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Global Energy Interconnection Development and Cooperation Organization

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On September 26th, 2015, Chinese President Xi Jinping proposed “exploring the establishment of Global Energy Interconnection (GEI) to meet global power demand with clean and green alternatives” at the UN Sustainable Development Summit, which has won wide praise and recognition from International community.

At the Belt and Road Forum for International Cooperation on May 14th, 2017, Chinese President Xi Jinping called for collective action "to seize opportunities presented by the new round of change in energy mix and the revolution in energy technologies, develop global energy interconnection and achieve green and low-carbon development".
I. The GEI Initiative and GEIDCO

II. The Progress of Promoting GEI

III. The CEM RGEI Initiative and GEIDCO
1. The Concept of GEI

The Chinese Practice Promotes Global Energy Transformation

The GEI is an advanced concept based on the successful practice of China's smart grid and UHV grid systems to promote the leap-forward development of large-scale clean energy, serving the sustainable development of human society.

- Adequate clean energy resources
  - The potential of global clean energy exceeds 100 trillion kilowatts

- UHV transmission technology is advanced and mature
  - Advantages: long transmission distance, large capacity, high efficiency, low loss, small land occupation and good safety
  - China has built 22 UHV projects and is currently building 9 new projects

- The technology of clean power generation continues to improve

- Smart grid technology is widely used

- The economy of clean power generation is rapidly improving
1. The Concept of GEI

The core connotation

- GEI is a modern energy system dominated by clean energy and centered on electricity that is globally interconnected, jointly constructed and mutually beneficial to all.

- The essence of GEI is “Smart Grid + UHV Grid + Clean Energy”.

Basis

- Smart Grid

Essential

- UHV Grid

Fundamental

- Clean Energy
2. About GEIDCO

- In order to promote the implementation of the GEI, the State Grid Cooperation of China (SGCC) initiated the establishment of the **GEIDCO** in March 2016.

- GEIDCO is the **first energy-based international organization** initiated by China, and is composed of voluntary enterprises, organizations, institutions and individuals that are committed to promoting the sustainable development of the world's energy.

- Mission: To promote the construction of GEI, to meet global power needs in a clean and green way, to promote the UN's “Energy for All” and climate change goals, and to serve the sustainable development of human society.
2. About GEIDCO

Rapid Growth in Membership

- With the increasing spread of the GEI and the increasing influence of GEIDCO, the scale of the member network has expanded rapidly.
- By July 2019, the total number of members reached 703, covering 96 countries and regions around the world.
I. The GEI Initiative and GEIDCO

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II. The Progress of Promoting GEI

Since its establishment nearly four years ago, GEIDCO has made significant achievements in various aspects, such as exchanges and communications, international cooperation, research and planning, and project promoting, **actively participates in Clean Energy Ministeral Initiaves**, promoting the GEI initiative to become a global consensus with communicating, reasearching and experience sharing practices.
1. The Wide Spread of GEI

**Host High-level Conferences and Forums**

- **GEIDCO holds high-level meetings and forums on a regular basis every year, such as the GEI Conference and High-end Forums.** We have also organized a number of GEI-themed activities and promoted the GEI initiative based on the multilateral diplomatic mechanism and international important conference platform, publishing research results, enhancing consensus among all parties, and uniting development synergies.

- Since its establishment, GEIDCO has organized more than **400** large-scale international conferences and forums to promote the GEI initiative to governments, organizations, enterprises, institutions, universities and the public.

- In 2018, GEIDCO held more than **10** high-level international conferences and thematic events at the China-Africa Cooperation Forum, the China-Arab Cooperation Forum, the 24th UN Climate Change Conference (COP24) and the Summit of the Economic Community of West African States.
1. The Wide Spread of GEI

GEI Initiative Becomes a Global Consensus

António Guterres, Secretary General of the United Nations, said:

- GEI, with a strong call for enhancing international energy cooperation, is critical to the 2030 Agenda and to the implementation of the Paris Agreement. (Nov. 2017 UN High-Level Symposium)

- The Global Energy Interconnection Initiative provides a key to solutions that can efficiently use rich and renewable resources, such as wind, solar and hydra, to deliver modern energy services to all even at long distances. (March, 2018 Global Energy Interconnection Conference)
At present, the GEI Initiative has been integrated into the UN 2030 Agenda for Sustainable Development, the implementation framework of the *Paris Agreement*, and the multilateral cooperation systems, i.e. the Belt and Road Initiative, the China-Arab Cooperation Forum, and the operating agent of a Clean Energy Ministerial Initiative.
2. International Cooperation Progress

Establish a Global Cooperation Network

- Establish a global cooperation network and establish partnerships with more than 260 government departments, international organizations, enterprises, research institutions, and universities in 70 countries and regions to jointly promote the development of GEI.

