

INTERNATIONAL POLICY

A top-down approach to rebooting energy efficiency

Around the world, progress on energy efficiency has been slowing down. Now, the International Energy Agency has established a new Global Commission on Energy Efficiency – might it make a difference? Andrew Williams reports on its early moves.



An early meeting of the IEA's Global Commission for Urgent Action on Energy Efficiency
Source: IEA

Despite gains earlier in the decade, progress in global energy efficiency is slowing down, from almost 3% improvement in 2015 to just 1.2% in 2018. According to Brian Motherway, Head of the Energy Efficiency Division at the International Energy Agency (IEA), this slowdown is concerning, especially when IEA analysis shows how much potential there is for efficiency gains.

For example, by just using technologies that are already available today and fully cost-effective, Motherway suggests that the world could return to an annual improvement of 3%, and in doing so double the efficiency of the global economy in just 20 years.

However, such progress requires governments to act, and the Global Commission for Urgent Action on Energy Efficiency was set up to identify those key actions – as well as to offer advice to governments on how to quickly accelerate efficiency progress.

The Commission brings together leaders and thinkers from all parts of the world, focused on the question of how best we can make faster progress on energy efficiency. It will make recommendations to governments on what actions they can take, based on what has worked and what we have already learned.

At the same time, the IEA will continue to work directly with governments to help them understand how to design and implement efficiency policies to reduce emissions, enhance economies and improve people's lives.

'Every year the world becomes more efficient – better at extracting more value from the energy it uses. But the rate of improvement has shown a worrying slowdown in the past few years. This is of great concern, given that energy efficiency is at the centre of achievable and affordable pathways to clean energy transitions and decarbonisation,' says Motherway.

'Our starting point should be deploying the technologies and solutions already available to us and already fully cost-effective. Doing this would reduce energy bills by billions and drive an early peak in greenhouse gas emissions,' he adds.

At the same time, Motherway stresses that new possibilities for the future of energy efficiency are quickly opening up via digital technology innovation – with developments in sensors, AI and data handling bringing new opportunities to greatly enhance energy efficiency through smart controls and advanced analysis. In his view, such developments also

allow efficiency and the demand side to play a much greater role in the wider concept of system efficiency, particularly for electricity grids seeking to manage growing shares of variable renewables and seeking ways to optimise overall performance.

Potential strategies

A key early milestone in the work of the Commission was the publication of a report prepared by three key global NGOs – the European Council for an Energy Efficient Economy (eceee), the American Council for an Energy-Efficient Economy (ACEEE) and the India-based Alliance for an Energy Efficient Economy (AEEE) – this recommends 12 specific strategies and necessary policies to consider across major sectors of the international economy, including buildings, industry, transportation and the electricity grid.

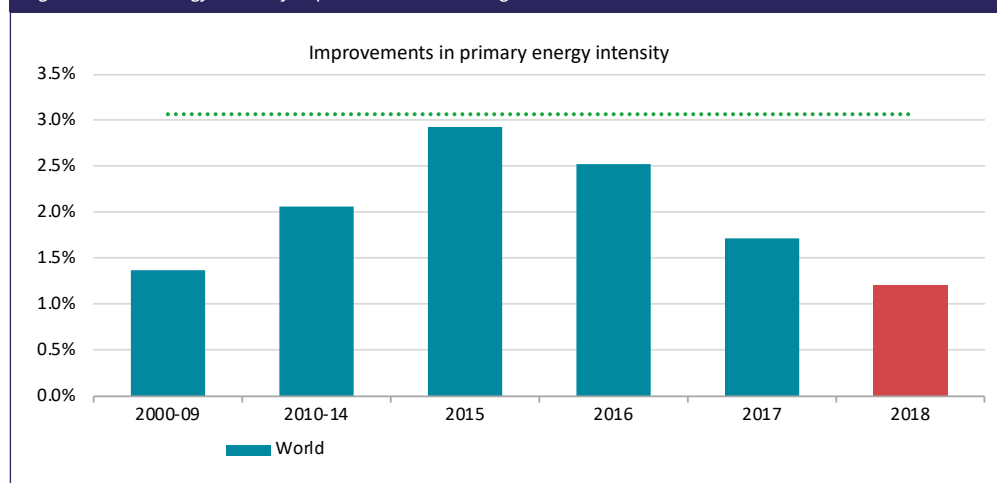
As far as buildings are concerned, Steven Nadel, Executive Director at ACEEE, explains that key recommendations relate to the fact that new homes and buildings should be net zero energy, existing homes and buildings should be retrofitted, low energy cooling and smart buildings should be promoted and space and water heating should be electrified. Progress should be continued on appliance efficiency standards.

