

Energy efficiency in industry

Dr Anne Karin T Hemmingsen is working tirelessly to help Norway meet its ambitious targets on energy consumption and emissions reductions. Here, she talks about the progress made so far



From what context did the Competence project for Reduced Energy use through Advanced Technology InnoVations (CREATIV) first emerge?

In 2008, Norwegian political parties reached an agreement to boost national climate efforts, requiring Norway to reduce its carbon dioxide emissions by 30 per cent by 2020. This climate agreement includes a rapid and significant increase in funding for research into environmentally-friendly energy and climate-related issues. CREATIV is founded within RENERGI, the Future Clean Energy programme run by the Norwegian Research Council as a national initiative for energy efficiency in industry.

Can you offer a brief outline of the key objectives of the project?

Norwegian industry consumes more than one-third of the total Norwegian energy consumption, and emits more than one-third of the national emission of greenhouse gases. Our main objective is to demonstrate that a reduction in both energy consumption and greenhouse gas emissions of 25 per cent will be

feasible by 2020 through a long-term research and development effort. This is more than the EU requirement of a 20 per cent reduction of primary energy use, and the results will, of course, be implementable in nearly all countries in the world.

In addition to our main objective, a number of co-objectives will also be fulfilled. Firstly, we aim to perform and publish fundamental groundbreaking research on waste heat recovery and efficient heating and cooling. Secondly, in close collaboration with the members of our consortium, CREATIV will develop the most promising emerging technologies to the demonstration stage, and will proactively partner in the establishment of industrial pilot plants and demonstration projects. Thirdly, we will educate and train the current and next generation of energy efficiency specialists in Norwegian industry. Fourthly, we will be working to disseminate existing and emerging scientific knowledge and know-how effectively to Norwegian industry, developing our consortium into an active network for this purpose. Finally, we will actively seek participation in areas where we may influence public and private investments in energy efficiency.

Can you outline the importance of research into energy efficiency in relation to emissions targets, climate change and renewables, biofuels, and carbon capture and storage?

A recent International Energy Agency study demonstrated that energy efficiency measures will have to account for more than half of the sum of all measures required globally to avoid unacceptable global warming in the 21st Century. This makes energy efficiency the most important climate issue of our time; even if we should win the battles on renewable energy, biofuels and carbon capture/storage, we will lose the war on global warming unless energy efficiency is

substantially increased. Energy saved does not cause emissions, reduces the need for new controversial power plants and expensive distribution infrastructure.

CREATIV has many industrial partners. In what ways has this influenced the project?

We are very pleased that many industrial partners from a variety of branches are involved in the project, including: suppliers; aluminium producing plants; representatives from the dairy, fish and meat industries; supermarkets; and paper producing companies. Despite the variety of concerns amongst these companies, they all share a focus on energy efficiency. Our main objective is to demonstrate the potential for reduction in both energy consumption and greenhouse gas emissions in Norway as a whole. It has been very positive for CREATIV to focus on so many different areas of industry.

CREATIV emphasises participation with stakeholders in order to drive energy efficiency knowledge sharing? Are there any conferences on the horizon that you will be involved in?

There are three particularly interesting conferences coming up which we will be participating in: the 2nd International Institute of Refrigeration (IIR) International Conference on Sustainability and the Cold Chain in Paris in April; the IIR Ammonia Refrigeration Technology Conference in May in the Republic of Macedonia; and the 11th IIR Gustav Lorentsen conference in 2014. Earlier conferences we have focused on include the 23rd IIR International Congress of Refrigeration; the 10th IIR Gustav Lorentsen Conference; and the 6th Kyoto International Forum on Energy and Environment Symposium on Environment, Energy and Materials. In total, CREATIV has had 17 conference and journal papers published and we are always looking for possibilities to disseminate the results from CREATIV more widely.