



Energy News

[GOOD]

An income cut-off for LPG subsidy is reasonable in theory but difficult to implement in practice!

Page 9

[BAD]

Falling power prices is a sign of lack of demand!

Page 12

[WEEK IN REVIEW].....

[NATIONAL: OIL & GAS].....

[NATIONAL: POWER].....

[INTERNATIONAL: OIL & GAS].....

[INTERNATIONAL: POWER].....

[UGLY]

The new nuclear plant must be run successfully before plans for new ones are announced!

Page 13

***ANALYSIS /
ISSUES***

***DATA
INSIGHT***

***Volume XII
Issue 29***

1 January 2016

[THE GLUT CARRIES OVER]

“One opinion was that even if a decision to reduce production was made it would not have an impact on oil prices as there were vast quantities of oil in storage. In the end there was no agreement on an output cut but OPEC decided to do away with the production target. The main reason was that Iran was expected to come on to the market with a production of over 500,000 barrels per day. OPEC said that it would work with non-OPEC producers in 2016 to come to a conclusion on production cuts...”

**[RENEWABLE
ENERGY /
CLIMATE
CHANGE
TRENDS]**

CONTENTS INSIGHT.....

[WEEK IN REVIEW]

COMMENTS.....

- The Glut Carries Over

DATA INSIGHT.....

- Crude Oil Prices for the Year 2015

[NATIONAL: OIL & GAS]

Upstream.....

- OVL, Rosneft sign Vankor oil field deal
- ONGC to invest ₹ 35 bn for developing 3 CBM blocks
- ONGC, IOC looking at more projects in Colombia
- India's crude oil production dips 3.3 percent in November over lower output

Downstream.....

- IOC, BPCL, HPCL eye ₹ 600 bn refinery
- CPCL resumes full operations at 11.5 mt refineries near Chennai

Transportation / Trade.....

- GAIL to take 5 percent stake in consortium building TAPI pipeline

Policy / Performance.....

- Bombay HC issues notices to Vedanta, Cairn India
- No LPG subsidy for taxpayers who earn over ₹ 10 lakh annually: Govt
- Govt relaxes guidelines for small, isolated gas fields
- Oil price slump a chance to enhance energy security: Oil Minister
- BP opposes oil ministry's proposed revenue-sharing model of hydrocarbon auction
- Govt mulls new pricing formula for CBM

[NATIONAL: POWER]

Generation.....

- BHEL commissions Prayagraj power project unit
- Tata Power refinances loan for Mundra power project
- NEEPCO starts commercial production from Manarchak plant

- Bajaj group synchronizes second 660 MW unit at Lalitpur plant

Transmission / Distribution / Trade.....

- Govt in process of granting transmission connectivity to 20 power plants
- Sterlite emerges lowest bidder for Odisha transmission project
- Power prices fall 22 percent in 2015
- KEI industries bags order worth ₹ 3.8 bn from PGCIL
- Transmission lines ready to supply another 100 MW to Bangladesh

Policy / Performance.....

- No hike in power tariffs during present govt's tenure: Haryana CM
- UMPPs to be protected from uncertainties in coal imports
- Russia to establish more nuclear units in India
- India says closing in on Westinghouse deal to build 6 nuclear reactors
- Meghalaya CM inaugurates power sub-station
- Govt to soon come out with coal linkage, new tariff policies

[INTERNATIONAL: OIL & GAS]

Upstream.....

- Russia's Lukoil says oil output exceeds 100 mn tonnes in 2015
- Sinopec plans to double Fuling shale gas capacity by 2017

Downstream.....

- Russia's November refinery runs up 10.2 percent from October

Transportation / Trade.....

- Russia's Gazprom cancels tender for work on gas pipeline to China
- Japan's JOGMEC buys LPG for national reserves
- Beijing shivers as natural gas import delay turns down heat
- November Asian imports of Iran oil drop 16.2 percent on India, Korea cuts
- Thai PTT plans to invest \$8.2 bn over next 5 yrs
- Chevron signs 10 year LNG supply agreement with China Huadian

- Shell New Zealand sells Maui gas pipeline to First State Investments
- GLNG signs gas purchase agreement with AGL

- CERC capital cost move suggests solar tariff to fall further in FY17
- Govt issues strict norms for thermal plants

Policy / Performance.....

