

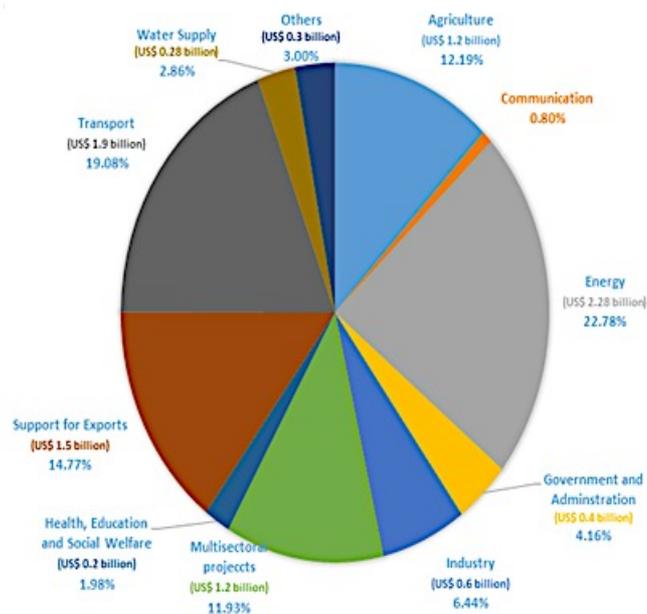
## Trends in Indian Development Assistance in the Energy Sector

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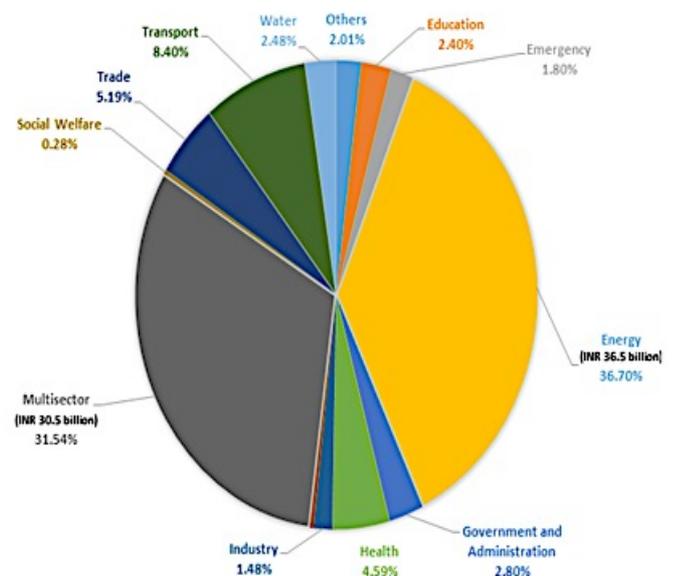
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A significant percentage of Indian development assistance is going towards projects in the energy sector. Over 23 percent (or approximately US\$ 2.3 billion) of the total Lines of Credit (LOCs) India committed between 2004 and 2013, and over 35 percent (or approximately INR 33 billion) of the total grants and loans India committed between 2006 and 2013 were towards projects in the energy sector.

