider society, are outlined in the context of current barriers that prevent the widespread uptake of microgeneration.

Microgeneration is broadly defined as sustainable energy production in, on, or next to, homes or small buildings of up to 500 square metres. It is a form of decentralised energy generation using the family of consumer-facing sustainable energy technologies that include biomass heating systems, heat pumps, fuel cells, micro-combined heat and power, solar photovoltaics, solar thermal, concentrated solar power, small hydro and small-scale wind. Each sustainable energy technology provides benefits to European citizens, policymakers and indeed to society as a whole. These technologies are unique in that they offer a solution to variations in European climate, citizen preferences and building characteristics.

Benefits for Society

Microgeneration technologies have a large potential to reduce greenhouse gas emissions, combat climate change and contribute as Europe transforms itself into a low-carbon society. Microgeneration reduces green house gasses by supplementing conventional energy systems that heat and power buildings across the European Union.

Fluctuations in conventional energy prices can also be minimised by microgeneration. By investing to increase energy efficiency in both production and end use, society can quickly become less vulnerable to the vagaries of energy import geopolitics and global commodity price spikes. In turn, society can enjoy increased security of supply and reduced fuel poverty.

Benefits to Policy Makers

Policymakers can quickly enhance security of supply through reducing reliance on imports and diversifying energy supply to buildings. The carbon reduction and renewable energy targets agreed by the European Union can be met using microgeneration technologies that supplement conventional energy systems, drive behavioural change and improve awareness. Similarly microgeneration technologies will help meet renewable energy targets, by boosting the proportion of low carbon energy output as a proportion of total energy consumption. This will be aided by widespread behavioural responses, if policymakers that reward energy-conscious

purchases of energy efficiency and microgeneration, simultaneously generate energy-conscious behaviour.

Furthermore, microgeneration creates new skilled jobs. Product manufacturing and installation services continue to grow within the European Union, boosting skills, investment and employment in a number of areas.

Benefits for Individual Consumers

Microgeneration is an attractive way for European citizens to help combat climate change, by allowing people to feel good about the energy they consume in a stress-free way that does not sacrifice comfort. Many Member States already offer financial rewards to citizens who opt for microgeneration installations, easing the burden of the upfront capital cost. Good policy design tends to ensure energy efficiency is prioritized.

As energy awareness increases, European citizens ask for more choice about how they heat and power their buildings. They look for technologies that suit their budget, financing preference, behaviour, building characteristics and local climate. Microgeneration adds a whole range of technologies to the mix and provides better choice.

In turn, microgeneration technologies encourage energy efficient behaviour by encouraging a deeper energy saving mentality. Research has noted a heightened energy consciousness among consumers, even those merely in contact with microgeneration. In households where microgeneration information is displayed, increased awareness has led to a conserving behavioural effect, reducing energy consumption by as much as 20% from pre-microgeneration levels¹. A national study also observed that 88% of consumers who installed microgeneration found that household behaviour was significantly altered to reduce energy consumption after installation². Microgeneration encourages energy consciousness behaviour, notably in large savings and meets the needs of consumers in terms of running costs.

Although microgeneration remains a beneficial concept popular with politicians, industry and citizens alike, substantial uptake of microgeneration within Europe will remain challenging until certain barriers are removed.

Perceived Barriers and Challenges

The most commonly perceived barriers to the introduction of microgeneration are legislation, high cost and the level of consumer awareness.

Barriers in the Legislative Environment

The market currently offers a range of proven technologies appropriate to Europe's regional variation in both climate and buildings characteristics. As a response, a

¹ Kierstead and Boardman, Response to Ofgem consultation 123/05 on the regulatory implications of microgeneration (2008).

