International Energy Agency

Unlocking the digitalisation potential for energy in Africa

Event title

28 septembre 2021

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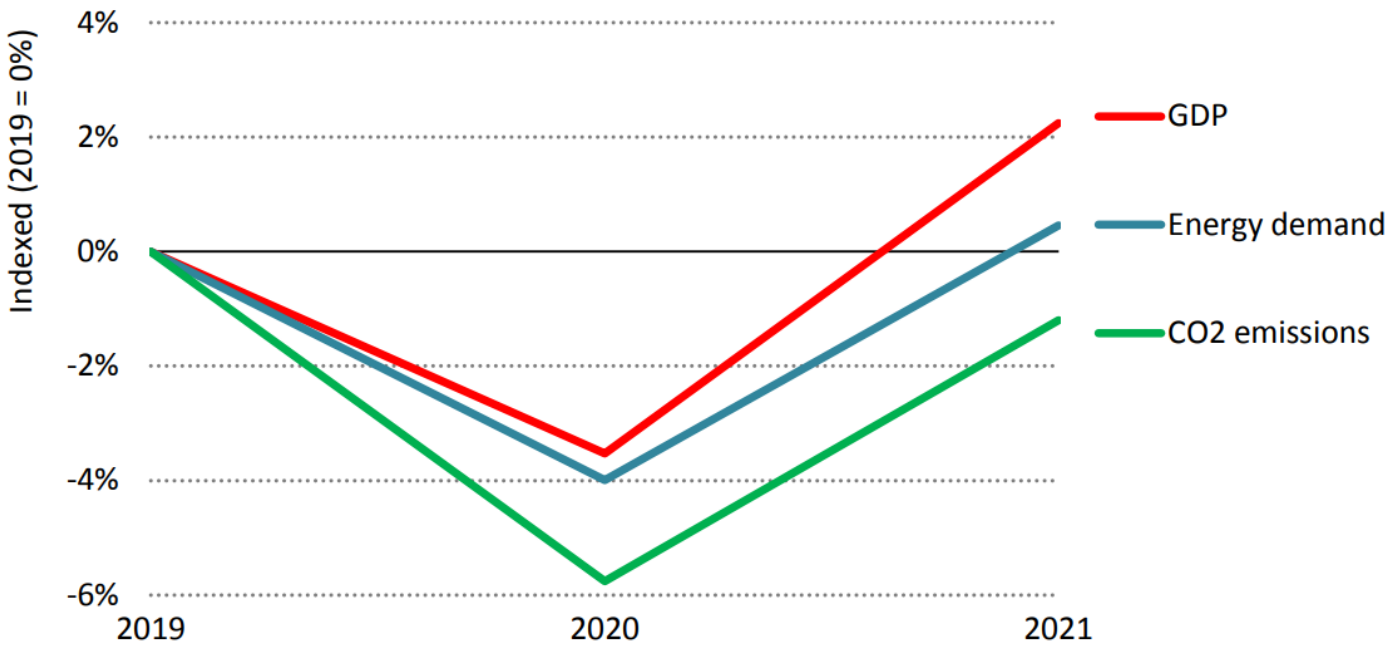
Global CO_2 emissions are on the rebound

