

Global Transmission Report

Information and analysis on the global electricity transmission industry

Poland's Investment Plans for Network Expansion

Polish grid inches closer to EU's interconnectivity target

The recently completed LitPol interconnector between Poland and Lithuania has significantly increased the interconnection level of the former in the European electricity market. Poland is among the dozen European Union's member states that still remain below the 10 per cent electricity interconnection target set by the European Commission, isolating it from the continent's internal electricity market. The latest interconnector has, however, doubled its interconnection level to 4 per cent. With the completion of the currently under-construction Vierraden (Germany)–Krajnik (Poland) upgradation project, Poland's interconnectivity will increase to above 10 per cent by 2020.

Poland's internal energy infrastructure is largely ageing and requires replacement. Considerable investments are being made both in generation and transmission to upgrade

(continued on page 2)

Update on India's Green Energy Corridors

Ambitious plan secures multilateral funding

India has embarked on an ambitious journey of increasing the country's installed renewable energy-based generation capacity to 175 GW by March 2022. This includes 100 GW of solar, 60 GW of wind, 10 GW of biomass, and 5 GW of small hydro energy. Around 25 solar parks in various states, each with a capacity of 500 MW to 1000 MW, are also envisaged by the government.

These targets imply significant renewable-energy penetration into the grid. To ensure that the proposed additional capacity is accommodated in a timely and efficient manner, the country's transmission network must expand commensurately. According to state-owned Power Grid Corporation of India Limited (POWERGRID), the renewable energy capacity penetration would increase to 18 per cent by 2017 and to 31 per cent by 2022.

Of the proposed 175 GW, almost 60 per cent is located in six states—Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Rajasthan, and Tamil Nadu. To facilitate the transfer of power from these renewable energy-rich states to others, as well as to ensure the absorption of power and to address renewable-

(continued on page 5)

Mexico's Power Sector Reforms

Plans to restructure Comisión Federal de Electricidad

Over the last couple of years, Mexico has taken several steps to reform its energy sector. In December 2013, the Mexican government adopted legislative amendments to open up the electricity sector to further private investment and to make it more competitive. This was followed by the passage of the secondary energy reform law in August 2014 and the issuance of draft guidelines for the creation of a wholesale power market in April 2015.

Now the country is set to restructure state-owned Comisión Federal de Electricidad (CFE) to create transmission, distribution, supply, and generation subsidiaries, each of which will be managed separately. The restructuring of the utility is stipulated by the electricity industry law, allowing CFE to participate in the country's newly created wholesale power market. In addition to the subsidiaries listed above, CFE will be allowed to create more subsidiaries as it deems necessary to boost its potential in the new market, and to deal with

(continued on page 3)

INSIDE THIS ISSUE

Features

- Poland's Investment Plans for Network Expansion 1
- Mexico's Power Sector Reforms 1
- Update on India's Green Energy Corridors 1

News

- North America 6
- Latin America 13
- Asia Pacific 15
- Europe 21
- Middle East & Africa 29

TSO Focus

- Dominion Resources 31

Policy Review

- Chile's Draft Transmission Law 33

Spotlight

- Transmission Developments in 2015 34

Data & Statistics: Slovakia

- Electricity generation and consumption trends 40
- Trends in electricity trade 41
- Electricity transmission sector 41

Deal Watch 42

Project Update 45

Company News 49

Tenders & Contracts 53

Poland's Investment Plans for Network Expansion (Contd...)

the existing assets. According to the transmission system operator (TSO) Polskie Sieci Elektroenergetyczne's (PSE) Ten Year Network Development Plan 2016–25, new thermal capacity of 9,832 MW is expected to be added during the plan period along with decommissioning of 4,859 MW, taking the net thermal addition to 4,973 MW. Additions from renewable energy sources account for a majority 6,434 MW. Renewable capacity addition is motivated by the objective of meeting the national target of increasing its share to 15 per cent by 2020. Poland is also preparing for the development of the country's first nuclear plant, the first unit of which is expected to be commissioned in 2024 and the next, within the subsequent six years.

New generation capacity will help meet Poland's future electricity demand, which is forecast to increase at a compound annual growth rate (GAGR) of 1.5 per cent over the next decade to reach 190 TWh by 2025. These developments require substantial investments in electricity transmission. During the 10-year period between 2016 and 2025, PSE plans to invest over PLN13.5 billion on the expansion and modernisation of the Polish grid network. The main objectives of the planned investments are to increase security of supply, to connect new power plants, including renewable energy resources (mainly wind farms), and to develop cross-border connections.

The total investment will be divided into PLN7,080 million and PLN6,435 million across the two five-year periods. During the first five-year period (2016–2020), 78 per cent of the investment will be spent on new construction, while only around 18 per cent of the investment will be dedicated to the modernisation of the grid. The undertaking of new construction is motivated by the need to connect new generating units to the grid as well as the need to adapt the transmission grid to the variable flows associated with renewable capacity, particularly wind power, which is increasing its share in the generation mix.

During the second five-year period (2021–2025), expenditure on new construction will constitute around 67 per cent, restricted mostly to the first two years of this period, that is, 2021 and 2022. In the latter three years, the major focus will be on the modernisation of the grid, which constitutes around 30 per cent of the overall expenditure during this five-year period.

In physical terms, PSE plans to add around 4,434 circuit km of new transmission lines and 18,210 MVA of transformer capacity at 400 kV and 220 kV voltage levels. This excludes the TSO's plans to decommission 220 kV lines aggregating 1,310 circuit km as well as transformers aggregating 3,375 MVA (across 400 kV and 220 kV levels) during this period. Besides this, PSE has planned the modernisation of several circuit km of transmission lines (mostly at 220 kV level), as well as the expansion and modernisation of several substations.

Some of the key internal projects include 400 kV lines such as the 123-km Łydowo Kierzkowo–Gdańsk Przyjaźń Line, the 174-km Płńów–Jasiniec–Grudzińdz Węgrowo Line (both to replace the existing 220 kV lines), the 61-km Łydowo Kierzkowo–Słupsk Line, and the 83-km Piła Krzewina–Bydgoszcz Zachód Line (both to support the country's upcoming projects to increase wind capacity).

Among other ongoing domestic projects are the under-development 400 kV lines, namely Mikułowa–Siwiebodzice and Krajnik–Baczyna; the Baczyna–Plewiska line; and the rebuilding of the existing Mikułowa–Pasikurówice line. These lines are crucial for connecting the Polish transmission system to the proposed third interconnector between Germany and Poland (400 kV, double-circuit Baczyna/Plewiska [Poland]–Eisenhüttenstadt [Germany]) in the long run. The interconnector was originally planned in the medium term, but eventually, based on PSE's analysis evaluating the effectiveness of the construction of the third interconnection with Germany's power generation system, it was established that it is possible to achieve the planned increase of cross-border capacity through the internal Polish transmission network. Therefore, PSE and its German counterpart, 50Hertz, decided to concentrate, in a first step, on the proposed reinforcements in Poland and to consider the construction of the third interconnection line between Poland and Germany, in a second step, in 2030.

In the immediate term, by 2017, the two countries are upgrading the existing 220 kV Vierraden (Germany)–Krajnik (Poland) line to a 400 kV double-circuit line along with the installation of phase-shifting transformers on both sides at Vierraden and Mikułowa. While this will help in increasing the cross-border capacity to some extent, limited grid connections between the north and south of Germany result in unscheduled flows to Poland, thereby restraining the capacity available to market participants. The issue requires a long-term solution through internal investments in both the countries.

In terms of other international transmission links, as mentioned earlier, the recently completed LitPol interconnector, with a transfer capacity of 500 MW, connects the Lithuanian and Polish transmission grids for the first time. The interconnection is part of the Baltic Energy Markets Interconnection Plan (BEMIP). About 100 km of this line is in Poland (from Elk to the border with Lithuania) and the remaining 50 km is in Lithuania (from the Alytus substation to the border with Poland). The project also involves reconstruction and expansion of the Alytus and Elk substations. A back-to-back converter station near the Alytus substation will also be built. The link is being developed in two stages. While the first phase has been implemented, the transfer capacity will be increased to 1,000 MW by 2020 in Phase II. The majority of the investments were made in Poland at around EUR430 million, half of which was funded by the European Union (EU). Investments in Lithuania amounted to EUR150 million, of which EUR35 million was funded by EU funds.

In the long run (beyond 2030), Poland is planning to strengthen its cross-border interconnections with the first new HVDC link with Denmark (Bjæverskov [Denmark]–Dunowo [Poland]). PSE is investing in augmenting and strengthening the transmission network in order to integrate new capacities as well as to ensure smooth cross-border energy exchanges.

Given the transition phase of the sector's energy mix, Poland became a net importer during 2014 from traditionally being a net exporter. During this phase, the country may continue to depend on external sources of power to meet its energy demand. The greater integration of Poland's grid with the grids of its neighbours is essential to ensure supply security as well as to build an effective internal energy market. Overall, there is significant activity taking place in the country's electricity sector, which is expected to continue over the next few years. ♦

Mexico's Power Sector Reforms (Contd...)

competition. The new firms will include at least four generation subsidiaries, and the allocation of power plants between these companies will be decided by the secretary.

For power distribution, the secretary has recommended the establishment of separate units for each of the 16 divisions served by CFE. For each company, CFE will act as a governing body to ensure efficient management.

The horizontal separation will ensure that all of CFE's generation and supply firms will have open access to the national transmission and distribution grid, which is key to the elimination of barriers to the construction of new power stations and critical for attracting investment to the sector. In this regard, the energy secretariat has announced strict terms for the legal separation of CFE. SENER has issued the terms under which CFE should be organised for participation in the market and the electricity industry.

The resolution promotes open access and efficient operation of the electricity sector and the generation segment subject to conditions of free competition.

The resolution also establishes rules for the independent operation of all the companies to ensure healthy competition in the market. In addition to this, the energy secretary has also started operating the short-term energy market in testing mode. From January 1, 2016, Centro Nacional de Control de Energía (CENACE), or the National Center for Energy Control, has started receiving requests from parties interested in participating in the market.

In January 2016, the short-term energy market will operate in test mode and CENACE will track its performance in order to authorise the permanent opening of this market by end-2016. This market will help private generators and suppliers, and qualified users and dealers, to sell and buy electricity at competitive prices, and thus will help in reducing costs and electricity tariffs.

For the smooth functioning of the market, the energy secretary has also issued a resolution establishing the criteria and the timing of the entry of players in the energy market in the short term. Mexico is also planning to launch its first ever electricity transmission tender in early 2016, to offer 1,230 km of lines to connect the Tehuantepec isthmus with the country's central region.

The energy ministry aims to add 25,000 km of transmission lines and to make investments of USD13.4 billion over the next 15 years. As per the arrangements, CFE will be able to form partnerships with private firms in order to procure the necessary funds required for the expansion of the grid.

In November 2015, CENACE issued the first call for participation in the auction of a long-term agreement for the sale of power and energy certificates. The entire bidding process is likely to end in March 2016.

Electricity market guidelines

In September 2015, Mexico's Ministry of Energy (SENER) published the Electricity Market Guidelines in the Federal Official Gazette.

The guidelines define and specify rules and procedures for the administration and operation of the wholesale electricity market in Mexico.

These guidelines are divided into 19 sections and cover various aspects of the market's structure and operation, including the following:

- Requirement of registration and accreditation of market participants in order to conduct transactions within the market
- Guarantees that market participants will be required to provide to ensure the performance and fulfilment of their obligations pursuant to the guidelines
- Provisions for regulating access to the National Electric System, as well as for the transfer of assets
- Components of the short-term energy market, including general aspects of the offers for sale and purchase of electricity, virtual offers, bilateral transactions, and offers from power plants, among others
- Operation of the short-term energy market, including the day-ahead market and the real-time market, and the rules controlling the coordination with the natural gas market
- Components and procedures for the operation of medium- and long-term auctions
- Rules governing surveillance of the market, which will be performed by an Independent Market Observer and a Market Surveillance Unit
- Handling of breaches of contracts and resolution of disputes, including the procedures for the suspension or restriction of a market participant's activities in the market.

Under the guidelines, the market will be operated by CENACE, and market participants will be able to enter into agreements with CENACE to purchase and sell electric energy, related services, power, clean-energy certificates, and other relevant products.

Participants may enter into these agreements as generators, marketers, suppliers, non-supplier marketers, or qualified users. The implementation of market reforms will be accomplished in several phases by 2019. Some of CENACE's obligations pursuant to the issuance of the guidelines are:

- Plan and control the operation of the National Electric System pursuant to the provisions of the guidelines, the network code, and the operational provisions issued by the Energy Regulatory Commission (CRE)
- Report any monopolistic practices among market participants, any attempts by the participants to manipulate the market, or any other condition that may evidence lack of competition
- Inform the Independent Market Observer and the Market Surveillance Unit if it detects any practices or actions that compromise the effectiveness of the market
- Inform CRE about any adjustments or amendments to the guidelines that are necessary to fulfil the objectives of the Electricity Industry Act.

Features

The guidelines allow participants to purchase and sell energy and related products and services in two submarkets, known as the real-time market and the day-ahead market. The hour-ahead market will be available between 2017 and 2018.

Pursuant to the guidelines, agreements [grants? contracts? Is it acceptable to say that are agreements are awarded?] for the purchase and sale of power and energy with a term of up to three years shall be awarded to authorised market participants through medium-term auctions.

Power and cumulative energy purchase and sale agreements with a term of up to 15 years, as well as agreements for the sale of clean-energy certificates with a term of up to 20 years, shall be awarded via long-term auctions. Basic suppliers, qualified suppliers, last-recourse suppliers, and qualified users are the entities that are allowed to participate in the auctions.

The guidelines also envisage a coordinated effort between the gas sector and the electricity sector, although market participants are not released from applicable penalties. More importantly, the guidelines lay the foundation for the purchase and sale of clean-energy certificates.

Participants will be able to sell clean-energy certificates at any price, but CENACE will not allow any participant to make a sale offer that surpasses the actual number of certificates in the possession of such a participant, pursuant to CRE's records. Currently, only CFE sells power to residential and commercial users, and is the only buyer of energy from companies that are issued the certificates. But in the future (under the new wholesale market structure), suppliers will be able to participate and serve consumers.

The guidelines are a significant step forward in the restructuring of Mexico's energy sector, which is aimed at creating an efficient, reliable, and competitive electricity

market, thereby improving the quality of the service for the benefit of the country and its consumers.

These guidelines will, in turn, give rise to the creation of rules and regulations containing procedures, manuals, and processes that are essential to the operation of the market.

Future

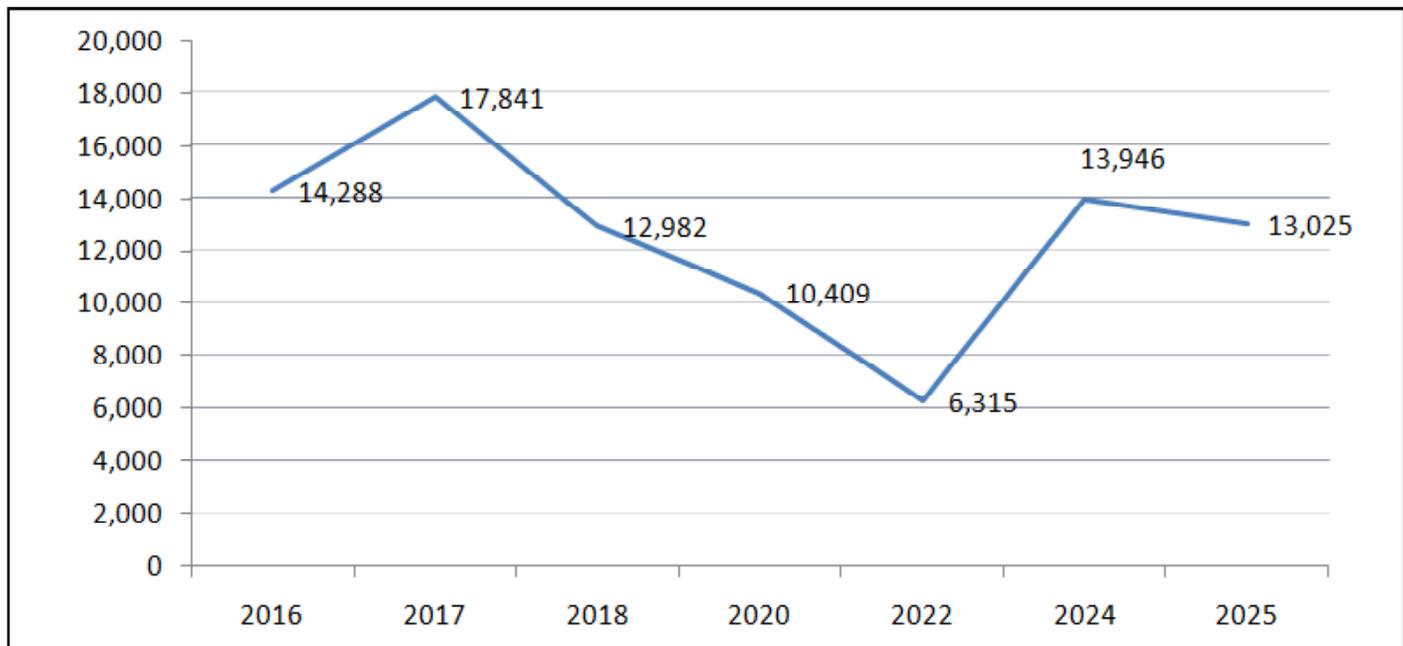
The Mexican government is taking several steps to encourage investment in the electricity sector. In addition to reforms in the power sector, the ministry of energy and the ministry of agrarian development have signed a collaboration agreement to facilitate land-use negotiations for the oil and gas and electricity industries in order to speed up the construction of energy projects.

The agreement seeks to ensure a balanced agreement between both sides in such negotiations and thus to widen cooperation to ensure the success of Mexico's energy reform. Further, CFE has also confirmed an allocation of over USD750 million to renovate its transmission and distribution network. CFE specified that this initiative is targeted at removing illegal connections and at reducing electricity theft.

The company predicted a loss of MXN42 billion in 2015 caused by these irregular activities. Between 2014 and 2015, CFE had awarded 11 contracts through its electricity loss reduction programme. It is planning further projects to renovate its infrastructure.

With the adoption of new laws and initiatives, Mexico is now looking to expand and strengthen its electricity infrastructure. The move towards a more market-oriented electricity market is expected to create significant investment opportunities for private players. However, Mexico will have to make its regulatory system more autonomous to achieve a more competitive energy sector. ♦

Table 1: Planned investment in transmission (MXN million)



Source: Secretaría de Energía

Update on India's Green Energy Corridors (Contd...)

energy intermittency and timing differences, POWERGRID has evolved a comprehensive scheme, Green Energy Corridors, comprising measures for the strengthening of both intrastate and interstate transmission. Under this scheme, USD7 billion worth of investments need to be undertaken in a phased manner, beginning under the Twelfth Five Year Plan (2012–17). Of the total investment, around USD3.6 billion needs to be spent on the development of the intrastate transmission network in the renewable energy-rich states and another USD3.4 billion of phased interstate investments need to be undertaken to enable power flows across states over long distances.

Green Energy Corridors-I

Under the Green Energy Corridors (GEC)-I project, a total of 17,000 circuit km and 34,600 MVA of substation capacity is envisaged. Of this, 13,600 circuit km and 16,650 MVA of transformer capacity will be at the intrastate level and 3,400 circuit km and 18,000 MVA of transformer capacity will be at the interstate level. The entire interstate transmission portion under GEC-I will be set up by POWERGRID. The intrastate transmission system, to be set up by the respective state transmission utilities, involves strengthening schemes primarily comprising pooling stations at 132 kV, 220 kV, and 400 kV levels and associated transmission lines.

As part of the interstate transmission system, a high-capacity transmission corridor connecting the major renewable-energy pockets from Bhuj in Gujarat (Western Region) to Moga in Punjab (Northern Region) via Chittorgarh/Ajmer/ Suratgarh in Rajasthan (Northern Region) and Tirunelveli and its interconnection in Tamil Nadu (Southern Region) is proposed to strengthen the existing interstate transmission network. The plan also entails setting up pooling stations at Bhuj, Banasakantha, Chittorgarh, Ajmer, Bikaner, and Tirunelveli, as well as other control infrastructure and facilities for the forecasting of renewable generation, balancing infrastructure, dynamic compensation, Renewable Energy Management Centres, and real-time monitoring under the project.

In 2013, Germany's KfW Bank committed to extending a loan of up to EUR1 billion for financing the GEC. KfW's funds will be made available in three tranches of EUR250 million, EUR500 million, and EUR250 million, respectively. So far, EUR825 million has already been committed by the KfW Bank for the implementation of interstate and intrastate transmission schemes under the GEC-I project. Around EUR750 million will be mainly utilised for the creation of the Bhuj-Chittorgarh/Ajmer/Suratgarh-Moga high-capacity corridor and for the establishment of the Tirunelveli pooling substation and its interconnection in Tamil Nadu. Another EUR125 million will be allocated for the creation of intrastate networks in the states of Himachal Pradesh and Andhra Pradesh. Work on most of the KfW-funded interstate transmission components is underway, with completion slated for 2016–17.

More recently, in December 2015, the Asian Development Bank (ADB) also approved a USD500 million loan to implement several components of the GEC-I project. The ADB aid will be used for the expansion of the GEC in the Northern Region,

mainly in the states of Rajasthan and Punjab. ADB-funded components are slated for completion by 2020.

Green Energy Corridors-II

In addition to the GEC-I project, the GEC-II project is planned by POWERGRID for grid integration of renewables by 2021–22. In the first phase of the programme, transmission schemes for the ultra-mega solar power parks of about 22,000 MW capacity scheduled to come up during the Thirteenth Plan (2017–22) period will be developed. These solar parks are part of the government's plans for the addition of 100 GW solar capacity by 2022.

Each park will have a minimum capacity of at least 500 MW. A solar park is essentially a large chunk of land developed for the setting up of a number of solar power projects wherein land that has statutory clearances will be made available to solar power developers. This land will have in place common infrastructural facilities such as water supply, transmission lines, roads, drainage system, and communication network. While the details of the GEC-II project are still being formulated, the transmission schemes identified so far under the GEC-II project would cover ultra-mega solar power parks in 12 states.

Of the 22,000 MW of capacity planned to be evacuated, the interstate transmission system will evacuate around 17,600 MW of capacity, while the balance capacity of 4,500 MW will be evacuated through the intrastate networks. The 22,000 MW includes a solar plant of 7,500 MW capacity that is planned to be set up at Leh/Kargil (in Jammu & Kashmir). Due to the high cost of the transmission corridor associated with the project, the government has, however, decided to go slow on it.

As of August 2015, POWERGRID had awarded the contract for one transmission line corridor in Andhra Pradesh and had completed the tendering process for two others in Madhya Pradesh and Karnataka under GEC-II. POWERGRID had also announced plans to complete the tendering process for the remaining six projects in Rajasthan, Uttar Pradesh, Madhya Pradesh, and Gujarat by end-2015.

With respect to the intrastate network, a 7,500 MW transmission project in Ladakh and Kargil is yet to take off due to the high cost of the proposed transmission corridor, while works on the remaining 4,500 MW projects are in various stages of implementation by intrastate agencies.

Conclusion

Renewable-energy sources are fast gaining prominence in India's generation mix because of the various incentive programmes and policies launched by the central and state governments. In the past, investments in transmission systems for renewable-energy integration have not kept pace with the growth of renewable-energy capacity in the country, but now POWERGRID's GEC project can help create an efficient interstate transmission infrastructure that can address the intermittency and timing differences of renewable energy. When completed, the GEC project is expected to expand electricity access for the population, increase private investment in renewable energy, and enhance energy security in India. ♦

NORTH AMERICA

FERC proposes revisions in GIAs

Federal Energy Regulatory Commission (FERC) has issued a proposal titled "Reactive Power Requirements for Non-Synchronous Generation, to revise standard generator interconnection agreements (GIAs). Under this, it has suggested eliminating the exemptions for non-synchronous generation, including wind generators, from the requirement to provide reactive power.

Reactive power is needed to control system voltage for efficient and reliable operation of the transmission system. Historically, the costs to design and build a wind generator that could provide reactive power were so high as to create an obstacle to the development of wind generators.

Such costs have experienced a decline and the Commission has concluded that continuing to exempt such wind generators from the requirement to provide reactive power may be unduly discriminatory and preferential. Also, the Commission notes that the growing prevalence of wind generators increases the potential for reactive power deficiencies on transmission systems.

The Commission proposes to modify its two proforma interconnection agreements, the Large GIA (for facilities larger than 20 MW) and the Small GIA to require all new wind generators seeking to interconnect and all existing wind generators making upgrades that require new interconnection requests, to provide reactive power.

Comments on the proposal are due on January 25, 2016.

FERC recommends reducing transmission rates to 10.32 per cent

The FERC has recommended reduction in transmission rates to 10.32 per cent from 12.38 per cent. However the commission staff demanded an even further cut to 9.14 per cent. With this order, the FERC has also recommended ITC Holdings Corporation, the Novi-based power-line company that recently put itself up for sale, and almost two dozen other owners of transmission lines in the Midwest, to cut rates and pay refunds.

Against this, transmission owners have argued that lowering the rate will compromise their ability to attract capital and could hinder progress in encouraging transmission investment. In October 2014, FERC lowered the rate in New England to 10.57 per cent after complaints by customers.

The recent FERC decision is in line with expectations and supports a sale value as high as USD45 a share for ITC Holdings, the only publicly traded specialist in high voltage lines.

If the FERC judge's recommendations are approved, it marks the end of rates that have been in place for more than a decade. FERC had previously sought to encourage construction of high-voltage lines by setting rates above those typically allowed by state regulators. Industrial consumers had complained that they were being overcharged by as much as USD327 million a year.

A final decision on this by FERC is expected in September 2016.

New Hampshire SEC to host public meetings for Northern Pass project in January 2016

New Hampshire Site Evaluation Committee (SEC) has formally accepted the application of Eversource Energy Transmission Ventures LLC for the Northern Pass transmission project. The committee has also scheduled five public meetings for the project in January 2016.

Northern Pass Project is a 192 mile (309.12 km) transmission line that will bring 1,000 MW of clean, affordable energy from Hydro-Québec's hydroelectric plants in Canada to New Hampshire and to the rest of New England region.

The project will use 160 miles (257.6 km) of existing transportation corridors, both beneath public roadways and along transmission line corridors. The project developers will also build an additional 32 miles (51.52 km) of new transportation corridor in North Country. According to the company, this is the most cost-effective route to transfer 1,000 MW of clean energy in New England.

Under this project, Eversource has proposed to install both direct current (DC) and alternating current (AC) lines. First, the power will be transmitted over

a 158 mile (254.38 km) DC transmission line, 96.6 km of which will be underground, from the Canadian border to a converter terminal in Franklin, New Hampshire. There it will be converted to AC and travel along an AC transmission line for 34 miles (54.74 km) to a substation in Deerfield, New Hampshire, where it will interconnect to the New England power grid and serve customers in New Hampshire and all other New England states.

ICC reiterates approval for Grain Belt transmission line project

Illinois Commerce Commission (ICC) has refused the appeal of local landlords and residents against the award of the certificate of public convenience and necessity (CPCN) to Clean

Line Energy (CLE) to construct and operate the Illinois portion of the Grain Belt Express Clean Line project. As per the commission, the line will help in boosting renewable energy development in the region.

ICC awarded the CPCN for the project in November 2015. The project has also received approval from Kansas' regulators and now requires final approval from Missouri. Subject to this, construction works of the project are likely to begin in 2017. The line will deliver wind energy from western Kansas to utilities and customers in Missouri, Illinois, Indiana and neighbouring states.

The project is a 780 mile (1,256 km), ±600 kV overhead high voltage direct current (HVDC) transmission line running from Ford County, Kansas, to south of St Louis, Missouri, while possibly passing Reno County. CLE has awarded the contract to supply equipment for the project to Missouri-based divisions of international manufacturers ABB Limited, General Cable, and Hubbell Power Systems (HPS).

The development and construction of the Grain Belt project is estimated to cost USD2 billion and is expected to support USD7 billion of new renewable energy projects in the region.

CLE to begin construction of PECL project in 2017

CLE is planning to start the construction of Plains & Eastern Clean Line (PECL)

project in 2017. In November 2015, the Department of Energy (DoE) released the draft environmental impact statement (EIS) of the project. The Department is participating in the project through Southwestern Power Administration, which does not operate in Tennessee. As per the analysis of DoE, the environmental protection measures that CLE has planned in the region would avoid or minimise the potential environmental effects of the project.

The proposed project will cross three states—Oklahoma, Arkansas and Tennessee. While approvals from Oklahoma and Tennessee regulators have already been received, Arkansas Public Service Commission (PSC) rejected the proposal in 2011, as the line did not serve any load in the state and again raised concerns regarding the availability of eminent domain rights to CLE for the project.

The USD2 billion project aims to deliver up to 3,500 MW of low-cost wind power from the Oklahoma Panhandle region to Tennessee, Arkansas and other markets in the mid-south and southeast United States. To evacuate wind energy, PECL, CLE's subsidiary responsible for implementing the project, plans to build a 750 mile (1,207.5km), ±600 kV HVDC line. The plan also entails setting up a converter station in Shelby County, where it will connect with the Tennessee Valley Authority (TVA) transmission system.

The line is expected to enable the development of renewable energy projects involving investments of more than USD7 billion, that otherwise could not have been built due to the limitations of the existing electric transmission grid.

Vermont PSC approves New England Clean Power Link project

The PSC of Vermont has approved the New England Clean Power Link project, which has been proposed by TDI New England (TDI-NE). The developer filed its application with the State PSC for the construction of the project in December 2014. As per estimates of the company, over its 40-year life, the project will create approximately USD1.5 billion of total economic benefits to the state and its residents. The project is yet to receive federal approval.

The project was announced by TDI-NE in October 2013. It includes the construction of 1,000 MW HVDC (underwater and underground) transmission line, which will deliver clean, low-cost energy from Canada to Ludlow, Vermont and the broader area of New England.

Under the project, about 150 miles (241 km) of line will be constructed from the US-Canadian border to Vermont. About 100 miles (161 km) of transmission line will be buried under Lake Champlain, with the balance buried underground along existing rights-of-way (RoW). The line will end at a converter station to be built in Ludlow, Vermont, and interconnect with Vermont Electric Power Company's (VELCO) transmission system.

The USD1.2 billion project will be financed by the developer entirely and will not cost the ratepayers anything.

An update on Great Northern power project

ALLETE, the parent company of Minnesota Power, has received approval from FERC on its request for a pair of incentive rate treatments for the Great Northern Transmission Line, a proposed 500 kV project that the former is considering building in partnership with Manitoba Hydro.

FERC's December 17 order approved ALLETE's October 19 application to allow recovery of 100 per cent of the construction work in progress (CWIP) costs and all prudently incurred costs if the project is abandoned due to factors beyond ALLETE's control.

As per FERC, allowing recovery of CWIP expenses will provide ALLETE with a steady cash flow during construction, relieve downward pressure on its credit rating, and protect Minnesota Power customers from rate shock that would come from the traditional Allowance for Funds Used During Construction (AFUDC) process.

In addition, an administrative law judge (ALJ) with the Minnesota Public Utilities Commission (PUC) has ruled on January 4, 2016 that Minnesota Power satisfied the criteria for the issuance of a route permit for the Minnesota portion of the Great Northern Transmission Line. Supporting this, the ALJ has also recommended

that the PUC grant the route permit for the project with a few variations on Minnesota Power's proposed route.

The project proposes to transport hydroelectric power generated by Canadian power utility Manitoba Hydro to regions of Minnesota and the upper Midwest in the United States. It will be developed in two phases. Phase 1 includes a 220 mile (354.2 km), 500 kV transmission line from the Canadian border to the Blackberry substation in Minnesota's Iron Range, which will be constructed by Minnesota Power; and Phase 2 entails the construction of a 50-70 mile (80-113 km), 345 kV double-circuit line between the Blackberry substation and the Arrowhead substation near Hermantown in Duluth in Minnesota, which will be constructed by Minnesota Power and ATC. The latter two will also work together to study other transmission upgrades in Wisconsin to facilitate the transfer of renewable energy in the region.

In November 2015, ALLETE received the final EIS from the US DoE and the Minnesota Department of Commerce (MDC) for the project, which followed a certificate of need from the PUC. Manitoba Hydro is in the process of securing a license for the Manitoba portion of the line, and Minnesota Power is awaiting DoE action on its application for a Presidential Permit. The US Department of Defense (DoD) and the US Department of State (DoS) have advised DoE that they have no objections to the issuance of a Presidential Permit for the project.

In its application with the PUC, Minnesota Power has mentioned that the Great Northern project is expected to cost between USD495.5 million and USD647.7 million, based on proposed routes and segment options.

In the recommendation, Minnesota Power has proposed two routes – a Blue Route and an Orange Route – each of which would begin at the US-Canada border crossing near Roseau, Minnesota and continue south to Grand Rapids, Minnesota, with a few variations in between.

The factors that favour the Blue Route are that the Orange Route would cross a larger portion of wildlife management areas and the Blue Route parallels existing corridors for a greater distance than the Orange Route.

ATCO energises EATL project

ATCO Electric has energised the Eastern Alberta Transmission Line (EATL) project in Alberta. Construction of the 485 km transmission line was completed in February 2015 and reclamation along the line was completed in November.

Approved by the Alberta Utilities Commission (AUC) in November 2012, construction on the USD1.8 billion project, which includes a 500 kV DC line and two converter stations, began in December 2012. The EATL project is one of the largest transmission projects in Alberta and will reinforce Alberta's electrical grid to meet increased demand in a cost-effective manner.

This marks the completion of North-South Transmission Reinforcement, under which last week AltaLink also energised the Western Alberta Transmission Line (WATL) project. Under this, the company constructed a 500 kV, 347 km line between the Genesee and Langdon areas. The project also has two converter stations, one each at Langdon and Genesee, built to convert power from AC to DC.

The WATL project was operational at testing mode since November 2015, and will help in improving the reliability and efficiency of the provincial interconnected electric system by adding 1,000 MW of capacity. An additional benefit is that the capacity can be increased to 4,000 MW in the future without the need to build more towers and impact more land.

Dominion Virginia seeks extension of construction deadline for Surry-Skiffes Creek project

Dominion Virginia Power has submitted its application with Virginia State Corporation Commission (SCC) to extend the completion date of Surry-Skiffes Creek transmission project. As per the application, the developer is requesting an extension of 20 months from the date of receiving the construction permit from the US Army Corps of Engineers. In February 2014, the SCC approved the in-service date of the project on December 31, 2015. But delay in receiving approval from US Army Corps of Engineers is hindering the implementation of the project.

