BUSINESSEUROPE

ON THE ROAD TO PARIS

SNAPSHOT OF ENERGY EFFICIENCY TECHNOLOGIES

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UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

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This leaflet is published in the framework of the conference "On the Road to Paris – How EU companies are leading on energy efficiency technologies" organised by BUSINESSEUROPE on 16 June 2015.

The conference showcases a number of EU companies' good practices on energy efficiency, highlighting successful stories of technological contributions in the fight against climate change.

It presents the private sector as an engaged and constructive player part of the "solution agenda" to combating climate change, both at European and global level. It also highlights the importance of engaging the business sector to the UN negotiations as the main actor responsible for the implementation of the agreement.

For this occasion, BUSINESSEUROPE brought together high-level speakers from different sectors around the EU and abroad, policy-makers and business representatives working towards the new agreement expected at COP21 in Paris, to provide them with palpable insights about what EU companies are doing while providing a platform for companies to share their experiences.

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How supermarkets can become self-sufficient, contribute to stabilizing the electricity grid in peak loads and turn into virtual power plants!

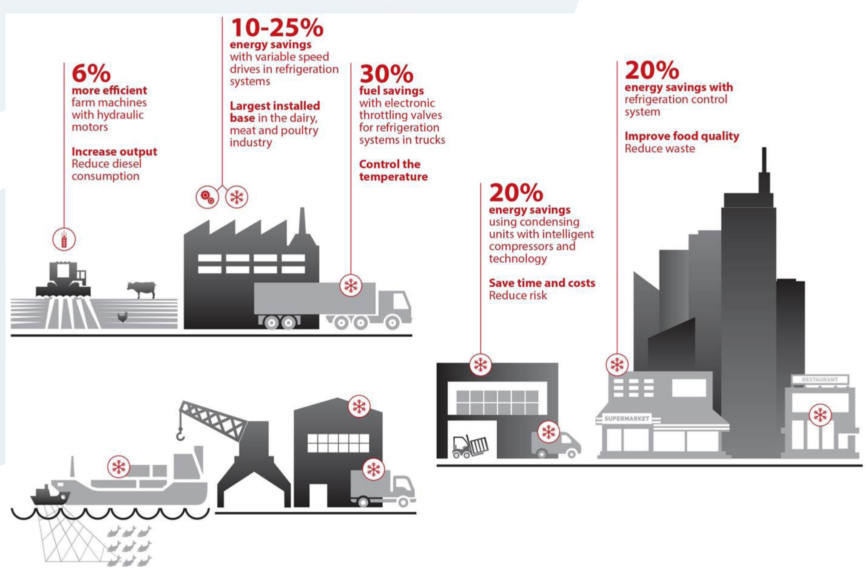
Danfoss is a global leader focused on energy-efficient solutions that save energy and costs, and reduce carbon emissions. The company's wide range of products and services are used in areas such as cooling food, air conditioning, heating buildings, controlling electric motors and powering mobile machinery. The company is also active in the field of solar and wind power as well as district heating and cooling infrastructure for cities and urban communities.

Danfoss committed to reduce the impact of its own activities by 3x25% by 2025 compared to 2007 levels, 25% reduction of absolute CO_2 emissions from its energy consumption, 25% reduction of absolute CO_2 emissions from transportation of finished goods and business travel and 25% increase in the proportion of CO_2-neutral energy it uses. Danfoss also intends to include carbon pricing in the company's climate strategy and targets.

Pilot tests in supermarkets show that minimal investments in refrigeration systems can reduce heat loss due to the cooling process by 40 to 60%, reduce the energy bills paid by the owner of the supermarkets, and turn supermarkets into heat suppliers when connected to a district heating system. The cooling process, like a heat pump, produces heat that is usually released into the surroundings. The installation of Danfoss supermarket controller technology, in a local supermarket in South Denmark, led to €27.000 annual savings on gas and 34% less CO_2 emissions by recovering that excess heat for hot tap water and space eating of the store. The connection to local district heating provided an additional source of income, as the supermarket can sell the surplus heat for €6.000 annually, with a payback period of 1,5 years.

Increased efficiency is however not the only answer to the energy challenge we are facing. Energy effectiveness, i.e. when and how energy is used, may become more important with the rise of renewables and the related fluctuation of electricity supply. In that respect the heating potential is even higher. Supermarkets are designed for a very high cooling load to stand extreme summer conditions with high temperatures and humidity. As a result the running capacity of the compressors is typically only 30% of their full capacity. Our vision: when connected to a district energy network, this non-utilized capacity could be used as a heat pump to produce heat during peak loads using wind or sun energy when it is cheap.