Recommendations for industry include the promotion of strategic energy management, data reporting, smart manufacturing programmes and improvements to key processes, as well as the use of less energy-intensive products. The report also calls for the expansion of R&D and the implementation of performance targets.

In transportation, the report urges improvements in light and heavy duty fuel economy (including through electrification), reductions in vehicle distance travelled, encouragement of the use of efficient transportation modes and

Figure 1. Global energy efficiency improvements are slowing down

Source: IEA



improvements in freight transport and airplane technologies and operations.

Electric grid recommendations focus on better grid design, smart metering, integration of demand-side management and demand-response interventions and theft prevention efforts to further reduce losses.

Nils Borg, Executive Director at eceee says: 'We wanted to highlight what we think is of key importance for successful efficiency implementation [and] felt that a focus on the big picture would be important. To be successful, energy efficiency policies must have a sector focus on, and reach all, sectors. They need to contain a mix of approaches – standards, mandatory requirements, innovation and research, and incentives – to be successful.'

The strategy document also emphasises that, moving forward, policies and strategies must be complementary and not one-size-fits-all – in particular, reflecting the fact that different economies and countries are at different levels of development and have different traditions. In such a way, Borg stresses that the recommendations shouldn't be viewed as a blueprint for policy design, but rather as a source for inspiration and a platform on which different policies can be built.

'We provide recommendations for product regulation, buildings, industry and transportation. Our recommendations are not only for improved technical efficiency, but also cover the importance of recognising structural changes, such as a modal shift in transportation,' he says.

'[Another] key recommendation is that mandatory requirements, such as product performance, performance of new buildings, performance upgrades connected to

renovations and so on, will be needed to drive energy efficiency,' he adds.

Importance of energy efficiency

Elsewhere, Laura Van Wie McGrory, Vice President for Strategic Initiatives at the Alliance to Save Energy, which recently collaborated with ACEEE and the US-based Business Council for Sustainable Energy to prepare a comprehensive *Energy Efficiency Impact Report*, points out that, according to the IEA, energy efficiency has the potential to deliver more than 40% of the greenhouse gas emissions reductions needed to reach the goals of the Paris Agreement.

Meanwhile, Lisa Jacobson, President at the Business Council for Sustainable Energy, reveals that energy efficiency investment in the US has fallen by about 18% between 2016 and 2018 – but that, globally the figure is stable at \$240bn per year. While this number sounds large, she argues that the stalling growth is cause for concern and stresses that 50% of today's emissions could be averted with energy efficiency measures, but that those benefits will not be realised without increased investment.

'In the US, the lowered demand growth since 2005 from energy efficiency is calculated to be equivalent to all of the emissions reductions from natural gas and renewable deployments. This success must be replicated to slow climate change,' she says.

'Energy efficiency is still improving worldwide – just not at the pace we want or need to mitigate climate change. The nearly quarter-trillion dollars invested yearly yield durable results in the form of more efficient street lighting, vehicle fleets, and buildings,' she adds.

Moving forward, Jacobson believes that energy efficiency is

critical for adapting to climate change, particularly since cities that never needed air conditioning in the past will need it soon. She also stresses that efficiency can be a factor in the resilience of energy systems, as well as how quickly regions can recover from natural disasters.

'Upfront modernisation investments can reduce future expenses. Digitalisation is also an area where we see significant promise. Smart meter deployment in the US over the past decade showed us that data analysis could help utilities identify opportunities for efficiency, and eventually give consumers more visibility into their energy use,' she says.

Less costly to save than generate

Nadel agrees that energy efficiency is critical for reaching global and national climate targets – and stresses it is generally less expensive to save a unit of energy than to produce that same unit of energy from clean sources, meaning that energy efficiency reduces the costs of reaching climate targets. In addition, by reducing energy loads, he observes that energy efficiency makes it more feasible to serve remaining loads with clean energy.

'For example, space heating loads tend to peak on cold winter mornings. At those times the sun is just coming up and wind is often low, resulting in low production of renewable energy. Much of this load would need to be served by storage, but the lower the load, the less storage is needed,' he says.

In keeping with the findings of the '12 Strategies report', Nadel adds that a drastic reduction in global energy use will be essential for an affordable and manageable transition to a renewables-based clean energy future.

'We find that urgent action is needed because, while efficiency progress is being made, global growth in energy use is largely outpacing decarbonisation. We call on the IEA Commission to revisit energy policies and come up with concrete proposals that can deliver efficiency improvements,' he says.

'The next steps are for the IEA Commission to meet, consider our recommendations and those from others, and prepare their report. But the most critical step is the next step – persuading IEA and other governments to take the recommended actions,' he adds. ●

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