The project entails building a 7.4 mile (12 km), 500 kV transmission line

between the Surry switching station in Surry County to the new Skiffes Creek switching station in James City County. This segment will also include the 3.5 mile (5.6 km) overhead line on James River. The company has also proposed a 20.7 mile (33.3 km), 230 kV line from the Skiffes Creek switching station to the Whealton substation in Hampton

Texas PUC approves Houston Region Import Capacity Project

The members of PUC of Texas have approved Houston Region Import Capacity Project and its route. A final order authorising construction is expected by mid-January.

The project is a 130 mile (209.3 km), 345 kV transmission line that will run from Harris County to Limestone County. This will constitute the southern portion of a larger project—Brazos Valley Connection. The northern portion of the transmission line will be constructed by Cross Texas Transmission, and will run from Grimes to Limestone County.

In April 2014, the Board of Directors of Electric Reliability Council of Texas (ERCOT) approved the project. As per ERCOT's analysis, considering the rising power demand, especially from the petrochemical manufacturing industry in the region, additional power transmission capacity will be required in the Houston region by 2018.

The developer has scheduled the completion of the project in 2018.

Missouri PSC postpones public hearings for Mark Twain Transmission Project

The Missouri PSC has postponed the public meetings scheduled for Mark Twain Transmission Project, while accepting the petition filed by a society named Neighbors United against Ameren's Power Line. The meetings, which were scheduled for December 2015, will now be held during January 2016.

Ameren Transmission Company of Illinois (ATXI) filed its application with the State PSC in February 2015 to receive the CPCN for constructing the line in Marion County and an associated switching station near Palmyra.

The project entails building a 345 kV, 100 mile (161 km) line between Palmyra and Kirksville, and then from the latter

to the Iowa border, along with a new substation at Kirksville. Recently, the company had announced its preferred route for the project. As per the finalised route, the line will connect the proposed new Zachary substation in Kirksville to the existing Adair substation. Ameren has chosen the route that runs primarily east of Highway 63, as it is likely to have lesser impact on people.

In addition, the company has also shortlisted another route for the project. Both the potential routes cross through Kirksville City. As per company officials, the project is necessary to ensure stability of the power grid in future, in addition to helping the state meet clean emissions standards.

MISO rejects three power transmission projects

The Midcontinent Independent System Operator Inc. (MISO) has rejected three power transmission projects, which as per the MISO-SPP Coordinated System Plan was expected to benefit power network of MISO and Southwest Power Pool Inc. (SPP).

The one project that received SPP board approval was the rebuild of an 11 mile (17.71 km), 138 kV line in northwestern Louisiana called South Shreveport to Wallace Lake, which would alleviate congestion on a nearby flowgate. The benefit-to-cost ratio for SPP was calculated at 11.86, according to SPP's assessment, and the SPP board approved the project in October 2015.

The second project was the addition of a new series reactor on the 115 kV Alto-Swartz line in north-central Louisiana, part of the Entergy Corporation system. It would relieve congestion on a nearby flowgate, with the bulk of benefits going to MISO. Engineering and construction costs were estimated at USD5.3 million.

The largest of the three interregional projects considered was a 78 mile (125.58 km), 345 kV line running north from the Elm Creek substation currently under construction near Concordia, to a new substation on an existing 345 kV line in Nebraska. It would be an extension of the Summit-Elm Creek 345 kV line in Kansas, due to be completed this year, being built in part by Westar Energy Inc., together with Mid-Kansas Electric Company LLC and ITC Holdings Corporation.

Members of NY PSC approve first round of transmission network replacement plan

The members of New York State PSC have voted in favour of the first round of power transmission network replacement plan, which will now advance to a competitive process managed by the New York Independent System Operator (NYISO).

The first round of replacement does not include the planned work in the Auburn area. The approved initiative includes replacement and upgrading of existing lines within existing RoW, and adding new substation facilities at several locations, which will reduce or eliminate adverse environmental, landowner, and economic impacts. The proposed project provides USD1.20 in benefits for every dollar that it costs.

The state-of-the-art improvements proposed for 156 miles (251 km) of high-voltage transmission lines, representing the backbone of the state's electric transmission system running west to east and north to south. This will help in reducing grid congestion and adding additional power production from lower-cost renewable energy projects in upstate New York to flow to downstate customers.

WAPA and SMUD study environmental effects of CoSu Line Project

Western Area Power Administration (WAPA) and the Sacramento Municipal Utility District (SMUD) are studying the environmental effects to construct and operate a 500 kV transmission line in Colusa and Sutter counties in California. Public meetings had been planned for January 12, 13 and 14, 2016, in Colusa and Sutter counties.

The proposed Colusa-Sutter Transmission Line (CoSu Line) would enhance the reliability of the electrical grid in Northern California by providing a new connection to the existing California-Oregon Transmission Project line in Colusa County, California.

The proposed line would link to a new substation near the existing O'Banion substation in neighbouring Sutter County.

The project would increase SMUD's ability to deliver clean power to the Sacramento area from the Pacific

Northwest and other energy markets. Under this, a new substation adjacent to Western's existing O'Banion substation south of Yuba City, and a line to connect this new substation to the existing California-Oregon Transmission Project (COTP) transmission line northwest of Arbuckle, will be constructed.

A notice of intent to prepare an environmental impact statement has been published to initiate a 60-day public scoping period under the National Environmental Policy Act.

SMUD will serve as the lead agency preparing the concurrent environmental impact review under the California Environmental Quality Act. SMUD is currently studying two routes for the project and a segment alternative for the CoSu Line in Colusa and Sutter counties.

The Northern Corridor Study Area is likely to be 44 miles (70.84 km) long and would be constructed adjacent to Western's existing 230 kV Olinda-O'Banion and Keswick-O'Banion double-circuit transmission lines.

The Southern Corridor Study Area is likely to be 27 miles (43.47 km) long and would connect to the existing COTP transmission line system approximately eight miles (12.88 km) northwest of Arbuckle in Colusa County, and continue east towards Western's existing O'Banion substation in Sutter County. Following this route, two new substations would be built – one adjacent to the existing COTP transmission line northwest of Arbuckle and another adjacent to the O'Banion substation.

The Segment 1 Alternative Study Area is approximately nine miles (14.149 km) long and would provide an alternate north-to-south route for the Northern Corridor Study Area. It would be located immediately west of the existing O'Banion substation.

Instead of following Western's existing 230 kV Olinda-O'Banion and Keswick-O'Banion double-circuit transmission lines to the O'Banion substation, this segment would extend south, at a location approximately 30 miles (48.3 km) from the Maxwell Series Compensation substation, and then continue east to connect to the O'Banion substation. The new segment would also be located further away from the Sutter National Wildlife Refuge.

PG&E holds public meetings for Northern San Joaquin Power Connect project

Pacific Gas and Electric Company (PG&E) has held public meetings for its Northern San Joaquin Power Connect project.

The proposed project will bring new transmission sources to the northern area of San Joaquin County and will serve more than 50,000 households and businesses in the Stockton, Lodi, Lockeford, Victor, Acampo and Thornton communities.

The proposed project consists of the construction of new 230 kV high-capacity transmission lines to connect PG&E's existing Lockeford substation that is east of Lodi, and the 8 Mile substation that is just north of Stockton, to the Lodi Electric Utility's Industrial substation in Lodi; as well as upgrades to these substations.

The developer is planning to submit its application with California Public Utilities Commission (CPUC) by late-2017 or early-2018.

JCP&L hosts public meeting for Montville-Whippany Transmission Reinforcement Project

Jersey Central Power & Light (JCP&L), a subsidiary of FirstEnergy Corporation, hosted a public meeting for the Montville-Whippany Transmission Reinforcement Project in Montville, New Jersey on December 8, 2015.

This project involves construction of a 7 mile (11.27 km), 230 kV line in Morris County through parts of East Hanover, Parsippany and Montville, to enhance service reliability, add redundancy to JCP&L's system, and meet the growing demand for electricity in the region.

The project is part of the 'Energizing the Future' initiative of FirstEnergy.

SCC Virginia to host public meetings for Haymarket 230 kV Line and Substation Project

The State Corporation Commission (SCC) of Virginia has scheduled public meetings in February and March 2016 for the Haymarket 230 kV Line and Substation Project proposed by Dominion Virginia Power. The proposed project will support the rapid and continued commercial growth,

particularly in the high-tech sector, in Haymarket and western Prince William County. This will also strengthen electric reliability for the local area by providing a new source of power in the heart of the growth area. Under the project, the developer has proposed to build a new substation west of Haymarket town and an approximately 5.1 mile (8.2 km), 230 kV line to connect existing transmission line facilities and the new substation.

The company is scheduled to start construction works of the project in 2016 and finish it in 2018.

Columbia Water and Light Department to hold public meeting for Columbia Electric project

Columbia Water and Light Department is considering an alternative route for Columbia Electric Transmission Line Project, despite rising opposition. This is a multi-phase project, which includes construction of transmission lines and a substation. The transmission line project has been in the planning stages since 2007. So far, the city has spent USD7 million on planning and buying equipment for adding the transmission lines and a new substation to the South Side. The department will hold a public meeting on January 19, 2016.

Under this project, the company has proposed to construct 8 miles (12.88 km) of 161 kV transmission line in the southern area of Columbia along Scott Boulevard, Nifong Boulevard and Grindstone Parkway. Along with this, the company will also place the entire distribution line underground. The entire project is anticipated to become operational by 2017.

Board of Salem Town rejects route for Spring Valley–North Lake Geneva project

The Board of Salem Town has approved a resolution to reject the route proposed by American Transmission Company (ATC) through the town, for the Spring Valley–North Lake Geneva project.

The Board has further requested that the Wisconsin PSC should mandate ATC to reconsider and resubmit its application with the commission. The Board has expressed its concerns regarding the likely negative impact of the line on the health of the local residents.

The project includes construction of a new 25 mile (40.25 km), 138 kV transmission line stretching from the existing North Lake Geneva substation in southern Walworth County to the existing Spring Valley substation in western Kenosha County.

The project also includes the building of a new substation near Twin Lakes, a new 69 kV transmission line to connect the new substation to the existing substation in Twin Lakes, and rebuilding of an existing 69 kV transmission line from the Katzenberg substation to the Twin Lakes substation, along with other maintenance works in the area. The project is scheduled to be completed by mid-2019.

ATC presented two routes of the line to the Wisconsin PSC. One route starts at the Spring Valley substation near Highway C and 98th Street in Salem and travels north to Paddock Lake, proceeds west along Highway K, then continues south along the western border of Twin Lakes, before eventually turning west and north towards Lake Geneva. The estimated construction cost of this route is USD95 million.

The other route starts west from the Spring Valley substation, then heads north along Highway 83 to about Highway AH, jogs a little west and works its way north to Highway 50, where it largely leads to Lake Geneva. The estimated construction cost of this route is USD80 million.

LCRA plans Leander–Round Rock line route through Round Rock and Leander

Lower Colorado River Authority (LCRA) is planning to pass Leander–Round Rock Transmission Line through west Round Rock and east Leander, and is thus encouraging local residents to participate in the route selection process of the project. Under the project, LCRA has proposed to build a new 138 kV transmission line in southwestern Williamson County.

The project consists of a 12.6 mile (20.3 km) line to connect the new Parmer substation to the existing Leander and Round Rock substations, construction of the 138 kV Parmer substation, addition of terminal equipment at the Leander and Round Rock substations for the new transmission line, and upgradation of the 138 kV bus at the Leander substation.

The Electricity Reliability Council of Texas (ERCOT) is supporting the project. The developer is likely to present its route recommendation for the project in 2016.

BLM seeks comments on EA of King to Wood River 138 kV transmission line rebuild project

The Bureau of Land Management (BLM) has announced the availability of the environment assessment (EA) report of the King to Wood River 138 kV transmission line rebuild project for public comments. The Bureau will seek comments till January 19, 2016.

The North Valley project has been proposed by Idaho Power, from Hailey to Ketchum under its Wood River Electrical Plan 2007.

Under this, the company has planned to construct a 12 mile (19.32 km), 138 kV power line between Wood River Transmission station and Ketchum substation to improve the reliability to the north end of the Valley.

The new line would run in place of existing overhead distribution power lines along Buttercup Road and the highway. It will provide a backup when the existing power line fails due to weather or technical problems.

Xcel Energy energises two 115 kV transmission projects under Power for the Plains initiative

Xcel Energy has energised two 115 kV projects under its USD1.6 billion-worth Power for the Plains initiative, which aims to strengthen the power network of Texas, New Mexico, and Oklahoma.

The Battle Axe–Roadrunner 115 kV transmission line project has been completed with an estimated cost of about USD14 million in New Mexico.

Under this, Xcel Energy has energised approximately 19 miles (30.59 km) of 115 kV transmission line between the Roadrunner substation located about 45 miles (72.45 km) southeast of Carlsbad to the new Battle Axe substation located about 38 miles (61.18 km) southeast of Carlsbad. The project also included the construction of the Battle Axe substation.

Xcel Energy has also energised the Ochiltree–Cole 115 kV project

consisting of approximately 17 miles (27.37 km) of transmission line in Ochiltree County, Texas and Beaver County, Oklahoma.

The transmission line is being rebuilt between the Ochiltree substation northwest of Perryton, Texas and the Cole substation about 9 miles (15 km) west of Balko, Oklahoma.

The project will help to improve network reliability and increase load growth capacity in the area, and has cost about USD12 million to Xcel Energy.

Idaho Power to rebuild aging transmission line in Wood River Valley

Idaho Power Company is planning to rebuild an aging transmission line that supplies electricity to Wood River Valley, which is one of two lines that serve the latter.

The line, built in 1962, extends from Idaho Power's King substation, southwest of Gooding, to the Wood River substation north of Hailey.

The 59-mile-long (94.99 km) line crosses 28.5 miles (45.86 km) of public land managed by the BLM.

The developer has submitted its application for the renewal of RoW across this land with BLM.

According to Idaho Power, the USD34 million rebuild is necessary due to the age of the structures and the inadequate older conductor (wires). The line is facing outage issues.

Idaho Power stated that installing new conductor at the same voltage will allow for higher capacity on the line and thereby will be able to meet the power needs of the valley in case the Midpoint-to-Wood-River line experiences an outage.

The existing wooden H-frame structures are not strong enough to accommodate the new conductor, and will need to be replaced with weathering steel ones.

The BLM has released the environmental assessment (EA) for the project, which states that the project is likely to have little impact on the environment. The public comment period on the EA ends on January 19, 2016.

Federal bankruptcy judge supports EFH's restructuring plan

Reportedly, a federal bankruptcy judge has agreed to approve the Energy Future Holdings (EFH) restructuring plan. The approval is subject to some conditions, including approval from PUC for the sale of Oncor, subsidiary of EFH, to Hunt Consolidated, Inc.

In September 2015, Hunt Consolidated, Inc. and Oncor Electric jointly submit their application with Texas PUC for the sale of the EFH current ownership stake in Oncor, as part of EFH's ongoing bankruptcy proceedings, to Hunt Consolidation.

If approved, Hunt and its consortium of investors would acquire EFH's current stake in Oncor and restructure it into a Real Estate Investment Trust (REIT), and Hunt would assume full operational control of Oncor by mid-2016.

First, Hunt and its consortium of investors would acquire EFH's 80 per cent stake in Oncor and restructure it into an asset company, which would be a subsidiary of a REIT, currently known as Ovation Acquisition I, L.L.C. (Ovation).

This asset company would continue to own the physical transmission and distribution assets currently owned by Oncor, including substations, transmission and distribution towers and poles, wire conductors, and other assorted components and equipment.

The newly restructured asset company would be owned by the consortium of investors and managed by Hunt.

Second, a new operating company would be created and would keep the Oncor name, with its headquarters remaining in Oncor's existing office in Dallas, Texas. It would be responsible for the day-to-day operation, maintenance, and construction of Oncor's existing system.

Oncor's existing management team, its employees, and operating assets would transfer to this operating company, which would be owned and controlled by the Hunt family through Shary Holdings, L.L.C., the same entity that owns Sharyland Utilities (the Hunt family's other regulated electric utility in Texas).

This is part of the bankruptcy solution offered by Hunt Consolidation to EFH in August 2015.

ATC hosts public meeting for Spring Valley-North Lake Geneva Electric Reliability Project

The American Transmission Company (ATC) hosted a public meeting in December 2015 for its Spring Valley-North Lake Geneva Electric Reliability Project in western Kenosha County. The company discussed two routes for the project with the local residents.

Presently, the company is seeking approval from PSC of Wisconsin for the construction of new and upgrade of existing lines and facilities along a 25 mile (40.25 km) stretch from Bristol to Lake Geneva in the state.

Under the USD72-91 million project, ATC has proposed to construct a new 138 kV line to connect the Spring Valley substation with the North Lake Geneva substation, a new 69 kV substation (either along Highway 50 in the Town of Wheatland or at an existing substation site called Richmond Road in the Town of Randall) and a new 69 kV line to connect the new 69 kV substation to the existing Twin Lakes substation in Twin Lakes. The project will help meet the growing electricity demand in southern Walworth and western Kenosha counties in Wisconsin.

The project is scheduled to come online in 2019.

Route for Elkhorn River Valley Transmission Project finalised

The final route for the Elkhorn River Valley Transmission Project has been finalised through Washington and Dodge counties. Omaha Public Power District (OPPD) and Fremont Department of Utilities are developing the project.

The project consists of a 161 kV transmission line to be built between OPPD's existing substation 1226 (located near Hwy 91 and County Road 27) west of Blair, Nebraska and existing substation 991 (located on U Boulevard and S. County Road 26) east of Fremont, Nebraska. A new 69 kV line will also be built between substation 991 and Fremont Department of Utilities' existing substation B (located on North

Luther Road and US 30) in Northeast Fremont.

As per estimates of the developers, the project is needed to improve the reliability of power networks of the region and will also help in augmenting renewable energy generation in their service territories. This project is included under the regional plan of Southwest Power Pool (SPP).

Texas PUC postpones public hearing for Stonebrook Transmission project

Texas PUC has postponed the public meeting for Stonebrook Transmission Line project from December 17, 2015 to February 11, 2016.

Under the project, the company has proposed to build a 2.7-4.1 mile (4.4-6.6 km), 138 kV transmission line in Frisco City. The line is proposed to run from a new substation located east of Lewisville Lake to an existing line located mostly along Legacy Drive just west of Dallas North Tollway. The transmission line will require about 70 feet of RoW and has been proposed to enhance the power network capacity of its subsidiary CoServ.

King County Judge rules in favour of EBCC for Lake Hills-Phantom Lake Project

The King County Superior Court Judge has affirmed that the East Bellevue Community Council (EBCC) has the right to make decisions regarding a land-use permit for the 115 kV Lake Hills-Phantom Lake Transmission Line Project proposed by Puget Sound Energy (PSE). The City of Bellevue has given its approval for the project, but the EBCC is still to announce its final decision. In June 2015, the EBCC cancelled its Conditional Use Permits (CUP) for the Project in line with the several legal documents submitted by local residents against the construction of the transmission project. The council had awarded the CUP to the project in May 2015 by the council.

Under the project, the developer has proposed to construct a loop between the Lake Hills and Phantom Lake substations so that each substation will be connected to two transmission lines.

PSE's project would run along a 2.89 mile (4.65 km) route to connect the two

substations. The route is proposed along Southeast 16th Street, 148th Avenue Northeast and Northeast Eighth Street, causing contention in the Lake Hills neighbourhood due to the need to remove nearly 300 mature trees. PSE has agreed to pay the city USD856,000 to replace the trees and add more landscaping, with a five-year monitoring plan.

Virginia SCC mandates seeking approval for 115 kV line of Dominion Virginia

The State Corporation Commission (SCC) of Virginia has ruled that Dominion Virginia Power is required to seek approval from the former before constructing the Norris Bridge 115 kV Transmission Line Rebuild and Relocation Project. Under this, the line will be built across the Rappahannock River and between Lancaster and Middlesex counties.

The SCC found that the proposed line is not an ordinary extension or improvement in the usual course of business. Thus its approval is required.

The proposed 1.9 mile (3 km) transmission line rebuilding project would be Dominion's longest 115 kV river crossing project in Virginia, with 10 steel H-frame structures ranging from 102 to 173 feet tall, and would have certain attributes related to a higher voltage line. The proposed project also requires new RoW.

SCE prepares emergency restoration plan

Southern California Edison (SCE) is preparing an emergency restoration plan in case of losing power as a result of the upcoming El Nino storm season.

Nearly 50 industrial generators are coming to the area, each putting out 2 MW of power. The fleet will serve as backup power from Gaviota, south to Rincon, if needed.

According to the company, Santa Barbara County has a demand of 250 MW. If this emergency plan is needed, the CAT mobile generators will provide roughly 50 MW of power, existing 66 kV lines will operate at their emergency limit of 150 MW, and the Ellwood plant would generate another 50 MW. The bulk of the generators will be installed at the Goleta substation off Glenn Annie.

The rest will be split between the substations in Gaviota, Isla Vista and Ortega in Summerland.

Alaskan utilities to set up joint electric transmission company

Alaskan utilities, working in conjunction with American Transmission Company (ATC), are likely to seek state regulators' approval in the third quarter of 2016 for a new joint electric transmission company.

Six Alaskan utilities filed a report with the Regulatory Commission of Alaska (RCA) on September 30 on their voluntary efforts to develop a business model for a transco for the area of the state known as the Railbelt.

ATC is also working with the utilities on their effort. A status report had been expected by the end of the year, and was filed with the regulatory agency on December 22.

The report noted that since 1998, the state has sponsored eight studies of the Railbelt region's electric system. Utilities serving the area currently share limited interconnections, and according to them, opportunity may exist to reduce congestion and improve reliability in an economical manner.

According to a timeline in the report, the design of a business model for the transco, called the Alaska Railbelt Transco, (ART), should be finished in the second or third quarter of 2016.

Individual decisions about participation should be made in that same timeframe. Those decisions are necessary before the utilities can apply to the RCA for a certificate of public convenience and necessity to establish the transco. The new entity is projected to be operational in the second quarter of 2017.

Participating utilities are: Anchorage Municipal Light & Power; Chugach Electric Association Inc.; Golden Valley Electric Association Inc.; Homer Electric Association Inc.; Matanuska Electric Association Inc. and the city of Seward Electric System. Each will decide on its own whether to participate in the transco.

By net system investment, Chugach is by far the largest of the six participants, with 41.9 per cent of the utilities' investment. By peak demand, however,

Chugach and Golden Valley have about the same shares, 25.4 per cent and 25.7 per cent respectively, with the Anchorage utility with 22.2 per cent share. By energy usage, Golden Valley is the largest of the six, at 26.5 per cent share.

Altalink energises WATL project

Altalink has energised Western Alberta Transmission Line (WATL) project, which is a part of the bigger North-South Transmission Reinforcement Project.

Under this, the company has constructed a 500 kV, 347 km line between the Genesee and Langdon areas.

The project also has two converter stations, one each at Langdon and Genesee, built to convert power from AC to DC.

The line has been operational at testing mode since November 2015, and will help in improving the reliability and efficiency of the provincial interconnected electric system by adding 1,000 MW of capacity.

An additional benefit is that the capacity can be increased to 4,000 MW in the future without the need to build more towers and impact more land.

LATIN AMERICA

Brazilian MME to revise transmission auction plans for 2016

Reportedly, the Brazilian Ministry of Mines and Energy (MME) has revised its plans for the auction of energy transmission projects in 2016 based on the current economic situation, and the weak result of auctions held in 2015.

Previously the government had announced plans to hold just one energy transmission auction with estimated investment of BRL14 billion, but now the government taskforce is currently revising these plans in order to separate projects into lots based on priority and size, and is focusing on those projects that are vital for the country and also those that would allow for the participation of smaller investors.

The rate of return for the projects is unlikely to be altered. However, as per MME a 17 per cent rate is adequate for the current situation.

The government had planned to raise about BRL30 billion from transmission projects sold throughout 2016, up from the BRL15 billion raised in 2015.

(BRL1=USD0.25)

Brazilian Copel to invest BRL3.15 billion in power network

The board of Brazil's Paraná-state power utility Companhia Paranaense de Energia (Copel) has approved investments of BRL3.15 billion for next year.

Of this amount, generation and transmission projects will receive BRL1.70 billion investment and BRL570 million will be pumped into the distribution segment. The remainder will be divided among the company's subsidiaries.

Copel expects its installed wind capacity to reach 664 MW by 2019, up from 332 MW today.

(BRL1=USD0.25)

Brazilian Ibama approves HVDC line corresponding to Belo Monte HPP project

The Brazilian environment regulator Ibama has approved an installation licence for one of the transmission lines of the Belo Monte Hydro project.

The 11.2 GW Belo Monte power complex will be located on Xingu River in the northern state of Pará. To evacuate power from the HPP, a 2,140-km long, ±800 kV high voltage direct current (HVDC) line from the Xingu substation to the Estreito substation in Minas Gerais state is being planned.

The project also includes the construction of the 500 kV/±800 kV Xingu and Estreito substations. The line is likely to start operating by early 2018.

The project was awarded in June 2014 to the IE Belo Monte consortium comprising Furnas Central Electric SA (Furnas) (24.5 per cent), Centrais Elétricas do Norte do Brasil S.A (Eletronorte) (24.5 per cent) and State Grid Corporation of China (SGCC) (51 per cent).

The consortium offered a bid of BRL434.65 million, representing a discount of about 38 per cent. ANEEL set the Receita Anual Permitida (RAP)

or annual permitted revenue limit for the project at BRL701 million for the project.

(BRL1=USD0.25)

Abengoa's financial crisis affects development of Belo Monte transmission project

A bankruptcy application filed by Spanish-firm Abengoa has halted the development of power transmission network associated with Belo Monte Hydro Power project.

The company won the concession for developing the associated lines in December 2012. As per the contract it is liable to construct Miracema-Gilbués II (500 kV, 410 km), Gilbués II- Barreiras II (500 kV, 289 km), Barreiras II-Bom Jesus da Lapa II (500 kV, 221 km), Bom Jesus da Lapa II-Ibicoara (500 kV, 232 km), and Ibicoara-Sapeaçu (500 kV, 254 km) lines. But due to its financial situation, the company has halted the work on the project.

The Belo Monte hydro complex is expected to start generating power in March 2016.

Between April and December 2016, five additional turbines with 611.1 MW of capacity each are scheduled to begin operating, but not all of the capacity is likely to be delivered to the grid right away because of delays in transmission line construction.

The Brazil's government is in talks with several foreign companies interested in taking over construction work of new power transmission lines left incomplete by struggling Spanish conglomerate Abengoa.

The MME of Brazil is soon planning to restart the construction works of power transmission network associated with Belo Monte Hydro Power project. Brazilian energy regulator Agencia Nacional de Energia Eletrica (ANEEL) is under discussion with Abengoa to find a way to resume the development works of the project.

Funai approves 500 kV Lechuga-Ecuador-Boa Vista project

Fundação Nacional do Índio or National Indian Foundation (Funai), an indigenous communities agency in Brazil, has given its approval

to environmental agency Ibama for the construction of the transmission line between Manaus, Amazonas, and Boa Vista, Roraima.

Transnorte Energia, a joint venture between Brazilian energy firms Alupar and Eletronorte, is developing the project.

The JV was formed to construct the 400 km, 500 kV Lechuga–Equador and 315 km, 500 kV Equador–Boa Vista transmission lines project, along with the 500 kV Equador and 500/230 kV Bora Vista substations.

The JV filed its application with Brazilian energy regulator ANEEL to abandon the project due to delay in receiving preliminary licence for the projects for the past three years.

Ibama is now expected to issue the licence in the coming days, with work able to begin after Transnorte Energia obtains the installation licence.

The company, however, has called for the value of the contract to be renegotiated, as it has already spent BRL250 million on the project.

(BRL1=USD0.25)

Roraima state to be connected to national grid of Brazil in three years

Brazilian government has announced that the state of Roraima will be connected to the national energy system within the next three years.

A 721.4 km transmission line crossing the states of Roraima and Amazonas will be built by the Transnorte consortium, formed of Alupar and Eletronorte.

The cost of the project has not been disclosed. Since the line will cross land owned by indigenous people, the indigenous communities agency in Brazil, Funai, granted its approval on November 26, 2015 for the project. Brazilian environmental agency, Ibama has also approved the provisional license for the project, with validity for five years.

Brazil to import power from Uruguay

The Brazilian government has authorised temporary and exceptional electricity imports from Uruguay as the country's grid struggles to meet soaring summer demand.

Electricity will be delivered to Brazil via the Rivera-Santana do Livramento transmission link, which allows the countries to share 70 MW of generating capacity.

No timeframe was given for the imports, which will be secured by state-run utility Eletrobras via weekly spot-market purchases.

Red Electrica Internacional SAU wins transmission concession in Peru

Red Electrica Internacional SAU company has won a concession contract for the Montalvo–Los Heroes 220 kV transmission line in Peru.

The award of the concession contract includes the construction of the new 220 kV, 129 km line and the enlargement of the Montalvo and Los Heroes substations. The project will enable electricity supply in the area of Tacna in the south of Peru.

Red Electrica will be responsible for the design, financing, construction, operation and maintenance of the facilities for a period of 30 years, in addition to a construction period of 33 months. The investment in this project, whose commissioning is scheduled for 2019, is estimated at USD40 million.

This project, which is part of the international expansion plans of the Red Electrica Group, strengthens the transmission system in the area of Peru near the border with Chile, which is an important step for the future interconnection of the electricity systems of both countries.

Environmental permitting process to begin in 2016 for Peru-Ecuador interconnection

The environmental permitting process is scheduled to begin this year for a planned 500 kV link between Ecuador and Peru under the umbrella of the Andean interconnection initiative SINEA Interconnection Project.

The work is for the Ecuadorian side of the project, which will connect the Chorrillos and Pasaje substations (271 km) and run from Pasaje to the border with Peru (71 km). The Peruvian component would run for 329 km.

The Inter-American Development Bank (IDB) will provide funds for the

consultancy contract under Ecuador's national transmission system reinforcement programme.

The winner will also conduct a social participation process to inform the public that may be affected and gather their opinions.

Ecuadoran authorities recently signed a contract with Leme Engenharia to complete the final project studies.

Peruvian grid operator COES's 2015-24 transmission plan highlights complementary hydrological advantages of the 500 kV interconnection because of construction of large-scale hydroelectric plants in Ecuador and the existence of important hydro projects in Peru.

Chile's environment regulator approves 500 kV line

Chile's environment regulator has approved a new 753 km power line, which will help in opening up huge potential for solar and wind energy generation in northern Chile.

The 500 kV double-circuit line will run from the city of Copiapo to the capital Santiago and will double transmission capacity between the north's Atacama Desert and coasts, and the load centres in central Chile.

The USD1 billion project is being developed by Colombian infrastructure Group ISA and is expected to be completed in late 2017.

Currently, a single 500 kV line links the northern end of Chile's central grid with the rest of the country.

Work is already underway on a line to link Copiapo with the Sistema Interconectado del Norte Grande (SING), or the northern power grid, which will supply power to the far-north of Chile.

Chile added 2,315 km line network during 2014-15

According to the recent update of Chile's energy commission, Comisión Nacional de Energía (CNE), the country has added 2,315 km of transmission line length during 2014-15. This is higher than the addition during 2012-13 (2,219 km) and 2010-11 (1,667 km).

In 2015, total 33 electricity transmission schemes are under

construction, which will add 2,067 km of line length with an investment of USD1.53 billion. E-CL and Transmision Electrica del Norte (TEN) and Spanish firm Red Electrica Internacional are developing these projects.

Mexican CFE to invest USD750 million for its power network

Mexican state-owned energy firm Comision Federal de Electricidad (CFE) has confirmed an allocation of over USD750 million to renovate its transmission and distribution network.

CFE specified that this initiative is targeted at detaching illegal connections and reducing electricity theft.

The company predicted a loss of MXN42 billion in 2015 caused by these irregular activities.

Between 2014 and 2015, CFE had awarded 11 contracts through its electricity loss reduction programme and is planning further projects to renovate its infrastructure.

(MXN1=USD0.058)

Mexico to host first transmission auction in early 2016

Mexico will launch its first ever electricity transmission tender in early 2016, to offer 1,230 km of lines to connect the Tehuantepec isthmus with the country's central region.

The energy ministry aims to add 25,000 km of transmission lines and achieve investment of USD13.4 billion over the next 15 years.

Mexico's national power utility CFE will be able to form partnerships with private firms in order to procure the necessary funds to channel into the expansion of the grid.

In another development, the energy ministry of the country and agrarian development ministries have signed a collaboration agreement to facilitate land-use negotiations for the oil and gas, and electricity industries, in order to speed up the construction of energy projects.

The agreement seeks to ensure a balanced agreement between both sides in such negotiations and thus to widen the cooperation within Mexico's energy reform.

Mexican CFE to be restructured

According to the energy ministry Sener, Mexico's state utility CFE will create transmission, distribution, supply and generation subsidiaries, each of which will be managed separately.

The restructuring of the utility is stipulated by the electricity industry law, implemented as part of Mexico's energy reform, allowing the CFE to participate in the country's newly created wholesale power market.

In addition to the subsidiaries listed above, the CFE will be allowed to create more subsidiaries as it deems necessary, to boost its potential in the new market competition, and the new firms will include at least four generation subsidiaries.

The separation of the various subsidiaries will ensure that all of the CFE's generation and supply firms will have open access to the national transmission and distribution grid, which is key to eliminating barriers to the construction of new power stations and attracting investment to the sector.

Colombian ISA completes La Reforma substation

Colombian energy firm Interconexion Electrica (ISA) has put its 230 kV La Reforma substation into operation, which will supply electricity to the Meta and Cesar departments.

The substation will provide greater security to the local electricity grid and will reduce service restrictions.

A subsidiary firm of ISA, Intercolombia is in charge of operating and maintaining the transmission line and ISA will receive an annual income of USD514,869 from the substation.

In addition, ISA has also begun the construction works of Copey substation in the Cesar department.

ISA wins contract in Ecuador

ISA has been awarded the contract for the construction of a transmission line and substation in Duran for strategic public company Corporacion Electrica del Ecuador.

This is the second energy project of the company in this country, where it already participates in the consortium

developing the Cuatro Rios de Cuenca Tram.

The contract has a budget of EUR20 million and an execution time of 510 days. It includes the construction of civil works, supply of materials equipment, electromechanical assembly, testing and commissioning of the 230 kV transmission line of 12 km length, and the Duran 230/69 kV substation.