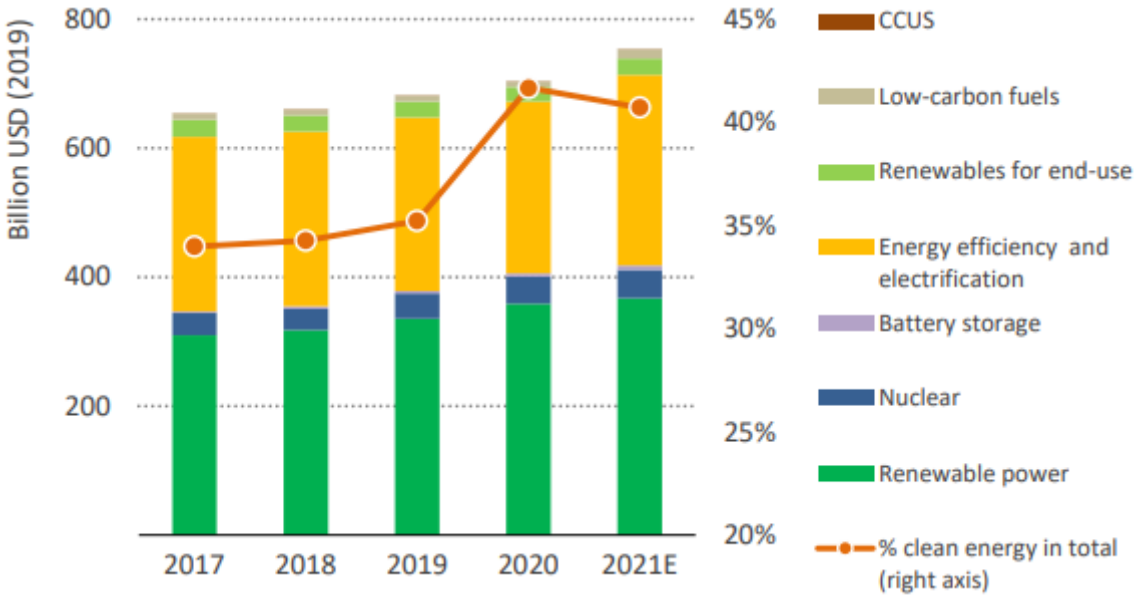
Evolution of global GDP, total primary energy demand, and energy-related CO_2 emissions, relative to 2019



Global energy demand is set to increase by 4.6% in 2021, surpassing pre-Covid-19 levels.

Clean energy investment is growing slowly

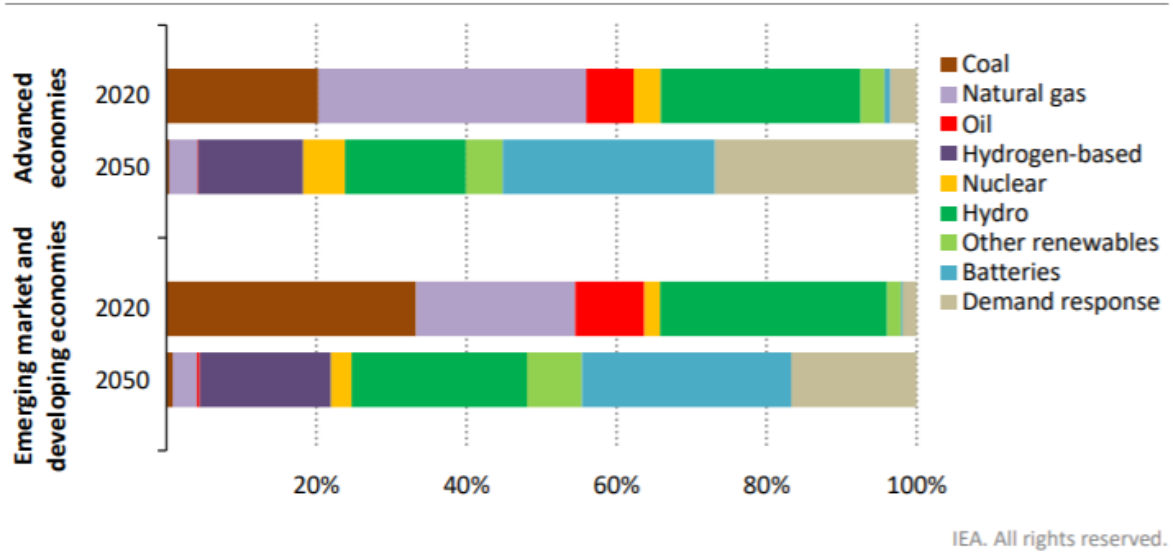
Global investment in clean energy and energy efficiency 2017-2021