Danfoss supermarket controller used in pilot stores shows that it is possible to connect the refrigeration system to the grid and adapt the energy consumption to the need of the electricity provider. Compressors may be shut down within 5 to 10 seconds for example to address critical frequency drops in the grid, or the consumption may be adjusted during peak hours by simply shifting the defrosting time of the appliances or using the thermal storage capacity of the food without harming its quality.



With 30 million m^2 of food retail outlets in Germany alone, accounting for 1 to 2% of the total electricity consumption of Germany, the potential for the entire EU-28 is beyond imagination!

Energy efficient technologies as an enabler tool for the company strategy

IBERDROLA is one of the five largest European electricity companies by market capitalisation and a world leader in operating wind energy. The group has achieved a total installed capacity of 45,000 MW and has 32.6 million supply points providing energy for some 100 million people around world.

The energy efficiency policies have impacted the utility sector in different ways and IBERDROLA is promoting them through a series of actions that can be seen from a triple perspective: (1) as an electricity company, incorporating clean, advanced and efficient technologies in production and distribution; (2) as a commercial company, offering efficient solutions to customers; (3) as a consumer of energy, ensuring the continuous improvement in energy efficiency of work centres, buildings and vehicles, developing mobility plans and sensitising employees.

IBERDROLA is applying and boosting the deployment of the most suitable technologies and business models in all its regions. The most representative are:

- as an electricity company: renewables; smart grid developments; distributed energy resources (distributed generation; energy storage);
- as a commercial company: ESCO; demand-side management programmes;
- as a consumer of energy: energy efficiency programmes in buildings; electric vehicles and mobility plans.

Electric Vehicles contributing to fight climate change: the Renault-Nissan Alliance partner of COP21

Cars represent about 13% of the world's total CO_2 emissions, the greenhouse gas most associated with global climate change. Fifteen years ago, the Renault-Nissan Alliance evaluated the environmental impact of its vehicles throughout their life cycle and greenhouse gas effect. Also concerned about the impact exhaust emissions have on public health in congested urban areas, and the impact of using scarce raw materials, the Alliance invested more than EUR 4 billion in electric vehicle technology. Today, it is the only automaker mass-producing a full line of electric cars and vans. The alliance has sold more than 200,000 electric vehicles worldwide and is by large the world leader.

As a symbol of this engagement, the Renault Nissan Alliance will provide 200 electric vehicles to COP21, the Paris climate conference, the first fully electric shuttle service for such a conference. More than 20,000 UN participants from 196 countries will attend the summit, a carbon-neutral event. The Nissan-Renault EV fleet is actively contributing to this goal.

This partnership with COP21 shows that electric mobility is unstoppable, because it represents a breakthrough solution to fight global warming. To definitely integrate electric vehicles into the mobility of tomorrow, we need to scale up the ecosystem already created; the support of local and national governments is required.

The energy to lead

Energy efficiency: Innovative and enjoyable

A higher level of energy efficiency is essential for achieving the European climate protection targets. To achieve this goal RWE offers its customers solutions for efficient energy use and smart grid solutions.

RWE is setting the pace for the development of electro-mobility. The company invests in technological development, charging infrastructure and a customer-friendly and secure billing system. With more than 4,000 charging points, RWE is currently Germany's largest charging infrastructure provider and operator. RWE employees can use electric vehicles for business trips.

With RWE SmartHome, RWE offers an efficient and easy-to-operate system for controlling electrical devices and heating systems in private households. An average household can thereby reduce its energy consumption by 10 to 15 percent.

Storing and using solar power when you need it is made possible by the new product RWE HomePower solar. In this way, in-house consumption can be increased from an average of less than 30 to 60 percent.

With its worldwide longest AmpaCity superconductor in Essen, RWE is testing how electricity can be transmitted with virtually no loss in urban areas. In several projects RWE's distribution grid has been developed into a smart grid consisting of new grid components, storage technologies and innovative information and control technology.