(EUR1=USD1.08)

ASIA PACIFIC

China's NDRC and NEA release T&D pricing reforms

China's National Development and Reform Commission (NDRC) and National Energy Administration (NEA) have jointly released an implementation proposal on November 30, 2015, on promoting power transmission and distribution (T&D) pricing reform, by putting up a general target of establishing an independent power transmission and distribution pricing system.

According to the proposal, China will gradually expand the pilot power transmission and distribution pricing reform from Shenzhen and Inner Mongolia, to Anhui, Hubei, Ningxia, Yunnan and Guizhou.

Other areas qualified for power reform are also encouraged to launch pilot projects so as to expand the power transmission and distribution pricing reform nationwide.

The proposal also puts up a proposal to calculate the allowed general income of power grid companies and power transmission and distribution price based on the allowed cost and reasonable earnings.

In order to support the pricing reform, the proposal clarifies the cross-subsiding policy for different types of electricity prices covering industrial and commercial power use, residential power use and agricultural power use.

Meanwhile, during the transition period of power transmission and distribution pricing reform, the proposal stresses synchronised adjustment in electricity sale price with on-grid electricity price for direct power trading

in areas that have not practiced independent power transmission and distribution price.

NGCP seeks ERC's approval for capex of PHP8 billion

The private concessionaire of the country's high voltage grid—National Grid Corporation of Philippines (NGCP)—is likely to disburse a capital expenditure of PHP8.05 billion for the year 2016 and is seeking the Energy Regulatory Commission's (ERC) approval in this regard.

The transmission system operator (TSO) plans to spend the amount to finance the upgrade of the Tiwi and Naga substations, 69 kV Clark–Mabiga transmission line, 230 kV Bataan grid reinforcement, 500 kV Hermosa–San Jose transmission line, maintenance of equipment, revenue metering expansion and maintenance, telecommunications and SCADA maintenance and expansion, corporate and security infrastructure, and assets for acquisition.

(PHP1=USD.021)

China's SGCC commissions its first 220 kV ring network UPFC project

China's state-owned grid operator State Grid Corporation of China (SGCC) has put into operation its Nanjing West 220 kV ring network Unified Power Flow Controller (UPFC) project on December 11, 2015.

The project was approved at full capacity in June 2015 at an estimated cost of CNY220 million.

The core equipments of the project involved three direct current (DC) voltage source side parallel converters (VSC), with the DC side rated voltage of ± 18 kV, 1.1 kA at a rated current capacity of 2×6 million kVA (serial side) and +6 kVA wide area network (parallel side).

This is China's first independent intellectual property rights of UPFC projects. The UPFC is a combination of a static synchronous compensator (STATCOM) and a static synchronous series compensator (SSSC) coupled via a common DC voltage link.

The main advantage of the UPFC is to control the active and reactive power flows in the transmission line. UPFCs

are applied to cities with economically developed areas to enhance power grid capacity.

The successful implementation of the project will ensure precise control of Nanjing City's West core area of power transmission, will enhance supply capacity in the region by more than 30 per cent, and will offer economic and social development of the region by providing strong power protection.

(CYN1=USD0.15)

POWERGRID conducts test run on Northeast India–Bangladesh line

India's state-owned power utility Power Grid Corporation of India Limited (POWERGRID) has successfully conducted testing of transmission line in the Indian part of the Northeast India–Bangladesh transmission line project, on December 16, 2015.

The project will link India's Tripura state with Comilla in Bangladesh. On the Indian side, the project includes the construction of a 20 km transmission line, which will initially operate at 132 kV, and will be ramped up to 400 kV in future, along with extension of the bay at Surjya Mani Nagar in Tripura.

The Bangladeshi side entails construction of a 43 km, 132 kV line from the Bangladesh/India border to the Comilla South substation, along with expansion of the latter. The link will be used for supplying 100 MW power from the Paltana power plant located in Tripura to Bangladesh to help ease the power shortages of the latter.

POWERGRID and PGCB complete installation of Northeast India–Bangladesh line

India's state-owned powers utility POWERGRID and Bangladesh's state-owned transmission system developer Power Grid Company of Bangladesh (PGCB) have completed the erection of the Northeast India–Bangladesh transmission line project.

Both POWERGRID and PGCB have successfully completed the testing of the transmission lines on both their sides and found them okay. However, the supply of electricity would be delayed as the two countries are yet to ink a power purchase agreement (PPA).

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Work on 220 kV line hits hurdle in Kerala, India

The construction of the 220 kV Pothencode–Kattakkada high-tension transmission line has hit a hurdle owing to local protests and the contractor's inability to complete the work.

This line is one of the main links in power transmission networks in the Trivandrum district of Kerala.

In February 2015, the Kerala State Electricity Board (KSEB) had terminated the contract with Utkal Galvanisers Private Limited, leaving the work midway.

The construction of 37 towers, foundation for six more towers and drawing of 28.5 km line are yet to be completed.

Later, KSEB invited bids for taking up the remaining works, for which only one firm, Fathima Engineering Company, placed a bid.

Currently, KSEB is making every effort to complete the tender procedures for the remaining works in order to commission the project.

State-owned KSEB lays foundation stone for 110 kV substation in India

Kerala's state-owned vertically-integrated power utility KSEB laid the foundation stone for the proposed 110 kV substation at Kinaloor.

The substation is expected to give a boost to Kinaloor Industrial Growth Centre by providing uninterrupted power supply and will be completed

within eight months at a total cost of INR94.5 million.

According to KSEB, Kerala State Industrial Corporation will fund the project and it has already granted INR31.7 million to start the work.

As per the agreement, the remaining amount would be disbursed in two instalments as per the progress of the work. The substation will be connected to the Kakkayam hydroelectric plant for power transmission.

Presently, the existing 33 kV Manhapalam substation is handling the power requirement of the Kinaloor industrial area and surrounding locations.

(INR1=USD0.015)

Work on 110 kV substation delayed in Kerala, India

Work on the 110 kV substation for the Aluva water treatment plant, that had begun ten years ago, is yet to be completed.

Though the KSEB had laid the electrical cables a few months ago and had also completed overhauling the panels installed years ago, a metering unit is yet to be set up for the plant.

However, a major portion of the work is to overhaul the two transformers of the substations, installed by Transformers and Electricals Kerala Limited (TELK) about ten years ago. Currently, the oil from the transformer has been sent for testing as per rules set by Kerala Water Authority (KWA).

The plant currently works on the 11 kV feeder line and had faced power outage quite a few times earlier as cables had snapped.

The setting up of the substation had got caught in bureaucratic delays between the KWA and KSEB.

Of the total initial cost of INR200 million, about INR70 million were spent on installations by TELK. The rest of the cost and time was involved in laying the electrical cables from the Aluva Power House to the substation.

From the initial estimate of about INR120 million raised by the KSEB, the cost of laying the cables escalated to over INR160 million by the time KWA

managed to deposit the amount in three instalments.

(INR1=USD0.015)

Hyderabad's circular transmission network to be operational by March 2016

The circular network of the power transmission and distribution system with a capacity to meet demand of up to 8,500 MW from the present 2,400 MW in the Hyderabad Metropolitan Development Authority (HMDA) area is expected to be fully operational by March 2016.

The circular network is a part of the state-owned electricity transmission company Telangana Power Transmission Corporation Limited's (TS TRANSCO) island mode of operation.

It relates to supply of power from all sides by developing a circular network of transmission so that a city remains unaffected from interruptions in the national or regional grid.

A ring of substations is formed in the system to ensure interruption-free supply by drawing power from different sources, even in the case of main grid failure.

The circular system of transmission is already operational and is being strengthened further by adding some more substations in the next few months.

The network had been connected to transmission lines from Ramagundam, Kothagudem, Srisailem and Bhupalapalli generating stations to minimise outages, except for shutdowns arising out of maintenance/repairs on transmission lines.

Nearly 78 km of 400 kV transmission lines were laid around the city and an amount of INR19.20 billion was being spent on setting up substations alone to develop the island mode of power supply network. As per TS TRANSCO, the infrastructure had been developed to meet the projected growth in demand at least for a decade.

(INR1=USD0.015)

State transco to construct 220 kV substations in Nagpur, India

State-owned Maharashtra State Electricity Transmission Company

Limited (Mahatransco) is constructing three new 220 kV substations of 250 MVA in Nagpur in order to meet the growing power requirements in the city. The three substations are coming up at Mankapur, Pardi and Uppalwadi.

These substations are vital for meeting the power demand of Nagpur metro railway and reducing breakdowns at extra high voltage (EHV) level. They will be connected to each other to form a 220 kV ring around the city. The work on the substations has been taken up at a cost of INR1.19 billion.

At present the city only has a 132 kV ring around it. There are seven substations in this ring — Mankapur, Uppalwadi, Kamptee, Pardi, Besa, Hingna I and Hingna II.

(INR1=USD0.015)

State Transco's 132kV line project faces trouble in India

The Maharashtra State Electricity Transmission Corporation Limited's 132 kV Mokhabardi transmission line project is facing problems as it passes through protected areas of the Umred-Karhandla Wildlife Sanctuary.

The project will require the diversion of 8.84 hectare core area and 5,439 trees will need to be cut for laying and constructing the transmission towers in around 4 km reserve forest area by the Ambhora Lift Irrigation Division, Bhiwapur.

The 132 kV line project involves the construction of 132 kV Bhandara-Ambhora double-circuit transmission line.

It will transmit the bulk power from the Bhandara (Sunflag) substation to the Mokhabardi substation for the proposed Mokhabardi Lift Irrigation Scheme under Gosikhurd Project.

India's MeECL inaugurates 132/33 kV substation

Meghalaya Energy Corporation Limited (MeECL) inaugurated the 132/33, 2x20 MVA substation at Mendipathar in the North Garo Hills (NGH) on December 22, 2015.

The North Eastern Council (NEC) funded the substation project at a total cost of INR145 million. It is the third

substation in Garo Hills after Nongalibra and Rongkhon substations.

(INR1=USD0.015)

Isolux JV commissions 400 kV line in India

Spain-based construction and infrastructure company Isolux Corsan, in consortium with Karamtara Engineering, has commissioned its second high voltage transmission line engineering, procurement, and construction (EPC) project for POWERGRID on December 3, 2015.

The contract involved the complete engineering, procurement and construction of 180 km long, 400 kV double-circuit quad transmission line on the Narendra-Kudgi section in the state of Karnataka.

The line will enhance the process of distribution of electricity in the southern region, which is power deficit; as and when the Kudgi 1500 MW Mega Power Plant of National Thermal Power Corporation (NTPC) is commissioned.

The project has been completed within the stipulated timeframe despite serious operational challenges like inhospitable terrain and inclement weather.

Sterlite commissions 400 kV RAPP project in India

India's private transmission company Sterlite Grid Limited (SGL), a wholly-owned subsidiary of Sterlite Technologies Limited (STL), has commissioned the Transmission System Associated with Rajasthan Atomic Power Project (RAPP-Units 7, 8) on January 2, 2016, ahead of schedule.

At the same time the completion of project before the scheduled time makes it the first project eligible for the incentive programme [(won as part of Tariff Based Competitive Bidding (TBCB)] introduced by Union Ministry of Power.

The project was implemented by RAPP Transmission Company, a special purpose vehicle (SPV) set up for the project.

The scope of the project involved the development of an approximately 200 km long, 400 kV double-circuit line to transfer power from the RAPP located

near Kota in Rajasthan to Shujalpur in Madhya Pradesh.

The line will also act as an inter-regional link to strengthen transmission systems to exchange power between the northern and western grids.

India's Powergrid completes 400 kV transmission project

Vizag Transmission Limited (VTL), a SPV owned by India's central transmission utility POWERGRID, has commissioned the 400 kV Khammam-Nagarjunasagar transmission line project on December 31, 2015.

The project is one of the components of the larger project System Strengthening in Southern Region for Import of Power from the Eastern Region.

The project involves the development of the 765 kV Srikakulam pooling station-Vemagiri II pooling station double-circuit line (about 600 circuit km); and the 400 kV Khammam (new)-Nagarjunasagar double-circuit line 2 (300 circuit km).

It involves setting up an additional high voltage inter regional alternating current (AC) link between the southern and eastern regions to facilitate the import of power to the former.

India's 765 kV Warangal power project to be awarded in February 2016

The subsidiary of state-owned Power Finance Corporation Limited (PFC)-PFC Consulting Limited (PFCCCL) is likely to auction the Additional Inter-Regional Alternating Current Link for Import into Southern Region, i.e. Warora-Warangal and Chilakaluripeta-Hyderabad-Kurnool 765 kV Link project, in February 2016.

The financial bids for the project will be opened on February 5, 2016. Based on the lowest annual tariff, the name of the successful bidder will be announced on February 12, 2016.

PFCCCL is one of the two bid process coordinators appointed by the Ministry of Power (MoP) for awarding interstate transmission projects through the TBCB process.

The project entails the construction of the 765/400 kV, 2x1,500 MVA Warangal

substation, the 765 kV double-circuit Warora Pool-Warangal (New) line, the 765 kV double-circuit Warangal (New)-Hyderabad line, the 400 kV double-circuit Warangal (New)-Warangal (existing) line, the 765 kV double-circuit Hyderabad-Kurnool line, the 765 kV double-circuit Warangal (New)-Chilakaluripeta line and the 400 kV (quad) double-circuit Cuddapah-Hoodi line.

In line with the above, PFCCCL also established a SPV, Warora-Kurnool Transmission Limited, which will be transferred to the selected developer for the implementation of the project.

Indian power majors submit financial bids for high voltage project in Odisha

Six major power companies including the state-owned power utility POWERGRID along with private sector notables such as Adani Power, Vedanta Resources, Kalpataru Power Transmission Limited (KPTL), Essel Infrastructure Limited (EIL) and a joint venture of a consortium of Gayatri Projects Limited and Engineering and Infrastructure Limited, have submitted financial bids for the Common Transmission System for Phase-II Generation Projects in Odisha and Immediate Evacuation System for Odisha Power Generation Corporation Limited OPGC (1,320 MW) Project in Odisha.

The last date for submission of bids was December 15, 2015. PFC Consulting Limited is conducting the auction of the project.

The project involves the construction of the 350 km long, 765 kV Jharsuguda (Sundargarh)-Raipur Pool double-circuit transmission line and the 50 km long, 400 kV OPGC- Jharsuguda (Sundargarh) double-circuit transmission line.

Laos' EDL commissions 230 kV northern grid project

Lao People's Democratic Republic's (Laos) state-owned power company Electricite du Laos (EDL) has put its 230 kV Northern Laos Power Grid Project into operation on November 29, 2015.

The project will help improve the power grid structure in northern Laos, improve power supply quality and reliability of the existing grid, and

strengthen the power grid structure of Laos. Under the project, five 230 kV lines will be constructed in the country's northern region to evacuate power from the Nam Ou cascade power plants.

The project also entails the construction of two new 230 kV substations (Beimeng and Namo) and one 230 kV switching station (Bendai), and expansion of the existing 230 kV Luang Prabang 2 substation.

The construction work on the project was taken up by Yunnan International Company, a subsidiary of China Southern Power Grid, and is one of the China-Laos cooperation projects within the belt and road initiative proposed by China to enhance regional connectivity.

The Belt and Road initiative routes run through continents of Asia, Europe and Africa, connecting the vibrant East Asia economic circle at one end and developed European economic circle at the other.

Vietnam's NPT energises 110 kV line

State-owned Electricity of Vietnam's (EVN) transmission subsidiary National Power Transmission Corporation (EVN NPT) has energised the 110 kV Hai Duong 2–Hoa Phat transmission line project on December 9, 2015.

The project involves the construction of a 110 kV line from the 220 kV Hai Duong 2 substation to the 110 kV Hoa Phat substation at an estimated cost of VND33 billion.

This line has been built with the goal of providing a second power source for the Hoa Phat substation, ensuring stable power supply, reduction in power losses, improving safety, and ensuring overall development of regional electricity grids, in particular Kinh Mon district, Hai Duong province and the region in general.

(VND1=USD 0.00004)

Vietnam commissions 220 kV line project

On December 8, 2015, Power Company Number 3, under the state power company EVN, has commissioned the 220 kV An Khe–Quy Nhon circuit 2 transmission line.

This marks the completion of the 220 kV An Khe–Quy Nhon transmission line,

circuit 2 combined improving circuit 1 project.

The project involves the construction of a 46 km long transmission line from An Khe hydropower plant to the 220 kV Quy Nhon substation along with a 220 kV Quy Nhon substation at an estimated cost of VND450 billion.

The project will help in ensuring power supply safety and continuity for the Binh Dinh province, while enhancing reliability and meeting the increasing power load of the neighbourhood region.

(VND1=USD 0.00004)

Vietnam's NPPMB commissions 500/220 kV line project

Northern Vietnam Power Project Management Board (NPPMB), subsidiary of state-owned EVN Group, has commissioned the 500/220 kV Bac Ninh 2 Pho Noi Transmission Lines project on January 4, 2016.

The project involved the development of a 30.2 km long, 500/220 kV Bac Ninh 2–Pho Noi line to the 220 kV Bac Ninh 2 substation and associated 500 kV grid in the northern region.

National Power Transmission Corporation funded the project work under the EVN NPT programme, with an estimated amount of over VND1,164 billion.

(VND1= USD0.00004)

ROW issues stall Mindanao's power grid maintenance works

Philippine high voltage grid developer National Grid Corporation of the Philippines (NGCP) has pointed out right-of-way (ROW) issues in Lanao del Sur to stall the maintenance works on Mindanao's power grid and hamper optimal power supply in the region.

The grid operator has been unsuccessful at its attempt to resolve ROW issues that prevent transmission line clearing operations and maintenance, despite months of amicable negotiations with a landowner who refuses entry to his property.

NGCP has been coordinating with the landowner for more than 16 months now to settle the issue and clear the trees posing a threat to the 138 kV Agus 2–Kibawe line project.

NGCP has repeatedly appealed to the Philippines' government and its army for assistance in resolving the escalating security and ROW issues in Mindanao.

In July 2015, state-owned power utility National Power Corporation (Napocor) along with NGCP and local government bodies had sought a permanent solution to the RoW issues related with the development of power transmission projects prevailing in the country.

In addition, NGCP plans to commission its 138 kV Calong–Calong–Toledo–Colon Transmission Project by April 2016.

The PHP602 million project includes construction of a 28 km long transmission line between Colon and Calong–Calong substations.

The line aims to improve the Visayas grid's capability to accommodate additional supply from new generating units.

(PHP1=USD0.021)

BHEL commissions 220 kV substations in Afghanistan

India's integrated power plant equipment manufacturer has commissioned two 220/20 kV substations in Afghanistan on EPC basis.

The substations have been commissioned at Charikar, around 60 km from Kabul and Doshi, and around 150 km from Kabul.

Both the substations are part of the 220 kV Phul e Khumri–Kabul transmission system and will provide power to Charikar and Doshi sites and their neighbouring areas.

Tajikistan proposes development of 500 kV project

Tajikistan has proposed the development of an investment project aimed at constructing a power transmission line from Tajikistan through Sary–Tash (Kyrgyzstan) to Ulugchat County in China's Xinjiang Uyghur Autonomous Region (XUAR).

Reportedly, the project involves the construction of a 550 km long, 500 kV power transmission line from Tajikistan via Sary-Tash to Ulugchat County in

XUAR at an estimated cost of USD160 million. The line would enable Tajikistan to supply upto 6 billion kWh of electricity per year.

According to Tajikistan's State Committee on Investment and State Property Management, the country plans to supply surplus electricity after construction of large and medium-sized hydropower plants on Vakhsh River.

POWERGRID invites bids for Green Energy Corridor project in India

India's central power utility (CTU) POWERGRID has invited two bids under the Asian Development Bank (ADB)-funded Green Energy Corridor and Grid Strengthening Project.

The first bid is for the design, engineering, manufacture, testing, supply, transportation and insurance, storage, erection and commissioning of the 765/400 kV Bikaner (New) substation (including the supply of 765 kV circuit breaker and 400 kV bus reactor), and extension of the 765 kV Ajmer and Moga substations. The last date for submission of bids was January 13, 2016 (Soft Copy) and January 15, 2016 (Hard Copy).

The second bid is for the manufacture, factory testing, supply, unloading, storing, handling, installation and commissioning of the ± 320 kV, 2x1000 MW voltage source converter (VSC)-based HVDC terminals at Pugalur (New) and North Trichur, along with the supply of DC, cross-linked polyethylene (XLPE) underground cable for connecting it to the overhead line (OHL).

The bid due date for the contract was January 15, 2016.

POWERGRID invites various high voltage bids in India

India's CTU POWERGRID has invited various high voltage bids for tower, cable and substation packages.

The first bid involves the supply of tower package for the (including composite long rod insulators) LILO of circuits II and IV of the 400 kV Rourkela-Raigarh double-circuit transmission line (68 km) at Jharsuguda (Sundergarh substation) associated with the Common Transmission System for Phase-II Generation Projects in Odisha.

The scope of the contract also includes the supply of towers, hardware fittings and accessories for conductors and renovation/dismantling of existing single-circuit towers for the 132 kV Hatia-Sikidari transmission line (43 km) under the Jharkhand State Electricity Board (JSEB) consultancy.

The bids are open only for domestic contractors.

The last date for submission of bids was January 9, 2016 (Soft Copy) and January 11, 2016 (Hard Copy).

The second contract is for the supply of tower packages for the 765 kV Ajmer-Bikaner double-circuit transmission line under the ADB-funded Green Energy Corridor and Grid Strengthening Project.

The bid submission date for the contract is January 25, 2016 (Soft Copy) and January 28, 2016 (Hard Copy).

The third contract is for the supply of tower package for the 765 kV Bikaner-Moga double-circuit transmission line under the ADB-funded Green Energy Corridor and Grid Strengthening Project with a bid deadline of February 3, 2016 (Soft Copy) and February 5, 2016 (Hard Copy).

The fourth contract is for the supply of the optical ground wires (OPGW) package for the 765 kV Warora-Parli double-circuit transmission line; 765 kV Parli-Solapur double-circuit transmission line; 400 kV (Quad Moose) Parli (POWERGRID)-Parli transmission line associated with the Transmission system for the Gadarwara STPS (2x800 MW) of NTPC (Part-B) project under the tariff-based competitive bidding (TCBC) route.

The bid due date for the contract was January 13, 2016.

The fifth contract is for the supply of the OPGW package for the 765 kV double-circuit line-in-line-out (LILO) point of Seoni-Bina line to Jabalpur pool; 765 kV double-circuit LILO point of Seoni-Bina line at Gadarwara; 765 kV double-circuit LILO Gadarwara-Warora transmission line; 400 kV double-circuit LILO of both circuits of the Wardha-Parli (POWERGRID) line at Warora associated with the Transmission system for the Gadarwara STPS (2x800 MW) of NTPC (Part-A) project.

The submission deadline for the contract was January 15, 2016.

The last contract is for the extension of the 400 kV substations at Farakka, Berhampur, Subhasgram and Sagardigi, including supply, erection, testing and commissioning of the 400 kV, 1x125 MVA bus reactor at the Berhampur substation under the Eastern Region Strengthening Scheme-XV (ERSS-XV).

The contract is open only for domestic contractors and the bid due date was January 13, 2016 (Soft Copy) and January 15, 2016 (Hard Copy).

India's POWERGRID invites tower package bids for high voltage lines

India's CTU POWERGRID has invited four bids for the supply of tower packages for high voltage lines associated with the Strengthening of Transmission System in Southern Region Beyond Vemagiri.

The first contract is for the supply of tower package (including conductor, insulator, hardware fittings and conductor accessories, spacer damper, rigid spacer, earthwire and OPGW) for the 290 km long, 765 kV Vemagiri-Chilakaluripeta double-circuit transmission line.

The second contract is for the supply of tower package (including conductor, insulator, hardware fittings and conductor accessories, spacer damper, rigid spacer, earthwire and optical ground wire [OPGW]) for the 275 km long, 765 kV Chilakaluripeta-Cuddapah double-circuit transmission line.

The third bid is for supply of tower package (including conductor, insulator, hardware fittings and conductor accessories, spacer damper, rigid spacer, earthwire and optical ground wire [OPGW]) for the 240 km long, 400 kV Cuddapah-Madhugiri double-circuit transmission line.

The fourth contract is for the supply of tower package (including conductor, insulator, hardware fittings and conductor accessories, spacer damper, rigid spacer, earthwire and OPGW) for the 143 km long, 400 kV Srikakulam-Garvidi double-circuit transmission line and the 42 km long, 400 kV Chilakaluripeta-Narsaraopeta double-circuit line.

The last date for submission of bids (open to only domestic bidders) for all the four contracts is January 22, 2016.

Nepal's NEA invites bids for 220/400 kV line

Nepal Electricity Authority (NEA) has invited international competitive bids for high voltage transmission line construction.

The scope of the contract includes the design, supply, installation and commissioning of the 220/400 kV New Khimti–Barhabise transmission line under the ADB-funded Electricity Transmission Expansion and Supply Improvement Project.

The last date for submission of bids is January 20, 2016.

Bangladesh's PGCB invites bid for 132 kV lines

State-owned transmission system developer PGCB has invited bids for the construction of 132 kV line on a turnkey basis under the Japan International Cooperation Agency (JICA)-funded National Power Transmission Network Development Project.

The scope of the contract involves the plant design, supply and installation of the 132 kV Saidpur–Jaldhaka and Bogra–Palashbari–Mahasthangarh transmission lines.

The last date for the submission of bids is February 10, 2016.

Bangladesh's PGCB invites bids for high voltage substations and transmission lines

Bangladesh's state-owned transmission system developer PGCB has invited bids for the construction of high voltage substations and transmission lines under the Islamic Development Bank (ISDB)-funded Power Grid Expansion Project.

The scope of the contract involves the design, supply, erection, testing and commissioning of the 400 kV, 230 kV and 132 kV substations (16) under Lot I.

Under Lot II it involves the design, supply, erection, testing and commissioning of the 400 kV, 230 kV and 132 kV transmission lines (15).

The bid due date for the contract is March 15, 2016.

Thailand's EGAT invites bids for 230 kV lines

Thailand's vertically-integrated power utility Electricity Generating Authority of Thailand (EGAT) has issued bids for the construction of 230 kV lines under the Transmission System Expansion Project Number 12. The scope of the contract involves the construction of a 230 kV Khlong Ngae substation–Satun substation transmission line (57.6 km) and a 230 kV Khlong Ngae substation–Sadao substation transmission line (15.6 km).

The last date for the submission of bids is March 8, 2016.

Thai's EGAT invites bids for 230 kV line

Thailand's EGAT has invited bids for the construction of a 230 kV line. The scope of the contract involves the construction of the 68.6 km long, 230 kV Chanthaburi substation–Trat substation line under the Transmission System Expansion Project Number 12.

The last date for submission of bids is April 5, 2016.

Vietnam's SPPMB invites bids for supply of towers for 500 kV line

Vietnamese Southern Vietnam Power Project Management Board (SPPMB), a subsidiary of state-owned National Power Transmission Corporation (NPT), has invited bids for the supply of steel towers for the 500 kV World Bank-funded Second Transmission and Distribution Project. The scope of the contract involves the supply of steel towers for the 500 kV Song May-Tan Uyen transmission line. The last date for the submission of bids is February 23, 2016.

Power utilities in Vietnam invite high voltage bids

Three high voltage bids for the construction of transmission line and supply of steel towers, and conductors and cables were invited by power utilities in Vietnam. Northern Power Corporation invited two bids. The first was for the supply and transportation of conductors, optical cables and accessories for the 110 kV

Phong Tho–Than Uyen Transmission Line, while the second bid was for the supply and transportation of steel towers for the 110 kV Phong Tho–Than Uyen Transmission Line. Both bids are under the World Bank-funded Distribution Efficiency Project and their due date is February 19, 2016.

The third bid was invited by SPPMB for the construction of 220 kV Phu Lam–Cai Lay 2 transmission lines (including supply of steel towers, testing and commissioning) under the World Bank-funded Transmission Efficiency Project (TEP), in two lots. Lot I involves construction of transmission lines from Long An substation to position G14 and extension of bay at Long An substation, while Lot II involves the construction of transmission lines from position G14 to Cai Lay 2 substation.

The last date for bid submission is February 23, 2016.

Afghanistan invites bids for 220 kV lines

State-owned power company Da Afghanistan Breshna Sherkat (DABS) is seeking international contractors for construction of high voltage transmission lines under United States Agency for International Development (USAID)-funded Programme for the Connection of the Northern Electricity Power System (NEPS) to the Southern Electric Power System (SEPS).

The scope of the contract involves the construction of five 220 kV lines – the Ghazni–Qarabagh transmission line in Ghazni province, Qarabagh–Moqor (Gelan) transmission line in Ghazni province, Moqor–Shah Joy transmission line in Zabul province, Shah Joy–Qalat transmission line in Zabul province, and the Qalat–Kandahar East transmission line in Kandahar province.

The bid due date for the contract was January 16, 2016.

EUROPE

ENTSO-E releases winter outlook and summer reviews report

ENTSO-E has released a report covering winter outlook and summer reviews, which provides detailed national, regional and pan-European security of electricity supply assessments for the upcoming winter,

and a review of security of supply issues of the previous summer, as required by EU legislation.

The ENTSO-E Winter Outlook 2015/16 analyses the power balances of the whole ENTSO-E area (34 European countries) as well as Albania, Malta and Western Ukraine, on a weekly basis. For the first time, the analysis has been extended to Turkey.

The period covered goes from beginning of December 2015 to beginning of April 2016. The summer review looks back on the period of June-September 2015.

The winter outlook identifies risks to security of supply and the countermeasures proposed by the TSOs. It has shown that Europe has sufficient generation for both normal and severe demand conditions for the year 2015-16.

Using the interconnection flexibility, demand side management and strategic reserves measures, adequacy for the coming winter should be met in most European countries. However, adequacy in Poland has been identified as potentially at risk.

ENTSO-E members sign agreement for regional cooperation

Regional cooperation of TSOs will be intensified according to a multilateral agreement signed among ENTSO-E members for participation in Regional Security Coordination Initiatives (RSCIs). The agreement ensures that RSCIs develop in a harmonised, interoperable and standardised way.

RSCIs are designed to offer at least five types of services: common grid modelling; analysis on system security; coordination among a region of outage planning; system adequacy forecasts; and coordinated calculation of transmission capacity.

As a result of TSO regional cooperation, customers can benefit from increased security of supply, more efficient networks and markets.

The existing RSCIs are Coreso in Brussels, security coordination initiatives (SSC) near Cologne and TSO Security Cooperation (TSC) in Munich. In 2015, two other RSCIs have been set up in South-East Europe – one in Belgrade (SCC) and one in Thessaloniki.

In the coming years, there will be more RSCIs established and Europe should be fully covered by end-2017.

German TSOs' network security measures increase

The number of measures German power TSOs have had to take to keep the nation's grid stable have increased this year, according to a report published by regulator Bundesnetzagentur (BNetzA).

The intervention in generating schedules by TSOs (known as redispatching) has increased by 6 per cent to a total of 8,453 hours. The TSOs' forecast for net intervention costs in 2014 was EUR186.5 million.

Germany's redispatch measures amounted to 5.3 TWh in the first half of 2015, exceeding the total for the whole of last year.

Restriction of subsidised renewable energy production from combined heat and power (CHP) plants for network stability reasons totaled 1.5 TWh in the first half of 2015, compared to 1.6 TWh in the whole of last year.

The German government plans to increase transmission capacity between northern and southern regions to stabilise its network, but construction of the new lines has been delayed, partly due to strong public opposition in some federal states.

(EUR1=USD1.08)

Swissgrid announces winter outlook update

Swissgrid has announced its winter 2015-16 outlook for the grid. Its predictions show that grid capacity for the Swiss transmission grid, in particular for 380/220 kV transformers, will increasingly reach its limits.

A number of special external circumstances affecting the 220 kV grid will make its operation this winter particularly difficult, compared with previous years.

Swissgrid estimates the current grid situation and the supply of energy for winter 2015/16 as tense. Energy reserves are not enough and due to the dropout of nuclear power plants, a large share of base load is missing from the 220 kV grid. The missing feed-in into the 220 kV

grid can only be offset by imports from the 380 kV grid to a limited extent.

France and Belgium to introduce intraday coupling

The French-Belgian border will implement intraday coupling in the third quarter of 2016.

The implementation of implicit allocation, where power exchanges and transmission system operators coordinate so that traders can buy capacity rights and the power to be delivered in a single transaction, will be preceded by a change in the current method of explicit allocation.

While the current mechanism is based on an iterative pro-rata basis, a continuous intraday market with capacity allocated on a coordinated 'first come first served' basis will replace it.

The transmission system operators have proposed three alternative scenarios for intraday coupling: the exclusive use of implicit allocation; the simultaneous use of implicit and explicit allocation; or the use of the explicit allocation as a fall-back option in the case of a fault in the coupling mechanism.

The proposal to continue explicit allocation alongside implicit allocation would allow cross-border trades to continue on brokered platforms.

Implicit allocation is already implemented on Belgium's border with the Netherlands and the French border with Germany, and is designed to help balancing responsible parties optimise and meet obligations in real time.

Norway's competition authority backs Statnett's power line monopoly

The Competition Authority of Norway has declared that Statnett, the national electricity transmission network operator, should retain a monopoly on building and operating international electricity lines.

Statnett is already involved in two power interconnection projects to Germany and the United Kingdom.

In 2013, the former government granted exclusive rights to Statnett, suspending NorthConnect, a project by Vattenfall and private Norwegian

companies, to build a power interconnection to the United Kingdom.

The new government proposed to change the law in 2015 to allow Nordic power producers to export surplus power.

The Norwegian parliament will have the final say on the amendments proposed by the Ministry of Oil and Energy and a decision is expected by mid-March 2016.

Greece's ADMIE to remain under state control

Greece's Independent Power Transmission Operator Anexartitos Diacheiristis MetaforasIlektrikis Energeias (ADMIE) will cease to be an independent company as per the decision taken by its creditors and the government.

As per the decision, ADMIE should split from its parent Public Power Corporation S.A (PPC) and be converted into a company that will be a 100 per cent subsidiary of the state.

The plan that has been agreed to, in principle, will provide for the state to hold on to a majority stake of 51 per cent and a strategic investor to take 20 per cent, while the remaining 29 per cent will be floated on the local stock market.

After the grid operator is converted into a state-held company, a tender will be called for the sale of 20 per cent of ADMIE to a network operating company with the remaining 29 per cent to be listed on the bourse.

An independent assessment of the price that PPC should receive as compensation for the grid operator will also be undertaken.

Montenegro's power watchdog approves regulatory revenue and tariff caps for 2016

Montenegro's energy regulator has approved the regulatory caps on revenues, tariffs and charges for the electricity sector for the period commencing January 1, 2016.

