



Session Outcome Document

Electricity for ICT in the 21st century

International Electrotechnical Commission

29 May, 2024 15.00-15.45

[Session 284— Electricity for ICT in the 21st century | WSIS+20 Forum High-Level Event 2024 \(itu.int\)](#)

Key Issues discussed

The session focused on the technological and environmental factors driving a shift in the fundamental ways we think of electricity, and how can we leverage these for ICT.

The discussions drew attention to Direct Current (DC) based infrastructure as a solution to reduce energy wastage drastically. The interactive discussion raised several issues in relation to the technology trends:

- **Integration with renewables, less wasteful and cost-effective:** Today: we are living in a DC world – Renewables like solar PV, wind and marine energy, hydropower, all produce DC that can be used directly by batteries, electronics, sensors, EVs without losing power in conversion from DC to AC to DC. This makes DC less wasteful and more cost-effective.
- **Electricity access:** DC offers easier energy access off-grid, and so technologies like LVDC (Low-Voltage Direct Current) can be especially useful in developing countries, as it provides affordable and sustainable electricity access to people who would otherwise have to wait many years for a connection to the main electricity grid.
- **Connectivity to internet and ICT:** As a direct result it will also allow more people to get connected to the internet.
- **Avoiding/reducing e-waste:** We can avoid a lot of the e-waste for the converters used by mobile phones and PCs, data centres and more.
- **Role of standards:** The IEC has developed the international standards that make DC safe and usable everywhere. These standards were developed in a systems committee that involved people from many different backgrounds. This cooperation helped accelerate the usability of DC – we had more than 100 years to make AC safe and usable. Now DC could become the baselevel solution, a golden thread that will help address many of the challenges we have with electricity generation and use.

Towards WSIS+20 and WSIS beyond 2025, please share your views on the emerging trends, challenges, achievements, and opportunities in the implementation of the WSIS Action Lines to date (5-8 bullets)

- The session “Electricity for ICT in the 21st century” aligned with conversations around transitioning towards a more efficient **Information and Communication Infrastructure (G2)**. Emerging trends in the electricity world indicate there is a need for streamlining efficiency

efforts. Integration with renewable energy sources, reducing wastage and increasing electricity access are drivers that contribute to the trends leaning towards DC (Direct Current) based infrastructure. DC technologies are emerging as key proponents for advancing energy efficiency, electricity access and ICT operations. Naturally, electricity access goes hand in hand with increasing ICT reach, thus furthering solutions that impact almost all domains of our lives- education, healthcare, finance and more.

- The session brings to light how governments, international bodies and regulators can work together to accelerate meaningful change in the emerging future of electricity.
- Such a technology brings with it opportunities in international cooperation for the role of governments and all stakeholders in promotion of ICT for development (C1), enabling environment (C6), access to information and knowledge (C3) and having diverse stakeholders in inclusive approaches (C8).

Tangible outcomes (such as key achievements, announcements, launches, agreements, commitments, figures, and success stories (3-5 bullet points))

- **Launched** the [IEC International Summit on LVDC on 5-6 November in the Netherlands](#).
- **Plan to integrate** feedback from audience into discussions within the IEC Systems Committee on LVDC, responsible for steering the international standardization activities in the area.
- **Promoted** awareness of electricity standards and its impact.

Actionable plan and key recommendations (2-5 points)

- Given the needs and emerging trends, the energy infrastructure needs to eventually shift to a DC based infrastructure to increase energy efficiency (and reduce energy wastage) and enable further electricity access.
- It will take time, but IEC is leading efforts to make LVDC technology safe for use everywhere where DC power can be used directly without losses in energy conversion.
- There is need for international collaboration and cooperation to accelerate our efforts towards the goal of a more sustainable energy infrastructure.

Suggestions for thematic aspects that might be included in the WSIS Forum 2025 (one paragraph)

Energy is a key driver for human progress, and the intricate web of ICT infrastructure relies implicitly on this vital resource. As we forge ahead with ICT development and innovation, we must harmonize it with the imperative of building an energy-efficient infrastructure that acknowledges the shared global challenges we confront. While we saw invigorating discussions around this topic already in WSIS 2024, it would be good to have a more cohesive thematic stream for the (need for an) evolving energy infrastructure.