**Sector-wise Distribution of Indian LOCs  
(2004/05 - 2013/14) out of a total of US\$ 10 billion**



**Sector-wise Distribution of Indian Grant and Loan Commitments (2006/07 - 2013/14) out of a total of INR 97 billion**



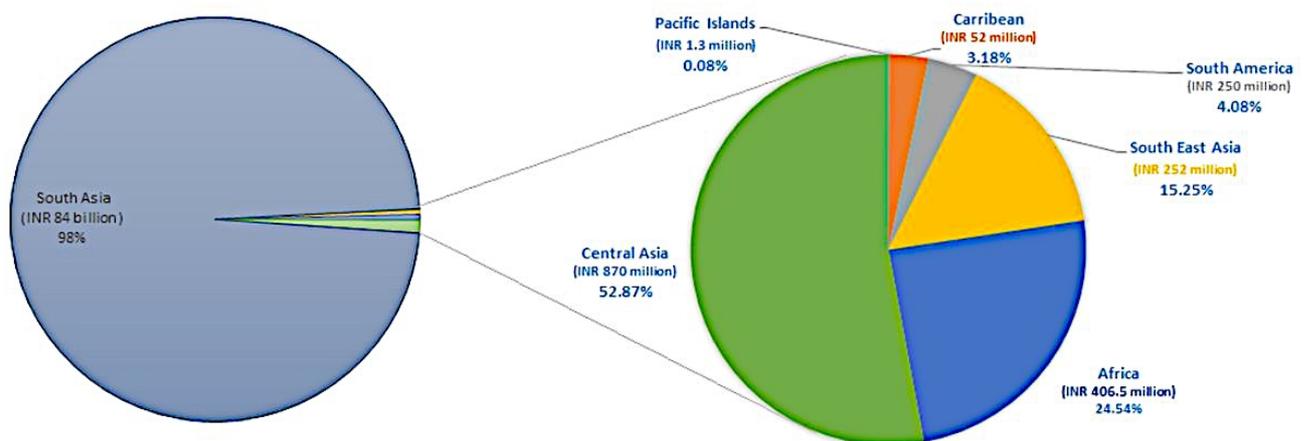
Source: Calculations by the Indian Development Cooperation Research (IDCR) initiative at the Centre for Policy Research, New Delhi, based on publically available data from the Union Budget 2014-15, Ministry of Finance, Government of India

India's exceptionally strong focus on the energy sector likely stems from the following factors: India's growing expertise in building power transmission systems, hydropower plants and low-cost solar power units, India's interest in spurring socio-economic growth among its development partners, and New Delhi's desire to strengthen the ability of its South Asian neighbors to export energy, thereby helping India ensure its own energy security. [1]

An analysis of India’s recent development efforts in the energy sector reveals the following trends:

- South Asia received over 90 percent of the total grants and loans India extended between 2006 and 2013. Indian grants and loans towards projects in the energy sector follow a similar geographic trend, with South Asia receiving over 95 percent (approximately INR 84 billion) of all Indian grants and loans extended to the energy sector between 2006 and 2013.

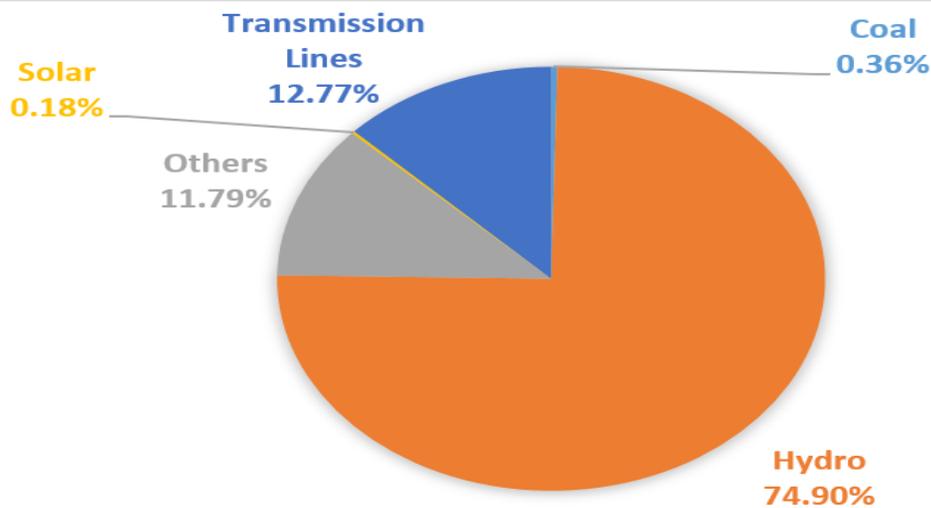
**Regional Distribution of Indian Grants to the Energy Sector (2006/07 – 2013/14) out of a total of INR 86 billion**



Source: Calculations by the Indian Development Cooperation Research (IDCR) initiative at the Centre for Policy Research, New Delhi, based on publically available data from the Union Budget 2014-15, Ministry of Finance, Government of India

However, Indian grant and loan based assistance in the energy sector is not limited to the South Asian region. Between 2006 and 2013, India committed grants and loans totalling INR 870 million to Central Asia, INR 406.5 million to countries in Africa and INR 252 million to Southeast Asian countries. Major energy projects funded by Indian grants and loans outside South Asia include the Varzob-1 Hydropower Plant in Tajikistan, the Tamarthi Hydropower Plant in Myanmar and the rural electrification project in Africa.