The decision was adopted after taking into account proposals submitted by power utility Elektroprivreda Crne Gore (EPCG), transmission system

operator Crnogorski Elektroprenosni Sistem (CGES) and the Montenegrin electricity market operator, Crnogorski operator tržišta električne energije (COTEE).

CGES's revenue cap has been set at EUR21.96 million, 29 per cent short of what the company had requested.

EPCG's revenue cap is set at EUR78.8 million, down 18.7 per cent from the requested amount, in line with regulations imposed on distribution system operators.

(EUR1=USD1.08)

Estonian government makes amendments to electricity transmission grids regulations

Estonian government has passed amendments to electricity transmission grids regulations to optimise EUR1.5 million expenditures on installation of smart electricity meters.

A smart electricity meter would not be installed at electricity consumption points, which have not consumed electricity in three years.

The amended regulation would also extend the operating terms of the old power blocs of Eesti Energia Narva power plants through 2023.

(EUR1=USD1.08)

Germany provides EUR29 million to boost Mozambique power supply

The German government will provide a total of EUR29 million to support projects aimed at improving the supply of electricity in Mozambique.

Of this amount, EUR20 million will be allocated to the power transmission line between Mozambique and Malawi, with the remaining EUR9 million for the company's Short-term Investment Plan (STIP).

(EUR1=USD1.09)

Slovak TSO SEPS to invest EUR87 million in electricity grid in 2016

Slovakian TSO Slovenska Elektrizacna Prenosova Sustava (SEPS) is planning to invest nearly EUR87 million to extend its 400 kV and 200 kV transmission networks in 2016.

The largest volume of funds will be invested in the continuation of the 400 kV grid construction between the Gabčíkovo hydro power plant and Velký Ďur.

Also, innovation of electricity control centres in Zilina and Bratislava as well as construction of several electricity substations in the country will be undertaken.

A major portion of the funds will come from the International Fund for Support of Decommissioning of the V1 Bohunice Nuclear Power Plant (NPP).

Fingrid to invest EUR13 million in renovation of Korja substation in Kouvola

Finland's electricity TSO Fingrid will invest EUR13 million in the renovation of the Korja substation in Kouvola in Finland.

The substation's 400 kV switchyard will be renewed and extensive renovation work will be carried out at the 110 kV switchyard. Construction work will begin in the autumn of 2016 and the project will be completed in the spring of 2019.

(EUR1=USD1.08)

Macedonia's MEPSO calls for EUR49 million tender for power link with Albania

Macedonian transmission system operator AD (MEPSO) has invited tenders for upto EUR49 million for the construction of the Macedonian section of a planned 400 kV cross-border electricity interconnection from Bitola of Macedonia to Elbasan of Albania.

The project is financed with a loan provided by the European Bank of Reconstruction and Development, and grants provided by the Western Balkans Investment Framework and Luxembourg.

The Macedonia–Albania Transmission Project is part of the European Commission's initiative to establish an East-West electricity transmission corridor between Bulgaria, Macedonia, Albania, Montenegro and Italy, including the planned submarine cable from Montenegro to Italy, which are important steps towards establishing a regional electricity market.

The last date for submission of bids was January 6, 2017. Tendering for the consultancy contract is expected to begin in the first quarter of 2016.

(EUR1=USD1.08)

Litgrid makes additional investment to protect NordBalt cable

Lithuania's electricity transmission system operator Litgrid has made an additional investment of around EUR10 million during the construction of the power interconnection NordBalt between Lithuania and Sweden.

The National Commission for Energy Control and Prices has approved Litgrid's investment in NordBalt, which totaled EUR223.12 million.

The newly-approved additional amount exceeds the previous estimate by EUR18 million, of which EUR9.86 million has been invested in the burying of the undersea cable at a greater depth, which is a necessary precaution to prevent damage to the cable. NordBalt will launch operations in the first quarter of 2016.

(EUR1=USD1.08)

Estonia's Elering to invest in improving power supply security between islands

Estonian TSO Elering will invest EUR29 million in improving electricity supply security for the islands of Muhumaa, Saaremaa, and Hiiumaa in the next five years.

Elering has invested EUR 10 million in laying a 110 kV submarine power cable link, with a projected capacity of 100 MW, between the mainland and Muhumaa Island.

Another 110 kV submarine power cable link would be built between Muhumaa and Saaremaa islands by 2020 that would function in line with the 110 kV overhead transmission line running on the artificial dam road between the two islands.

Russia's Kubanenergo constructs over 150 km of power lines in Slavyanskiy power district

Russian energy utility Kubanenergo's Slavyanskiy branch has constructed

and reconstructed more than 150 km of 0.4-10 kV overhead power lines as part of its investment programme.

Under this, the company also constructed three new transformer substations, installed 83 power transformers, and increased the total capacity to more than 33 MVA. These initiatives have led to connection to power network of more than 1000 new consumers of privileged category in Slavyansk, Krasnoarmeisk and Temryuk districts of Krasnodar region.

Investment programme of FGC UES to total RUB471 billion in 2016-2020

Russia's transmission system operator Federal Grid Company of Unified Energy System (FGC UES) has received approval from the Ministry of Energy for its investment programme for 2016-20. The company envisages an investment of RUB471.12 billion in 2016-2020. FGC plans to complete 44,338 MVA of transformer capacity and 11,781 km of transmission lines over this period.

(RUB1=USD0.014)

Scottish Beaully-Denny line commissioned

Scotland's 400 kV Beaully-Denny line has been successfully commissioned. Scottish Hydro Electric Transmission (SHE Transmission) and SP Energy Networks have jointly developed the 220 km long line. 615 steel towers, replacing over 800 pre-existing 132 kilovolt towers, support the new line.

The line provides a fully functioning power super-highway between the Highlands and the Central Belt. It is unlocking Scotland's renewable resources and supporting economic growth in the Highlands.

The project involved replacement of the existing 132 kV single-circuit overhead line connecting Beaully near Inverness and Wharry Burn near Stirling, with a 220 km long, 400 kV double-circuit line from Beaully to Denny through Wharry Burn.

SHE Transmission commissions new substation to connect green energy

Scottish Hydro Electric Transmission (SHE Transmission) has constructed a 132/33 kV substation at

Crarae near Minard, with an investment of EUR7.5 million.

This will now connect 43 MW of renewable power to the main grid. The project took just 15 months to complete and reinforces the network in the Argyll and Bute area.

(EUR1=USD1.08)

HVDC transmission line between Åland and Finland commissioned

Finland's regional transmission network operator Kraftnät Åland has commissioned a new HVDC power transmission line between the Åland islands in Baltic Sea and mainland Finland. The contractor for the power transmission link was ABB.

The new line will allow integration of renewable energy sources; delivering clean power to 28,000 inhabitants.

In 2012, Kraftnät Åland selected ABB to supply a new power transmission link between the Finnish mainland and Åland, consisting of two 80 kV submarine cables, with a capacity of 80 MW.

A third 400 kV line between Finland and Sweden, with capacity ranging between 500-800 MW, is under consideration in the long term. Construction is expected to start in 2023 with commissioning in 2025.

Ukrenergo to commission Kakhovska substation and 750 kV power line in 2016

The Ukrainian state-run national energy company Ukrenergo has plans to finish construction and commission the Kakhovska substation and the 750 kV transmission line from the Zaporizhia nuclear power plant (NPP) to the substation Kakhovska in 2016.

The work at the Kakhovska substation has been completed 60-70 per cent. The 750 kV transmission line is predicted to be commissioned in September 2016.

In August 2013, Ukrenergo signed a contract with Spain's Instalaciones Inabensa SA for this transmission line. This project is of great economic and strategic importance for Ukraine.

The new line will improve the power supply to Kherson and Odesa regions and will release the locked capacity of Zaporizhia NPP.

MEPSO to construct 400 kV line connecting Macedonia and Albania

Macedonian transmission system operator AD (MEPSO) will construct a 400 kV interconnection line from Bitola of Macedonia to Elbasan of Albania.

The project will be funded from the loan of EUR37 million taken from the European Bank for Reconstruction and Development (EBRD) and a EUR12 million grant provided under the Western Balkans Investment Framework (WBIF) Instrument for Pre-Accession (IPA) 2015 funds.

The agreement foresees the construction of 95 km of 400 kV power transmission line from the southwestern Macedonian city of Bitola to the Albanian border with a substation at Ohrid, and to implement grid efficiency components.

Construction of the new line will connect the Macedonian electricity market, which is dominated by thermal power, to the Albanian electricity market, with predominantly hydroelectric power. This will help improve the balancing of the two electricity systems, reduce operational costs and boost the use of renewable energy.

The complete documentation for the project is to be prepared by the end of 2016, while energy facilities are expected to be fully built by 2019. The total value of the project is expected to exceed EUR65 million.

(EUR1=USD1.08)

Bulgaria's Electricity System Operator EAD invites bids for construction of overhead power lines

Bulgaria's Electricity System Operator EAD has invited bids for the construction of 400 kV overhead power lines from Maritsa East substation to Maritsa Iztok 3 substation.

The scope of work includes architectural and engineering services, urban planning and landscape architecture, scientific and technical consulting services, technical testing and analysis.

The estimated value of the contract is BGN0.4 million and its duration is 180 days.

(BGN1=USD0.56)

Kafa substation commissioned in Crimea one year ahead of schedule

Crimea's energy system has commissioned the 220 kV Kafa substation, which will synchronise Crimea with Russia's unified energy system.

The energy flow creation through this will amount to 200 MW. The substation has been constructed in 18 months as compared to the standard 30 months.

The substation will connect 120 km of transmission lines as part of the first phase of an energy bridge from Kuban area. Along with this, four cable lines have been laid down across Kerch Strait, which will carry power to Crimea at 220 kV.

Ukrenergo completes repair of power line in Crimea

Using insulator kits, the Ukrainian state-run national energy company Ukrenergo has completed the repair of the 220 kV Kakhovka-Tytan power transmission line connecting elevated power wires.

However, in order to connect the power line to Crimea's power grid, an agreement with Ukrainian activists is needed.

In Russia-occupied Crimea, two out of four transmission pylons on the administrative border between Ukraine and Crimea were damaged by blasts caused by Ukrainian activists last week causing power outage in the region.

Georgia completes construction of transmission lines in South Caucasian countries

Georgia has completed the construction and rehabilitation of transmission lines in South Caucasian countries and created an energy bridge in the region.

It has completed construction of a 500 kV transmission line to Azerbaijan, rehabilitated a 500 kV transmission line to Russia and planned to operate a 500 kV transmission line to Armenia. This is a part of the Black Sea Transmission Network (BSTN) Project.

Under the BSTN project, the 500/400/220 kV Akhaltsikhe substation was officially commissioned on December

10, 2013. This project included several other components such as construction and rehabilitation of the 500 kV Vardzia overhead transmission line and 500 kV Zekari overhead transmission line that interconnected Akhaltsikhe, Zestaponi and Gardabani substations, as well as the construction of a new 400 kV overhead line from Akhaltsikhe substation to the Georgia-Turkey border.

The total contract price of the Akhaltsikhe substation and back-to-back station amounted to EUR158.8 million.

(EUR1=USD1.08)

Georgia's JSC Georgian State Electrosystem (GSE) invites bids for supply of towers for 220 kV line

Georgia's JSC Georgian State Electrosystem (GSE) has invited bids for the supply of hot galvanised towers for 220 kV transmission line in Sataplia and Adjameti under the World Bank-funded Transmission Grid Strengthening Project.

The last date for submission of bids was January 11, 2016.

Azerbaijan's Buzovna-2 substation commissioned

Azerbaijan's 220 kV Buzovna-2 substation has been commissioned with a capacity of 40 MVA. It was built in the place of the old 110/10 kV Buzovna darti substation.

The new one supplies power to Buzovna, Zughulba, Albalilig settlements, several government agencies, as well as recreation, tourism, medical and other facilities with uninterrupted and quality power.

FGC UES tests new 500 kV power transmission line for Novovoronezh NPP-II

Russia's transmission system operator Federal Grid Company of Unified Energy System (FGC UES) has successfully tested the 500 kV Donskaya-Eletska transmission line intended for the supply of electricity from Novovoronezh nuclear power plant-II.

Upon commissioning of the nuclear power plant, the power supply system

will additionally receive 1,198 MVA of electrical capacity for the development of Russia's Central and Southern federal districts.

The new 216 km long Donskaya NPP–Eletskaia power line is located in Voronezh and Lipetsk regions.

The construction project included the installation of 708 supports, wires and a fibre optical line, and took one year to complete.

Russia's OJSC ESK UES invites bids for 500kV substation

Russia's OJSC ESK UES has invited bids for the modernisation and reconstruction of the 500 kV Pakhra substation under the European Bank for Reconstruction and Development (EBRD)-funded Pakhra Substation Modernization Program.

The duration of the contract is 45 months from the date of award. The last date for submission of bids is February 25, 2016.

FGC UES puts new substation into operation in Khabarovsk

Russia's transmission system operator Federal Grid Company of Unified Energy System (FGC UES) has put into operation the 220 kV Amur substation in Khabarovsk (Far East).

The 110 km long power transmission line is located in the Blagoveshchensky, Tambovsky and Oktyabrsky districts of Amur region.

The new transmission line is expected to substantially increase the reliability of power supplies in Blagoveshchensk and Blagoveshchensky districts of the region.

FEEMC to receive RUB 1.2 billion for construction of transmission line

Russia's Far Eastern Energy Management Company (FEEMC) may receive RUB1.2 billion through a contribution to the authorised capital before the end of 2015, which will be used for the construction of the 220 kV Orotukan–Palatka–Tsentralnaia power transmission line in Magadan region.

The first tower of this line was installed in Khasynsk district of the Magadan region. Completion of the project in 2015 will provide power output

by Ust–Srednekanskaya hydropower plant to the southern part of Magadan region.

The power network construction project is covered and regulated by the investment agreement on cooperation for 2014 entered into by the Government of the Magadan region and DVUEK JSC, as well as by the Federal Target Program for economic and social development of the Far East and Baykal region.

Russia's Yantarenergo to construct substations and power lines in Kaliningrad

To ensure power supply in Kaliningrad Stadium, Russian company Yantarenergo will build power supply facilities at the 110 kV Beregovaya substation and Khrabrovo substation, involving reconstruction of five high-voltage power transmission lines. It is planned to put into operation 8 MVA of new facilities and 19 km of networks. In addition, Yantarenergo is also implementing measures for the rehabilitation of existing power facilities.

This involves reconstruction and repair of power lines, improvement of power substations and supply of indoor switchgear.

The total expenditure for this work is estimated at RUB167 million and the work is expected to be completed by 2018.

(RUB1=USD0.014)

Belgium's Elia invites bids for purchase of equipment for transformers

Belgium's state-owned TSO Elia has invited bids for purchase of equipment for 12x400 kV transformers.

The equipment includes low, medium and high voltage cables, high voltage pylons, intervention cables, transformers, shunt inductors, high voltage arrestors, HV circuit breakers, insulators, etc. The duration of the contract is 12 months (January 1, 2016 to December 31, 2016).

Austrian Power Grid AG invites bids for overhaul of lines

Austrian Power Grid AG has invited bids for overhaul and installation works of

220 kV lines between Weißenbach and Ernstshofen.

The five-month contract has been divided into two lots, which include works on masts. The last date for submitting bids is January 22, 2016.

Poland's PSE invites bids for installation services of transformers

Polish power grid company Polskie Sieci Elektroenergetyczne S.A. has invited bids for delivery and installation of 245 kV three-phase transformers with a capacity of at least 400 MVA.

Germany's Stadtwerke Bochum Netz GmbH invites bids for supply of 110 kV transformers

Germany's Stadtwerke Bochum Netz GmbH has invited bids for the supply of 110 kV transformers in two lots.

Lot I includes delivery, installation and commissioning of a conventional 110/10 kV transformer of 40/50 MVA for the Laer substation.

Lot II includes delivery, installation and commissioning of a conventional 110/10 kV transformer of 40/50 MVA for the Essenerstraße substation.

The contract will be awarded through a negotiated procedure and the duration of the contract is nine months (March 14–December 31) in 2016.

Austrian Power Grid AG invites bids for supplies of high voltage cable

Austrian Power Grid AG has invited bids for setting up a framework agreement for supply, laying and installation of high-voltage cables of 110 kV, 220 kV and 380 kV for its projects.

The contract will be awarded through a negotiated procedure. The last date for receiving bids was January 15, 2016.

Austria's Netz Niederösterreich GmbH invites bids for supply of conductor cables for power lines

Austria's Netz Niederösterreich GmbH has invited bids for the delivery of conductor cables for a 110 kV double-circuit line in Western Lower Austria. The last date for receiving bids was December 21, 2015.

TenneT invites bids for electric mounting services in 110-280 kV substations

Dutch TSO TenneT has invited bids for the provision of mounting services as part of electric installation of 110-380 kV substations.

The scope of work includes planning services, construction, primary and secondary assembly, electrical balance, and document management. The contract will be awarded through a negotiated procedure.

PKP Energetyka S.A. invites bids for construction of power lines

Poland's power distribution company PKP Energetyka S.A. has invited bids for the construction of two cable-overhead lines for a 110 kV substation connecting GPZ Latoszyn to PT Grabiny. The contract is a government procurement agreement and its total value is PLN 0.69 million.

(PLN1=USD0.25)

Enea Operator invites bids for supply of transformers

Polish electricity supplier Enea Operator has invited bids for the supply of transformers at various substations.

The contract has been divided into two lots. Lot-I includes delivery of 110/15 kV transformers with a capacity of 10 MVA, while Lot-II includes delivery of 110/15 kV transformers with a capacity of 25 MVA.

The contract is a Government Procurement Agreement and will run from March 1, 2016 to October 1, 2016.

German Oberhessische Versorgungsbetriebe AG invites bids for transformers

Germany's Oberhessische Versorgungsbetriebe AG has invited bids for delivery and installation of a 115/21 kV transformer at UW Alsfeld with a capacity of 40 MVA. The last date for receiving bids is January 25, 2016.

Luxembourg's Grand Duchy and Ardian to Acquire stake in Enovos International

The consortium of Grand Duchy of Luxembourg, and Ardian, a private equity firm, has agreed to acquire 28.4

per cent interest in Enovos International S.A., a power transmission and distribution company, from German energy group RWE AG and Energy Company E.ON.

The consortium comprises of Luxembourg State, Societe Nationale de Credit et d'Investissement (SNCI), City of Luxembourg, Banque et Caisse d'Epargne de l'Etat (BCEE), and Ardian.

Under the terms of the agreement, BCEE will acquire 12 per cent interest; City of Luxembourg will acquire 7.61 per cent; SNCI will acquire 4.19 per cent; Luxembourg State will acquire 2.56 per cent and Ardian will acquire 2 per cent interest in Enovos International.

The transaction is conditional upon the approval by the Municipal Council of the City of Luxembourg, the Supervisory Board of RWE and the respective antitrust authorities, and is expected to close in the first quarter of 2016.

Spain's Abengoa seeks to sell stalled Brazil projects

Spain's multinational Abengoa SA is seeking buyers to revive transmission lines and other construction projects in Brazil that the company had suspended after filing for creditor protection in Spanish courts.

The company is looking for a market solution for projects it has been contracted to build and operate in Brazil. Brazil's government is also in talks with several foreign companies interested in taking over construction work of new power transmission lines left incomplete by Abengoa.

The work stoppages are expected to delay the completion of 1,700 kilometres of transmission lines needed to link the new Belo Monte hydroelectric project in Brazil's Amazon with key parts of the national power grid.

The Belo Monte hydro complex is expected to start generating power in March 2016.

Between April and December 2016, five additional turbines with 611.1 MW of capacity each are scheduled to begin operating, but not all of the capacity is likely to be delivered to the grid right away because of delays in transmission line construction.

Ferrovie dello Stato Italiane SpA (FSI) invites bids for supply of three-phase transformers

Railway transport services provider Ferrovie dello Stato Italiane SpA (FSI) has invited bids for the supply of 66/132/150 kV transformers. The estimated value of the contract is EUR2.3 million.

Finland's Caruna Oy to improve reliability of transmission network

Finland's Caruna Oy is planning to improve the reliability of its electricity network in Northern Ostrobothnia, Southern Ostrobothnia, Kainuu and Lapland.

For this, the company is currently looking for partners for the network improvement work, which is due to start in the spring of 2016.

Fingrid Oyj invites bids for supply of 400 kV circuit breakers

Finland's Fingrid Oyj has invited bids for the supply of 12 units of 400 kV disconnecting circuit breakers for the Alajärvi substation.

The contract is a Government Procurement Agreement (GPA) and will be awarded through a negotiated procedure. The last date for submitting bids is January 22, 2016.

Norway's Lofotkraft AS invites bids for upgrade of power lines

Norway's Lofotkraft AS has invited bids for the voltage upgrade of 132 kV power line between Kvitfossen and Solbjørn. The section to be upgraded runs from Kleppstad to Fygle.

The contract is a Government Procurement Agreement. The scope of work includes construction and delivery of materials to the power line. The last date for receiving tenders was January 15, 2016.

Greek Independent TSO for Electricity SA invites bids for transmission pylons

Greece's Independent Transmission Operator for Electricity SA has invited bids for supply of 400 kV steel transmission pylons. The last date for submission of bids is January 28, 2016.

Ukrenergo completes reconstruction of Usatove substation in Odesa region

The Ukrainian state-run national energy company Ukrenergo has completed the reconstruction of the 330 kV Usatove substation in Odesa region, which will help to connect it to the 110 kV Marazliyevska substation.

The scope of work involved installation of new cells for a subsequent connection of power lines to the 110 kV Marazliyevska substation, which delivers electricity to the central part of Odesa.

Macedonia's EVN Makedonija AD invites bids for procurement of transformers

Macedonia's EVN Makedonija AD has invited bids for the procurement of 110 kV transformers with a capacity of 40 MVA. The contract has been divided into two lots. Lot-I includes procurement of two 110 kV earthing transformers for the 110/10 kV Kozle-Skopje line. Lot-II includes procurement of one 110 kV earthing transformer of 40 MVA capacity for the 110/10 kV Bitola line. The total value of the contract is MKD 73.8 million, which will be awarded through a negotiated procedure.

(MKD1=USD0.018)

Bulgaria's Electricity System Operator EAD invites bids for supply of instrument transformers

Bulgaria's Electricity System Operator EAD has invited bids for the supply of 110 kV instrument transformers.

The contract has been divided into three lots. Lot I includes delivery of 110 kV current measuring transformers at a value of BGN1.53 million; Lot II includes delivery of 110 kV voltage measuring transformers at a value of BGN 0.93 million; while Lot III includes delivery of 110 kV combined instrument transformers at a value of BGN1.14 million.

(BGN1=USD0.55)

Bulgaria's MER Haskovo invites bids for strengthening of overhead line

Elektoennergien Systemen Operator (ESO) EAD – MER Haskovo has invited bids for the strengthening of 110 kV Armira overhead line. The scope of

work involves design, supply and implementation of the project, and has been divided into two stages. The first stage involves preparation of detailed design and the second stage involves implementation of construction works and supply of materials.

The contract is a Government Procurement Agreement (GPA) with an estimated value of BGN0.05 million.

(BGN1=USD0.56)

Croatian HOPS invites bids for reconstruction of 110/35 kV substation

Croatia's Hrvatski Operator Prijenosnog Sustava d.o.o. (HOPS) has invited bids for the execution of reconstruction works of the 110/35 kV Pokuplje substation, along with the supply of equipment. The last date for submission of bids is February 10, 2016.

Latvia's Augstsprieguma tīkls AS invites bids for supply of transformer at Daugavpils substation

Latvia's Augstsprieguma tīkls AS has invited bids for the supply of a 330/115/10.5 kV transformer with a capacity of 125 MVA at Daugavpils substation. The contract is a Government Procurement Agreement and runs from May 2, 2016 to September 22, 2016.

Government of Belarus invites bids for reconstruction of 220 kV line

Government of Belarus has invited bids for the reconstruction of 220 kV line from Miradino to Mogilev. The scope of work involves design and survey works. The last date for submission of bids was January 15, 2016. The total value of the contract is BYR992.8 million.

(BYR1=USD0.000053)

Latvia's Augstsprieguma tīkls AS invites bids for delivery of power supply transformers

Latvia's Augstsprieguma tīkls AS has invited bids for delivery of power supply transformers at the 110 kV Bolderaja II and Viskaii substations.

The contract has been divided into two lots. The first lot includes supply and installation of 110/10.5 kV, 32 MVA transformers at Bolderaja II substation.

The second lot involves supply and installation of 115/21/10.5 kV, 32 MVA transformers at Viskaii substation.

The duration of the contract is from February 2, 2016 to December 15, 2017.

Latvia's Augstsprieguma tīkls AS invites bids for delivery of transformers

Latvia's Augstsprieguma tīkls AS has invited bids for the delivery of 110 kV transformers at Lecava and Koknese substations. This contract is a Government Procurement Agreement with a total value of EUR0.25 million.

(EUR1=USD1.08)

Russia and North Korea expected to sign electric power deal

Russia will sign an agreement with North Korea to cooperate on electric energy provision to the Democratic People's Republic of Korea (DPRK), according to a Russian governmental decree.

The agreement will be focused on increasing electricity supplies to the DPRK by upgrading the country's infrastructure and power stations.

The decree is a part of the series of initiatives geared towards economic or political bilateral cooperation throughout the course of 2015.

MOESK terminates power supply agreement with Oboronenergosbyt

Moscow's power grid operator PJSC Moscow United Electric Grid Company (MOESK) has applied for the termination of its contract with JSC Oboronenergosbyt for the provision of electricity transmission services.

Following the contract termination, MOESK intends to offer direct electricity transmission contracts to Oboronenergosbyt consumers.

Oboronenergosbyt's debt to MOESK over the period from May 2014 to October 2015 exceeded RUB1 billion.

Throughout this period, MOESK provided electricity transmission services to this company to the full extent, but the amount of debt increased by RUB75 million every month.

(RUB1=USD0.014)

Russia launches first line of power bridge to Crimea

Russian power utility Krymenergo launched the first line of a power bridge connecting the Krasnodar Region with Crimea on December 2.

The power bridge, crossing the Kerch Strait, will significantly reduce the power deficit in Crimea.

The peninsula has been fully ensured its own power generation and flows from Russia's unified power system after the bridge's second stage launch scheduled for May 2016.

The first line will allow Russia to transfer around 200 MW of electric power from the Krasnodar Region to Crimea and another 200 MW are expected to start arriving on December 20.

The additional 400 MW of power, which Crimea will start receiving after December 20, 2015, will contribute to ensuring 80-90 per cent of Crimea's power demand.

MIDDLE EAST & AFRICA

Egypt's EETC in talks with local banks to seek funds

State-owned Egyptian Electricity Transmission Company (EETC) is negotiating financing deals worth EGP7 billion with local banks.

The National Bank of Egypt (NBE), the country's largest state-run bank, has offered to be the sole contributor to the EETC's funding needs.

However, the Ministry of Electricity has approved Abu Dhabi Islamic Bank (ADIB) for funds ranging between EGP2 billion and EGP3 billion pounds to be paid back over 15 years.

Meanwhile, NBE is likely to lead another banking alliance in-charge of providing finance ranging between EGP4 billion to EGP5 billion to carry out a number of EETC's projects, for which an alliance is not yet fully incorporated.

Additionally, Bank Audi Egypt is studying participation in NBE's alliance in supporting Egyptian electricity projects.

(EGP1=USD 0.00004)

Work on 400 kV substation in Dubai progresses

Work on the Dubai Electricity and Water Authority's (DEWA) 400 kV substation at the Mohammed bin Rashid Al Maktoum solar park is progressing well and is expected to be commissioned by the fourth quarter of 2016.

About 50 per cent work of the substation is completed. The 132/400 kV substation at the solar park is being built at a cost of USD75 million.

The project includes importing, installing, testing and launching of the main 132/400 kV facility with four 400 kV cabling. On completion, the project will have a conversion capacity of 1,515 MVA.

ABB is the main contractor of the substation project. The work on the project has been taken up in four sections.

The first includes a 400 kV substation with 11 gas-insulated switchgear (GIS).

The second section converts the substation from 400 kV to 132 kV with a conversion capacity of 1,515 MVA and also includes three 400/132 kV interconnecting transformers.

The third section has 21 GIS and the fourth section houses the control and safety facilities.

TRANCO CLSG to launch national committees for 225 kV interconnection project

Regional Electricity Transmission Company for Cote d'Ivoire-Liberia-Sierra Leone-Guinea (TRANSCO CLSG) has planned activities for launching various national committees for the implementation of the Environmental and Social Management Plan (ESMP) and the Resettlement Action Plan (RAP) for CLSG Interconnection Project, to interconnect the three countries.

As part of the implementation of its activities, and to effectively carry out the CLSG project mission, national committees are being set up in each of the CLSG countries to follow up the implementation of the ESMP and RAP of people affected by the project.

The committees are comprised of all the ministries and departments involved in the implementation of the

CLSG project including the Ministries of Energy, Finance and Development Planning, Foreign Affairs as well as donor partners.

The CLSG project entails the construction of 225 kV lines spanning 1,349 km across the four countries.

The project also includes the construction of 11 new substations and expansion of an existing substation in Cote d'Ivoire.

In addition, an optical ground wire (OPGW) network and a supervisory control and data acquisition (SCADA) system, located at the Regional Control Centre (RCC) in Linsan (Guinea), will be implemented to facilitate the operation of the interconnection.

The project is one of the five priority projects of the larger West African Power Pool (WAPP) programme being implemented to establish a well-functioning, cooperative, power pooling mechanism for West Africa.

It will provide electricity connections to the four countries, utilise the Bumbuna hydropower plant (HPP) in Sierra Leone, and redevelop the Mount Coffee HPP in Liberia.

ZESCO commissions 330 kV line project in Zambia

ZESCO Limited, Zambia's state-owned vertically integrated power utility, has successfully commissioned the 330 kV Pensulo-Kasama transmission line project on December 15, 2015.

The 330 kV line links Pensulo to the Chipata West substation (near Msekera Research station) via Msoro, along with the construction of the Chipata west substation.

The construction works on this 381 km long line started in November 2012 and was completed on September 30, 2015.

The project is part of a larger scheme, which starts from Kasama in the Northern Province via Mpika in Muchinga to Pensulo, and further through the Luangwa National Park to Msoro and Chipata.

The entire project comprises 670 km long lines, three new 330 kV substations in Kasama, Msoro and Chipata West, and upgrading existing substations in the three areas.

The project is expected to increase power supply to the country's Eastern Province.

The Chinese firm Tebian Electric Apparatus (TBEA) Company Limited was the developer of this project.

Ethiopian EEPCC seeks bids for 230 kV line

State-owned vertically-integrated power utility Ethiopian Electric Power Company (EEPCo) has invited bids for the 230 kV line under the International Development Association (IDA)-funded Electricity Network Reinforcement and Expansion Project.

The scope of the project involves the stringing of the second circuit of the 230 kV Alamata-Combolcha II-Legetafo transmission line along with the installation of the 230 kV line bays at Combolcha II and Legetafo substations.

The bid submission date for the contract is March 7, 2016.

Uganda's TSO UETCL invites consultancy bids for 400 kV line

The state-owned Uganda Electricity Transmission Company Limited (UETCL) has invited consultancy bids for a 400 kV line. The scope of the contract involves the provision of engineering designs, procurement support, project management and construction supervision for the KfW Development Bank-funded 400 kV Masaka-Mbarara Transmission Line Project. The last date for submission of bids was January 13, 2016.

Uganda's UETCL invites consultancy bids for 220 kV line

The state-owned UETCL has invited consultancy bids for a 220 kV line. The scope of the contract involves the provision of consultancy services for the review and update of feasibility study for the KfW Development Bank-funded 220 kV Masaka-Mwanza Transmission Line Project.

The last date for submission of bids is February 12, 2016.

Eskom invites construction bids for 765 kV and 400 kV lines

South Africa's Eskom Holdings SOC Limited (Eskom) invites bids for the construction of the 765 kV and 400 kV Masa-Ngwedi (Section D and E) transmission lines under the World Bank-funded Eskom Investment Support Project.

The scope of contract involves providing access to roads and infrastructure; bush clearing; supply of tower foundations and stay wire foundations; fabrication and erection of structural steel transmission towers; installation of hardware, conductors and insulators; tower assembly, stringing and labeling; conductor regulation; and supply of a fall arrest system (FAS).

The bid due date for submission of bids is February 12, 2016. ♦

Global Transmission Report

Information and analysis on the global electricity transmission industry

The mission of **Global Transmission** is simple and modest – to provide you with comprehensive and up-to-date information and analysis on the global electricity transmission industry.

Global Transmission will keep you informed on all the key developments, trends and issues. It will track major projects, contracts and investments. It will profile leading transmission system operators. It will report on regulatory initiatives and examine their implementation. It will provide the latest data and statistics. It will also feature the views and perspectives of top industry experts and players.

Our service package consists of three elements – **Global Transmission Report** (a monthly newsletter), **Global Transmission Weekly** (a weekly update) and **www.globaltransmission.info** (an information-packed website).

Global Transmission Weekly, published every Monday, will provide you with a summary of key developments in the transmission sector from across the world, events that took place during the previous week.

The **Global Transmission Report**, a monthly newsletter, will have ten distinct sections:

- **Features:** Analytical, insightful and topical write-ups on major trends and developments
- **News:** Latest news and developments from across the world, with sub-sections on North America, Latin America, Asia-Pacific, Europe and Middle East & Africa
- **TSO Focus:** Profile of a leading TSO operator, covering its history, present status and future plans
- **Policy Review:** An examination of recent policy and regulatory initiatives
- **Spotlight:** A detailed look at a specific topic or area of interest
- **Data & Statistics:** Tables and charts with relevant and latest information
- **Deal Watch:** Reports on major debt, equity and M&A deals
- **Project Update:** Current status of key projects
- **Company News:** News on transmission equipment and service providers
- **Tenders & Contracts:** Key information on open tenders and contracts

The third element of our service package will be **www.globaltransmission.info**, which will provide online access to current and previously published content in the **Global Transmission Report** and **Global Transmission Weekly**, with fully searchable archives.

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Dominion Resources

Investing in the expansion of its transmission network

Dominion Resources (Dominion), headquartered in Richmond, Virginia, was established in 1983. It is one of the largest producers and transporters of energy in the US. At present, it has a portfolio of approximately 24,400 MW of power generation capacity, 6,490 miles (10,445 km) of electric transmission line network, and 12,200 miles (19,634 km) of natural gas transmission network and gathering and storage pipeline network. The company serves about 2.5 million franchise retail customer accounts in Virginia and North Carolina through its 57,000-mile (91,770-km) power distribution network.

