Driven by the Programme for Infrastructure Development in Africa (PIDA) and the UN’s Agenda 2063, electricity infrastructure, transmission, interconnections and hydropower are simultaneously undergoing considerable development throughout the African continent.

Currently, the significant deficit in Africa’s infrastructure is resulting in increased production and transaction costs, reduced competitiveness of businesses, and is having a negative impact on foreign direct investment flows to the continent. This is hindering the rate of economic and social development throughout the continent.

By improving the access to integrated regional and continental infrastructure networks and services, and by facilitating the increased use of renewable energy sources such as hydropower, the overall goal is to promote socio-economic development and poverty reduction in Africa.

This session focused on developing a vision for Africa’s electricity infrastructure based on: strategic objectives; sector policies; and prioritised regional and continental infrastructure investment programmes and mechanisms for the further implementation of hydropower and interconnections.

Panellists representing key regional and international players brought forward current hydropower and interconnection mechanisms.
cases in Africa. They suggested recommendations and priorities in these fields, and identified potential solutions for the challenges facing the sector, over the short, medium and long term.

**Key discussion points**

The speakers commented that Africa’s economies have developed rapidly in recent years. Liang Xuming explained the research that GEIDCO has carried out on Africa’s energy interconnection planning, analysing energy and power development, clean energy development and utilisation, and other issues towards achieving a green, low-carbon, clean and sustainable energy supply. GEIDCO proposed an African grid interconnection pattern and five regional power pool grid planning schemes, and also assessed the technical feasibility and comprehensive economic benefits of building African energy interconnection.

Callixte Kambanda introduced ICA's 2016 ‘Regional Power Status in African Power Pools Report’, which notes very low rural electrification rates in 2013, e.g. Central Africa Republic (1%), Chad (1%), Burundi (2%), Democratic Republic of Congo (2%). One of the key reasons behind these low rates is a lack of regional interconnectors.

It was also pointed out that while global hydropower development is very mature, by comparison Africa is lagging behind. Africa has abundant hydropower, wind and solar power resources, yet still suffers from electricity shortages. It was suggested that mini-grids should be constructed with hydropower as the regulation core, which could then be combined with widely-distributed wind and solar generation facilities. Hydro-PV-wind hybrid generation built on the basis of micro-grids could be an efficient solution to improving electricity access, and the starting point for a long-term evolution of micro-grid, local grid, regional grid and eventually African continental grid development.

**Key outcomes**

The Programme for Infrastructure Development in Africa (PIDA) estimated that regional integration would save around USD 33 billion by 2040 in power generation costs and would increase the demand growth by 7 per cent. Currently, electricity infrastructure, transmission, interconnections and hydropower development are in a transitional phase, with promising future development plans.

It was discussed that the hydropower industry must continue to work alongside other energy industries, such as the solar and wind sectors, to develop infrastructure, transmission lines and interconnections in order to fully open up the potential for energy access, and enhance overall economic and social development throughout Africa.

Further financial programmes/mechanisms are also required in Africa to attract the higher levels of foreign investment needed to develop hydropower projects and improve regional interconnections. Further interconnections and the development of power pools would also boost market competition between African utilities.

**What next?**

The link between hydropower and interconnections development in Africa will continue to be explored through briefings and reporting by IHA. IHA members active in Africa are involved in regional development and the association will support communications on this topic. IHA will also continue to work with regional and international bodies to share knowledge operators and developers who have faced interconnection challenges in other parts of the world.