² Element Energy, The growth potential for Microgeneration in England, Wales and Scotland (2008).

number of Member States are developing legislation to increase the uptake of microgeneration prior to 2020. For over ten years, Germany, Italy, Spain, Greece, the Netherlands, the United Kingdom and more recently France, have successfully promoted microgeneration, notably by putting in place attractive export tariffs. It is estimated that 113,000 microgeneration units were deployed in the United Kingdom³ at the end of 2008, and over 1,000,000 solar thermal installations alone in Germany due to long term financial support⁴. Indeed, early research suggests microgeneration could provide 30% to 40% of the UK's electricity demand by 2050⁵. A study by the Netherlands Wind Energy Association (NWEA) predicts, based on current growth, that there will be 48,000 small-scale wind turbines in the Netherlands by 2020. As only one of many microgeneration technologies available on the Dutch market, small-scale wind turbines are expected to produce 100 gigawatt hours of renewable electricity and save over 56,000 tons of carbon dioxide per year in 2020⁶.

Attractive financial incentives, whether in the form of grants, export rewards or tax rebates, are vital for the initial widespread uptake of microgeneration. Although a few Member States offer attractive incentives, the current policy environment that influences the way in which appropriate microgeneration technologies are offered to consumers, remains fragmented under an advancing single European market.

Barriers as Perceived by the Consumer

High upfront cost is a key barrier to the deployment of microgeneration technologies. In today's environment, microgeneration technologies do not initially offer a superior economic case compared to the incumbent option (except in niche, often rural, locations). Technology cost reductions are therefore required alongside policy development.

The majority of consumers place a very low value on the price of ongoing energy services compared with up-front capital required for microgeneration. Currently microgeneration technologies are characterised by high up-front costs with low on-going costs due to energy saving. Therefore the total cost of ownership is less over the lifetime, but the initial cost prevents uptake to those consumers who would most benefit.

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Micropower Europe promotes microgeneration in support of realising efficient and sustainable energy production at a time when issues of energy cost, supply, and transmission have never been more pertinent or prevalent.

Wishing to emphasise the importance of a pan-European and pan-legislative approach, Micropower Europe underlines the need for a strategic policy package on

³ Element Energy, Numbers of microgeneration units installed in England, Wales, Scotland, and Northern Ireland, (2008).

⁴ European Solar Thermal Industry Federation, Solar Thermal Markets in Europe, Trends and Market Statistics 2008, (2009).

⁵ Energy Saving Trust, Potential for Microgeneration Study and Analysis, (2005).

⁶ Nederlandse Wind Energie Associatie, Visiedocument Mini Windturbines, (2009).

microgeneration that will support Europe in reaching its crucial policy goals of competitive, secure and sustainable energy services, meanwhile ensuring that financial incentives encourage citizens to have optimum cost effective technologies for their situation.

Micropower Europe proposes that a thorough investigation is required to compile data in further support of the case towards mass market microgeneration. In turn, a strategy is needed to underline the importance of legislative commitments at multi-levels of governance. Structural obstacles need to be overcome, and efficient policies need to be developed. Micropower Europe believes that the first step in achieving this goal is research to evaluate the specific role that microgeneration technologies could take in European generation plant up to 2050 and beyond.

The proposed research would serve four main purposes:

1. To determine how the European Union can best use its collective resources and citizen's engagement to maximise carbon savings.
2. To prioritise the steps required at multi-levels of governance to bring about a free market operating space for the microgeneration sector;
3. To provide projections that clearly outline how industry and technology is capable of delivering;
4. To highlight the key attributes of increasing microgeneration uptake to the European Community.

Micropower Europe expects this research to provide evidence for deviating from the European Union's 'business as usual' scenario and provide concrete policy recommendations.

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About Micropower Europe

Micropower Europe is an organisation promoting sustainable energy technologies for the built environment collectively known as microgeneration. Membership is open to all companies, EU representative bodies and others with an interest in microgeneration. Founding members include BDR Thermea, British Gas New Energy, Efficient Home Energy, E.ON, Ice Energy Heat Pumps, and Mitsubishi Electric Living Environmental Systems.

To find out more about Micropower Europe please contact the Secretariat at info@micropowereurope.eu or visit the website at www.microgenerationeurope.eu



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