- Since the establishment, more than 30 cooperation agreements and joint statements have been signed with stakeholders. Among them, in 2018, 14 new cooperation agreements and joint statements have been signed with the UNFCCC secretariat, ECLAC, ECA, and governments, such as Ethiopia, D.R. Congo, Guinea, and other organizations, institutions, enterprises, and universities, aiming to jointly organize GEI thematic activities, conduct joint research, and promote the development of large-scale clean energy bases and power interconnection projects.
3. Research Outcomes

- Organized research on more than 100 topics such as GEI strategy, planning, technology and projects, and released **GEI Backbone Network, Development Index, Standard System, Technical Equipment Innovation Action Plan**, and **Regional Interconnection Planning** in Africa, Northeast Asia, Southeast Asia and etc., providing a systematic solution and action roadmap for promoting the development of GEI.

- Released **GEI action plan implements the UN 2030 Agenda for Sustainable Development Action Plan, GEI Action Plan for Promoting the Implementation of the Paris Agreement, GEI Action Plan for Promoting Global Environmental Protection** and etc., providing important solutions to address the sustainable development, global climate change and environment challenges.
### 3. Research Outcomes

**GEI “Nine Horizontal & Nine Vertical” Backbone Network**

- Advanced in **three** stages: domestic interconnection, intra-continental interconnection, and global interconnection

**2025**: Domestic and cross-border networking

**2035**: Inter- and intra-continental interconnection

**2050**: Realizing Asia-Europe, Africa and Americas interconnection

**Next**: Building an Arctic energy channel, realizing “Nine Horizontal & Nine Vertical”

![Map showing intercontinental interconnection network]
3. Research Outcomes

Africa Energy Interconnection

Great demand for electricity to achieve industrialization in Africa

It is predicted that from 2015 to 2050:

- The total electricity demand will increase by 5.2 times (from 600 TWh to 3200 TWh), with an average annual growth rate of 4.4%.
- The maximum load will increase by 4.8 times (from 120 GW to 580 GW), with an average annual growth rate of 4.6%.
- The per capita electricity consumption will increase by 2.5 times (from 534 kWh/year to 1322 kWh/year)

![Map of Africa Energy Interconnection](image-url)
4. The Practical Actions of GEI

GEIDCO actively promotes the development of large-scale clean energy bases along the “Belt and Road”, the interconnection of power grids, and the construction of smart grids, relying on its comprehensive research capabilities, multiple information channels of international branches, and network of partners all over the world, and providing opportunities for its members’ international business development.

- **Promote Northeast Asia power interconnection**: Promote the agreement signing of *Memorandum of Understanding on Power Interconnection Cooperation in Northeast Asia* among State Grid Corporation of China, Korea Electric Power Corporation, Softbank Group and Rosseti, and coordinate the pre-feasibility study report.

- **Promote power interconnection in Southeast Asia and neighboring countries**: Conduct in-depth research of energy and power development and grid interconnection in Southeast Asia, propose China-Myanmar-Bangladesh, China-Myanmar, China-Laos, China-Vietnam grid interconnection programs etc.

- **Promote power interconnection in Ethiopian-Bay Area**: Promote the tripartite cooperation agreement signing with the Gulf Cooperation Council Interconnection Authority (GCCIA), and Ministry of Water, Irrigation and Electricity of Ethiopia (MWIE) in Abu Dhabi, United Arab Emirates.

March 2016, China, South Korea and Japan signed the MOU of joint promotion of power interconnection in Northeast Asia.

March 2018, the China-Myanmar-Meng Electric Power Interconnection Ministerial Conference kicked off the feasibility study of the grid interconnection project.

January 2019, GEIDCO, GCCIA, and MWIE Signed Cooperation Agreement for Ethiopia-Gulf Region Interconnection Project.
The Government of Guinea and GEIDCO signed a joint initiative to establish the **African Energy Interconnection Sustainable Development Alliance (AEISDA)**.

