FINANCIAL TIMES

See energy efficiency in action – in Sønderborg, Denmark

In 2022, the International Energy Agency (IEA) will host its seventh annual global conference on energy efficiency – this time in the Danish city of Sønderborg, which is working towards reaching net-zero before 2030.

Facts:

- On June 8-9th, 2022, Sønderborg will host the IEA's annual global conference on energy efficiency.
- The Danish Ministry of Climate, Energy, and Utilities is a co-organizer of the conference, which is being held in collaboration with Danfoss, the Confederation of Danish Industry and State of Green.
- The purpose of the conference is to bring together decision-makers and the industry to lead a stronger effort on energy efficiency, and inviting the industry to display energy efficient technologies.
- With ProjectZero, Sønderborg envisions to reduce its climate footprint to zero by 2029 through conversion of the energy system.

"Energy efficiency is key to the green transition and the private sector has many of the solutions ready today. Now we need to ramp up implementation and I hope and believe this is what this meeting will contribute to. I am very proud that Danfoss is supporting the conference and we look forward to showing the concrete potential of energy efficiency in action. For example, our 250,000 m^2 production and office space near Sønderborg will be CO_2 neutral by next year. We've achieved this by putting energy efficiency first."

Kim Fausing, CEO, Danfoss

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Energy efficiency first
It's over 40% of the solution

If we are to succeed in meeting the targets of the Paris Agreement, we must break the global emissions curve. To do this we need to be smarter with our energy use.

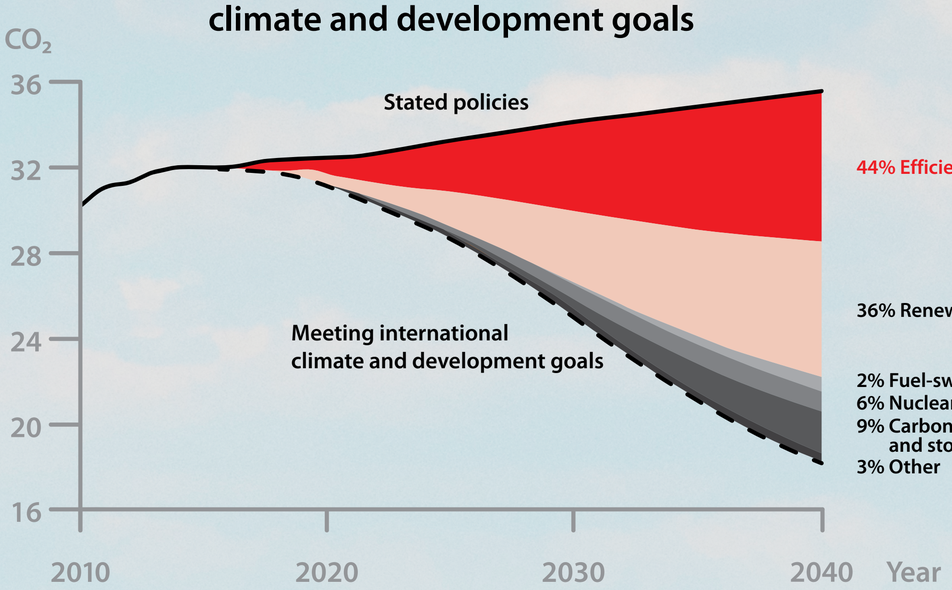
The IEA has mapped out the cheapest and most effective path to reaching the goals of the Paris Agreement. They find that more than 40% of the reduction in energy-related emissions must come from energy efficiency (IEA, 2018).

This means we need to reuse the heat generated by supermarkets and data centers to heat our buildings. We need to make sure our machines run only as much as they need to. And we need to optimize the way we heat and cool our buildings. In other words, we need to stretch every single watt generated from wind and solar as far as we can so we can speed up the fossil fuel phase-out.

Energy efficiency has been neglected for far too long, with annual global improvements hitting a decade low of 0.8% in 2020 (IEA, 2020). To achieve a sustainable society we must reduce our energy intensity so all the green energy we generate can be stretched even further.