The company has formed three subsidiaries—Dominion Virginia Power (DVP) (engaged in the power transmission and distribution [T&D] business); Dominion Energy (engaged in the gas T&D business); and Dominion Generation (engaged in the power generation and trading business). In 2008, it also formed Dominion Gas Holdings under Dominion Energy to expand its natural gas business.

DVP was incorporated in 1909 as a Virginia public service corporation, which generates, transmits, and distributes electricity for sale in Virginia and North Carolina. In Virginia, Virginia Power conducts business under the name Dominion Virginia Power and primarily serves retail customers. In North Carolina, it conducts business under the name Dominion North Carolina Power and serves retail customers located in the northeastern region of the state, excluding certain municipalities. In addition, Virginia Power sells electricity at wholesale prices to rural electric cooperatives, municipalities, and wholesale electricity markets.

Dominion is currently focusing on expanding its network by taking up more and more project capacity-addition projects and is also taking a keen interest in upgrading its ageing infrastructure. Dominion, under its six-year investment plan for 2015–2020, plans to spend USD19.2 billion to build new energy infrastructure in the areas served by it.

Table 1: Growth in Dominion's transmission line length (km)

	2009	2010	2011	2012	2013	2014
Total	9,660	9,821	10,143	10,143	10,304	10,304
Annual growth rate (%)	-	2	3	0	2	0

Source: Dominion Resources.

Existing network

Dominion carries out its T&D business through its subsidiary DVP, which had 6,400 miles (10,304 km) of electric transmission line network at 69 kV and above voltage levels in Virginia, West Virginia, and North Carolina as of December 2014. During the six-year period from 2009 to 2014, DVP's transmission network grew at a compound annual growth rate (CAGR) of 1.3 per cent.

The company has been operating in the service area of PJM Interconnection since 2005. Dominion's 500 kV loop serves as the intersection between the western and eastern regions of PJM Interconnection's service area. The company serves 2.5 million residential, commercial, industrial, and government customers in Virginia and North Carolina.

Financial performance

In 2014, Dominion Resources earned a net income of USD1.31 billion, witnessing a fall of nearly 23 per cent from USD1,697 million in 2013. However, during 2009–14, the net income of the company increased at a CAGR of 0.4 per cent.

DVP contributed nearly 61 per cent of the total revenue and 65 per cent to the net income of the company in 2014. Meanwhile, DVP's operating revenues witnessed a rise of nearly 4 per cent from USD7.3 billion in 2013 to USD7.6 billion in 2014.

However, its net income fell by nearly 25 per cent from USD1.1 billion in 2013 to USD0.85 billion in 2014. During 2009–14, DVP's operating expenses and earnings increased at a CAGR of 0.1 per cent and 18.2 per cent respectively.

Table 2: Dominion Virginia Power's key financial indicators (USD million)

	2009	2010	2011	2012	2013	2014
Operating revenues	14,798	15,197	13,765	12,835	13,120	12,436
Operating expenses	12,229	11,964	10,885	9,977	9,804	9,715
Operating earnings	2,569	5,700	2,861	1,774	1,881	2,003
Net income	1,287	2,808	1,408	302	1,697	1,310

Source: Dominion Resources.

Table 3: Dominion Virginia Power's key financial indicators (USD million)

	2009	2010	2011	2012	2013	2014
Operating revenues	6,584	7,219	7,246	7,226	7,295	7,579
Operating expenses	5,836	5,578	5,641	5,234	5,215	5,855
Operating earnings	748	1,641	1,605	1,992	2,080	1,724
Net income	356	852	822	1,050	1,138	858

Note: *Data for the year 2015 are estimated based on CAGR.

Source: Dominion Resources.

Table 4: Dominion's capital expenditure (USD million)

	2009	2010	2011	2012	2013	2014
Dominion Resources	3,837	3,422	3,652	4,145	4,104	5,551
– Dominion Virginia Power	2,488	2,234	2,090	2,288	2,533	3,107
– Capex on T&D network	841	1,038	1,091	1,158	1,361	1,652

Note: Capex – capital expenditure; T&D – transmission and distribution

Source: Dominion Resources

In 2014, Dominion incurred USD5.6 billion in capital expenditure, registering a CAGR of 7.7 per cent since 2009. Of this, USD1.65 billion was spent on strengthening the transmission network of the company, which was about 30 per cent of its total expenditure and 53 per cent of the total capital expenditure of DVP.

Table 6: Project-wise planned capital expenditure on transmission (USD million)

Project	2016	2017
Surry–Skiffes Creek Project	66	25
Elmont–Cunningham Rebuild Project	62	31
Warrenton 230 kV	55	14
Richmond SOC Office	42	5
Substation security project	86	89
Reliability Upgrades	119	119
Other projects	303	422
Maintenance	23	23
Total planned capital expenditure on transmission network	756	728
Total planned capital expenditure of Dominion Virginia Power	1,494	1,478

Source: Dominion Resources.

Future plans and investments

Under Dominion's six-year investment plan 2015–20, the company is expected to spend approximately USD8.9 billion from 2015 through 2020 to upgrade and add new T&D lines, substations, and other facilities to meet growing electricity demand within its service territory and to maintain reliability.

Table 7: Dominion's key transmission projects

Project	Voltage	Length (km)	Scheduled start-up
Cunningham–Elmont 500 kV Rebuild Project	500	82	2018
Dooms–Bremo Rebuild Project	230	69	2017
Dooms–Lexington Transmission Line Rebuild Project	230	63	2016
Surry–Skiffes Creek 500 kV and Skiffes Creek–Wheaton 230 kV Project	500 kV / 230 kV	32 km(230 kV) and 13 km (500 kV)	2018
Warrenton–Wheeler–Gainesville Project	115 kV and 230 kV	NA	2018
Haymarket Line and Substation Project	230	8.2	2018
Poland Road Transmission Line and Substation Project	230	6.4	2018
Pacific Line and Substation Project	230	3	2018
Yardley Ridge Transmission Line Project	230	3.2	2018
Norris Bridge Transmission Line Rebuild and Relocation Project	115	3	NA

Source: Dominion Resources.

DVP is likely to utilise a capital expenditure of over USD2.33 billion from 2015 through 2017 to upgrade or add a new transmission network of which USD847 million was allocated for the year 2015, while USD758 million and USD728 million were allocated for the years 2016 and 2017 respectively.

The company plans not only to spend on constructing new transmission lines but also on upgrading the existing ones. In this regard, DVP plans to place about 4,000 miles (6,440 km) of historically outage-prone electric power lines underground by 2026, which is about 11 per cent of its power distribution lines. DVP will also spend money to bury 350–400 miles (563–640 km) of lines a year. Some of the major projects that the company plans to complete by 2018 are the Haymarket 230 kV Transmission Line and Substation Project; the Surry–Skiffes Creek Project; and the Poland Road 230 kV Transmission Line and Substation Project.

Table 5: Dominion Virginia Power's planned capital expenditure (USD million)

	2016	2017	Total
Transmission	758	728	1,486
Total	5,622	4,629	10,251

Source: Dominion Resources.

The grants for most of its electric lines contain rights-of-way (ROW) that have been obtained from the apparent owners of real estate or on publicly owned property, where permissions to implement are being revoked, thereby challenging the company to complete the project within the scheduled timeframe. A major example of this ROW issue is the Surry–Skiffes Creek Project, on which work has been struck due to environmental reasons and delays in receiving approval from US Army Corps of Engineers.

Outlook

Though Dominion Resources has taken up the task of upgrading its existing infrastructure along with the addition of a new transmission network, it will continue to face challenges due to changing regulatory requirements and ROW issues, which in turn will burden the company financially and restrict its expansion plans. ♦

Chile's Draft Transmission Law

Proposals to merge Chile's two main grids

Chile is currently debating a draft bill that seeks to restructure and reorganise the country's electricity transmission sector. The new reforms essentially propose changes in planning, remuneration, and coordination processes. The draft bill, based on international practices and introduced in mid 2015, is a part of the government's Energy Agenda, which lays down a roadmap for the future development of the country's energy sector. Under this, not only is the state expected to play a greater role in the planning of the energy sector, but it is also expected to encourage transparency in all decision making through intensive participation by stakeholders in all processes.

Chile's transmission sector has suffered from years of underinvestment, which has led to congestion on the main routes and thus resulted in high electricity prices for the final consumers. Lack of incentives, limited access to networks, and social and environmental demands hinder the timely development of transmission projects. The draft bill intends to create a competitive market in order to reduce the prices for the end consumers (both regulated and unregulated); to improve the quality of service; and to create a single independent coordinator for the sector. Under the proposed reforms, the state is expected to prepare long-term plans that will define the strategic transmission corridors mainly in line with the government's future energy strategy. The new expansion projects will be considered in regions where there are resources or where there exist specific conditions for the efficient production of electricity. The transmission expansion will be in the interest of the public, either leading to a reduction in the operating costs of the system or resulting in a positive social impact.

The state will also be responsible for carrying out early consultations and for implementing public-participation processes for new transmission lines, holding land-zoning discussions, as well as securing environmental permits. These routes will then be auctioned to private developers who will design the final paths, negotiate with landowners for rights of way, and undertake the construction and operation of the projects. The bill also establishes new transmission line categories as national (trunk), zonal (sub-transmission), and dedicated (additional) systems. The transmission costs will be allocated to consumers through a postage-stamp method, unlike in the current system where generators pay for transmission costs.

At present, Chile has four electricity systems: the Sistema Interconectado Central (SIC), the Sistema Interconectado del Norte Grande (SING), the Aysen electric system (including Port Aysen and Coyhaique), and the Magallanes electric system (including Punta Arenas, Port Porvenir, and Port Natives). SIC is the biggest system and supplies electricity to over 90 per cent of Chile's population. SING primarily serves the power needs of large customers, including the mining and manufacturing industries.

Chile's transmission infrastructure remains inadequate compared to the demand by upcoming generation projects. Long-distance transmission lines are required as the majority of the upcoming power projects are located in the northern

parts of the country, while the consumption centres are located in the south. The two systems – SING and SIC – are not interconnected and have their own operators.

Inadequate transmission facilities have rendered several generation projects unviable. In addition, network congestion is a major concern. Because of its separate systems, Chile faces several challenges in meeting its energy needs for supporting the mining industry, for facilitating economic expansion in the north, and for exploiting regional resources to facilitate the exchange of electricity at the national level.

A well-functioning transmission system is necessary for the development of an efficient energy market. Chile's proposed reforms are thus in the right direction. The draft bill is expected to lead to greater efficiency and transparency.

Projects to interconnect SING and SIC are now underway, and the draft bill proposes to create a single independent coordinator for the two systems known as Coordinador Independiente del Sistema Eléctrico Nacional (CISEN). The new coordinator will have a seven-member board of directors, elected by a yet-to-be-defined public-private committee. The board will have members representing the interests of generators, distributors, and consumers.

Chile has already awarded the project to interconnect SING and SIC through the Mejillones-Cardones line to Transmisora Eléctrica de Norte (TEN), a joint venture between Chilean companies Red Eléctrica Chile (REC) and E-CL.

REC is owned by Spain's Red Eléctrica de España and E-CL is owned by France's ENGIE (formerly known as GDF-Suez). This project involves the construction of about 580 km of transmission lines at an estimated cost of USD860 million and is scheduled to be fully operational in 2017/2018.

In addition to this project, a 500 kV line has been awarded, which is expected to reduce the congestion in the northern portion of the SIC and will also help in the transport of large amounts of renewable energy. This is the Polpaico-Cardones line, which will also allow the SIC-SING interconnection to function at maximal capacity.

This USD1 billion project is being carried out by InterChile, the local unit of the Colombian transmission firm Interconexión Eléctrica (ISA). It includes 753 km of lines from the Cardones substation outside Copiapo in the northern Atacama region to the Polpaico substation outside Santiago. The project is expected to be completed by 2017.

A well-functioning transmission system is necessary for the development of an efficient energy market. Chile's proposed reforms are thus in the right direction. The draft bill, if approved, is expected to lead to greater efficiency and transparency, to improve competition, and to reduce energy costs for end consumers. It is also expected to lead to the timely completion of projects, as pre-planning by the state will avoid the environmental and community conflicts that are currently delaying several private-sector initiatives. ♦

Transmission Developments in 2015

Round up on regulatory and industry activities

In 2015, there has been some progress on the regulatory front in many countries in streamlining the processes for approval of the electricity transmission projects. Laws and regulations have been amended, especially in Latin American region, to introduce reforms and procedures to expedite the development of the transmission projects. In North America, several important projects have been completed. However, in other countries the pace of development has been slow. Here we present a round up of developments in the global electricity transmission sector in 2015.

North America

In 2015, the key focus of the power transmission market in the United States remained on strengthening cyber security norms, regulating power transmission charges, and granting more power to state or local regulators mainly for the allotment of land for transmission projects.

The United States' Federal Energy Regulatory Commission (FERC) is working on improving the cyber security norms for the country's bulk electric system (BES). In this regard, in July 2015, it proposed to accept seven critical infrastructure protection (CIP) reliability standards and other modifications in Version 5 of the CIP standards submitted by the North American Electric Reliability Corporation (NERC).

With these standards, NERC aims to address risks to communication networks and related BES assets. FERC's proposal would modify the scope and applicability of certain CIP standards to protect communication links and safeguard sensitive data among BES control centres.

Meanwhile, FERC is working towards regulating the transmission rates to protect consumers from higher power prices. In this regard, it has recommended a reduction in transmission rates to 10.32 per cent from 12.38 per cent.

However, the commission staff demanded an even further cut to 9.14 per cent. A final decision on this matter by the FERC is expected in September 2016.

Some state-level regulators, such as those in Oregon, Iowa, Minnesota, and Arkansas, are showing increasing concern about the environmental and social impact of these projects. In the past few months, these states have proposed different acts and bills that can hinder the development of transmission projects in the United States.

The majority of them deal with the allocation of land for these projects and provide greater powers to state or local authorities to assess the need for the given project. A common concern that the regulatory steps aim to address pertains to the allotment of land to power transmission project developers.

In July 2015, the senators from Arkansas introduced House of Representatives (HR) Bill 3062 to enable the state to approve or reject electric transmission projects before the

federal government exercises its power to grant eminent domain rights to developers to acquire private property for the setting up of projects.

Iowa Senate is also discussing the House Study Bill 222, which aims to restrict the use of eminent domain for transmission lines in the state. The law is targeted against the Rock Island Clean Line, which is expected to cross 16 counties in the state.

In April 2015, Texas regulators approved SB 933, which extends the state regulatory authority over large direct current (DC) transmission projects.

During the month, the state regulators also proposed to repeal the state's Renewable Portfolio Standard, which mandates utilities to get a portion of their electricity from renewable energy sources.

It also ends the process of building transmission lines to deliver power from wind farms to cities across the state. If passed by the House, the Bill will end the Texas Public Utility Commission's discretionary authority under the Competitive Renewable Energy Zones (CREZ) programme.

In addition, the Northeast Oregon Water Association (NOWA) and the Oregon Farm Bureau (OFB) submitted their proposal to the House Committee on Rural Communities, Land Use and Water for a Bill that would require power transmission project developers to set up their projects with minimum impact on high-value farmland.

This could affect the development of the Boardman to Hemingway (B2H) project of Idaho Power. In August 2015, Orange County also amended its zoning ordinance to mandate all public utilities to have special-use permits for utilising any land in all zones (except industrial zones) to construct power generation, transmission, and distribution projects.

In contrast to the above initiatives, the members of the Missouri House of Representatives Energy and the Environment Committee in April 2015 voted against House Bill (HB) 1027, which recommended the denial of eminent domain to certain electric transmission line proposals, including plans falling outside of 'a regulated regional transmission line planning process' and proposals for projects to be 'constructed with private funds and paid [for] by users of the line'.

During the year, several projects received regulatory approvals. In October 2015, the Board of PJM Interconnection approved 11 market-efficiency projects worth USD59 million. As per the analysis of the regional transmission operator (RTO), these projects are expected to provide savings of USD15 for every dollar invested.

Some of the key projects that received various state-level approvals are the Grain Belt Express Clean Line project from the Illinois Commerce Commission (ICC) for the Illinois portion of the project; the Creekview interconnection project from the Wisconsin Public Service Commission (PSC); the Spoon River transmission line project from the ICC; the Great Northern transmission project from the Minnesota Public Utilities Commission (PUC); and the North Appleton-Morgan transmission line project from the Wisconsin PSC.

Several companies announced their investment plans to expand and strengthen their power transmission networks. Some of the key upcoming investments announcement made in the country in 2015 include a 10-year investment plan of ATC worth between USD3.7 billion and USD4.5 billion for network expansion, Ridgewood Private Equity Partners' (RPEP) USD100 million investment in the Neptune Regional Transmission System, and ITC Holdings Corporation's (ITC) plan to invest USD4.5 billion till 2018 to upgrade and expand its power transmission network in the US Midwest.

The key acquisition deals concluded in the United States in 2015 include the Exelon Corporation and Pepco Holdings deal, which received approval from the Delaware PSC in June 2015.

South Central MCN LLC, a subsidiary of GridLiance Holdco, and Tri-County Electric Cooperative (TCEC) entered into a definitive agreement to acquire the electric transmission assets of the latter.

AIA Energy North America LLC completed the acquisition of the Cross Sound Cable transmission system. Energy Future Holdings (EFH) is still in the process of selling its transmission arm Oncor Electric to Hunt Consolidated, Inc.

The projects completed in the United States in 2015 include the Battle Axe–Roadrunner 115 kV transmission line project, the Ochiltree–Cole 115 kV project, the Big Eddy–Knight transmission line project, the Central Ferry–Lower Monumental transmission line project, the Central–Tortolita transmission project, the Hampton–La Crosse transmission project, the Phoenix–Yuma transmission line project, the Susquehanna–Roseland transmission project, the Western Milwaukee County Electric Reliability project, the Brookings County–Hampton transmission line project, and the Fargo–St. Cloud–Monticello transmission line project.

In September 2015, the rate proposals, returns on investment, and equity structures of Kanstar Transmission, LLC, Midwest Power Transmission Arkansas, LLC, and ATX Southwest, a wholly owned subsidiary of Ameren Transmission Company, were also accepted by FERC.

Under this filing, the companies separately submitted their transmission formula rate templates and formula rate protocols to establish a mechanism for recovering their costs associated with the transmission projects that they intend to own and develop as part of the Order 1000 mandates of FERC.

Various notable developments also took place in Canada in 2015. In September, the Canadian Standards Association (CSA) published new editions of two standards for power distribution and transmission networks.

These are part of Part III of the Canadian Electrical Code (CEC), which specifies minimum requirements for electricity supply and telecommunication systems in support of public safety and reliability of service.

The Canadian government is also exploring opportunities to expand and enhance its energy cooperation with India. During the second India-Canada Ministerial Energy Dialogue in July, Canada's Minister of Natural Resources and India's

Minister of State for Petroleum and Natural Gas discussed the enhancing of energy cooperation between the two countries in the areas of oil, natural gas, clean energy, power transmission, and skill development. Both the countries are strengthening government-to-government, and business-to-business, relationships to help create jobs and to bring about long-term economic prosperity for both countries.

In 2015, Nova Scotia Power announced its plan to spend CAD36 million over eight years to widen the transmission corridor across the province. Canadian Newfoundland and Labrador Hydro also plans to invest CAD184 million in capital projects in 2016.

The key projects commissioned in Canada in 2015 include the Interior to Lower Mainland transmission project and the Merritt Area Transmission (MAT) line project.

Latin America

In 2015, various regulatory developments took place in the power transmission markets of Latin American countries to open up the segment to private players, to support the increased integration of renewable-energy capacity, and to improve the pace of development of power transmission projects.

In August 2014, the Mexican government passed secondary energy reform laws, marking the conclusion of the legislative process aimed at reforming the country's energy sector.

The process of overhauling Mexico's energy sector was initiated in December 2013 when the Mexican Senate approved a landmark Energy Bill, thereby opening up the energy sector to private players.

The defining of the secondary laws was imperative in order to initiate the reform process. Mexican energy ministry Sener recently announced that state-owned energy firm Comision Federal de Electricidad (CFE) will create transmission, distribution, supply, and generation subsidiaries, each of which will be managed separately.

Chile is in the process of announcing a new Electricity Transmission Bill to support the increased integration of renewable-energy resources.

The country also plans to modify its electricity system to create a more robust and secure system by changing the way in which transmission services are remunerated.

At present, the power transmission cost, which corresponds to around 10 per cent of the total price of electricity, is covered by power generation companies, although the new proposal plans to pass this cost on to consumers.

Brazil is also reportedly considering approving legislation to speed up licensing for power transmission projects and for attracting investors.

The country's Ministry of Mines and Energy (MME) is studying the possibility of including the cost of transmission lines in the concession contracts for future wind-energy auctions.

In August 2015, the government of Paraguay passed a new decree that mandates that all the metal structures (pylons or towers) to be used in electricity transmission lines and substations must be sourced from local manufacturers. The latter will need to produce the entire product within the country itself.

The countries are also supporting each other in meeting the rising power demand and in improving the domestic electrification rate through power exchange. Bolivia is expected to invest USD622 million in the construction of transmission lines with Argentina, Brazil, Peru, and Paraguay.

According to the officials of the Ministry of Hydrocarbons and Energy, the length of the lines is expected to be 1,400 km in total.

In December 2015, the Brazilian government also authorised temporary and exceptional electricity imports from Uruguay as the country's grid struggles to meet soaring summer demand. In 2015, the 417-km-long, 500 kV Brazil–Uruguay Interconnection Project was also completed.

In August 2015, the Brazilian Supervisory Agency for Investment in Energy and Mining (Osinergmin) announced that the ±600 kV, 2,375-km-long high voltage direct current (HVDC) Porto Velho–Araraquara 2 line can be used for exporting power from Peru to Brazil.

According to a study published by Northeast Group, LLC, the South American countries are expected to invest USD38.1 billion in the modernisation of their power infrastructure during 2015–25.

Brazil has been reported to be the largest market in the region for smart-grid investments so far. Brazilian utilities have announced deployments of over 3 million smart meters in 2014 and plan to invest USD25.6 billion in the same over the next ten years.

Besides Brazil, Colombia, Ecuador, Chile, and Argentina are also planning significant investments in grid modernisation.

Overall, the South American nations are expected to invest USD22.6 billion in smart metering, USD7.2 billion in distribution automation, and USD8.3 billion in other smart-grid market segments during 2015–25.

In 2015, Mexico unveiled the Programa de Desarrollo del Sistema Eléctrico Nacional (PRODESEN), or the National Electric System Development Plan, as a reference document for the development of the generation, transmission, and distribution network of the country. It also aims to increase the share of clean power in the total power mix of the country to 25 per cent by 2018.

In December 2015, Mexican state-owned energy firm Comisión Federal de Electricidad (CFE) also confirmed an allocation of over USD750 million to renovate its transmission and distribution network.

In Brazil, energy firm Eletrobras announced new plans to invest BRL50.3 billion in strengthening its power generation and transmission network during 2015–2019. This represents about a 17.3 per cent cut in its previous planned investment amount. In December 2015, the board of Paraná state-owned

power utility Companhia Paranaense de Energia (Copel) also approved investments of BRL3.15 billion for the next year.

Centro de Despacho Económico de Carga del Sistema Interconectado del Norte Grande (CDEC-SING), the operator of Chile's northern grid, also presented a proposal for the implementation of 24 power transmission projects worth USD220 million to Chile's energy commission, Comisión Nacional de Energía (CNE).

Of these 24 projects, 17 are new projects or involve expansions necessary to facilitate the interconnection of the SING trunk system with that of the larger, central SIC grid.

Costa Rica is also likely to use a USD500 million credit line from the Inter-American Development Bank (IDB) to increase its renewable-energy capacity and to expand its transmission and distribution networks.

Further, Colombian electricity transmission, road concession, and telecommunications company Interconexión Eléctrica (ISA) plans to invest COP9.49 trillion by 2020.

Limited power availability and rising demand in Latin American countries provide vast investment opportunities to foreign investors also, which are capitalising on the shifting focus of policy makers towards establishing vast power transmission networks.

In July 2015, State Grid Brazil Holding S.A. (SGBH), a Brazilian subsidiary of SGCC, won the concession for a second transmission line linking the Belo Monte hydroelectric power plant in collaboration with domestic companies Furnas Central Electric SA (Furnas) (24.5 per cent) and Centrais Elétricas do Norte do Brasil S.A. (Eletronorte) (24.5 per cent). The 11.2 GW Belo Monte power complex is located on the Xingu River in the northern state of Pará. Some of the other key foreign companies are Red Eléctrica Internacional SAU, which has won a concession contract for the Montalvo–Los Heroes 220 kV transmission line in Peru; Grupo Isolux Corsan, which was awarded the contract for the construction of a transmission line and a substation in Duran by strategic public company Corporación Eléctrica del Ecuador; Abengoa, which was awarded the engineering and construction projects for two new power transmission lines in Argentina worth USD49 million, and for the construction of four 230 kV transmission lines and two 230 kV substations in Chihuahua in Mexico; and Suzhou Furukawa Power Optic Cable Company Limited (SFPOC), which was awarded a contract to supply 980 km of optical ground wire (OPGW) cable and associated hardware for a 500 kV power line project from Proyectos De Infraestructura Del Peru (PDI). In addition, in December 2015, Chilean E-CL, controlled by French utility GDF Suez, signed an agreement with Spain's power transmission network operator Red Eléctrica de España (REE) to partner in the development of the Mejillones–Cardones Transmission Line Project.

Various funding deals were also signed in 2015 to strengthen the power transmission network of the region. During the year, France's Agence Française de Développement (AFD) offered financing of EUR100 million to Brazilian state-owned power utility Companhia Energetica de Minas Gerais (Cemig) to reinforce and improve the transmission infrastructure in Brazil; Corporación Andina de

Fomento (CAF), or the Latin American Development Bank, granted a USD400 million loan to Ecuador to support the power generation, transmission, and distribution network of the country; the Inter-American Development Bank (IDB) announced approval of a USD80 million loan to Ecuador to finance the strengthening of Ecuador's National Electricity Distribution System (SND); Peruvian transmission concessionaire Consorcio Transmantaro (CTM), a consortium comprising Colombian power utilities Interconexión Eléctrica (ISA) and Empresa de Energía de Bogotá (EEB), signed a USD250 million loan agreement with Peru's Banco de Crédito del Perú (BCP); and the Development Bank of Latin America, CAF, approved a USD100 million loan for the implementation of the Tuy Valleys Expansion Project in Venezuela.

During the year, various acquisition deals were also signed in the region. These include acquisition of a 51 per cent stake in four Brazilian electricity transmission concessions by Colombian Empresa de Energía de Bogotá (EEB) for BRL547.98 million; acquisition of South African manufacturer TSS Transformers by Brazilian WEG SA; and acquisition of a 22.14 per cent stake in Brazil-based local transmission utility Transmissora Aliança de Energia Elétrica S.A. (TAESA) by Colombian state-run utility Empresas Públicas de Medellín (EPM) for BRL1.53 billion.

However, the financial difficulties of Spanish conglomerate Abengoa are affecting the development of a high-voltage power transmission line associated with the Belo Monte hydro power project in Brazil.

Asia

The year 2015 witnessed significant developments in several Asia Pacific countries aimed at reforming and transforming their power transmission sectors. Taiwan approved a draft law and Japan passed a new law to unbundle the respective state-owned vertically integrated power entities of the two countries and to transform electricity transmission into separate units in order to liberalise the sector to facilitate the entry of new players.

In Nepal, the proposal for the setting up of the National Transmission Grid Company (NTGC) by unbundling the existing state-owned vertically integrated power company was approved by the government. Pakistan and Bangladesh proposed amendments to their respective electricity laws in order to reform their electricity sectors.

In Pakistan, the amendments relate to the promotion of private investment in the electricity sector, which is reeling under severe shortages.

The Bangladesh government proposed a new law that would allow the creation of an independent system operator to operate a unified power system across the country, among other things.

In India, the proposal of hiving off the central transmission utility (CTU) function of state-owned Power Grid Corporation of India Limited (POWERGRID) gained momentum in 2015. The separation of POWERGRID's planning function from its grid development role will help promote healthy competition in the country's power transmission sector.

The Chinese government in November 2015 announced plans to expand its new power transmission and distribution pricing reform initiative, initiated on a pilot basis in Shenzhen, to Inner Mongolia, Anhui, Hubei, Ningxia, Yunnan and Guizhou, and finally nationwide. Also, in November 2015, the government of New South Wales (NSW) in Australia awarded the successful lease of NSW's transmission system operator TransGrid to an Australian-led consortium, NSW Electricity Network. The move was in line with the government's efforts to raise funds for investments in key infrastructure projects.

China, followed by India, continued to lead in the development of ultra high voltage (UHV) technology in the region. In line with China's plan to develop UHV projects on a large scale by 2020, mainly to address air pollution and to facilitate the transfer of bulk power, State Grid Corporation of China (SGCC) continued to implement UHV projects at a steady pace during 2015. The 1,000 kV Xilingol League (Inner Mongolia)—Jinan (Shandong) UHV alternating current (UHV AC) project was approved for implementation, and construction works commenced on the ± 800 kV Jiuquan—UHV direct current (UHV DC) during the year. Other UHV projects under construction include the ± 800 kV Lingzhou—Shaoxing UHV DC line project and the ± 800 kV Shuozhou (Shanxi)—Huaian (Jiangsu) UHV DC line project.

Meanwhile, India put into operation its first ± 800 kV UHV DC project, the 6,000 MW Agra—Biswanath Chariyali transmission line in September 2015. Its second UHV DC project, the 3,000 MW Champa—Kurukshetra transmission line, is under construction and is expected to be completed in April 2016. During the year, India also announced plans to implement a third ± 800 kV DC project, the ± 800 kV Raigarh—Pugalur—Madakkathara line, which is expected to be commissioned by 2019.

During the year, the spotlight was also on the integration of renewable energy. China's SGCC announced plans to build seven [two extra-high voltage AC (HVAC) and five extra-high voltage (HVDC)] cross-regional transmission routes to boost the development of renewable energy sources in the country. These lines will help China provide grid access to an additional 27 GW of renewable energy capacity by 2020.

India's Green Energy Corridor (GEC) project, which is aimed at creating an extensive intra- and inter-state network to connect major renewable energy pockets with the national grid, received a major boost with the Asian Development Bank (ADB) extending USD1 billion for the project.

The development of regional power grids received a further push forward with new links being proposed and accords for earlier proposed projects being signed during the year. China's SGCC began feasibility studies for the ± 600 kV Xinjiang—Pakistan high voltage direct current (HVDC) project and for the 1,100 kV UHV AC Henan—Kazakhstan line, while Kyrgyzstan's JSC National Electric Grid finalised the route for the 500 kV line that will connect its grid with that of China's. Meanwhile, Tajikistan proposed to set up a cross-border link through Sary—Tash to connect China's Ulugchat County in Xinjiang Uyghur Autonomous Region (XUAR).

Progress on the long-proposed India—Sri Lanka undersea link was made with the submission of the draft report on the

project by India's POWERGRID to the Sri Lankan government. A new 400 kV line connecting India's Gorakhpur to Nepal's Bardaghat was also proposed.

Meanwhile, the installation of the Northeast India-Bangladesh cross-border line linking Tripura in India to Comilla in Bangladesh was completed in December 2015.

During the year, the energy ministers of South and Central Asia (Tajikistan, the Kyrgyz Republic, Afghanistan and Pakistan) signed a final agreement for the implementation of the Central Asia South Asia 1000 (CASA 1000) Project.

Also, the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), an international organisation involving seven South Asian and Southeast Asian countries, finalised a draft memorandum of understanding for setting up power transmission interconnections among the member countries.

Europe

In 2015, Europe focused on meeting its energy targets with respect to strengthening the internal energy market, integrating renewable energy sources, and addressing security-of-supply issues.

The European Commission announced a 10 per cent electricity interconnection target for 2020 along with the Energy Union Package in February 2015. This was done with the aim of speeding up the process of forming an effective internal energy market in the continent and of addressing the issue of energy islands such as southeast Europe, the Iberian Peninsula, and the Baltic states.

The communication lays down the details about how to bring the European Union's (EU) electricity interconnection level to 10 per cent by 2020 and to 15 per cent by 2030. This is expected to be achieved mainly through the implementation of the Projects of Common Interest (PCI).

In this regard, by 2016, the EC will come out with a communication on the progress made towards the completion of the list of the most vital energy infrastructure projects and on the necessary measures to reach the 15 per cent target.

Progress was made in identifying projects and in distributing funds under the EU programme, Connecting Europe Facility (CEF).

In April 2015, grant agreements for the first 15 CEF projects were signed by Innovation & Networks Executive Agency (INEA), the agency implementing the EU programmes. These projects are part of the 34 projects, including 17 electricity projects, selected as part of the first call under CEF.

The selected projects have an EC funding commitment of EUR647 million. In 2015, two more calls involving a commitment of another EUR650 million were initiated.

The year has been critical for planning the future electricity transmission infrastructure. In November 2015, the European Network of Transmission System Operators for Electricity (ENTSO-E) released the six Regional Investment Plans

(RegIP2015) along with a list of project candidates for the Ten-Year Network Development Plan (TYNDP) 2016.

The publication of the RegIP2015, the list of project candidates, along with the TYNDP scenarios marked the first phase of the preparation of TYNDP 2016. In the second phase, which will be completed by the end of 2016, the TYNDP 2016 report will be released.

The TYNDP 2016 report will be based on coordinated project assessment using the cost benefit analysis (CBA) method as well as the 2020/2030 scenarios. The TYNDP, which is published biannually, is the most comprehensive planning reference for the pan-European electricity transmission network.

Meanwhile, several member countries of the EU either finalised or initiated for consultation their respective national ten-year transmission development plans (either up to 2024 or 2025) during the year. These countries include Austria, Belgium, Croatia, Denmark, Germany, Iceland, Ireland, Italy, Latvia, Lithuania, Norway, Poland, Portugal, Sweden, Switzerland, and Ukraine.

Several countries have revised their investment plans downwards and made them more realistic in light of the current economic scenario in the region. The focus is more on strengthening and renovating the existing networks to get the maximum benefits and to ensure efficient operations.

German federal network agency Bundesnetzagentur (BNetzA) announced earlier in the year that Germany may have to extend the back-up power scheme beyond its planned expiry date of 2017 as the country's transmission network is not expanding as planned.

Germany resorted to a back-up power scheme in 2011 following the government's decision to shut down 40 per cent of the country's nuclear power stations at one go after the Fukushima nuclear plant disaster in Japan.