- Saudi economic shake-up shows it is planning for cheap oil
- Iran adding to global oil glut dims hopes for recovery next year
- Saudi Arabia to raise petrol prices by up to 40 percent
- End to US oil export ban should not affect market: Russian Energy Minister

GLOBAL.....

- China to cut on-grid tariffs for solar, wind power: NDRC
- Taiwan sets 500 MW solar PV target for 2016
- China says Paris climate deal 'imperfect' in funding, technology
- DEWA receives 21 bids for 800 MW solar power project

[INTERNATIONAL: POWER]

Generation.....

- ENAP partners with Mitsui to build 1.3 GW of power generation plants in Chile
- YTL Power to build \$2.7 bn coal-fired power plant in Indonesia
- Vietnam seeks foreign investment for power generation
- Pernix Group receives Samoa power plant contract

Transmission / Distribution / Trade.....

- Australia approves doubling capacity of Abbot Point coal terminal
- Spain's power consumption increased by 1.9 percent in 2015

Policy / Performance.....

- Bangladesh approves \$12.6 bn nuclear power plant development contract
- Iran expects nuclear plant construction to start before year end

[RENEWABLE ENERGY / CLIMATE CHANGE TRENDS]

NATIONAL.....

- Solar firms offer power to UP @ ₹ 9 per unit
- Keltron bags ₹ 259.8 mn KSEB Solar project
- PFS okays fresh loans of ₹ 8.2 bn for clean energy
- Suzlon's Gujarat wind mill achieves 35 percent PLF
- Infosys launches 6.6 MW solar power plant on its campus in Telangana

COMMENTS.....

Briefing: International Energy December 2015

The Glut Carries Over

Lydia Powell, Akhilesh Sati and Ashish Gupta, Observer Research Foundation

HYDROCARBON MARKETS

The month began with a meeting of the OPEC. Few expected a decision on production cuts even though many members pleaded with Saudi Arabia to cut back on output. There were rumours that Saudi Arabia would agree to a cut of one million barrels per day (bpd) if non-OPEC members such as Russia and Mexico agreed to restrict production. Given that most OPEC members are in serious financial difficulty, it did not materialise but the rumour did spark a momentary spurt in oil prices. One opinion was that even if a decision to reduce production was made it would not have an impact on oil prices as there were vast quantities of oil in storage. In the end there was no agreement on an output cut but OPEC decided to do away with the production target. The main reason was that Iran was expected to come on to the market with a production of over 500,000 bpd. OPEC said that it would work with non-OPEC producers in 2016 to come to a conclusion on production cuts.

On the geo-political front, it was reported that Iran and China were developing an oil relationship and that Iran had agreed to sell 505,000 bpd to Sinopec, China's largest refiner and a Chinese oil trader in 2016. Observers interpreted this as sign of the growing battle for the Asian market. Some also saw this as a consequence of OPEC losing pricing power and OPEC members resorting to competing with each other for market share. Russia was seen as a formidable competitor for the Asian market. China was reported to be expected to double oil purchases to 70-90 million bpd for its strategic reserve in 2016. This was expected to ease the glut to some extent.

The United States passed the North American Energy Security and Infrastructure Act 2015 an energy reform package that included a repeal on the crude export ban. It would also accelerate LNG export permits and improve the aging electricity infrastructure. As Obama was expected to veto the bill few expected it to be passed any time soon. Some reported that a compromise was expected on the oil export ban between the republicans and the democrats.

OPEC decision added to the downward pressure on oil prices. The currencies of Canada, Russia, Mexico, Columbia, Saudi Arabia, Nigeria, South Africa and Brazil declined against the dollar. US shale production was expected to fall by over 116,000 bpd with the largest losses coming from Eagle Ford. According to some agencies spending cuts by the oil industry was expected to touch USD 250 in 2015. Natural gas prices declined to less than USD 2/mmBtu in the United States on account of over-supply and predictions of a mild winter (Please refer to Data Insight at page no. 6).

COAL MARKETS

An IEA report suggested that China's coal consumption may have reached a peak. The slowing economy, lower industrial activity combined with efforts to reduce air pollution contributed to the peak according to the IEA. Overall December remained a flat month for global coal industry as investment in new exploration stagnated. The Indonesian mining industry found itself in the crosswinds of a global downturn in commodity prices, combined with domestic regulatory challenges that dampened investment sentiment among both local and international mining investors. Mining's contribution to the Indonesian economy is said to have declined.