This means ensuring global energy efficiency improvements increase by at least 3% every year until 2040 (IEA, 2020). Starting today. Because the longer it takes us to commit, the more difficult our journey will be as we work towards a fully sustainable society by 2050.

The path to meeting international climate and development goals



The graph shows the six levers needed to move us from stated policies to a scenario where we can meet the requirements of the Paris Agreement in addition to other international energy-related development goals.

Source: IEA (2018), Market Report Series: Energy Efficiency 2018

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Energy efficiency
is climate action

In 2050, we expect our world to have:

2x the economy

2bn more people

But to achieve net-zero emissions by 2050, we will also need:

8% less energy use

So, how can we make our energy power more while using less?

Unlock energy efficiency

IEA Net Zero by 2050 (2021)

This is where we find the **40%**

To significantly cut energy demand and emissions, the following three sectors offer the most potential – accounting for 75% of global emissions combined.

Industry

The industrial sector is vital to achieving and maintaining a sustainable society. Sixty percent of the sector's overall energy use is consumed by three areas: chemicals, steel and cement (IEA, 2021). However, there is ample opportunity here to ensure energy is only used when needed. For example, installing variable frequency drives on all electric motors would contribute to saving 8% of global electricity demand (IEA, 2016). Additionally, if manufacturers were to install heat exchangers they could produce more while using less – and even reuse energy by sending surplus heat back into the grid to warm our homes.

Transport

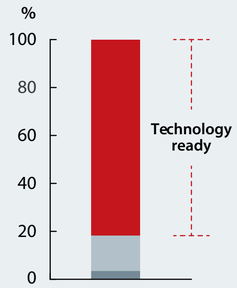
The transport sector is still reliant on fossil fuels, procuring 90% of its energy from oil (IEA, 2021). But electrifying transport doesn't just mean switching to renewable energy, it also means increased energy efficiency. For example, gas engines waste between 64% and 75% of the energy they use converting power to movement, while the drive system of an electric vehicle reduces this loss to between 15% and 20% (US Department of Energy, 2021). With some of the sector's biggest polluters like heavy machinery and passenger ferries starting to go hybrid or fully electric, electrification is helping businesses achieve their green goals while lowering total cost of ownership.

Buildings

The world is on course to build the equivalent of New York City every month for the next 40 years (UN Environment, 2017). With every new square meter emitting greenhouse gasses during construction and when a building is heated, cooled or filled with white appliances and devices. Today, buildings and their construction account for nearly 40% of the world's CO2 emissions (IEA, 2021). If we are to turn the tide, every square meter of new floor space needs to function using less energy. That means taking action anywhere we can. Simple measures like upgrading technical building systems can save on average 30% when heating and cooling buildings (Ecofys, 2017), and by integrating buildings on a physical and digital level? Well, we can go even further.

Turn down energy use and **turn up growth** – using solutions available today

Efficiency first



Cost reduction

Job creation

82%

of emission savings from technologies already available

Getting on track to net-zero emissions by 2050 requires action today. And we have the opportunity to frontload climate action: 82% of the annual CO2 emission savings needed by 2030 can come from technology available today (IEA, 2021). Energy efficiency solutions have a central role to play this decade to get us to 2050. Lets plug them in now.

50%

cost reduction to achieve 2030 goals

By investing in energy efficiency, Denmark could cut its 2030 sustainability costs in half and remain on schedule to reduce emissions by 70% (EA Energy Analyses, 2020). Focusing on energy efficiency would reduce the need to expand the electricity grid or energy storage, thereby lowering the cost of fuel, energy and infrastructure.

30m

new energy-related jobs by 2030

As part of our journey to achieving net-zero emissions by 2050, green energy and energy efficiency are creating long-term job opportunities. An extra 16 million workers will be needed to build more efficient appliances and electric and fuel cell vehicles, in addition to retrofitting and constructing energy-efficient buildings. Another 14 million jobs are expected to come from increased investment in clean energy (IEA, 2021).

- Behavior changes
- Technology under development
- Technology available

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