Germany's fragmented market structure and its regional specifications pose significant challenges with regard to grid expansion.

In addition, tedious and lengthy planning and authorisation processes, administrative problems, the reluctance of grid operators to invest, and their preference to construct only overhead power lines are other factors that are hindering the timely expansion of Germany's transmission grid.

In efforts to accelerate the slow pace of the development of transmission infrastructure, in March 2015, the Cabinet of Germany approved a draft bill to amend the provisions of the laws related to the construction of power lines.

Meanwhile, new offshore wind grid connections were commissioned during the year, particularly in Germany. These included the ±320 kV high voltage direct current (HVDC) DolWin1, SylWin1, and HelWin2 offshore links.

In a significant development with regard to cross-border transmission projects, the interconnectors between Lithuania and Poland (LitPol), and between Lithuania and Sweden (NordBalt), were completed and officially inaugurated on December 14, 2015.

This has led to the creation of the Baltic Ring. The LitPol Link connects Alytus in Lithuania with Elk in Poland, and the NordBalt Link connects Nybro in Sweden with Klaipeda in Lithuania. The two interconnectors will add 1,200 MW of interconnection capacity to the region.

This means that for the first time the electricity markets of the Baltic states will be connected to the Swedish and Polish electricity networks. This has laid the technical foundations for the synchronisation of the Baltic electricity grid with the rest of Europe.

In the beginning of 2015, the 500 kV HVDC Skagerrak 4 interconnection linking the power grids of Norway and Denmark was commissioned.

The re-elected government of Greece negotiated a third EUR86 billion bailout package with the EU and the International Monetary Fund (IMF) in July 2015.

While the government is under pressure to liberalise its energy market and to privatise its transmission system operator (TSO), Anexartitos Diacheiristis MetaforasIlektrikis Energeias, it is looking at making the TSO autonomous without privatising it.

Turkey's TSO TEIAS became a permanent member of ENTSO-E in April 2015 with the signing of the long-term agreement forming the legal basis for the permanent operation of Turkey's electricity system with the electricity grid of continental Europe.

Earlier in May 2014, the power grid of Turkey was put in permanent synchronous operation with the power grid of continental Europe after trial operations lasting for almost three years.

Middle East and Africa

Several countries in Africa continued to implement institutional reforms during 2015 in order to improve efficiency in their electricity markets.

Cameroon created a new company, called Société nationale de transport de l'électricité (Sonatrel), to manage the country's power transmission network.

The government of Sierra Leone unbundled various electricity providers and integrated them to form two entities known as the Electricity Generation and Transmission Company (EGCT) and the Electricity Distribution and Supply Company (EDSA).

Nigeria decided to extend the existing management contract for Transmission Company of Nigeria (TCN) with Canadian firm Manitoba Hydro International (MHI) by one year – till July 31, 2016.

Multilateral funding agencies continued to support the development of power transmission infrastructure in the region, with various big-ticket deals signed during the year.

In one of the region's largest deals, the African Development Bank (AfDB) approved a USD375 million loan and a corresponding syndicated loan structure for up to USD750 million to support the Capacity Expansion Programme in South Africa.

In another major deal, the European Union earmarked over EUR200 million for investment in the energy sector of Zambia to help the industry grow and address various challenges.

The World Bank's International Development Association approved a USD200 million loan in May 2015 for developing a regional transmission network among countries in Western Africa.

The Islamic Development Bank (IsDB) agreed to extend a similar amount for the construction of the 400 kV Chimuará-Nacala transmission line in Mozambique.

China also has been expanding its presence in the African region. In December 2012, the Import Bank of China (China Exim Bank) signed a USD778 million loan deal with the government of Côte d'Ivoire (Ivory Coast) for the rehabilitation and development of the electricity grid in the country.

The State Grid Corporation of China (SGCC) also signed a framework agreement with Egypt's Ministry of Electricity and Renewable Energy for the development of the power transmission network in Egypt at investments worth USD1.8 billion.

The Southern Africa Development Company (SADC) approved USD3.5 million for the development of the Mozambique, Zimbabwe, and South Africa (MoZiSa) transmission interconnection.

Also in the southern region, the Southern African Power Pool (SAPP) invited consultancy bids for the Botswana–South Africa (BOSA) Transmission Project.

Sudan and Ethiopia signed an agreement for the construction of a 500 kV power line, which will enable Sudan to seek benefits resulting from the Ethiopian Renaissance Dam.

Progress was achieved in the case of two interconnectors involving Kenya. AfDB awarded a USD145 million loan in February 2015 to fund the Kenya–Tanzania Interconnector, and Isolux Corsan and Siemens were selected to design, build, and install HVDC equipment for the 500 kV HVDC Ethiopia–Kenya Interconnector.

While progress on other regional interconnection projects has been slow, African countries continue to work towards strengthening cross-border electricity links.

The Middle Eastern countries are also focusing on strengthening regional interconnections. The Government of the Arab Republic of Egypt and the Kuwait Fund signed a loan agreement worth USD98.7 million and a project agreement to finance the electricity linkage project between Egypt and Saudi Arabia.

The Ministry of Energy of Iran continued a dialogue with Turkmenistan, Armenia, and Georgia to develop interconnection projects.

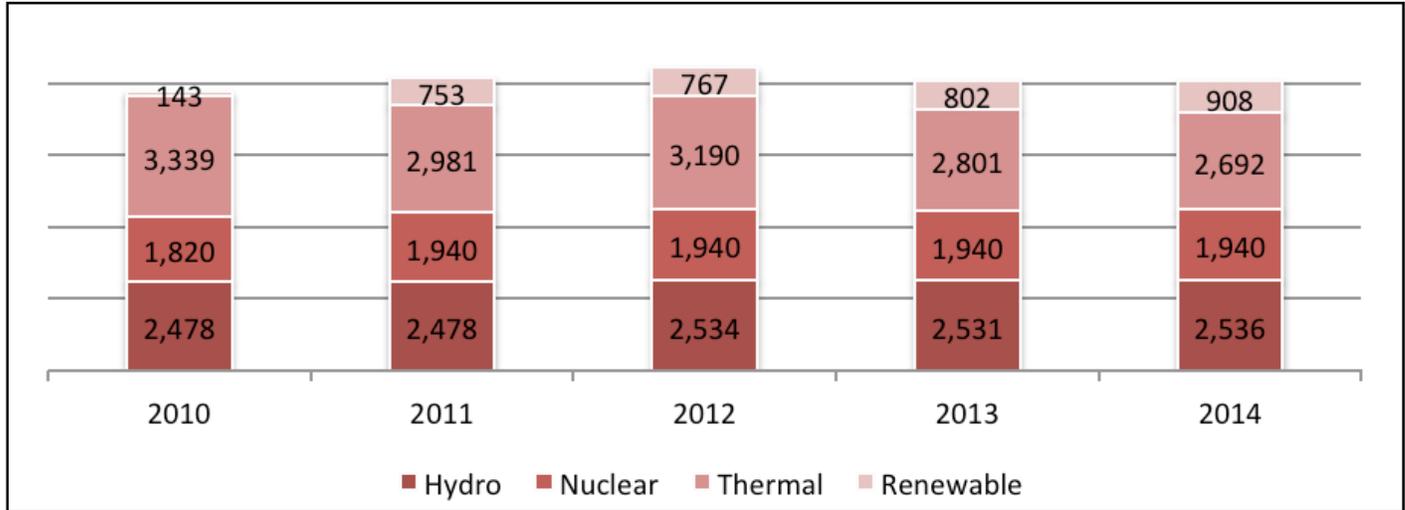
Meanwhile, the focus in the Middle East continued to remain on the development of a high-voltage network, with various contracts awarded during the year. ♦

Slovakia

Electricity generation and consumption trends

According to data provided by the national transmission system owner (TSO), Slovenska Elektrizacna Prenosova Sustava A.S. (SEPS), the installed generation capacity in Slovakia increased at a compound annual growth rate (CAGR) of 0.9 per cent from 7,780 MW in 2010 to 8,076 MW in 2014. Generation capacity is heavily dependent on gas imported from Russia and on coal imported from Ukraine. In aggregate, thermal energy accounts for nearly 33 per cent share in the generation mix, while hydro and nuclear power generation plants account for significant shares of 31 per cent and 24 per cent respectively. Renewable generation sources account for the remaining 11 per cent of the installed generation capacity.

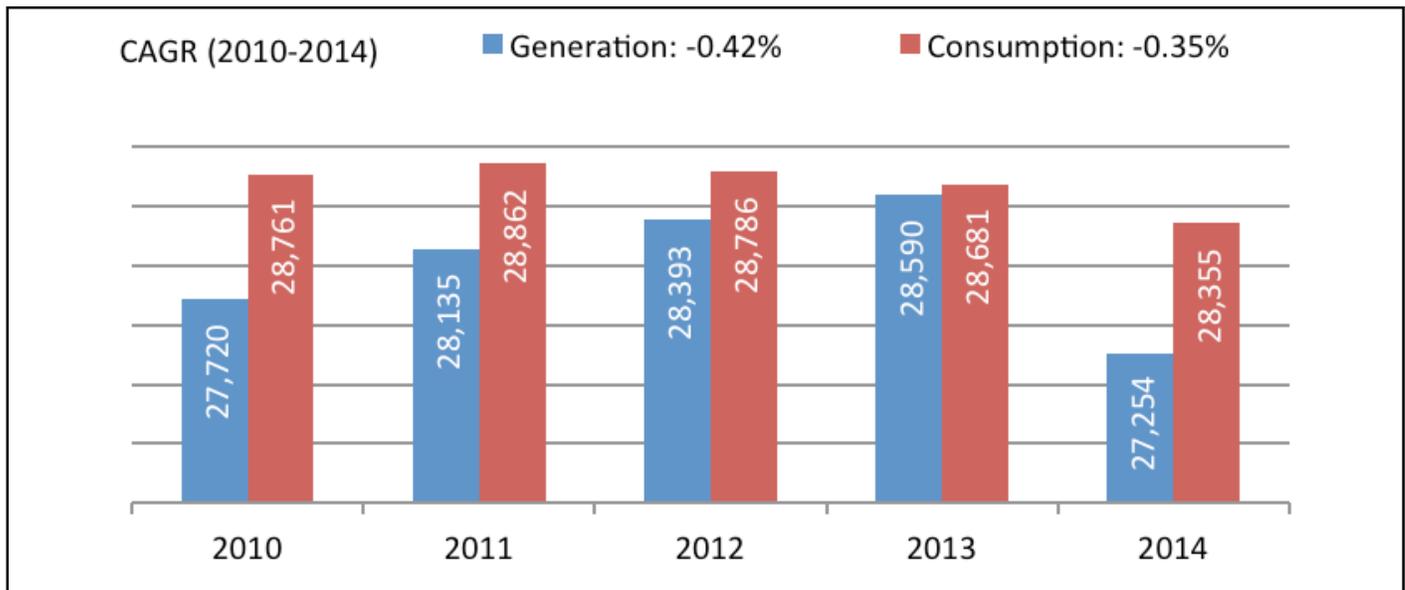
Figure 1: Growth in Slovakia's installed electricity generation capacity (MW)



Source: Slovenska Elektrizacna Prenosova Sustava

Power generation and consumption in Slovakia has experienced an overall decline in the past five years. In 2014, generation was 27,254 GWh against a consumption of 28,355 GWh, which were respectively 4.7 per cent and 1.1 per cent lower than the previous year.

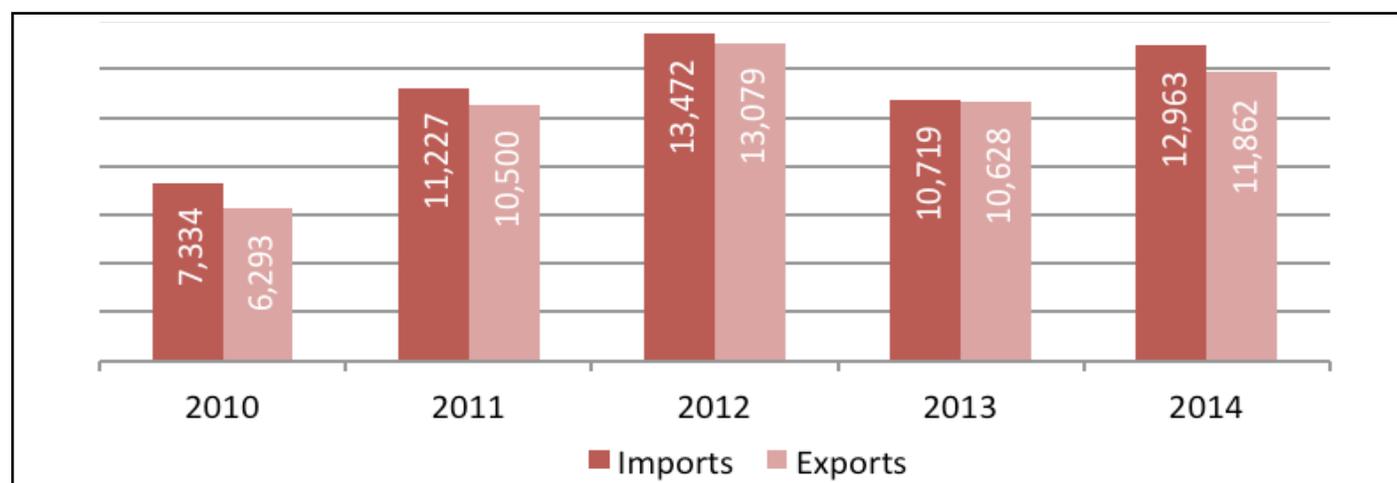
Figure 2: Growth in Slovakia's power generation and consumption (GWh)



Source: Slovenska Elektrizacna Prenosova Sustava

Trends in electricity trade

Slovakia engages extensively in energy trade, as imports are the second most important source of electricity in the country. In 2014, the country imported 12,963 GWh of electricity, while exported 11,862 GWh. The Czech Republic and Poland are the major electricity exporters to Slovakia, while Slovakia's exports are to Ukraine and Hungary. Over the past five years, power exports have increased at a CAGR of 15.3 per cent, while imports have increased at a CAGR of 17.2 per cent.

Figure 3: Growth in Slovakia's power exports and imports (GWh)

Source: Slovenska Elektrizacna Prenosova Sustava

Electricity transmission sector

The power transmission network of Slovakia comprised 2,863 km of line length and about 11,710 MVA of transformer capacity at the end of 2014. The majority of the network, or about 68 per cent of the existing line length, operates at a high voltage of 400 kV, another 29 per cent is at 220 kV, and the remaining 3 per cent is at 110 kV.

Table 1: Growth in Slovakia's transmission network

Voltage	Line length (km)	Transformer capacity (MVA)
2010	2,720	10,010
2011	2,817	10,010
2012	2,817	10,610
2013	2,863	11,110
2014	2,859	11,710

Source: Slovenska Elektrizacna Prenosova Sustava

SEPS is investing in augmenting and strengthening the transmission network to integrate new capacities as well as to ensure smooth cross-border transactions. Based on SEPS's Network Development Plan 2015–24, it is estimated that 243 km of new transmission lines, 1,500 MVA of transformer capacity, along with two new substations will be added to the Slovakian grid between 2016 and 2025. Going forward, Slovakia plans to strengthen its interconnections with Hungary through three new links.

Table 2: Slovakia's planned transmission investments (EUR million)

Segment	Investment
Substations (new and reconstruction)	77
Substations (remote control and transformation)	139
Internal lines (new and reconstruction)	253
Cross-border lines (new)	42
Transmission lines (combined ground wires)	3
Commercial systems	27
ICT systems	24
Total	565

Source: Slovenska Elektrizacna Prenosova Sustava

NORTH AMERICA

RPEP to invest USD100 million in Neptune Regional Transmission System

Ridgewood Private Equity Partners (RPEP), an investment firm focused on energy and infrastructure real asset strategies, has announced an investment of approximately USD100 million in the Neptune Regional Transmission System.

It is an existing 65 mile (104.65 km) submarine power transmission cable that connects New Jersey and Long Island.

The high voltage direct current line has a capacity of 660 MW and operates under a long-term agreement with the Long Island Power Authority (LIPA).

Since mid-2007, the line has been providing, on an average, approximately 20 per cent of the electricity for Long Island.

The proven record of operating performance of the line encouraged the company to invest in the project.

ITC Midwest purchases transmission assets of Interstate Power & Light

ITC Midwest LLC, a subsidiary of ITC Holdings Corporation, closed its purchase of certain transmission assets in Keokuk County, Iowa, from Interstate Power & Light Company, according to a January 4 notice of consummation.

The deal, which was approved by Federal Energy Regulatory Commission (FERC) in early August 2015, was closed on December 30, 2015.

The jurisdictional facilities include transmission assets in IPL's Hedrick substation that are used by ITC Midwest for transmission purposes.

IPL, an Alliant Energy Corporation subsidiary, agreed to sell the assets for USD18,890.02.

LATIN AMERICA

E-CL to develop Mejillones–Cardones with Spain-based REE

Chilean E-CL, controlled by French utility GDF Suez, has come to an agreement with Spain's power transmission network operator Red Eléctrica de España (REE) to partner in the development of Mejillones–Cardones Transmission Line Project.

This deal is likely to cost about USD218 million to REE, as per which the latter will acquire 50 per cent stake in Transmisora Eléctrica del Norte (TEN), the company developing the project, from E-CL.

The latter is planning to build a 580 km long transmission line to connect its power plants in northern Chile to the mineral-rich Atacama region. The USD700 million line is expected to facilitate the development of several major mine projects in the region.

The line will connect the northern port of Mejillones, a centre for thermoelectric generation, to the Cardones substation at the northern end of central Chile's Sistema Interconectado Central (SIC) grid.

Mining companies, including Barrick Gold, Kinross Gold and Teck Resources, have plans to invest upto USD30 billion in new copper and gold mines in the northern Atacama region.

But much of the proposed investment has been shelved, partly due to the limited power supply there. Therefore, the planned line will supply power to the region from the hydroelectric dams in southern Chile.

ASIA PACIFIC

ADB to lend USD1 billion for GEC projects in India

The Asian Development Bank (ADB) will provide a USD500 million government-backed loan and a further USD500 million in non-sovereign lending to India's central power utility (CTU), Power Grid Corporation of India Limited (POWERGRID).

The funds will be used to build and upgrade high voltage transmission lines and substations in Rajasthan and Punjab states, as part of the Indian government's Green Energy Corridor (GEC) Project initiative.

In order to increase energy delivery from India's west to southern region, the project will also include new high-voltage direct current terminals in Chhattisgarh, Tamil Nadu, and Kerala states, boosting interconnectivity between the regions from about 10 GW to 16 GW.

Under the GEC, the intra-state network will feed renewable energy-based power to the respective state grids, and the high capacity transmission corridors and inter-state network will connect major renewable energy pockets with the national grid.

Pakistan's K-Electric signs loan agreements for transmission system upgradation

On December 22, 2015, state-owned vertically-integrated power utility of Pakistan, K-Electric Limited executed two finance agreements structured by Standard Chartered Bank, one for China Export and Credit Insurance Corporation (Sinosure) for a supported financing of USD91.5 million and another for the Euler Hermes AG, Germany (Hermes)-backed facility of EUR46.5 million with Industrial and Commercial Bank of China, Bank of China and Standard Chartered Bank as mandated lead arrangers and lenders. Both the facilities are for a period of 10 years.

The financing will be used by K-Electric to undertake a comprehensive and transformative upgrade of its transmission system, which will significantly improve the reliability, stability and efficiency of the power network.

The project will increase K-Electric's transmission capacity by 33 per cent (up to 1000 MVA), thereby allowing it to deliver more energy to its customers. These financing agreements are part of USD400 million investment by K-

Electric into its transmission system, including the installation of new substations, transmission line equipment and grid stations.

This is the first Sinosure-backed financing transaction for a private sector entity in Pakistan without Government of Pakistan's sovereign guarantee.

(EUR1=USD1.09)

ADB approves USD600 million loans to Indonesia's power sector

The ADB has approved a loan of USD600 million for the Indonesian state electricity company Perusahaan Listrik Negara (PLN) to expand its electricity transmission and distribution system in Sumatra.

The funds will be used to finance an increase of 150 kV transmission lines that already exist, new substations, and the installation of new equipment and renewal of old equipment, including switchgear.

On the distribution side, the company will add to and strengthen medium and low-voltage network, including installation of distribution transformers, new connections, and customers' meter boxes. The programme will also provide capacity building and institutional strengthening for PLN.

The programme will help achieve an electrification rate of 90 per cent by 2019 in Sumatra. It will also support the government's national targets for providing universal access to electricity by 2024, which is still in the range of 84 per cent.

ADB approves USD1.2 billion for Afghanistan's power sector

The ADB has approved USD1.2 billion grants to reinforce ongoing energy projects in Afghanistan and to provide new funds to boost energy supply, improve power sector efficiency, and promote cross-border trade in energy.

The assistance will support Afghanistan's national energy supply programme of more than USD10 billion, which aims to expand power supply to boost economic growth and cut poverty.

As per ADB, the funds are to be disbursed in multiple tranches with the first tranche of USD275 million earmarked for release in 2015. The remaining tranches are expected to follow through to 2025.

In its first tranche, ADB will fund the last missing links for an expanded Turkmenistan–Afghanistan power interconnection, allowing the country to increase electricity imports for year-round supplies from its neighbour.

This will include constructing over 300 km long, 500 kV transmission line connecting Sheberghan to Dashte Alwan, and over 60 km long, 220 kV line from Andkhoy to Sheberghan. ADB will provide support to develop a business plan and tariff framework for the state power utility, Da Afghanistan Breshna Sherkat (DABS).

Subsequent tranche assistance will focus on further transmission network upgrades, as well as support for

domestic renewable energy projects and measures to boost both domestic gas production and imports via the Turkmenistan–Afghanistan–Pakistan–India gas pipeline.

Assistance for building up the human resource capabilities of relevant agencies, and to introduce regulatory reforms, will also be provided.

EUROPE

EIB lends EUR80 million to Portuguese power grid company REN

Portuguese grid operator Redes Energeticas Nacionais (REN) will receive EUR80 million from the European Investment Bank (EIB) to finance investments in its electricity transmission network by 2019.

This sum is the first tranche of a EUR200 million loan given by EIB to REN under the multi-component investment programme covering the period 2014-19.

The programme includes renewable energy connections, and the reinforcement and upgrade of Portuguese electricity transmission network.

The investment will enable the integration of renewable energy sources and the connection of additional hydro and wind capacity. It will also improve network operation and efficiency, and mitigate environmental impacts.

REN's strategic plan outlines an investment of up to EUR900 million in international projects and between EUR700 million and EUR800 million in Portugal by 2018.

(EUR1= USD1.08)

Italian TSO Terna buys Italian railways' power line assets

Italian transmission system operator (TSO) Terna has agreed to buy high voltage power line assets from Italy's state railways for EUR757 million; thus strengthening its position as one of Europe's biggest power transmission companies.

The railway assets in the deal include 8,379 km of high-voltage power lines, 350 electrical substations and a contract for the housing of fibre-optic cables.

The assets will now receive tariff remuneration from Italy's energy watchdog, which previously set a regulated asset base for the network for tariff purposes of EUR674 million.

The Italian government plans to sell part of the railway system as early as next year to raise funds to cut debt.

(EUR1=USD1.08)

Enel may acquire 51 per cent stake in Celg Distribuicao

Italy's power company Enel is planning to acquire a 51 per cent stake in Celg Distribuicao SA, an energy distribution company, from Centrais Eletricas Brasileiras SA (Eletrobras), which is engaged in the generation, transmission and distribution of electric power.

The transaction is expected to be valued at around BRL1,430 million.

(BRL1=USD0.25)

MIDDLE EAST AND AFRICA

SEC signs USD3 billion agreement with Export-Import Bank of Korea

Saudi Arabia's state-owned power utility Saudi Electricity Company (SEC) has signed a framework agreement on December 7, 2015 with Export-Import Bank of Korea (Korea Eximbank), under which SEC can avail upto a USD3 billion line of credit from the bank directly or by its support.

The line of credit could be utilised over the upcoming three years in several tranches at the time and sizes of SEC's discretion to finance its projects with eligible Korean content.

The agreement will further strengthen the collaboration between SEC and Korea Eximbank as the bank has already been part of the financings arranged in the past of SEC's Rabigh VI expansion and South Jeddah power projects.

This framework agreement comes in line with the company's strategy and aim to fund its projects with matching financing solutions.

It will support the major capital investment programme that aims to increase capacity, improve reliability and raise efficiency in order to cope with the high growth in electricity demand.

SEC, along with its subsidiaries and affiliates, is Saudi Arabia's monopoly integrated electricity generation, transmission, and distribution company.

Saudi's SEC signs USD1.4 billion loan agreement with international banks

Saudi Arabia's state-owned power utility SEC has successfully signed a loan agreement worth USD1.4 billion with seven international banks, on January 6, 2016.

The facility has a lifespan of three years and was provided by Bank of Tokyo-Mitsubishi UFJ, Mizuho Bank Limited, Sumitomo Mitsui Banking Corporation, HSBC, JP Morgan, Credit Agricole and Deutsche Bank.

This is in addition to the successful closing of the SAR denominated tranche with local banks National Commercial Bank and Samba Financial Group on December 16, 2015, which amounted to USD666 million with a tenure of three years. Both the agreements bring the company's revolving facilities to a value of USD2.06 billion.

In August 2015, SEC revealed its plans for raising revolving credit facilities (RCF) split into a Saudi Riyal tranche and a US Dollar tranche in order to support its capital expenditure programme.

The RCF will act as a bridge between the proceeds of any long-term finance and the ongoing investment requirements. This will provide SEC with a proper and harmonious financing

mix to support its capital expenditure and achieve the optimum utilisation of cash resources, and reduce liquidity and financing costs.

China EXIM bank and Côte d'Ivoire sign USD778 million loan deal

A USD778 million loan deal was signed on December 16, 2015 between Côte d'Ivoire government and the Import Bank of China (China Exim Bank) for the rehabilitation and development of the electricity grid in Côte d'Ivoire (Ivory Coast). The financing will fund the construction of 13 new transformer substations and the rehabilitation of 14 others as well as nearly 2,000 km (1,240 miles) of new high-tension lines.

The project would cost a total of USD854 million, with the remaining funding coming from the Côte d'Ivoire government.

China has numerous projects in Ivory Coast, including the construction of a EUR380 million hydroelectric dam, with its total active financial commitments topping out at about EUR1.4 billion.

The country aims to massively expand access to electricity, targeting a doubling of output by 2020, while the national authorities plan to invest USD18 billion in the energy sector by 2030, with a large portion of the investment coming from the private sector.

(EUR1=USD1.09)

AfDB approves USD375 million loans for Eskom

On December 21, 2015, the African Development Bank (AfDB) has approved a USD375 million loan and a corresponding A and B syndicated loan structure for up to USD750 million to support the Capacity Expansion Program (CEP) of the South Africa's vertically-integrated power company Eskom Holdings SOC Limited.

Under the A and B loan structure, the Bank acts as the 'lender of record' of the 'loan on record', under which the A loan is the amount of the loan that the bank has agreed to keep for its own credit while the B loan is the portion of the loan that is syndicated to commercial financial institutions. The approved loan is being financed through the bank's private sector window.

The programme will be rolled out over a five-year rolling period (2015–2020), and will contribute to a comprehensive expansion of South Africa's generation capacity and transmission network.

Through the CEP, Eskom will maintain and rehabilitate nearly 8,000 MW of installed capacity, while adding 10,986 MW base load capacity, including a 1,332 MW renewable energy peaking station. It will also expand Eskom's transmission network by 9,756 km, thereby connecting Eskom's new generation as well as the nearly 90 independent power producers under the Government of South Africa's Renewable Energy Independent Power Producer (RE IPP) Program.

The CEP aims to catalyse economic growth and job creation in South Africa and the wider region. ♦

NORTH AMERICA

CoSu Line Project, US

Developer: Western Area Power Administration (WAPA) and the Sacramento Municipal Utility District (SMUD)

Project details and status: The proposed Colusa–Sutter Transmission Line (CoSu Line) will enhance the reliability of the electrical grid in Northern California by providing a new connection to the existing California–Oregon Transmission Project Line in Colusa County, California.

The proposed line would link to a new substation near the existing O'Banion substation in neighbouring Sutter County. The project would increase SMUD's ability to deliver clean power to the Sacramento area from the Pacific Northwest and other energy markets.

Under this, a new substation adjacent to Western's existing O'Banion substation south of Yuba City, and a line to connect this new substation to the existing California–Oregon Transmission Project (COTP) transmission line northwest of Arbuckle, will be constructed.

The Northern Corridor Study Area is likely to be 44 miles (70.84 km) long. It is and would be constructed adjacent to Western's existing 230 kV Olinda–O'Banion and Keswick–O'Banion double-circuit transmission lines. The Southern Corridor Study Area is likely to be 27 miles (43.47 km) long and would connect to the existing COTP transmission line system approximately eight miles (12.88 km) northwest of Arbuckle in Colusa County, and continue east towards Western's existing O'Banion substation in Sutter County. Following this route, two new substations would be built – one adjacent to the existing COTP transmission line northwest of Arbuckle and another adjacent to the O'Banion substation.

The Segment 1 Alternative Study Area is approximately nine miles (14.149 km) long and would provide an alternate north-to-south route for the Northern Corridor Study Area. It would be located immediately west of the existing O'Banion substation.

Instead of following Western's existing 230 kV Olinda–O'Banion and Keswick–O'Banion double-circuit transmission lines to the O'Banion substation, this segment would extend south, at a location approximately 30 miles (48.3 km) from the Maxwell Series Compensation substation, and then continue east to connect to the O'Banion substation. The new segment would also be located further away from the Sutter National Wildlife Refuge.

In December 2015, WAPA and SMUD were studying the environmental effects before beginning the construction and operation of the 500 kV transmission line in Colusa and Sutter counties in California. A notice of intent to prepare an environmental impact statement (EIS) has been published to initiate a 60-day public scoping period under the National Environmental Policy Act.

SMUD will serve as the lead agency preparing the concurrent environmental impact review under the California Environmental Quality Act. SMUD is currently studying two routes for the project and a segment alternative for the CoSu Line in Colusa and Sutter counties.

Houston Region Import Capacity Project, US

Developer: Central Point Energy

Project details and status: The project is a 130-mile (209.3-km), 345 kV transmission line that will run from Harris County to Limestone County. This will constitute the southern portion of a larger project—the Brazos Valley Connection. The northern portion of the transmission line will be constructed by Cross Texas Transmission, and will run from Grimes to Limestone County.

In April 2014, the Board of Directors of Electric Reliability Council of Texas (ERCOT) approved the project. As per ERCOT's analysis, considering the rising power demand, especially from the petrochemical manufacturing industry in the region, additional power transmission capacity will be required in the Houston region by 2018.

In December 2015, the members of Public Utility Commission (PUC) of Texas have approved the Houston Region Import Capacity Project and its route. A final order authorising construction is expected by January 2016.

The developer has scheduled the completion of the project in 2018.

LATIN AMERICA

Montalvo–Los Heroes 220 kV Transmission Line Project, Peru

Developer: Red Electrica Internacional SAU

Project details and status: Red Electrica Internacional SAU won a concession contract for the Montalvo–Los Heroes 220 kV transmission line in Peru in December 2015. The award of the concession contract includes the construction of the new 220 kV, 129-km line and the enlargement of the Montalvo and Los Heroes substations. The project will enable electricity supply in the area of Tacna in the south of Peru.

Red Electrica will be responsible for the design, financing, construction, operation, and maintenance of the facilities for a period of 30 years, in addition to a construction period of 33 months. The investment in this project is estimated at USD40 million. Its commissioning is scheduled for 2019.

The project is part of the international expansion plans of the Red Electrica Group. It strengthens the transmission system in the area of Peru near the border with Chile, which is an important step for the future interconnection of the electricity systems of both countries.

Lechuga–Equador–Boa Vista Project, Brazil

Developer: Transnorte Energia, a joint venture between Brazilian energy firms Alupar and Centrais Elétricas do Norte do Brasil S.A. (Eletronorte)

Project details and status: The joint venture (JV) was formed to construct the 400-km, 500 kV Lechuga–Equador and the 315-km, 500 kV Equador–Boa Vista transmission line project, along with the 500 kV Equador and the 500/230 kV Bora Vista substations. The JV filed its application with Brazilian energy regulator Agencia Nacional de Energia Eletrica (ANEEL) to

abandon the project due to delay in receiving the preliminary licence for the projects for the past three years.

In December 2015, Fundação Nacional do Índio, or National Indian Foundation (Funai) gave its approval to environmental agency Ibama for the construction of the transmission line between Manaus in Amazonas and Boa Vista in Roraima.

Ibama is now expected to issue the licence in the coming days, with work able to begin after Transnorte Energia obtains the installation licence. The company, however, has called for the value of the contract to be renegotiated, as it has already spent BRL250 million on the project.

(BRL1=USD0.27)

Mejillones–Cardones Transmission Line Project, Chile

Developer: Transmisora Eléctrica del Norte, a subsidiary of E-CL, controlled by French utility GDF Suez

Project details and status: The line will connect the northern port of Mejillones, a centre for thermoelectricity generation, to the Cardones substation at the northern end of central Chile's Sistema Interconectado Central (SIC) grid. It is a 580-km-long transmission line that will connect TEN's power plants in northern Chile to the mineral-rich Atacama region. The USD700 million line is expected to facilitate the development of several major mining projects in the region.

Mining companies, including Barrick Gold, Kinross Gold, and Teck Resources, have plans to invest up to USD30 billion in new copper and gold mines in the northern Atacama region. But much of the proposed investment has been shelved, partly due to the limited power supply there. Therefore, the planned line will supply power to the region from the hydroelectric dams in southern Chile.

In December 2015, E-CL came to an agreement with Spain's power transmission network operator Red Eléctrica de España (REE) to partner in the development of the project. This deal is likely to cost REE about USD218 million, as per which the latter will acquire a 50 per cent stake in TEN.

ASIA PACIFIC

National Power Transmission Network Development Project

Developer: Power Grid Company of Bangladesh (PGCB)

Project description: Under the project, new 132 kV (nine) and 230 kV (two) substations and 216 km of 132 kV and 230 kV lines will be constructed and the extension of five 132 kV and one 230 kV substations will be undertaken across Bangladesh to improve the stability of power supply and to contribute to industrial and commercial development.

In particular, the project will help evacuate power from the upcoming 1,320 MW Anowara coal plant and will build power-evacuation facilities for future generation plants at Sikalbaha. Japan International Cooperation Agency (JICA) has extended a JYP18,736 loan for the project.