Negative perceptions of the country's regulatory environment remain a key challenge for attracting investment in the mining sector.

Indonesia's benchmarked thermal coal reference price set by the Indonesian Ministry of Energy and Mineral Resources, fell 1.69 percent to USD 53.51 per metric ton (FOB) in December 2015, touching a new all-time record low since the this reference price was started in January 2009. Indonesian coal miners cut production volumes to avert bankruptcy.

The similar trends continued in Australia where major mining giants have reduced coal production volumes. Mining companies are rethinking job numbers and capital spending. South Africa too witnessed drop in investment due to low productivity issues in coal mining sector. In order to ensure the survival of coal industry, the country is said to be introducing major reforms.

Views are those of the authors

Authors can be contacted at lydia@orfonline.org, akhileshs@orfonline.org, ashishgupta@orfonline.org

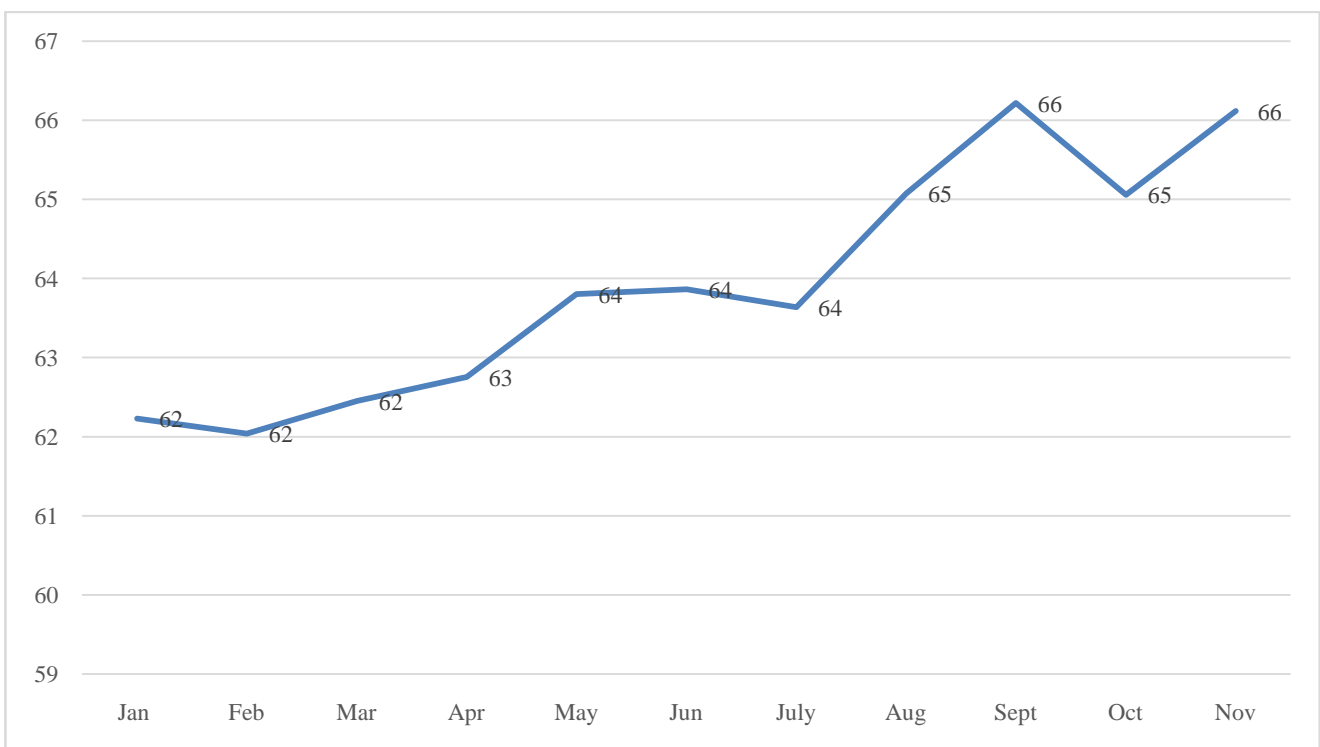
Crude Oil Prices for the Year 2015

Akhilesh Sati, Observer Research Foundation

(USD/bbl)