**Distribution of Indian Grant and Loan Commitments to Energy Projects, by type (2006/07 – 2013/14), out of a total of INR 86 billion**



Source: Calculations by the Indian Development Cooperation Research (IDCR) initiative at the Centre for Policy Research, New Delhi, based on publically available data from the Union Budget 2014-15, Ministry of Finance, Government of India

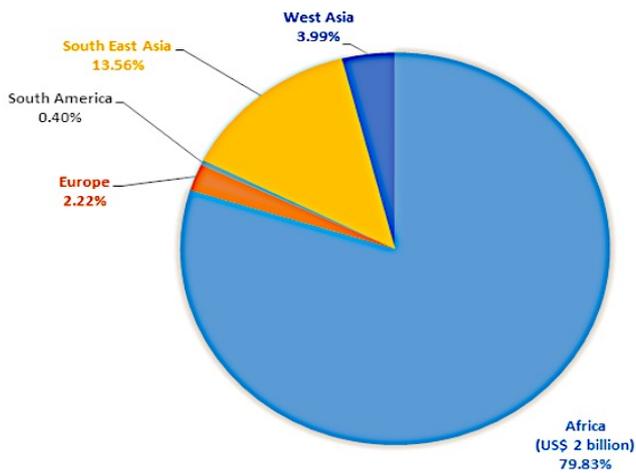
Between 2006 and 2013 nearly 75 percent (or approximately INR 65 billion) of the grants and loans India committed towards the energy sector were earmarked for constructing hydropower plants. It is worth highlighting that Bhutan alone received over 88 percent (approximately INR 57 billion) of these grant and loan commitments.

- *New Delhi's enthusiastic efforts to develop hydropower in Bhutan reflects India's dictum of development cooperation for mutual benefit.* Considering India has been able to purchase the excess power generated by Bhutan's hydropower plants at favorable rates, developing hydropower resources in Bhutan has not only allowed India to strengthen the economy of its eastern neighbor, it has also helped India bolster its own socio-economic development efforts - particularly in large parts of its underdeveloped northeastern region. Indian public sector companies such as BHEL and the Power Grid Corporation of India are some of the notable companies involved in constructing hydropower plants in Bhutan that have received Indian grant and loan based assistance like the Punantsangchu, the Mangdecchu stations among others.

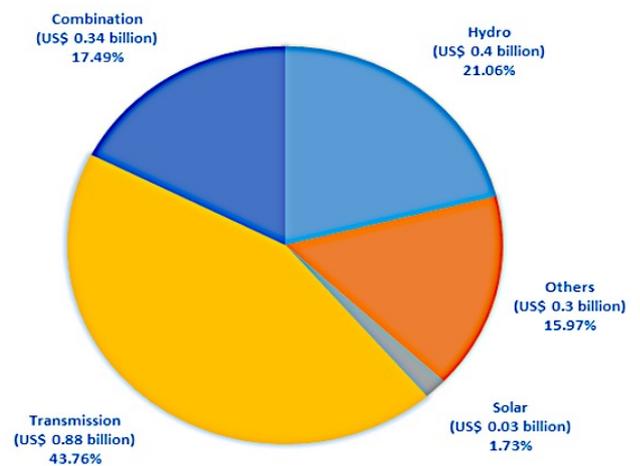
- While Indian grants and loans in the energy sector have largely focused on South Asia, *Indian LOCs in the energy sector have a strong emphasis on Africa.* African countries received nearly 80 percent of the LOCs India extended towards the energy sector between 2004 and 2013. In Africa, Indian LOCs have facilitated the construction of power transmission lines in Kenya and Mali, hydropower plants in Burundi, the Central African Republic and the

Democratic Republic of the Congo, and solar power plants in Niger. Between 2004 and 2013, top recipients of Indian LOCs towards energy sector projects in Africa include Ethiopia, Mali, Sudan and Mozambique among others. India now has development partnerships with all Sub-Saharan countries.