The project will be implemented under 10 contracts, consisting of five substation packages and five transmission

line packages. The process for the selection of contactors was initiated in February 2015. So far, tenders for the construction of 132/33 kV substations at Bhaluka, Mymensingh, Baroirhat, and Ramganj; the 230 kV Hathazari–Sikalbaha and Hathazari–Rampur lines; the 132 kV lines associated with the Bhaluka, Baroirhat, and Ramganj substations; and the 132 kV Rampur–Agrabad underground cable and the LILO of the 132 kV Haliashahar–Khulshi transmission line to the Rampur substation have been issued.

In December 2015, PGCB invited bids for the plant design, supply, and installation of the 132 kV Saidpur–Jaldhaka and the Bogra–Palashbari–Mahasthangarh transmission lines with a bid due date of February 10, 2016.

(JYP1=USD0.0085)

400 kV Aminbazar–Maowa–Mongla and 230 kV Mongla–Khulna (South) Transmission Lines

Developer: Power Grid Company of Bangladesh (PGCB)

Project description: The proposed project aims to evacuate power from the upcoming 1,320 MW Mongla coal-based power plant to Dhaka. It will also help establish a 400 kV transmission backbone line between the Dhaka and Khulna areas.

The key project components include the 400 kV Aminbazar–Maowa–Mongla line, the 230 kV Mongla–Khulna (South) line, and the 400 kV Aminbazar substation.

PGCB signed a contract on November 26, 2015, with a joint venture (JV) contractor of EMC Limited of India and TBEA Company Limited of China for the implementation of its 230 kV Mongla–Khulna (S) line. The Indo-China JV will construct the transmission line at a contract value of BDT1.14 billion in the next 18 months.

(BDT1=USD0.013)

230 kV Northern Laos Power Grid Project

Developer: Electricite du Laos (EDL)

Project description: The project will help improve the power grid structure in northern Laos, improve the quality of power supply, increase the reliability of the existing grid, and strengthen the power grid structure of Laos.

Under the project, five 230 kV lines will be constructed in the country's northern region to evacuate power from the Nam Ou cascade power plants. The project also entails the construction of two new 230 kV substations (Beimeng and Namou) and one 230 kV switching station (Bendai) and the expansion of the existing 230 kV Luang Prabang 2 substation.

The construction work on the project was taken up by Yunnan International Company, a subsidiary of China Southern Power Grid. It is one of the China–Laos cooperation projects within the Belt and Road initiative proposed by China to enhance regional connectivity. The routes of the Belt and Road initiative run through the continents of Asia, Europe, and Africa, connecting the vibrant East Asian economic circle at one end and the developed European economic circle at the other end.

The project went into operation on November 29, 2015.

EUROPE

Transmission Grid Strengthening Project, Georgia

Developer: Georgian State Electrosystem (GSE)

Project details and status: The project is being implemented by Georgia's state-owned power transmission company GSE. It aims to ensure reliable power transmission to the southwestern part of the grid, to upgrade electricity exchange systems, and to provide economically efficient, environmentally sustainable, and socially responsible electricity-sector planning.

The project has four components. The first component involves the construction of the approximately 143-km-long, 220 kV Akhaltsikhe–Batumi transmission line. The second component involves the development of wholesale metering and trading systems.

The third component involves the undertaking of strategic environmental impact assessments (EIAs) and sector studies. The fourth component entails the provision of supervision services and project implementation support. This component will provide finance consulting services for the supervision of supply and installation contracts for the Akhaltsikhe–Batumi transmission line.

The project is estimated to entail an investment of USD62 million, of which USD60 million will be provided by the World Bank through the International Bank for Reconstruction and Development (IBRD), while the remaining USD2 million will be provided by the Georgian government.

In October 2014, GSE issued a global tender for the design, construction, and commissioning of the Akhaltsikhe–Batumi transmission line.

In December 2015, GSE issued a tender for the supply of hot galvanised towers for the Akhaltsikhe–Batumi transmission line.

Black Sea Transmission Network Project

Developer: Georgian State Elektrosystem (GSE), EnergoTrans Limited

Project details and status: The Black Sea Transmission Network is a 500 kV high-voltage direct-current (HVDC) project aimed at stabilising Georgia's electricity transmission network and facilitating electric energy trade between Georgia, other south Caucasus countries, and Turkey. The project is being co-financed by the European Investment Bank (EIB) and Kreditanstalt für Wiederaufbau (KfW).

In March 2010, EBRD extended EUR80 million to state-owned electricity transmission company Georgian State Elektrosystem (GSE) for the construction of a 315-km high-voltage electricity line between Zestaponi in western Georgia and Gardabani in the eastern part of the country.

In July 2010, India's KEC International was awarded the contract for the construction of 500 kV and 400 kV transmission lines associated with the Black Sea Transmission Project.

In February 2013, GSE completed the construction and rehabilitation of 500/400 kV power lines, a new 500/400/220 kV

substation in Akhaltsikhe, and a 500 kV HVDC converting station for transforming 700 MW of direct current of electricity. Construction works on the project were undertaken by Siemens Austria AG, while the direct current switching unit was installed by Siemens Germany.

In December 2015, Georgia completed another 500 kV transmission line to Azerbaijan, rehabilitated a 500 kV transmission line to Russia, and planned to operate a 500 kV transmission line to Armenia.

The project included several other components such as the construction and rehabilitation of the 500 kV Vardzia overhead transmission line and the 500 kV Zekari overhead transmission line that interconnected Akhaltsikhe, Zestaponi, and Gardabani substations, as well as the construction of a new 400 kV overhead line from the Akhaltsikhe substation to the Georgia–Turkey border.

The total value of the contract is around EUR320 million. It is funded by the European Bank for Reconstruction and Development (EBRD), the European Commission's Neighbourhood Investment Facility, German Credit Bank for Reconstruction (KfW), and the Georgian government.

(EUR1=USD1.10)

Albania–Macedonia Transmission Link

Developer: Macedonian transmission system operator AD (MEPSO)

Project details and status: This project consists of a 400 kV interconnection line from Bitola in Macedonia to Elbasan in Albania. The electricity systems of the two countries will be connected through the Bitola 2 and Elbasan substations. The total value of the project is expected to exceed EUR65 million.

The project will be funded from a EUR37 million loan from the European Bank for Reconstruction and Development (EBRD) and a EUR12 million grant provided under the Western Balkans Investment Framework (WBIF) Instrument for Pre-Accession (IPA) 2015 funds. The agreement foresees the construction of 95 km of a 400 kV power transmission line from the city of Bitola in southwestern Macedonia to the Albanian border with a substation at Ohrid, and the implementation of grid-efficiency components.

The new line will connect the Macedonian electricity market, which is dominated by thermal power, to the Albanian electricity market, which is dominated by hydroelectric power. This will help improve the balancing of the two electricity systems, reduce operational costs, and boost the use of renewable energy. This project will also enable power interconnection of the Black Sea to the Adriatic Sea. The new substation near Ohrid will increase the reliability of the network and boost power supply to the region.

The complete documentation for the project is to be prepared by the end of 2016. The construction of the energy facilities is expected to be completed by 2019.

(EUR1=USD1.10)

Orotukan–Palatka–Tsentralnaia Transmission Line

Developer: DVUEK JSC

Project details and status: The 220 kV Orotukan–Palatka–Tsentralnaia transmission line was installed in Khasynsk district of the Magadan region. The power network construction project is covered and regulated by the investment agreement on cooperation for 2014 entered into by the Government of the Magadan region and DVUEK JSC, as well as by the most recent version of the Federal Target Program for the economic and social development of the Far East and the Baykal region for the period until 2018. The project is expected to be completed by 2015.

The project will provide power produced by the Ust-Srednekanskaya hydropower plant to the south part of the Magadan region. Hence, the load will be taken off the power grid along the direction of Kolymenskaya HPP–Ust-Omchug–Magadan, which in turn will allow an additional 60 MW of electric power to be supplied to Yano-Kolymaskaia province, which has rich desposits of gold ore. Besides, power transmission losses in the Central Generation System of Magadanenergo JSC will decrease by 10 MW.

In March 2014, the first tower of the HV transmission line was installed in Khasynsk district.

In December 2015, Russia's Far Eastern Energy Management Company (FEEMC) received RUB1.2 billion through a contribution to the authorised capital before the end of 2015, which will be used for the construction of the 220 kV line.

Maritsa East–Burgas Line, Bulgaria

Project developer: Bulgaria's state-owned transmission utility Electricity System Operator (ESO) EAD

Project details and status: The project will connect with the interconnection with Greece. It is part of the Projects of Common Interest (PCI) list. It entails the construction of a 400 kV, 150-km transmission line between Maritsa East and Burgas in Bulgaria. The line will have an electricity transfer capacity of 1,500 MW. The total project cost is nearly EUR160 million.

Bulgaria has signed an agreement with the European Bank for Reconstruction and Development (EBRD) for co-financing the project.

EBRD is expected to provide 70 per cent of the project cost through the Kozloduy International Decommissioning Support Fund, while 30 per cent will be provided by ESO EAD. The project will be developed and managed by ESO EAD. The project has been facing delays due to difficulties with regard to land acquisition.

In November 2015, the European Union advanced a loan of EUR60 million to ESO for the construction of the 400 kV transmission line. This funding has been provided under the Connecting Europe Facility (CEF) programme.

In December 2015, electricity system operator (ESO) EAD invited bids for the construction of 400 kV overhead power lines from the Maritsa East substation to the Maritsa Iztok 3 substation. The estimated value of the contract is BGN0.4 million and its duration is 180 days.

ESO estimates that construction will start in 2017 and be completed by 2019.

(EUR1=USD1.09, BGN1=USD0.56)

Finland North–Sweden North Interconnector

Project developer: Fingrid Oyj of Finland and Svenska Kraftnät (SvK) of Sweden

Project details and status: This is the third 400 kV single-circuit alternating-current (AC) overhead line, with capacity ranging between 500 MV and 800 MW, between Finland north and Sweden bidding area SE1. Strengthening the AC connection between Finland and Sweden is necessary due to the addition of new wind power generation, the adoption of larger conventional units, and the decommissioning of the existing 220 kV interconnector.

According to ENTSO-E's TYNDP 2014, the project has been postponed till at least 2025 due to the prioritisation of other transmission projects in Sweden.

The total substation capacity of the interconnector is 1,850 MVA. The estimated cost of the project is in the range of EUR64–120 million. Construction of the project is expected to begin in 2023 and to be completed by 2025.

(EUR1=USD1.09)

Chelm–Lublin Systemowa Transmission Line

Project developer: Polish national grid company Polskie Sieci Elektroenergetyczne S.A. (PSE), Sinohydro Corporation

Project details and status: The project involves the construction of a 400 kV line between Chelm and Lublin Systemowa in Poland.

The project has been awarded by Polish national grid company (PSE) to China's Sinohydro Corporation. The net value of the contract amounts to PLN154.90 million. The construction is estimated to take 72 months.

(PLN1=USD0.25)

MIDDLE EAST /AFRICA

Masaka–Mbarara Transmission Line Project

Developer: Uganda Electricity Transmission Company Limited (UETCL)

Project description: The project involves the construction of a 400 kV transmission line between the towns of Masaka and Mbarara in Uganda. The project will be funded by the KfW Development Bank.

The project will contribute to the improvement of reliability and security of supply to the Western Region of Uganda and provide transmission capacity to cater to the grid interconnection between Uganda and Rwanda. In order to ensure project sustainability, the project will participate in the improvement of operational and technical performance of the interconnected grids.

The project is in the preparation stage. The works are expected to start by 2017.

In December 2015, UETCL invited bids for the provision of engineering designs, procurement support, project management, and construction supervision. ♦

NORTH AMERICA

South Korean LS Cable wins USD57 million contract from PSE&G

South Korean cable manufacturer LS Cable & System has won a USD57 million cable contract from New Jersey-based Public Service Electric & Gas (PSE&G) for the Bergen-Linden Corridor Project (BLC), on December 1, 2015.

The scope of the contract involves the supply and installation of a new 345 kV underground cable system between Bayway and Bayonne. It also entails manufacturing continuous cables longer than 7,000 feet (2.2 km), well-planned logistics for transportation from the manufacturing facility to the work site, and special care and handling of large reels at the site.

The project is expected to deliver electricity to northeast New Jersey to address power shortage issues in the region, and is scheduled to be operational by June 2018.

LATIN AMERICA

Mexican CFE awards contract to Acciona

Mexico's Comisión Federal de Electricidad (CFE) has awarded Acciona Infraestructuras Mexico a contract to design and build a 117 km transmission line running from the combined-cycle generating plant Empalme II into the states of Sonora and Sinaloa, along with four substations.

The entire project is likely to cost USD90 million and is due to start up in late 2017. Acciona Instalaciones Mexico, Acciona Ingeniería and Acciona Industrial will also be involved in the development of the project.

Paraguay-based ANDE awards contract for Yacyretá-Villa Hayes project

Paraguay-based Administración Nacional de Electricidad (ANDE) has awarded a contract to supervise the 500 kV Yacyretá-Ayolas-Villa Hayes transmission project. This two-year contract to provide technical, social and environmental supervision services has been awarded to Consorcio Cointec-Electroconsult.

The other bidders were Consorcio de Consultores del Sur (Intec-Tecnolatina-Latinoconsult) and Consorcio Typsa y Asociados (Typsa-Diservel-Ingeneq).

Latin American development bank Corporación Andina de Fomento (CAF) will finance the USD6.66 million contract. The project entails construction of 360 km, 500 kV transmission line that would connect the Yacyretá hydroelectric dam on the Argentine-Paraguayan border with the Villa Hayes substation in Presidente Hayes Department in Paraguay.

Colombian UPME awards 110 kV power transmission project

Colombia's mining and energy planning unit, Unidad de Planeación Minero Energética (UPME) has awarded Consorcio Interconexión Latinoamérica the contract to

design, build, operate and maintain the 110 kV Cereté substation.

The USD17 million project in Córdoba department is part of the government's plan to optimise power network in the region.

The winner is a consortium between Incer, Ingema and Interconexión Latam, which was also the sole bidder. The project works also include a 6 km link that will connect with the 110 kV Chinú-Montería line.

The entire infrastructure is scheduled to be completed by end-November 2017.

ASIA PACIFIC

POWERGRID awards INR1.31 billion substation contract to Alstom T&D India

India's central power utility (CTU) Power Grid Corporation of India Limited (POWERGRID) has awarded an INR1.31 billion contract to Alstom T&D India Limited for the supply of a substation package.

The scope of the contract involves extension of the 400/220 kV Bongaigaon substation, extension of the 220 kV Salakati substation, extension of the 220/132 kV Khuppi substation [North Eastern Electric Power Corporation Limited (NEEPCO)], augmentation of the 220/132 kV Balipara substation, and stringing of a second circuit of the 220 kV Bongaigaon-Salakati double-circuit line associated with North Eastern Strengthening Scheme-III (NERSS-III).

The work on the contract is expected to be completed by August 2017.

(INR1=USD0.015)

Siemens wins INR1.02 billion contract from WBSETCL in India

Siemens Limited has won a substation contract worth INR1.02 billion from the state-owned West Bengal State Electricity Transmission Company Limited (WBSETCL).

The scope of the contract involves the engineering, supply, installation and commissioning of a 400 kV gas insulated switchgear (GIS) substation.

(INR1=USD0.015)

Powergrid awards INR1.25 billion contracts in India

India's central power utility (CTU) Power Grid Corporation of India Limited (POWERGRID) has awarded a substation and insulator contracts worth INR1.25 billion.

A contract worth INR1.11 billion has been awarded to Necon Power & Infra Limited for the substation packages (ARP-SS-01A ARP-SS-01B).

Under Comprehensive Scheme For Strengthening Of Transmission Distribution System in Arunachal Pradesh. The work on the contract is expected to be completed by November 2018.

The insulator contract worth INR0.14 billion has been awarded to Jilin Longxin Electrical Equipment Company, Limited for the 765/400 kV transmission line in NRI associated with Inter-Regional System Strengthening Scheme for Western and Northern-Part-B. The work on the contract is expected to be completed by July 2017.

India's POWERGRID awards INR2 billion contract

India's CTU POWERGRID has awarded an INR1.89 billion reactor package contract to TBEA Shenyang Transformer Group Corporation Limited on December 15, 2015.

The scope of the contract involves the supply of a 765 kV, 13x80 MVAR single-phase shunt reactor; a 765 kV, 4x80 MVAR single-phase bus reactor for the Nizamabad GIS substation; a 765 kV, 7x80 MVAR, single-phase bus reactor at Maheswaram new GIS substation; a 765 kV, 6x80 MVAR single-phase shunt reactor at Maheswaram new GIS substation; and a 765 kV, 6x80 MVAR single-phase shunt reactor at Wardha substation under the 765 kV Wardha-Hyderabad Link.

The work on the contract is expected to be completed by October 2017.

Diamond Power wins conductor contract for 765 kV line in India

India-based Diamond Power Infrastructure Limited (DPIL), a power equipment and infrastructure services provider, has received a INR430 million contract on December 23, 2015 from Powergrid NM Transmission Limited for the supply of conductors.

The scope of the contract involves the supply of conductors for the 765 kV Nagapattinam–Salem double-circuit transmission line associated with Nagapattinam Project under Tariff Based Competitive Bidding (TBCB).

(INR1=USD0.015)

Sterlite wins 765 kV transmission project in India

India's private transmission company Sterlite Grid Limited (SGL), a wholly-owned subsidiary of Sterlite Technologies Limited (STL), has won INR25.96 billion project from PFC Consulting Limited. The project will be constructed for Odisha Power Generation Corporation Limited (OPGC).

The Common Transmission System for Phase-II Generation Projects in Odisha and the Immediate Evacuation System for OPGC [1,320 MW] Project, is one of eight key power transmission projects put up for rate-based competitive bidding

The project involves the construction of the 350 km long, 765 kV Jharsuguda (Sundargarh)–Raipur Pool double-circuit transmission line and the 50 km long, 400 kV OPGC–Jharsuguda (Sundargarh) double-circuit transmission line.

POWERGRID awards OPGW contract in India

India's CTU POWERGRID has awarded an INR78.4 million OPGW contract to ZTT India Private Limited on December 22, 2015.

The scope of the contract involves the supply of the OPGW package (Package I) under the Wardha Hyderabad 765 kV link.

The work on the contract is expected to be completed by September 2016.

(INR1=USD0.015)

Indian Kalpataru bags transmission orders worth INR14 billion

Indian power engineering, procurement and construction (EPC) major Kalpataru Power Transmission Limited (KPTL) has bagged transmission orders aggregating INR13.95 billion in the domestic market.

The orders include a turnkey transmission line project in Tamil Nadu worth INR7.7 billion from Tamil Nadu Transmission Corporation Limited (TANTRANSCO) and another order from Transmission Corporation of Telangana Limited (TSTRANSCO) for INR4.37 billion.

The company also won an order worth INR1.88 billion from Reliance Gas Pipeline.

(INR1=USD0.015)

India's KEC International bags INR10 billion contracts

India-based EPC company KEC International Limited has won orders worth INR10.01 billion in its transmission and distribution (T&D), cables, and renewables (solar) businesses.

In the T&D segment, the company has secured an order worth INR6.6 billion for construction of various transmission lines and substations in Saudi Arabia, a INR0.45 billion order for construction of transmission line in Oman, orders worth INR0.54 billion in India, Afghanistan and Zambia; and INR0.60 billion contracts in India, Afghanistan and Zambia.

In addition the company has also secured an INR1.6 billion order for the supply of power and telecom cables, while in the renewables segment it secured an INR0.19 billion order for setting up of a grid-interactive solar photovoltaic power plant in Andhra Pradesh.

(INR1=USD0.015)

Bangladesh's PGCB awards construction contract for 230 kV line

The state-owned Power Grid Company of Bangladesh (PGCB) has signed a contract on November 26, 2015, with a joint venture (JV) contractor of EMC Limited of India and Chinese TBEA Company Limited for the implementation of its 230 kV Mongla–Khulna (S) Transmission Line project.

The Indo-China JV will construct the transmission line at a contract value of BDT1.14 billion in the next 18 months.

The project involves the development of a 24 km long, four-circuit 230 kV Mongla–Khulna (S) line (initially two-circuit stringing), along with two 230 kV bay extensions at Khulna (S).

The project will be funded by PGCB and will help in the evacuation of power from the first unit (660 MW) of the

Rampal power plant, now being constructed on a site near Mongla port.

(BDT1=USD0.013)

EUROPE

Siemens presents new technology for converter stations

German manufacturer Siemens has announced a new “full bridge technology,” which will be used in the latest models of converter stations.

Siemens claims that the use of the full bridge technology makes it possible to resolve faults in the direct current (DC) sections quickly and flexibly, with no need to switch the system off, and also stabilises the alternate current (AC) grid at the same time.

In October 2015, Siemens was awarded a contract worth EUR900 million to build two converter stations for the ULTRANET direct current project.

Germany’s Amprion and Transnet BW are implementing the project, which involves the first of three planned high-voltage direct current transmission (HVDC) links between northern and southern parts of Germany.

The project will have two converter stations with a transmission capacity of 2,000 MW.

(EUR1=USD1.09)

Poland’s PSE awards power line contract to Chinese Sinohydro Corporation

Polish national grid company (PSE) has awarded Chinese Sinohydro Corporation a contract for the construction of a 400 kV power line between Chelm and Lublin Systemowa. The construction is estimated to take 72 months. The net value of the contract amounts to PLN154.90 million.

(PLN1=USD0.25)

Tauron Distribution SA awards contract for overhead line to Energoprojekt Poznań

Poland’s Tauron Distribution SA has awarded a contract to Energoprojekt Poznań for the reconstruction of single-track 110 kV overhead line between GPZ Double and GPZ Namysów.

The scope of work includes architectural and integrated engineering services, urban planning and landscape architecture-related scientific and technical consulting, service testing, and analysis services. The contract is a government procurement agreement and its final value is PLN1.1 million.

(PLN1=USD0.25)

Spain’s Sacyr signs cooperation agreement with Isotron

Spanish builder Sacyr has signed an agreement to cooperate with local engineering company Isotron, a member of the Isastur group in the construction of high-voltage

transmission lines, thermal power plants and renewable energy facilities.

Under this agreement, they will bid jointly for engineering, procurement and construction work in electricity generation and transmission tenders.

Bulgaria’s Electricity System Operator EAD awards substation contract to Energoremont JSC

Bulgaria’s Electricity System Operator EAD has awarded the contract for expansion of the 110/20 kV Cave switchyard substation to Energoremont JSC.

The scope of the project involves construction, design and execution of the substation.

The total value of the contract is BGN699.84 million.

(BGN1= USD0.55)

Slovenian ELES awards contract for construction work of power lines to C&G doo Ljubljana

Slovenian state-owned peer ELES d.o.o., Ljubljana has awarded a contract for the supply and installation of 110 kV cable systems to C&G d.o.o., Ljubljana.

The contract will be awarded through a negotiated procedure.

The final value of the contract is EUR 0.17 million.

(EUR1=USD1.08)

Czech Republic’s TSO awards contract for substation surge arrestors to ABB Limited

CEPS AS, the Czech Republic’s transmission system operator (TSO), has awarded a contract for the supply of outdoor single-pole surge arrestors for 420 kV and 123 kV substations, to ABB Limited.

The contract is a Government Procurement Agreement, with a total value of CZK0.5 million and will be awarded through a negotiated procedure.

(CZK1=USD0.04)

Eltel wins substation contract from E.ON

Eltel Networks Energetyka SA has won a contract for a full rebuild of two substations – Söderåsen and Mörarp – belonging to E.ON Elnät Sverige AB.

The value of this contract is approximately EUR13 million.

The substation contract is a turnkey project for Eltel comprising design, supply of all equipment, civil works, installation, and commissioning as well as decommissioning of the existing substations.

The contract includes rebuilding of the 130 kV substations as well as a step-by-step energisation scheme where existing parts of the substations are phased out and new parts are phased in.

This step-by-step energisation scheme is critical in order to maintain and guarantee uninterrupted operation of the vital substations.

(EUR1=USD1.07)

Romania's Transelectrica awards contract for power systems to Institute for Studies and Power Engineering SA

Romanian transmission system developer and operator Transelectrica has awarded the contract for designing power systems of 400 kV lines connecting Constana to Medgidia.

The scope of work includes architectural services, engineering services, urban planning and landscape engineering, technical testing, and analysis services.

The total value of the contract is RON0.95 million.

The contract is a government procurement agreement.

(RON1=USD0.24)

Croatia's TSO awards contract for 110 kV line to Konèar Power Plant and Transportation Inc.

Croatian TSO Hrvatski operator prijenosnog sustava d.o.o. (HOPS) has awarded a contract to Konèar Power Plant and Transportation Inc for reconstruction of 110 kV line in Kutina, Croatia.

The scope of work includes supply of equipment, execution of works and provision of services.

The total value of the contract is HRK97.44 million.

(HRK1=USD0.14)

MIDDLE EAST & AFRICA

Power major L&T wins contracts worth INR57 million in Saudi Arabia

Larsen & Toubro Saudi Arabia LLC, a fully-owned subsidiary of L&T, has won a USD56.6 million contract for the construction of two 115 kV substations at the Dammam area from National Grid, Saudi Arabia, a subsidiary of Saudi Electricity Company.

The scope of the contract involves detailed design, engineering, installation, testing and commissioning of 115 kV GIS, 115/13.8 kV, 50/67 MVA power transformers, 13.8 kV switchgear, control and protection systems, substation automation systems, high voltage alternating current (HVAC), Novec firefighting systems with associated auxiliary systems, and other civil works.

These projects are in the eastern province of Saudi Arabia and are scheduled to be completed in 22 months.

KAHRAMAA commissions 220/132 kV substation in Qatar

Qatar General Electricity & Water Corporation (KAHRAMAA) has successfully commissioned the 220/132 kV Al-Thumama

Super substation. The substation will serve the new residential area at Al-Thumama by transferring bulk power from Ras Abu Fontas B and Messaieed Power Generation Plants.

The substation connects to Doha South Super as well, which is the interconnection point of the Gulf Cooperation Council (GCC) power grid.

The scope of the project involved the installation of 220 kV cable for a total length of 183 km and 132 kV at a total length of 58 km, as well as dismantling 54 km of overhead lines at an estimated cost of QAR788 million.

The 220 kV and 132 kV overhead lines linked to Al-Thumama have been replaced with extra high voltage (EHV) cables that are buried underground.

It includes seven overhead lines linked to Ras Abu Fontas A, Ras Abu Fontas B, Al-Wukair Super and Al-Wakra substations, comprising a total length of 54 km.

(QAR1=0.27USD)

Prysmian Group receives cable contract in Oman

Prysmian Group, a global energy and telecom cable systems provider, has been awarded a cable contract by Larsen & Toubro, to supply a new high voltage underground cable system for Oman Electricity Transmission Company (OETC).

The scope of the contract involves the design, engineering and production of a new high voltage underground cable for the transmission line between Saada grid station and line-in-line-out (LILLO) that includes 85 km of 132 kV cross-linked polyethylene (XLPE) insulated cable.

The new cable system is aimed at strengthening the power supply to the city of Salalah. The project will be completed by the end of June 2016.

Consortium of Siemens and El Sewedy wins 500/220 kV substation contract

A consortium consisting of Egypt's El Sewedy Cables and German manufacturer Siemens have signed a contract with the Egyptian Electricity Transmission Company (EETC) for the construction of six 500/220 kV substations.

These six substations will be located at El Minia, El Beheira, Qalubia, Assiut and Kafr El Zayat governorates and will transmit power generated by the new Siemens-built power plants in Beni Suef and Burullus into Egypt's power grid.

The contract will see Siemens design, engineer, supply, install and commission the new substations, which will include GIS, transformers and control and protection equipment.

El Sewedy Electric for Transmission & Distribution (EE T&D) will complete all the civil and electro mechanical work for the projects.

The substations form a key element of the Egyptian government's plan to upgrade and increase the capacity of the country's national grid. ♦

ASIA PACIFIC

Construction of 132 kV lines

Country: Bangladesh

Organisation: Power Grid Company of Bangladesh Limited (PGCB)

Description/Scope of work: International competitive bids are invited for the plant design, supply and installation of the 132 kV Saidpur–Jaldhaka transmission line and the 132 kV Bogra–Palashbari–Mahasthangarh transmission line on a turnkey basis under the Japan International Cooperation Agency (JICA) funded - National Power Transmission Network Development Project.

Closing date: February 10, 2016

Contact: Ashraf Hossain, Company secretary, PGCB, Institution of Engineers Bangladesh (IEB) Bhaban (Third floor), Ramna, Dhaka-1000, Bangladesh
Email: setld@pgcb.org.bd
Website: www.pgcb.org.bd.

Construction of 400 kV, 230 kV and 132 kV substations and transmission lines

Country: Bangladesh

Organisation: PGCB

Description/Scope of work: International competitive bids are invited for the design, supply, erection, testing and commissioning of the 400 kV, 230 kV and 132 kV substations and transmission lines under the Islamic Development Bank (ISDB) funded-Power Grid Expansion Project in two lots.

Lot I: Design, supply, erection, testing and commissioning of the 400 kV, 230 kV and 132 kV substations (16).

Lot II: Design, supply, erection, testing and commissioning of the 400 kV, 230 kV and 132 kV transmission lines (15).

Closing date: March 15, 2016

Contact: Md. Ashraf Hossain, Company Secretary, PGCB, Institution of Engineers Bangladesh (IEB) Bhaban (Third floor), Ramna, Dhaka-1000, Bangladesh
Email: setld@pgcb.org.bd
Website: www.pgcb.org.bd
Phone: + 880 29553663
Fax: +880 27171833
Website: www.pgcb.org.bd

Supply and commissioning of ± 320 kV converter station

Country: India

Organisation: Power Grid Corporation of India Limited (POWERGRID)

Description/Scope of work: International competitive bids are invited for the manufacture, factory testing, supply, unloading, storing, handling, installation, and commissioning of the ± 320 kV, 2x1000 MW voltage source converter (VSC) based high voltage direct current (HVDC) terminals at Pugalur (New) and North Trichur under the Asian Development Bank (ADB) funded-Green Energy Corridor and Grid Strengthening Project. The scope of the contract also involves the supply of direct current (DC), cross-linked polyethylene (XLPE) underground cable for connecting it to the overhead line (OHL).

Closing date: January 15, 2016

Contact: POWERGRID, Deputy General Manager (DGM)/ Assistant General Manager (CS-G10), POWERGRID, Saudamini, 3rd Floor, Plot No-2, Sector-29, Gurgaon, Haryana 122001, India
Phone: +91 124 2571700-19
Fax: +91 124 2571831
Website: www.powergridindia.com

Supply of OPGW package for 765 kV and 400 kV lines

Country: India

Organisation: POWERGRID

Description/Scope of work: International competitive bids are invited for the supply of the optical ground wires (OPGW) package for the 765 kV double-circuit line-in-line-out (LILo) point Seoni–Bina line to Jabalpur pool; 765 kV double-circuit LILo point of Seoni–Bina line at Gadarwara; 765 kV double-circuit LILo Gadarwara–Warora transmission line; 400 kV double-circuit LILo of both circuits of the Wardha–Parli (POWERGRID) line at Warora associated with the Transmission system for the Gadarwara STPS (2x800 MW) of NTPC (Part-A) project.

Closing date: January 15, 2016

Contact: Assistant General Manager (CS-G11), POWERGRID, "Saudamini", 3rd Floor, Plot Number 2, Sector 29, Gurgaon 122001, Haryana, India
Phone: +91 124 2571700-19
Fax: +91 124 257831
Website: www.powergridindia.com

Supply of tower package for 765 kV line

Country: India

Organisation: POWERGRID

Description/Scope of work: Bids are invited for the supply of tower package (including conductor, insulator, hardware fittings and conductor accessories, spacer damper, rigid spacer, earthwire and OPGW) for the 290 km long, 765 kV Vemagiri-Chilakaluripeta double-circuit transmission line associated with the Strengthening of Transmission System in Southern Region Beyond Vemagiri. The bids are open only for domestic contractors.

Closing date: January 22, 2016

Contact: Deputy General Manager (TBCB-CS)/Manager (TBCB-CS), POWERGRID, Saudamini, Plot No. 2, Sector-29, Gurgaon-122001, Haryana, India
Phone: +91 124 2822372
Fax: +91 124 2571831
Website: www.powergridindia.com

Supply of tower package for 765 kV high voltage line

Country: India

Organisation: POWERGRID

Description/Scope of work: Bids are invited for the supply of tower package (including conductor, insulator, hardware fittings and conductor accessories, spacer damper, rigid spacer, earthwire and OPGW) for the 275 km long, 765 kV Chilakaluripeta–Cuddapah double-circuit transmission line associated with the Strengthening of Transmission System in Southern Region Beyond Vemagiri. The bids are open only for domestic contractors.

Closing date: January 22, 2016

Contact: Deputy General Manager (TBCB-CS)/Manager (TBCB-CS), POWERGRID, Saudamini, Plot No. 2, Sector-29, Gurgaon-122001, Haryana, India
Phone: +91 124 2822372
Fax: +91 124 2571831
Website: www.powergridindia.com

Supply of tower package for 400 kV high voltage line

Country: India

Organisation: POWERGRID

Description/Scope of work: Bids are invited for the supply of tower package (including conductor, insulator, hardware fittings and conductor accessories, spacer damper, rigid spacer, earthwire and OPGW) for the 240 km long, 400 kV Cuddapah–Madhugiri double-circuit transmission line associated with the Strengthening of Transmission System in Southern Region Beyond Vemagiri. The bids are open only for domestic contractors.

Closing date: January 22, 2016

Contact: Deputy General Manager (TBCB-CS)/Manager (TBCB-CS), POWERGRID, Saudamini, Plot No. 2, Sector-29, Gurgaon-122001, Haryana, India
Phone: +91 124 2822372
Fax: +91 124 2571831
Website: www.powergridindia.com

Supply of tower package for 400 kV line

Country: India

Organisation: POWERGRID

Description/Scope of work: Bids are invited for the supply of tower package (including conductor, insulator, hardware fittings and conductor accessories, spacer damper, rigid spacer, earthwire and OPGW) for the 143 km long, 400 kV Srikakulam–Garvidi double-circuit transmission line and the 42 km long, 400 kV Chilakaluripeta–Narsaraopeta double-circuit line associated with the Strengthening of Transmission System in Southern Region Beyond Vemagiri. The bids are open only for domestic contractors.