Months (2015)	Indian Basket	WTI
January	46.59	47.22
February	56.43	50.58
March	55.18	47.82
April	59.07	54.45
May	63.82	59.27
June	61.75	59.82
July	56.30	50.9
August	47.33	42.87
September	46.10	45.48
October	46.68	46.22
November	42.50	42.39

Average Exchange Rates for 2015 (INR/USD)



Source: PPAC, EIA and RBI

NEWS BRIEF

[NATIONAL: OIL & GAS]

Upstream.....

OVL, Rosneft sign Vankor oil field deal

December 26, 2015. A deal to allow ONGC Videsh Limited (OVL) to pick up 15% stake in Russia's second biggest oil field of Vankorneft and three other major pacts between Indian and Russian companies in the oil and gas sector have been struck during Prime Minister Narendra Modi's visit which is expected to boost bilateral trade significantly. India has been pressing for access to its companies in Russia's lucrative hydrocarbons sector and the pacts finalised are likely to facilitate their significant presence in oil and gas exploration in the Eurasian country. As per the deal between OVL and Russian oil behemoth Rosneft, the former will pick up 15% stakes in Vankorneft oil fields in Siberia for \$1.3 billion. OVL and Rosneft also signed a Memorandum of Understanding for the cooperation for geologic survey, exploration and production of hydrocarbons onshore and on the continental shelf of the Russian Federation. As per another pact, Oil India Ltd (OIL) and Indian Oil Corp (IOC) signed a non-binding agreement with Rosneft setting time-frame for concluding due diligence and finalising a pact to pick up stakes in Taas-Yuryakh Neftegazodobycha oil field, which another major oil fields in Siberia. India's Ambassador P S Raghavan said OVL signed another MoU with Rosneft expressing interest in a number of oil fields both in arctic shelf and in other parts of Syberia near Vankorneft and the intention for striking a deal. He said Indian oil major Essar has concluded some details of a deal under which they will pick up 10 million tonnes of crude from Roseneft. Roseneft will pick up 49% stakes in India's second largest oil refinery in Vadinar in Gujarat. As per the deal, the crude oil that goes from Russia will be refined at Vadinar. (www.dnaindia.com)

ONGC to invest ₹ 35 bn for developing 3 CBM blocks

December 23, 2015. Oil and Natural Gas Corp (ONGC) said it will invest ₹ 3,500 crore in extracting gas lying below coal seams in three coal-bed methane (CBM) blocks in eastern India. ONGC will drill over 350 wells in three blocks in Jharia, Bokaro and North Karanpur in Jharkhand. A fourth block in Ranigajan North in West Bengal may be relinquished as it may fall in way of a planned air-strip. On pricing, ONGC said CBM production is viable at USD 4.8 per million British thermal unit (mmBtu) gas price. In comparison, the current government mandated rate is USD 4.24. ONGC sells CBM gas from wells at Parbatpur in the Jharia block at an approved price of USD 5.1 per mmBtu. The company has approved an investment of ₹ 1,200 crore in the Bokaro block to produce a peak gas of 0.7 million standard cubic metres a day (mmscmd). In all, 160 wells are to be drilled on Bokaro block, of which 9 have already been drilled, ONGC said. ONGC is the operator of Bokaro as well as North Karanpur blocks with 80 percent interest. IOC holds the remaining 20 percent. It is the operator of the Raniganj North block with a 74 percent stake and Coal India Ltd (CIL) holds the rest. In Jharia, ONGC holds 90 percent and CIL the remaining 10 percent. The Jharia block is estimated to hold 85 billion cubic metres of gas reserves, North Karanpura 62 billion cubic metres, Bokaro 45 billion cubic metres and Raniganj North 43 billion cubic metres. Oil Secretary K D Tripathi said India's current CBM output is around 1 million standard cubic meters per day or one percent of the total natural gas production. The output is targeted to be raised to 5 mmscmd in three years, he said. (www.business-standard.com)