Total clean energy investment is set to rise in 2021 by around 7%

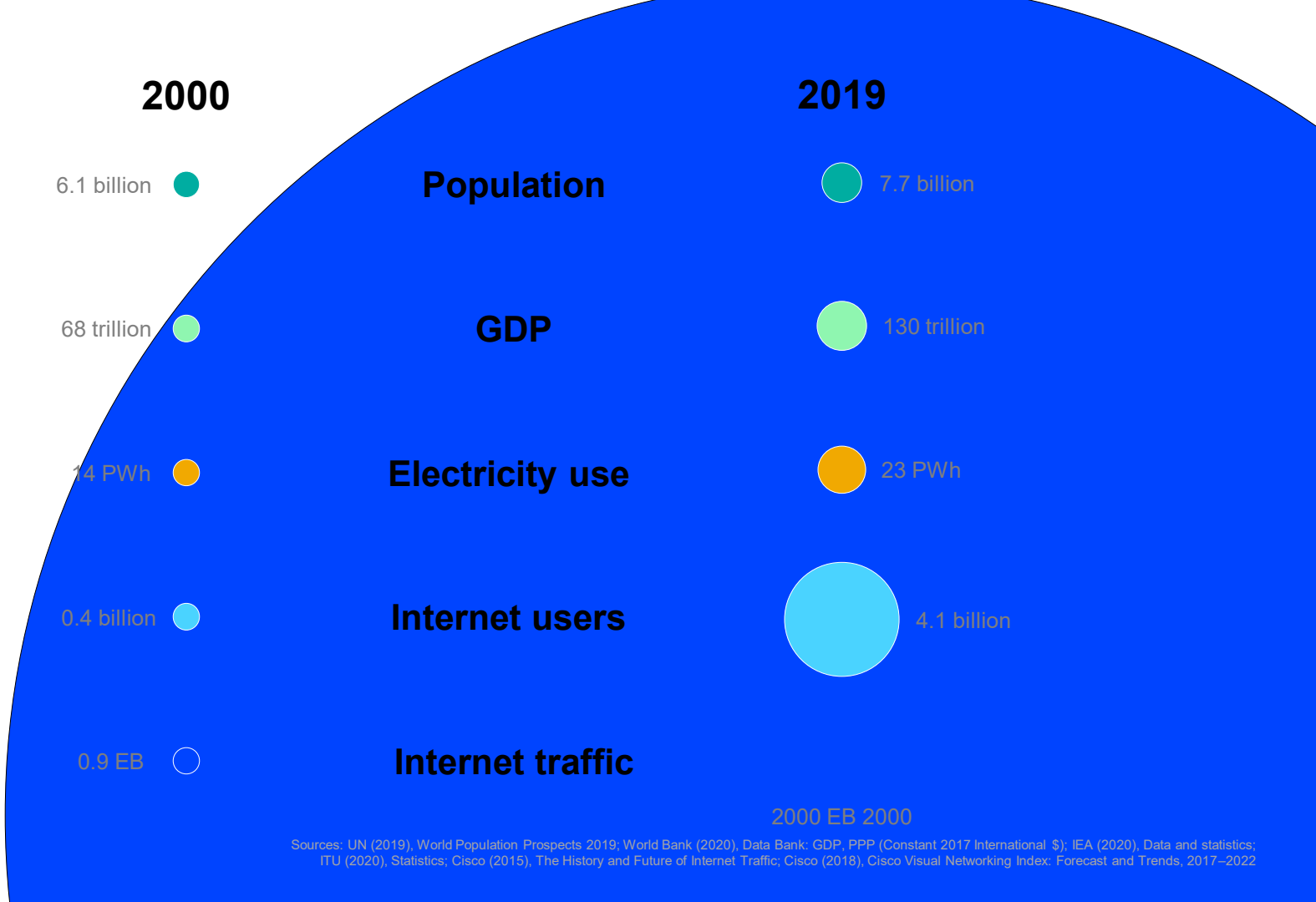
The demand-side is at the centre of clean energy transitions

