

A city-centred energy transition?

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COMMENT



A new report from the International Energy Agency (IEA) is urging governments to adopt policies to help cities to manage their energy demand and reduce the impact of climate change. This as part of the UAE Consensus at COP28 in Dubai last year, where an agreement was signed signalling the “beginning of the end” of the fossil fuel era. Most notably, the world’s Governments agreed to double the annual rate of energy efficiency improvement by 2030 and, in the same timeframe, to triple the global deployment of renewable energy capacity, putting the principle of energy efficiency at the centre of policy making.

Cities currently account for around three-quarters of global energy consumption and 70% of greenhouse gas emissions, and their contribution is set to rise. Of the more than 100-million people living in cities without access to electricity, more than 90% are located in sub-Saharan Africa which, the report points out, is the fastest-urbanising region of the world.

Global urban growth by 2050 is estimated to be equivalent to adding the combined land area of Germany, Italy and Japan, posing even more challenges to these larger and more densely populated areas – particularly during heat waves. In the hottest regions, electricity consumption can double in warm months of the year, compared to milder ones, with cooling accounting for over 70% of peak electricity demand. This – in addition to the growing electrification of energy as more people use technologies such as heat pumps and electric cars – will place increasing strains on electricity distribution infrastructure.

On a global net zero pathway, investment in electricity grids worldwide needs to more than double by 2030: to US\$750-billion per annum. Approximately 75% of this spending would need to go towards expanding, strengthening and digitalising distribution grids, including in cities, to improve system efficiency and manage more complex flows of electricity and data.

Also highlighted is the need for improved access to and use of data for decision making: to support faster and more targeted implementation of energy and climate goals and to help align city and power system planning. Digital solutions and systems can be particularly powerful in cities, where high-density environments create economies of scale and can optimise infrastructure and create new opportunities.

The role of G7 countries in fostering innovation through greater international collaboration is suggested, creating enabling environments at city level for scalable pilot projects, while integrated urban and power system planning – together with improved data sharing – are crucial to maintain

electricity security and prioritise people in clean energy transitions. The report also explores the value of pilot projects administered by the United Nations Environment Programme (UNEP) in Brazil, Colombia, India and Morocco, which leverage advanced digital technologies to improve energy management, enhance affordability and manage grid flexibility.

Cities, the report suggests, can leverage public procurement to create economies of scale and bring down costs of clean energy technologies. More than 60% of public investment occurs at the subnational level, of which nearly a third is channelled into transport systems, underlying the importance of cities investing in green and resilient urban infrastructure.

Cities can therefore be front runners in the energy transition, with the G7 recognising the ‘transformative power’ of cities. In addition, the G20 has identified the need to finance the infrastructure of the cities of tomorrow. This is critical because, based on existing stated policies, without further urgent action in cities and on grids, climate goals will be missed and economic growth could be affected.

A people-first approach is recommended, exemplified by community energy projects that not only promote environmental sustainability, but also stimulate local economies, reduce energy bills and foster public trust in the clean energy transition. Supporting city-level action has the potential to provide the greatest carbon mitigation return on investment and accelerate inclusive clean energy transitions. The evidence is that investing in infrastructure and technology to decarbonise the energy sector can reduce greenhouse gas emissions by up to 75% by 2050 – as long as the right policies are in place.

In South Africa, city residents, private businesses, industries and processing plants have all demonstrated their willingness to invest in green energy generation solutions. Cities such as Cape Town have been proactive in encouraging the registration of rooftop solar PV systems through its rooftop PV programme, with these systems feeding into the local electricity grid to reduce demand from ESKOM. Many other municipalities are following suit.

Instead of obsessing over Eskom’s shortcomings, every city should be pushing to establish modern local networks of green generation, transmission and distribution, with the digitalisation and controls to fully utilise every spare kW of generation from every connected rooftop or wind turbine.

Perhaps it is time to see the world’s national grids as the backup supplier, with people’s and businesses’ day-to-day energy needs being met via sources as local to them as possible.



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