Social technology applications in energy efficiency

Enel Group's subsidiaries, Coelce and Ampla (Brazilian electricity distribution companies), improved their energy efficiency programme in 2006, through the deployment of resources in social and environmental initiatives. Ecoelce and Ecoampla's innovative projects, focus on low-income and socially vulnerable communities, where customers can swap recyclable waste for electricity bill discounts. This project has benefited around 70,000 customers and collected more than 24,000 metric tons of waste, while saving around 62,000 mWh of power. In these programmes, customers receive "Green Bills" with information about their CO_2 emissions from their energy consumption and are also able to offset such emissions by exchanging solid waste.

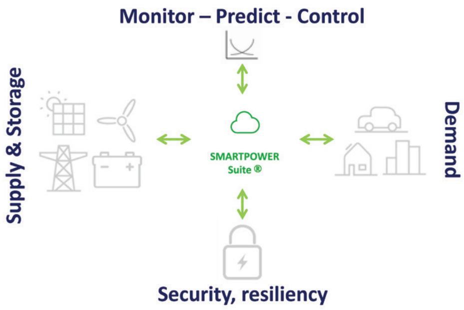
In another project, low-income customers exchange their old refrigerators for more efficient models with lower environmental impacts. This project helps to cut emissions by recycling the components of discarded fridges. More than 150,000 fridges have been handed out over the course of this initiative. Other energy efficiency projects involve clean energy to reduce environmental impacts, including solar panels for public sector schools and in homes where water pumps are needed.

Enel is a multinational Group active in the power and gas sectors across Europe, the Americas, and Africa. Enel operates in more than 30 countries, generating power from over 96 GW of net installed capacity and distributing electricity and gas through around 1.9 million km network. The Enel Group in Brazil operates in power generation, transmission, distribution and services. Enel, as a member of the Global Compact LEAD of the United Nations, launched the "ENabling ELectricity" program, with the aim of creating a new business model linked to access to energy.

Next-generation energy network operating system saves up to 25%

Enervalis energy optimisation projects range from smart electric vehicle charging to smart buildings and evolving towards smart green microgrids.

Mixed savings on energy bills are achieved by a multitude of methods: capturing as much as possible heterogeneous sensor information and analysing this with machine-learning techniques to then apply other machine-learning techniques to the forecasting of consumption, production and energy markets. These forecasts are used on an individual but also aggregated building level. The decrease of energy usage – the so-called "energy efficiency" – is an element. But using flexibility in addition to improve the overall usage of volatile green energy sources by means of energy market interactions (trading, balancing, reserve assets) can reduce the cost of energy. All together this can achieve energy reduction costs of up to 25% and thus increase the business case for green energy on all levels.



Finally the architectural design of the platform has embedded security and resilience characteristics which make it an optimal operating system for green microgrids.

Smaller steps and bigger leaps for efficiency

Metsä Group, with ca. 5 billion euros annual sales, is a forest industry company that has improved its energy efficiency by 6% since 2009 and is aiming for 10% improvement by 2020.

Group-wide programmes for energy savings have been in place at Metsä Group since 2006.

Today all mills have an energy management system under which tens of smaller gradual improvement measures are implemented annually at existing production lines e.g. for improved heat recoveries, vacuum systems and pressurised air systems. Bigger energy and resource efficiency leaps have been and will be achieved as result of investment in fully new production lines utilising latest and best commercially available production technologies. Efficiency case examples include advanced steam and bioenergy generation at world's first 1.2 billion euros bioproduct mill being currently constructed; new high-yield polysulfide cooking pulp process enabling better efficiency to customers at their paper making processes; and high energy efficiency new tissue production lines.

Active energy efficiency

Schneider Electric is a worldwide leader in providing energy efficiency solutions. Active energy efficiency can be achieved both installing energy saving devices and equipment, and controlling the used amount of energy.

The aspect of control is critical in achieving the maximum efficiency. To get an idea of this, just try to consider an energy efficient lamp left turned on in an empty room: you can have less wasted energy compared to the one would have been using an ordinary lamp!

The management of energy use through measurement, monitoring and control is the one that creates permanent change. Active energy efficiency solutions could bring up to 30% energy savings at a relatively modest price and thus with a quick return on investment (two years in average for commercial buildings according to the International Energy Agency), and it is the only solution to be directly accessible to tenants (42% of housing occupants).

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BUSINESSEUROPE is the leading advocate for growth and competitiveness at European level, standing up for companies across the continent and campaigning on the issues that most influence their performance. A recognised social partner, we speak for all-sized enterprises in 34 European countries whose national business federations are our direct members.

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