Electricity system flexibility by source in the NZE



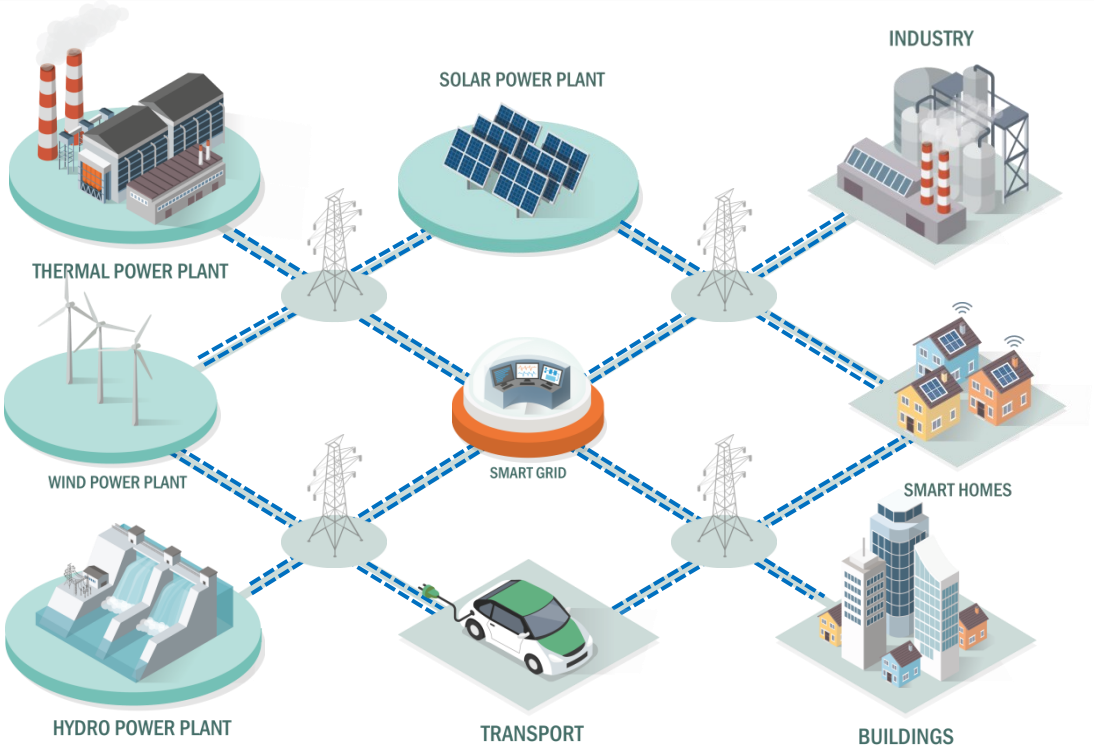
To meet four-times the amount of hour-to-hour flexibility needs, batteries and demand response step up to become the primary sources of flexibility

Net Zero by 2050 - https://www.iea.org/reports/net-zero-by-2050



Sources: UN (2019), World Population Prospects 2019; World Bank (2020), Data Bank: GDP, PPP (Constant 2017 International $); IEA (2020), Data and statistics; ITU (2020), Statistics; Cisco (2015), The History and Future of Internet Traffic; Cisco (2018), Cisco Visual Networking Index: Forecast and Trends, 2017–2022

The digital transformation of the energy system



Pre-digital energy systems are defined by unidirectional flows and distinct roles, digital technologies enable a multi-directional and highly integrated energy system

A deep transformation of energy systems, with electricity at the centre

Electricity systems are transforming → More flexibility is needed, with active participation of consumers → Policies to empower digitalisation are essential to reap benefits

- **Digitalisation** can help leverage opportunities:
  - Create a more interconnected and responsive electricity system
  - Support carbon emissions reduction
  - Help to minimise system cost and need for new investment
  - Improve stability, resilience and security
  - Enhance quality of power supply

Implementing right policies, digital technologies and new business models is key to enable transformation

Digital divide

- Sub-Saharan Africa accounts for **almost half of the total global unconnected population** (GSMA), and more than two-third of people without electricity access in the world
- The IEA estimates that 40 terawatt hours (TWh) of power were generated from 40 GW of backup generating capacity in sub-Saharan Africa in 2018, which is equivalent to 8 percent of electricity generation.
- **110 million people** without electricity access live close to a grid
- Investing in digital technology, including microgrid and digital technology accessibility, can be a powerful lever to reduce energy poverty

Overview of Digital Demand-Driven Electricity Networks Initiative (3DEN)

- **Aim of the Project** - providing actionable guidance to policy makers on the policy, regulatory, technology and investment context needed to accelerate progress on power system modernisation and effective utilisation of demand side resources
- **Outputs**
  - Tools and policy guidance documents
  - Pilot projects assessment guide including methodology and indicators
  - Interim outputs: webinars, roundtables, events, articles, chapters in publications and commentaries
- **Geographic focus, including but not limited to**
  - Key Countries – Brazil, Colombia, India, Indonesia, Morocco, South Africa, Tunisia
  - Key Regions – Latin America, Africa, South East Asia
- **Tentative Project timeline**