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BHEL-developed India's first Ultra High Voltage AC 1200 kV Transformer successfully commissioned

Bharat Heavy Electricals Limited (**BHEL**)â€™s sustained focus on developing new technologies and products through in-house R&D initiatives has once again paid rich dividends to the country with the successful commissioning of Indiaâ€™s first 1200 kV Ultra High Voltage Alternating Current (UHVAC) Transformer of 333 MVA rating. The countryâ€™s first 1200 kV transmission line, the pinnacle of voltage levels in the world, has been charged from **BHEL**'s 1200 kV UHVAC transformer, at Bina in MP. This is the first leap of the country towards excellence in UHVAC systems and the establishment of the first commercial 1200 kV transmission system in India is a rare accomplishment in the world. The development of the 1200 kV UHVAC system will go a long way in enhancing the transmission efficiency from power hubs to distant load centers, which is a need of the country not only from the technical perspective and power demand-supply equation, but also from the point of view of a lower environmental impact due to a significantly lower Right of Way. Significantly, Indiaâ€™s first 1200 kV, 333 MVA Transformer has been developed, manufactured and successfully tested by **BHEL** entirely through in-house know-how. With this, India has joined a select band of countries in the world possessing this technology. The development of the 1200 kV UHVAC transformer is the outcome of two years of rigorous research by the engineers of **BHEL**. The technology for such leading-edge products is specific and available with very few manufacturers worldwide and is zealously guarded and not available for transfer. **BHEL** had to develop each facet of the technology through in-house R&D efforts to develop a product that is comparable to the best in the world. The transformer has been manufactured under a controlled environment using the contemporary, state-of-the-art manufacturing and testing facilities at the newly constructed transformer block in **BHEL**â€™s Bhopal plant to meet stringent quality requirements for operation of such transformers. **BHEL** had signed an MoU with PowerGrid for development of this transformer which is also the largest equipment used in a substation. The 333 MVA, 1150/400/33 kV, single-phase, Auto Transformer successfully developed by **BHEL** has been installed in India's first experimental 1200 kV National Test Station at Bina (MP) being set up by PowerGrid. This is a major mile stone for India towards self reliance in UHVAC transmission systems. Having introduced 765 kV as the highest transmission voltage, the country is aspiring to shift to 1200 kV voltage transmission networks during the XIIth plan period. A large network comprising 1200 kV transmission superhighways is being planned as part of the National Transmission Network. For the transmission sector, **BHEL** has developed various systems and products which include Power Transformers, Instrument Transformers and Disc Insulators suitable for UHVAC systems of 765 kV and 1200 kV. **BHEL** manufactures transformers, shunt reactors, instrument transformers, capacitors, extra high voltage circuit breakers and medium voltage switchgear at its facilities located at Bhopal, Hyderabad and Jhansi, besides providing total systems solution for HVDC, Extra High Voltage Alternating Current (EHVAC) and UHVAC Systems. **BHEL** is the biggest transformer manufacturer in India with a capacity to manufacture 45,000 MVA of transformers/reactors per annum. The company has set up a modern state-of-the-art manufacturing plant of 12,000 MVA at Bhopal to manufacture large sized EHV, HVDC and UHVAC transformers and reactors.