**Regional Distribution of Indian LOCs to Energy Projects (2004/05 – 2013/14) out of a total of US\$ 2.5 billion**



**Distribution of Indian LOCs to Energy Projects in African Countries by type (2004/05 – 2013/14), out of a total of US\$ 2 billion**



Source: Calculations by the Indian Development Cooperation Research (IDCR) initiative at the Centre for Policy Research, New Delhi, based on publicly available data from the Union Budget 2014-15, Ministry of Finance, Government of India

- 75 percent of Indian LOCs are tied to procuring goods and services from Indian companies. By focusing on LOCs in its engagement with Africa, New Delhi has helped Indian companies, both public and private, expand their presence in the African continent. Notable Indian companies involved in energy projects in Africa include the public sector company Bharat Heavy Electricals Limited (BHEL) and the Indian private sector companies Reliance Power and Tata Power.

Indian development assistance through LOCs in the power sector is not exclusively limited to the African continent. Countries such as Nicaragua, Cambodia and Myanmar among others have received assistance from India to develop hydropower resources and power transmission lines. Indian public sector companies such as BHEL and Power Grid Corporation of India have often assisted in setting up power projects in these countries.

**Conclusion:**

In addition to spurring general socio-economic development in the Global South, Indian assistance in the energy sector continues to be driven by New Delhi's desire to strengthen the capacity of its neighbors to export energy, as well as help market to other developing countries the increasing cost advantage Indian firms have in the renewable energy sector. Looking forward, as India's economy grows, a rising energy demand will likely mean Indian assistance to power-sector projects – especially in the South Asian region – will increase substantially. India has already committed to build seven hydropower plants with a total power generation capacity of 10,000 MW in Bhutan by 2020. [2] India has also committed to install 1,000 MW of hydropower in Nepal over the next five years. [3] If the excess power from these projects can be efficiently exported to India, Indian states bordering Bhutan and Nepal – specifically, Assam, Uttar Pradesh and Bihar - stand to benefit considerably.

As India continues to deepen development partnerships in the energy sector, New Delhi could consider more actively sharing its expertise in other forms of renewable energy such as wind and solar power. India already possess a cost advantage over Western foreign aid agencies. It could now further build up its expertise in renewable energy. Given that New Delhi expects to install 89,000 MW of wind power and 20,000 MW of solar power in India by 2020, [4] sharing new indigenous technologies in these sectors with development partners would not only help reduce costs (since production volumes of the new technologies will be greater), but it could provide India more opportunities to hone its expertise in installing large-scale renewable energy power plants. Additionally, by extending more LOCs to encourage development partners to adopt solar and wind energy technologies, India could open new commercial avenues for indigenous renewable energy industries.

Furthermore, as India seeks to foster the spread of low-cost renewable energy among its development partners, New Delhi could consider increasing ITEC (Indian Technical and Economic Cooperation) training slots at institutes such as the Barefoot College in Rajasthan and the Solar Energy Centre in New Delhi. India could also consider including more public and private renewable energy training centers in their ITEC program.

**Disclaimer:** The values quoted in this article are based on initial calculations by IDCR from publicly available data sources and/or from IDCR's interactions with officials from the Government of India. These values are believed to be accurate, but not guaranteed. They may change as IDCR identifies and addresses discrepancies in the publicly available data. When quoting from this article, please indicate the date it was last updated.

## END NOTES

[1] As an example, by developing hydropower resources in Bhutan India has been able access the excess power generated by Bhutan at favorable rates, which bodes well for India's energy security and for India's development efforts in large parts of its underdeveloped northeast region.

[2] <http://pib.nic.in/newsite/erelease.aspx?relid=77616>

[3] Calculations by IDCR

[4] <http://www.livemint.com/Industry/H8B2J5FIE2tpWKGNTtMnfM/India-to-witness-89-GW-of-installed-wind-power-by-2020.html> and <http://www.medindia.net/news/indias-solar-mission-projects-20-gw-of-power-by-2020-56064-1.htm>