- With the aim of boosting clean, industrialized, electrified development and regional integration in Africa;
- It will build an important platform for the pragmatic cooperation between governments, companies and financial institutions;
- It will play the role as a **bridge in policy coordination**, planning and research, funding and financing, and project implementation;
- driving energy transition and sustainable economic, social and environmental development of Africa.
4. The Practical Actions of GEI

Meeting with Leaders of African Countries and Senior Government Officials

Denis Sassou-Nguesso said: Congo attaches great importance to regional energy interconnection and is willing to actively support GEIDCO’s effort to deepen research on developing and transmitting hydropower in the lower reaches of the Congo River. He appreciated the initiative of AEISDA, adding that Congo intends to work with relevant parties to promote the clean and integrated development of Africa with higher level of industrialization and electrification. Congo and China have longstanding friendship, and the field of energy & electricity is an important cooperation area for both countries. Congo welcomes Chinese enterprises to invest in Congo-Brazzaville and to contribute to the economic and social development of Congo.

Bruno Tshibala said: electric power is indispensable for the exploitation of Africa’s natural and mineral resources, and the government of Congo-Kinshasa attaches great importance to the development of Grand Inga and other projects and will actively support African Energy Interconnection and cross-national electricity transmission, accelerate the external delivery of clean hydropower from the Congo River, and accelerate the launch and implementation of the Grand Inga project.
4. The Practical Actions of GEI

Meeting with Leaders of African Countries and Senior Government Officials

Clément Mouamba said: China has made major breakthroughs in the field of UHV power transmission, which makes Africa’s cross-national electricity transmission technologically feasible. Congo-Brazzaville is willing to further strengthen exchange and cooperation with GEIDCO to deepen research, explore Congo-Brazzaville’s hydropower development potential, advance infrastructure construction and interconnection project implementation, and support Congo-Brazzaville’s economic development.

Philémon Yang said: the Cameroonian government attaches great importance to and supports the Initiative of GEI. And the co-development of electricity, mining, metallurgy, industry and trade proposed by GEIDCO is perfectly in line with the development needs of Africa and Cameroon. The Cameroonian government is willing to join in AEISDA and welcomes Chinese and international enterprises to invest in Cameroon to support Cameroon’s energy and mineral development and electrification progress.
5. Aim and task of AEISDA

Preparation Status of AEISDA

- As actively participated by the African Country Governments, AEISDA acts as a policy coordinating and communicating platform.
- Since December 2018, GEIDCO and the Guinean government have sent the invitation of joining AEISDA to 51 African governments and more than 80 corporate institutions.
- At present, 20 countries and more than 80 enterprises institutions have confirmed their participation in AEISDA.
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1. GEIDCO & CEM Initiative

GEIDCO as the Operating Agent of the RGEI Initiative

Since May 2018, the RGEI Initiative, as one of the CEM Initiatives, has made efforts in promoting regional and global interconnection. So far, RGEI's member countries includes Chile, Finland, Korea, UAE and South Africa, with China as the Leading Country. With the numerous efforts made by RGEI's Member countries, RGEI keeps engaging in operating each year's work according to the annual work programme.
2. RGEI Initiative Deliverables

Member Countries Coordination

With the support of the Ministry of Science and Technology of China and National Energy Administration of China, guided by the CEM Secretariat, the RGEI Initiative actively operated its works, communicated with member countries, drafted a *Case Study Report on Interregional Energy Interconnection*. The RGEI Initiative operated regular communicating mechanism with monthly working group teleconferences with member countries such as UAE, Chile and Korea etc. to increase the members engagement.
2. RGEI Initiative Deliverables

Publications and Activities

RGEI published Newsletter *Integration Matters: Tracking the Global Status of Regional Integration of Power System*, bimonthly since August 2019. RGEI is organizing case studies webinars for sharing successful experience in implementing regional energy interconnection. The first Webinar will be hosted by Chilean Ministry of Energy by the end of this September.

RGEI coordinated with CEM Initiatives and Campaigns in China and world-wide, co-worked in July 2019 World New Energy Vehicle Congress in Hainan, co-hosted a CEM official side event. RGEI is planning utilizing the conference platform of GEIDCO to organize more side events. According to the RGEI Annual Working Programme, the CEM Secretariat, leading country, member countries, RGEI Initiative looks forward better and better achievements.
Jointly Promote RGEI
for our Shared Clean Future