ONGC, IOC looking at more projects in Colombia

December 23, 2015. Oil and Natural Gas Corp (ONGC) and Indian Oil Corp (IOC) are eyeing more projects in Colombia. Currently, Mansarovar Energy Colombia, a joint venture formed by ONGC and Chinese oil firm Sinopec, is engaged in the exploration, development and production of oil and natural gas in Colombia. India is planning to increase crude oil imports from Colombia by 20-30%. ONGC Videsh Ltd (OVL), which currently holds seven blocks in Colombia, intends to expand its presence in the country. Oil Minister Dharmendra Pradhan had also visited oil fields where Indian firms have stakes. Currently, India imports about 60% of its total crude oil needs from Arab nations and 20% from Latin America. India plans to increase the imports from Latin American nations to 50% over the next five years. At present, Venezuela, Mexico and Colombia supply large amounts of oil to India. According to the Colombia-India Chamber of Commerce and Industry, last year, the trade balance between both countries was \$4,830 million. Also, in 2014, there was an investment

of \$ 95 million by Indian private companies in the country. Last year, Colombia exported about 6.3 million metric tonne of crude, according to figures from the chamber. (www.financialexpress.com)

India's crude oil production dips 3.3 percent in November over lower output

December 23, 2015. India's crude oil production dropped 3.3 percent in November after output fell at fields operated by both public and private sectors. Crude oil production at 3.04 million tonnes (mt) in November was 3.3 percent lower than 3.15 mt output in the same month a year ago, according to a data released by Ministry of Petroleum and Natural Gas. Oil and Natural Gas Corp (ONGC) reported a 1.3 percent drop in output at 1.84 mt as production at its onshore fields fell. Oil India Ltd (OIL) production was also down 7.18 percent at 264,878 tonnes while fields operated by private firms reported a near six percent decline at 936,647 tonnes. Cairn, the ministry said, saw natural decline in its eastern offshore Ravva field as well as Mangala field in Rajasthan. Reliance Industries' eastern offshore KG-D6 block also saw under performance of wells, it said. Natural gas output was also down nearly 4 percent at 2.71 billion cubic meters, mostly because of drop in production at eastern offshore fields. Fuel consumption in November at 14.8 mt was 6.4 percent higher than 13.9 mt consumed in the same month a year ago, according to the data. Diesel, the most consumed fuel in the country, however, saw a tapering in demand growth to 1.5 percent - rising from just over 6 mt in November 2014 to 6.1 mt this year. Petrol sales surged 17 percent to 1.77 mt while naphtha consumption was up 39 percent at 1.05 mt. LPG consumption was up 2.8 percent at 1.61 mt but kerosene sales was down 13 percent at 518,000 tonnes, the data showed. (energy.economictimes.indiatimes.com)

Downstream.....

IOC, BPCL, HPCL eye ₹ 600 bn refinery

December 28, 2015. The three government oil marketing companies (OMCs) - Indian Oil Corp (IOC), Bharat Petroleum Corp (BPCL), and Hindustan Petroleum Corp (HPCL) - might jointly set up a mega refinery at Ratnagiri in coastal Maharashtra. The refinery having a capacity of 30 million tonnes per annum (mtpa) would be set up at a cost of ₹ 60,000 crore. Oil Minister Dharmendra Pradhan made the announcement while dedicating to the nation a crude distillation unit (CDU) of BPCL's Mumbai refinery. The CDU was installed at a cost of ₹ 1,419 crore and would save the company ₹ 128 crore a year on fuel consumption. Maharashtra has two existing refineries - HPCL's 5.5 mtpa refinery and BPCL's 12 mtpa refinery. HPCL and BPCL have both been facing the problem of expansion at the existing refineries as they are landlocked. While BPCL wanted to set up Bina refinery in Madhya Pradesh to expand capacity to 15 mtpa, HPCL's expansion has hit a roadblock due to clearances. HPCL had decided in 2010 to set up a 9 mtpa refinery in Maharashtra's Ratnagiri district, but the region was declared ecologically sensitive, putting the plan in jeopardy. The moratorium for the Maharashtra project was up to 2014. A year after it elapsed, the company says it has no clue about the future of the project. Another refinery planned by HPCL at Pachpadra in Barmer district of Rajasthan two years ago, has not seen work starting. IOC, the nation's biggest refiner, on the other hand, has been planning to set up a new refinery on the west coast for some years. IOC had supposedly zeroed in on Gujarat and Maharashtra as two locations for its new refinery. But, no destination has been finalised as yet. IOC has seven refineries with a total capacity of 54.2 mtpa and its subsidiary Chennai Petroleum operates an 11.5-mtpa refinery. According to the International Energy Agency, energy demand in the country will double in the next 25 years, which will necessitate a massive \$2.8 trillion in investment in facilities, or \$110 billion annually. (www.business-standard.com)