Closing date: January 22, 2016

Contact: Deputy General Manager (TBCB-CS)/Manager (TBCB-CS), POWERGRID, Saudamini, Plot No. 2, Sector-29, Gurgaon-122001, Haryana, India
Phone: +91 124 2822372
Fax: +91 124 2571831
Website: www.powergridindia.com

Supply of tower packages for high voltage 765 kV line

Country: India

Organisation: POWERGRID

Description/Scope of work: International competitive bids are invited for the supply of tower packages for the 765 kV Ajmer–Bikaner double-circuit transmission line under the ADB funded–Green Energy Corridor and Grid Strengthening Project in two lots.

Lot I- Supply of tower package for the Ajmer–Bikaner double-circuit transmission line (Part III).

Lot II- Supply of tower package for the Ajmer–Bikaner double-circuit transmission line (Part IV).

Closing date: January 25, 2016 (Soft Copy); January 28, 2016 (Hard Copy)

Contact: Deputy General Manager (CS-G10)/Assistant General Manager (CS-G3), POWERGRID, “Saudamini”, 3rd Floor, Plot Number 2, Sector 29, Gurgaon 122001, Haryana, India
Phone: +91 124 -282 2371/2383
Fax: +91 124 2571831
Email: ydsharma@powergridindia.com/
chnr@powergridindia.com
Website: www.powergridindia.com

Supply of conductor packages for 400 kV lines

Country: India

Organisation: POWERGRID

Description/Scope of work: International competitive bids are invited for the supply of conductor packages for the LILO of the 400 kV double-circuit lines associated with the creation of the 400/220 kV substations in the National Capital Territory (NCT) of Delhi during the 12th Plan period (Part - A) in two lots.

Lot I: Supply of Invar type High Temperature Low Sag (HTLS) conductor (397 km) for the LILO of both circuits of the 400 kV Bawana–Mandola double-circuit line at Rajghat.

Lot II: Supply of Invar type HTLS conductor (359 km) for the LILO of both circuits of the 400 kV Bawana–Mandola double-circuit line at Rajghat and the LILO of one circuit of the 400 kV Bamanauli–Jhatikalan at Papankalan.

Closing date: February 2, 2016

Contact: POWERGRID, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110016
Phone: +91 11 26560112
Fax: +91 11 26601081
Website: www.powergridindia.com

Supply of tower package for 765 kV line

Country: India

Organisation: POWERGRID

Description/Scope of work: International competitive bids are invited for the supply of tower package for the 765 kV line under the ADB funded–Green Energy Corridor and Grid Strengthening Project in three lots.

Lot I: Supply of tower package for the 765 kV Bikaner–Moga double-circuit transmission line (Part-I).

Lot II: Supply of tower package for the 765 kV Bikaner–Moga double-circuit transmission line (Part-II).

Lot III: Supply of tower package for the 765 kV Bikaner–Moga double-circuit transmission line (Part-III).

Closing date: February 3, 2016 (Soft Copy); February 5, 2016 (Hard Copy)

Contact: Deputy General Manager (CS-G6), POWERGRID, “Saudamini”, 3rd Floor, Plot Number 2, Sector 29, Gurgaon 122001, Haryana, India
Phone: +91 124 282 2384/2323
Fax: +91 124 2571831
Email: hsk@powergridindia.com/arvindg@powergridindia.com
Website: www.powergridindia.com

Supply of tower package for 765 kV line

Country: India**Organisation:** POWERGRID**Description/Scope of work:** International competitive bids are invited for the supply of tower package for the 765 kV line under the ADB funded-Green Energy Corridor and Grid Strengthening Project in two lots.

Lot I: Supply of tower package for the 765 kV Bikaner–Moga double-circuit transmission line (Part-IV).

Lot II: Supply of tower package for the 765 kV Bikaner–Moga double-circuit transmission line (Part-V).

Closing date: February 8, 2016**Contact:** Deputy General Manager/Assistant Manager (CS-G3), POWERGRID, "Saudamini", 3rd Floor,

Plot Number 2, Sector 29,

Gurgaon 122001, Haryana, India

Phone: +91 124 282 2371/2383

Fax: +91 124 2571831

Email: ydsharma@powergridindia.com/

chnr@powergridindia.com

Website: www.powergridindia.com

Supply of conductor packages for 400 kV line

Country: India**Organisation:** POWERGRID**Description/Scope of work:** International competitive bids are invited for the supply of conductors for the LILO of the 400 kV Bamnauli–Samaypur double-circuit line at Tughlakabad associated with the creation of the 400/220 kV substations in the NCT of Delhi during the 12th Plan period (Part - B1) in two lots.

Lot I: Supply of Invar type HTLS conductor (410 km).

Lot II: Supply of Invar type HTLS conductor (410 km).

Closing date: February 17, 2016**Contact:** Assistant General Manager (CS-G3)/Manager (CS-G3), POWERGRID, Saudamini, 3rd Floor,

Plot No-2, Sector-29, Gurgaon, Haryana 122001, India

Phone: +91 124 2571700-19

Phone: +91 124 2822336/2368

Fax: +91 124 2571831

Website: www.powergridindia.com

Design and commissioning of 220/400 kV line

Country: Nepal**Organisation:** Nepal Electricity Authority (NEA)**Description/Scope of work:** International competitive bids are invited for the design, supply, installation and commissioning of the 220/400 kV New Khimti–Barhabise transmission line under the ADB funded-Electricity Transmission Expansion and Supply Improvement Project.**Closing date:** January 20, 2016**Contact:** NEA, Tamakoshi- Kathmandu 220/400 kV Transmission Line Project, Transmission Directorate,

NEA Training Center Complex, Kharipati,

Bhaktapur, Nepal

Phone: +977 1 6620016

Fax: 977 1 6620016

Email: kk400kv@gmail.com; kk400kv@nea.org.np

Website: www.nea.org.np

Supply of 132/11.5 kV transformers

Country: Pakistan**Organisation:** Peshawar Electric Supply Company (PESCO)**Description/Scope of work:** International competitive bids are invited for the supply of three 132/11.5 kV transformers of 31.5/40 MVA under the ADB funded-Power Distribution Enhancement Investment Program (Tranche 3).**Closing date:** January 19, 2016**Contact:** Chief Engineer (Development),

Procurement Management Unit (PMU),

PESCO Headquarter, Shami Road,

Wapda House, Peshawar 25000, Pakistan

Phone: +92 91 9211757

Fax: +92 91 9213018

Email: pmupesco@yahoo.com

Website: www.pesco.gov.pk

Supply of 132 kV transformers and lightning arresters

Country: Pakistan**Organisation:** Faisalabad Electric Supply Company Limited (FESCO)**Description/Scope of work:** International competitive bids are invited for the supply of 132 kV transformers (current and potential type) and lightning arresters under the ADB funded-Power Distribution Enhancement Investment Program, Tranche-4.**Closing date:** February 3, 2016**Contact:** Chief Engineer (Development),

PMU, FESCO, Abdullahpur, Canal Road,

Faisalabad, Pakistan

Phone: + 92 41 9220159/397

Fax: + 92 41 9220691 Email: cedevfesco@yahoo.com

Supply of 145 kV and 245 kV circuit breakers

Country: Sri Lanka**Organisation:** Ceylon Electricity Board (CEB)**Description/Scope of work:** International competitive bids are invited for the supply and delivery of a 145 kV, three-phase circuit breaker; as well as a 245 kV, three-phase circuit breaker with steel supporting structures for the second 220/132 kV transformer bay at Rantambe.**Closing date:** January 21, 2016**Contact:** Office of the DGM (Transmission Construction Projects), No. 98, Fife Road, Colombo 05, Sri Lanka

Phone: + 94 11 2055942/3

Fax: +94 11 2055944

cetlcp.prj@ceb.lk

Website: www.metroceb.lk

Supply of 145 kV and 245 kV disconnecting switches

Country: Sri Lanka**Organisation:** CEB**Description/Scope of work:** International competitive bids are invited for the supply and delivery of a 245 kV 2000 A, 40 kA, three-phase disconnecting switch and two units of 145 kV, 1250 A, 25 kA, three-phase disconnecting switches (without earthing switches) for the second 220/132 kV transformer bay at Rantambe.**Closing date:** January 21, 2016

Contact: CEB, Office of the DGM (Transmission Construction Projects), No. 98, Fife Road, Colombo 05, Sri Lanka
Phone: + 94 11 2055942/3
Fax: +94 11 2055944
cetlcp.prj@ceb.lk
Website: www.metroceb.lk

Construction of 115 kV line

Country: Thailand

Organisation: Electricity Generating Authority of Thailand (EGAT)

Description/Scope of work: International competitive bids are invited for the construction of the 115 kV Nakhon Ratchasima 1 Substation–Phan Substation transmission line (111 km) under the Transmission System Expansion and Renovation Project Phase 2.

Closing date: January 22, 2016

Contact: Natnoi Kijwatworawet, Chief Transmission System Development Area Foreign Procurement Department, EGAT, 1202/2, 12th Floor, Building 101, Foreign Supply and Procurement Division, Bangkruai, Nonthaburi 11130, Thailand
Phone: +66 24360242
Fax: +66 24336317/24335523/24344064
Email: procurement.tse@egat.co.th
Website: www.egat.co.th

Construction and sectionalising of 500 kV lines

Country: Thailand

Organisation: EGAT

Description/Scope of work: International competitive bids are invited for the supply and construction of the 500 kV Chachoengsao 2–Bang Pakong transmission lines and sectionalising of the 500 kV Pluak Daeng–Nong Chok line to the Chachoengsao 2 Substation under the Transmission System Improvement Project in Eastern Region to Enhance System Security.

Closing date: January 27, 2016

Contact: Natnoi Kijwatworawet, Chief Transmission System Development Area Foreign Procurement Department, EGAT, 1202/2, 12th Floor, Building 101, Foreign Supply and Procurement Division, Bangkruai, Nonthaburi 11130, Thailand
Phone: +66 24360242
Fax: +66 24336317/24335523/24344064
Email: procurement.tse@egat.co.th
Website: www.egat.co.th

Construction of 230 kV lines

Country: Thailand

Organisation: EGAT

Description/Scope of work: International competitive bids are invited for the construction of the 230 kV Chachoengsao 2–Prachin Buri 2 transmission line and the 230 kV Prachin Buri 2–Kabin Buri transmission line under the Transmission System Expansion Project Number 12.

Closing date: March 1, 2016

Contact: Natnoi Kijwatworawet, Chief Transmission System Development Area Foreign Procurement Department,

EGAT, 1202/2, 12th Floor, Building 101, Foreign Supply and Procurement Division, Bangkruai, Nonthaburi 11130, Thailand
Phone: +66 24360242 50
Fax: +66 24336317/24335523/24344064
Email: procurement.tse@egat.co.th
Website: www.egat.co.th

Construction of 230 kV line

Country: Thailand

Organisation: EGAT

Description/Scope of work: International competitive bids are invited for the construction of the 68.6 km long, 230 kV Chanthaburi substation–Trat substation line under the Transmission System Expansion Project Number 12.

Closing date: April 5, 2016

Contact: Natnoi Kijwatworawet, Chief Transmission System Development Area Foreign Procurement Department, EGAT, 1202/2, 12th Floor, Building 101, Foreign Supply and Procurement Division, Bangkruai, Nonthaburi 11130, Thailand
Phone: +66 24360242
Fax: +66 24336317/24335523/24344064
Email: procurement.tse@egat.co.th
Website: www.egat.co.th

Supply of conductors and cables for 110 kV line

Country: Vietnam

Organisation: Northern Power Corporation

Description/Scope of work: International competitive bids are invited for the supply and transportation of conductors, optical cables and accessories for the 110 kV Phong Tho–Than Uyen Transmission Line under the World Bank-funded Distribution Efficiency Project.

Closing date: February 19, 2016

Contact: Vu Anh Phuong, Power Development Project Management Board, NPC, 22/399, 8th Floor, Au Co Street, Tay Ho District, Hanoi, Vietnam
Phone: +84 422161022
Fax: +84 43717 0971
Email: txt.bdald@gmail.com

Supply of steel towers for 110 kV line

Country: Vietnam

Organisation: Northern Power Corporation

Description/Scope of work: International competitive bids are invited for the supply and transportation of steel towers for the 110 kV Phong Tho–Than Uyen Transmission Line under the World Bank-funded Distribution Efficiency Project.

Closing date: February 19, 2016

Contact: Vu Anh Phuong, Power Development Project Management Board, NPC, 22/399, 8th Floor, Au Co Street, Tay Ho District, Hanoi, Vietnam
Phone: +84 422161022
Fax: +84 43717 0971
Email: txt.bdald@gmail.com

Construction of 220 kV lines

Country: Vietnam**Organisation:** Southern Vietnam Power Project Management Board (SPPMB)**Description/Scope of work:** International competitive bids are invited for the construction of 220 kV Phu Lam–Cai Lay 2 transmission lines (including supply of steel towers, testing and commissioning) under the World Bank-funded Transmission Efficiency Project (TEP) in two lots.

Lot I: Construction of transmission lines from Long An substation to position G14 and extension of bay at Long An substation.

Lot II: Construction of transmission lines from position G14 to Cai Lay 2 substation.

Closing date: February 23, 2016**Contact:** Doan Tan Phong, Director, SPPMB, 610 Vo Van Kiet Street, Cau Kho Ward, District 1, HoChiMinh City, Vietnam

Phone: +84 8 22100719

Fax: +84 8 38361096

Email: mynt@npt.evn.vn

Supply of towers for 500 kV line

Country: Vietnam**Organisation:** SPPMB**Description/Scope of work:** International competitive bids are invited for the supply of steel towers for the 500 kV Song May–Tan Uyen transmission line under the World Bank funded-Second Transmission and Distribution Project.**Closing date:** February 23, 2016**Contact:** SPPMB, 610 Vo Van Kiet Street, Cau Kho Ward, District 1, HoChiMinh City, Vietnam

Phone: +84 8 22100719

Fax: +84 8 38361096

Email: mynt@npt.evn.vn

EUROPE

Framework agreement for supply of high voltage cables

Country: Austria**Organisation:** Austrian Power Grid AG**Description/Scope of work:** International competitive bids are invited for entering into a framework agreement with a single operator for the supply, laying and installation of 110 kV, 220 kV and 380 kV high voltage cables. The contract will be awarded through a negotiated procedure.**Closing date:** January 15, 2016**Contact:** Brigitte Bernhardt, Austrian Power Grid AG, Wagramer Straße 19, IZD-Tower, Wien 1220, Austria

Phone: + 43 5032056548

Fax: + 43 50320156548

Email: johann.brandstoetter@apg.at

Website: www.apg.at

Overhaul of 220 kV line

Country: Austria**Organisation:** Austrian Power Grid AG**Description/Scope of work:** International competitive bids are invited for the overhaul of the 220 kV Weisenbach–Ernsthofen line. The contract will be awarded through a negotiated procedure.**Closing date:** January 22, 2016**Contact:** Herbert Koller, Austrian Power Grid AG, Wagramer Straße 19, IZD-Tower, Wien 1220, Austria

Phone: + 43 5032056547

Fax: + 43 50320156548

Email: herbert.koller@apg.at

Website: www.apg.at

Supply of 110 kV transformers

Country: Bulgaria**Organisation:** Elektroenergien Sistem Operator EAD (ESO)**Description/Scope of work:** International competitive bids are invited for the supply of 110 kV transformers for outdoor switchgear in three lots.

Lot I: Supply of 111 units of 110 kV transformers.

Lot II: Supply of 93 units of 110 kV transformers.

Lot III: Supply of 57 units of 110 kV transformers.

Closing date: February 8, 2016**Contact:** Rumen Mladenov, ESO,

Gotse Delchev No. 105, 1404, Sofiya, Bulgaria

Phone: +359 29696838

Fax: +359 29626189

Email: d.koleva@eso.bg

Website: www.eso.bg

Strengthening of transformer at 110 kV switchyard

Country: Bulgaria**Organisation:** ESO**Description/Scope of work:** International competitive bids are invited for the strengthening of power transformer Trafo-1 in the 110 kV switchyard of the Lubimets substation. The duration of the contract is seven months from the date of award.**Closing date:** February 10, 2016**Contact:** Dimitriyka Hristova, ESO,

Gotse Delchev No. 105, 1404, Sofiya, Bulgaria

Phone: + 359 38608107

Fax: + 359 38608102

Email: m.chakarska@eso.bg/t.dimitrov@eso.bg

Website: www.eso.bg

Detailed design for 400 kV line

Country: Bulgaria**Organisation:** ESO**Description/Scope of work:** International competitive bids are invited for the preparation of a detailed design for the construction of the 400 kV Maritsa East substation–Maritsa East 3 substation overhead double line. The duration of the contract is six months from the date of award.**Closing date:** February 12, 2016**Contact:** Mariana Chakarska (for procedure related queries) and Teodor Dimitrov (for technical information), ESO, Gotse Delchev No. 105, 1404, Sofiya, Bulgaria

Phone: +359 29696838

Fax: +359 29626189

Email: m.chakarska@eso.bg/t.dimitrov@eso.bg
Website: www.eso.bg

Reconstruction of 110 kV transformers

Country: Bulgaria

Organisation: ESO

Description/Scope of work: International competitive bids are invited for the reconstruction of the 110 kV transformers (5 units). The duration of the contract is 24 months from the date of award.

Closing date: March 14, 2016

Contact: Georgi Kosev (for technical information), Anna Mechkova (for procedure related queries), ESO, Gotse Delchev No. 105, 1404, Sofiya, Bulgaria

Phone: +359 29696838

Fax: +359 29626189

Email: d.koleva@eso.bg

Website: www.eso.bg

Supply of 110 kV disconnectors

Country: Croatia

Organisation: Hrvatski Operator Prijenosnog Sustava d.o.o. (HOPS)

Description/Scope of work: International competitive bids are invited for the repair and rehabilitation of 110 kV disconnectors for the 400/220/110 kV Melina substation.

Closing date: January 15, 2016

Contact: Milvana Brnelić, HOPS, Kupa 4,

Zagreb 1000, Croatia

Phone: +385 51710782

Fax: +385 51271467

Email: milvana.brnelic@hops.hr

Website: www.hops.hr

Implementation of 110 kV line

Country: Croatia

Organisation: HOPS

Description/Scope of work: International competitive bids are invited for the study, design and implementation of connection of the 110 kV Nedeljanec–Lenti line to the 110/35 kV Cakovec substation.

Closing date: January 18, 2016

Contact: HOPS, Kupa 4, Zagreb 1000, Croatia

Phone: +385 51710780

Fax: +385 51271467

Email: jn-et@hops.hr

Website: www.hops.hr

Reconstruction works of 110/35 kV substation

Country: Croatia

Organisation: HOPS

Description/Scope of work: International competitive bids are invited for the execution of reconstruction works of the 110/35 kV Pokuplje substation along with the supply of equipment.

Closing date: February 10, 2016

Contact: Aleksandra Plasaj-Klanac, HOPS,

Kupa 4, Zagreb 1000, Croatia

Phone: +385 47661175

Fax: + 385 47411108

Email: aleksandra.plasajklanac@hep.hr

Website: www.hops.hr

Maintenance of 110 kV and 330 kV transformers

Country: Estonia

Organisation: Elering AS

Description/Scope of work: International competitive bids are invited for the maintenance of the 110 kV and 330 kV transformers. The duration of the contract is seven months (March 1, 2016–October 31, 2016).

Closing date: February 9, 2016

Contact: Marit Saaretalu, Elering AS,

Kadaka tee 42, Tallinn 12915

Phone: + 372 7151152

Email: marit.saaretalu@elering.ee

Website: www.elering.ee

Supply of 400 kV circuit breakers

Country: Finland

Organisation: Fingrid Oyj

Description/Scope of work: International competitive bids are invited for the supply of 12 units of the 400 kV disconnecting circuit breakers for the Alajärvi substation. The contract is a Government Procurement Agreement (GPA) and will be awarded through a negotiated procedure.

Closing date: January 22, 2016

Contact: Sami Mäki, Fingrid Oyj,

FI-00620 Helsinki, Finland

Phone: + 358 303955283

Fax: + 358 303955199

Email: sami.maki@fingrid.fi

Consultancy services for the 380 kV line

Country: Germany

Organisation: Tennet TSO GmbH

Description/Scope of work: International competitive bids are invited to provide consultancy services for the 380 kV Wähler–Mecklar line project. The project will be awarded through a negotiated procedure.

Closing date: January 15, 2016

Contact: Tennet TSO GmbH, Bernecker Straße 70,

95448 Bayreuth, Germany

Phone: +49 921 507404292

Fax: + 49 921 507404452

Email: dominik.altendorf@tennet.eu

Website: www.tennet.eu/de

Supply of transformer for 115/21 kV substation

Country: Germany

Organisation: Oberhessische Versorgungsbetriebe AG

Description/Scope of work: International competitive bids are invited for the delivery and installation of a 40 MVA transformer for the 115/21 kV substation at UW Ailsfeld. The contract will be awarded through a negotiated procedure.

Closing date: January 25, 2016

Contact: Joachim Jung, Oberhessische Versorgungsbetriebe

AG, Hanauer Street 9-13, Friedberg 61169, Germany

Phone: +49 6031821791

Fax: + 49 6031821690

Email: joachim.jung@ovag-netz.de
Website: www.ovag.de

Consultancy services for high voltage lines

Country: Germany

Organisation: JSC Georgian State Electrosystem (GSE)

Description/Scope of work: International competitive bids are invited to provide consultancy services for the feasibility studies and preliminary designs of high voltage transmission line projects under the KfW Development Bank funded-Open Program Transmission Network II. The scope of the contract involves consultancy services for the following main sub-projects:

a) Tskaltubo–Akhaltsikhe OHL, a new 500/220 kV substation Tskaltubo and extension of 500 kV switchgear of Akhaltsikhe substation.

b) Reinforcement of transmission infrastructure of Guria: Construction of a new 220/110 kV Ozurgeti substation and linking of a 220 kV overhead transmission line, a new 110 kV Chokhatauri substation and a new 110 kV Ozurgeti-Chokhatauri double-circuit line.

c) North Ring Tskaltubo project including related substations which are divided into three sub-projects; c1, c2 and c3.

Closing date: February 5, 2016

Contact: Maya Pitskhelauri, 2 Baratashvili Street, Tbilisi 0105, Georgia

Phone: + 995 322 51 026

Fax: + 995 322 98 37 04

Email: maya.pitskhelauri@gse.com.ge

Website: www.gse.com.ge

Supply of towers for 400 kV line

Country: Greece

Organisation: Independent Transmission System Operator (ITSO) SA

Description/Scope of work: International competitive bids are invited for the supply of steel towers for the 400 kV line.

Closing date: January 28, 2016

Contact: I. Andriopoyloy, ITSO SA, Durres 89 and Kifisou, Athens 104 43, Greece

Phone: +30 2105192607

Fax: +30 2105192326

Website: www.admie.gr

Supply of 120/22 kV transformers

Country: Hungary

Organisation: EDF Network Distribution Limited

Description/Scope of work: International competitive bids are invited for the supply of two units of the 120/22 kV transformers of 40 MVA. The contract is a GPA and will be awarded through a restricted procedure. The duration of the contract is six months from the date of award of the contract.

Closing date: January 20, 2016

Contact: Miklos Barath, EDF Network Distribution Limited, Mikle-6724, Szeged, Hungary

Phone: + +36 62565565

Fax: + 36 62568000

Email: miklos.mikle-barath@edf.hu

Supply of transformer for 330/115/10.5 kV substation

Country: Latvia

Organisation: Augstsprieguma Tikls (AST)

Description/Scope of work: International competitive bids are invited for the supply of 125 MVA autotransformer for the 330/115/10.5 kV Aizkraukle substation. The contract is a GPA and will be awarded through a negotiated procedure.

Closing date: January 29, 2016

Contact: Juris Gavronskis, AST, Dārziema iela 86, Riga, LV-1073

Phone: +371 67725235

Fax: +371 67728858

Email: ast@ast.lv

Website: www.ast.lv

Construction of high voltage substations

Country: Kosovo

Organisation: KOSTT

Description/Scope of work: International competitive bids are invited for the construction of the 110/10(20) kV Prishtina 6 gas-insulated switchgear (GIS) substation; 110 kV highly integrated switchgear (HIS) at the Prishtina 4 substation; 110/10(20) kV Fushe Kosova GIS substation; 110 /10(20) kV Mitrovica 2 GIS substation; HIS at the 110/10 (20) kV Theranda substation; and 220/10(20) kV Drenasi 2 GIS substation under the European Bank for Reconstruction and Development (EBRD) funded-Kosovo Transmission Development Project.

Closing date: February 9, 2016

Contact: Ilir Shala, Director, Department for Project Management & Engineering, Iljaz Kodra Street nn, Prishtina 10000, Republic of Kosova

Fax: +381 38500201

Email: ilir.shala@kostt.com

Website: www.kostt.com

Construction of 110 kV and 220 kV lines

Country: Kosovo

Organisation: KOSTT

Description/Scope of work: International competitive bids are invited for the construction of 110 kV and 220 kV lines along with the supply of cables under the EBRD funded-Kosovo Transmission Development Project. The scope of the contract involves the construction of the 110 kV Rahoveci–Theranda single circuit line; 110 kV Fushe Kosova double circuit line; 220 kV Drenasi 2 double circuit line; 110 kV Mitrovica 2 double circuit cable line; and 110 kV Prishtina 6 double circuit cable line.

Closing date: February 9, 2016

Contact: Ilir Shala, Director, Department for Project Management & Engineering, Iljaz Kodra Street nn, Prishtina 10000, Republic of Kosova

Fax: +381 38500201

Email: ilir.shala@kostt.com

Website: www.kostt.com

Supply of transformers for high voltage substations

Country: Kosovo

Organisation: KOSTT

Description/Scope of work: International competitive bids are invited for the supply of 2X40 MVA transformers for the 110/10(20) kV Prishtina 6 substation; 2X40 MVA transformers for the 110/10(20) kV Fushe Kosova substation; 2X40 MVA transformers for the 110/10(20) kV Mitrovica 2 substation; and 2X40 MVA transformers for the 220/10(20) kV Drenasi 2 substation under the EBRD funded-Kosovo Transmission Development Project.

Closing date: February 9, 2016

Contact: Ilir Shala, Director,
Department for Project Management & Engineering,
Iljaz Kodra Street nn, Prishtina 10000,
Republic of Kosova
Fax: +381 38500201
Email: ilir.shala@kostt.com
Website: www.kostt.com

Delivery and installation of 245 kV transformers

Country: Poland

Organisation: Polskie Sieci Elektroenergetyczne Spółka Akcyjna (PSE S.A.)

Description/Scope of work: International competitive bids are invited for the delivery and installation of 245 kV three-phase transformers (two units) with a capacity of at least 400 MVA. The contract is a GPA and the duration of the contract is 29 months from the date of award (July 1, 2016-December 31, 2018).

Closing date: January 19, 2016

Contact: Anna Okraszewska, PSE S.A.,
Street Warszawska 165, Konstancin-Jeziorna 05-520,
Poland
Phone: +48 222421595/222422035
Fax: +48 222422169
Email: tomasz.bujalski@pse.pl
Website: www.pse.pl

Supply of 230 kV transformers

Country: Poland

Organisation: PSE S.A.

Description/Scope of work: International competitive bids are invited for the design, manufacture, and supply of two 230 kV transformers of 500 MVA. The duration of the contract is 17 months from the date of award of the contract.

Closing date: January 19, 2015

Contact: Anna Okraszewska, PSE S.A.,
Street Warszawska 165, Konstancin-Jeziorna 05-520, Poland
Phone: +48 222421595/222422035
Fax: +48 222422169
Email: tomasz.bujalski@pse.pl
Website: www.pse.pl

Supply of HV/MV transformers

Country: Poland

Organisation: ENEA Operator Sp. z o.o.

Description/Scope of work: International competitive bids are invited for the delivery, transportation, installation and commissioning of six units of high voltage (HV)/medium voltage (MV) transformers in the area of operations of the

ENEA Operator. The duration of the contract is seven months (March 1, 2016-October 1, 2016).

The contract is GPA. The contract includes the supply of the following in two lots:

Lot I:

- Supply of 10 MVA, 110/15 kV transformer for Distribution Branch Bydgoszcz, GPZ Brusy T2.
- Supply of 10 MVA, 110/15 kV transformer for Branch Distribution Gorzow Wielkopolski, GPZ Recz.
- Supply of 10 MVA, 110/15 kV transformer for Branch Distribution Zielona Gora, GPZ Cybinka Zadanie nr 2.

Lot II:

- Supply of 25 MVA, 110/15 kV transformer for Branch Distribution Poznań, Garbary GPZ T1.
- Supply of 25 MVA, 110/15 kV transformer for Distribution Department Poznań, Garbary GPZ T2.
- Supply of 25 MVA, 110/15 kV transformer for Branch Distribution Poznań, GPZ Plewiska.

Closing date: February 2, 2016

Contact: Sławomir Więniowski,
ENEA Operator Sp. z o.o., Ul. Strzeszyńska 58,
Poznań 60-479, Poland
Phone: +48 618843088
Fax: +48 618561004
Email: robert.ratajczak@enea.pl
Website: www.operator.enea.pl

Consultancy services for 110-750 kV line

Country: Romania

Organisation: Compania Nationala de Transport al Energiei Electrice "Transelectrica" S.A.

Description/Scope of work: International competitive bids are invited for providing consultancy services for the 110-750 kV overhead lines. The contract is a GPA and the duration of the contract is 36 months from the date of award.

Closing date: January 27, 2016

Contact: Ovidiu Murasan, Transelectrica, 33,
B-dul G-Ral Gheorghe Magheru, Sector 1,
Bucuresti 010325, Romania
Phone: + 40 213035986
Fax: + 40 213035980
Email: ovidiu.murasan@transelectrica.ro
Website: www.transelectrica.ro

Modernisation and reconstruction of 500 kV substation

Country: Russia

Organisation: OJSC ESSK UES

Description/Scope of work: International competitive bids are invited for the modernisation and reconstruction of the 500 kV Pakhra substation under the European Bank for Reconstruction and Development (EBRD) funded-Pakhra Substation Modernization Program. The duration of the contract is 45 months from the date of award.

Closing date: February 25, 2016

Contact: OJSC ESSK UES, Valeriy Semenov, 4,
bld. B, 5th floor, Belovezhskaya Street, Moscow,
Russia, 121353
Phone: + 7 495 7109333
Email: valeriyS@essk.ru, info@essk.ru
Website: www.essk.ru

Supply of 110 kV transformer

Country: Switzerland**Organisation:** Axpo Power AG**Description/Scope of work:** International competitive bids are invited for the supply of a 110-50/16 kV three-phase regulating transformer of 25 MVA. The contract is a GPA.**Closing date:** February 2, 2016**Contact:** Dominik Suter, Axpo Power AG,

Parkstraße 23, Baden 5401

Phone: +41 56 2003777

Website: www.axpo.com

MIDDLE EAST/AFRICA

Execution of 220/66/11 kV substation

Country: Egypt**Organisation:** Egyptian Electricity Transmission Company (EETC)**Description/Scope of work:** International competitive bids are invited for the execution of the 220/66/11 kV 15 May (2) gas-insulated switchgear type substation of 2×125+3×40 MVA on a turnkey basis.**Closing date:** January 20, 2016**Contact:** EETC, Extension of Ramsis Street,

Abbassia, Cairo, Egypt

Phone: + 202 22616537

Fax: +202 22616517

Website: www.moee.gov.eg

Stringing of 230 kV line

Country: Ethiopia**Organisation:** Ethiopian Electric Power (EEP)**Description/Scope of work:** International competitive bids are invited for the stringing of the 230 kV line along with the installation of bays under the International Development Association (IDA) funded- Electricity Network Reinforcement and Expansion Project in two lots.

Lot I: Stringing of the second circuit of the 230 kV Alamata-Combolcha II-Legetafo transmission line.

Lot II: Installation of the 230 kV line bays at Combolcha II and Legetafo substations.

Closing date: March 7, 2016**Contact:** Kefyalew Mergiya,

Around Commerce School,

Behind Awash International Bank Head Quarter,

Addis Ababa, Ethiopia

Phone: +251 11 5580781

Fax: + 251 11 5546844

Email: kmergiya@yahoo.com

Construction of 765 and 400 kV lines

Country: South Africa**Organisation:** Eskom Holdings SOC Limited (Eskom)**Description/Scope of work:** International competitive bids are invited for the construction of the 765 kV and 400 kV Masa-Ngwedi (Section D and E) transmission lines under the World Bank funded-Eskom Investment Support Project. The scope

of contract involves providing access to roads and infrastructure; bush clearing; supply of tower foundations and stay wire foundations; fabrication and erection of structural steel transmission towers; installation of hardware, conductors and insulators; tower assembly, stringing and labeling; conductor regulation; and supply of a fall arrest system (FAS).

Closing date: February 12, 2016**Contact:** Wimpie White, Eskom, Tender Issue Office,

Main Reception, Ground Floor, Megawatt Park,

Maxwell Drive, Sunninghill,

Johannesburg, South Africa

Phone: +27 11 8005979

Email: WB_Transmission@eskom.co.za

Website: www.eskom.co.za

Construction of 400/220 kV substations

Country: Tanzania**Organisation:** Tanzania Electric Supply Company Limited (TANESCO)**Description/Scope of work:** International competitive bids are invited for the plant design, supply, construction, installation and commissioning of 400/220 kV substations under the African Development Fund (ADF), JICA and European Investment Bank (EIB) funded-Iringa-Shinyanga Backbone Transmission Investment Project (BITP) in two lots.

Lot I: Construction of 400/220 kV substations at Iringa and Shinyanga.

Lot II: Construction of 400/220 kV substations at Dodoma and Singida.

Closing date: January 18, 2016**Contact:** Khalid R. James, Project Manager,

TANESCO, Head Office,

Umeme Park Building,

Ubungo-Morogoro Road Ground Floor,

Twiga Board Room,

Dar es Salaam, Tanzania

Phone: +255 736501649

Email: khalid.james@tanESCO.co.tz

Website: www.tanESCO.co.tz

Consultancy services for the 220 kV line

Country: Uganda**Organisation:** Tanzania Electric Supply Company Limited (TANESCO)**Description/Scope of work:** International competitive bids are invited to provide consultancy services for the review and update of feasibility study of the 220 kV Masaka-Mwanza Transmission Line Project funded by the KfW Development Bank.**Closing date:** February 12, 2016**Contact:** The Secretary, TANESCO,

TANESCO Tender Board,

TANESCO Head Office,

Umeme Park Building, Morogoro Road,

Ubungo Ground Floor, Room No. G15,

P.O. Box 9024, Dar es Salaam, Tanzania

Email: sec.tenderboard@tanESCO.co.tz ♦

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India
Tele: +91 11 4168 8608
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