CPCL resumes full operations at 11.5 mt refineries near Chennai

December 25, 2015. Chennai Petroleum Corp Ltd (CPCL) said it has resumed full operations at its 11.5 million tonnes (mt) refineries near Chennai that had been shut down three weeks back due to heavy rains and water logging. CPCL, a subsidiary of Indian Oil Corp (IOC), had shut its refineries in Manali and Nagapattinam, near Chennai, on December 2 and 6, respectively due to heavy rains and water logging. While operations at Cauvery Basin Refinery at Nagapattinam resumed on December 14, the same at Manali refinery were restored on December 16. However, half of the Manali refinery hadnt started on that date because the Fluidized Catalytic Cracking Unit (FCCU) and Crude Distillation Unit - II (CDU-II) were not functional. CDU is the primary unit that processes crude oil while FCCU produces high-end fuels. Manali refinery near Chennai has a capacity of 10.5 million tonnes per annum while Nagapattinam has one million tonnes a year capacity. (indiatoday.intoday.in)

GAIL to take 5 percent stake in consortium building TAPI pipeline

December 27, 2015. GAIL (India) Ltd will take 5% stake in the international consortium building the \$8.7 billion Turkmenistan-Afghanistan-Pakistan-India (TAPI) gas pipeline. The four nations building the pipeline had in August agreed to co-own the project and a joint venture company with participation of each country is to be set up to build and operate the 1,814-kilometre line. ISGS of Pakistan and Afghan Gas Enterprise (AGE) will also take 5% stake each. The TAPI pipeline will have a capacity to carry 90 million standard cubic metres a day (mmscmd) gas for 30 years and is planned to become operational in 2018. India and Pakistan were originally to get 38 mmscmd each while the remaining 14 mmscmd was to be supplied to Afghanistan. But Kabul is willing to take only 1.5-4 mmscmd so the share of India and Pakistan will go up to 43-44.25 mmscmd each. TAPI will carry gas from Turkmenistan's Galkynysh field, better known by its previous name South Yolotan Osman, that holds gas reserves of 16 trillion cubic feet. From the field, the pipeline will run to Herat and Kandahar province of Afghanistan, before entering Pakistan. In Pakistan, it will reach Multan via Quetta before ending at Fazilka (Punjab) in India. Turkmenistan on December 13 began work on the 214 km section of the pipeline in its territory. The pipeline will travel 773 km in Afghanistan and 827 km in Pakistan before touching Indian border. (www.dnaindia.com)

Policy / Performance.....

Bombay HC issues notices to Vedanta, Cairn India

December 29, 2015. The Bombay High Court (HC) has issued notices to Vedanta, its unit Cairn India and their directors, according to reports. The report said that the notice was regarding seeking response to a shareholder's petition alleging that Vedanta used complex web of transactions to make sure that part of the money spent to take over Cairn India came from the acquired company itself. The petition alleged that these transactions violated rules under the Companies Act, and has asked the court to cancel approval to merge Cairn India with Vedanta, the report said. (www.indiaonline.com)

No LPG subsidy for taxpayers who earn over ₹ 10 lakh annually: Govt

December 28, 2015. At present, there are 16.35 crore LPG consumers in the country. With the implementation of the PAHAL Scheme (DBTL), the subsidy is being transferred directly to the Bank Account of 14.78 crore LPG Consumers. The objective of the scheme was to ensure that the subsidy benefits go to the targeted group. The Government had also given a call to the well-to-do households for voluntarily giving up LPG subsidy. So far, 57.50 lakh LPG consumers have opted out of LPG subsidy voluntarily heeding the call given by the Prime Minister. The subsidy saved from the 'GiveitUp' campaign is being utilized for providing new connections to the BPL families under the 'Giveback' campaign. This enables provision of LPG, a clean fuel, to poor households by replacing the conventional fuels such as kerosene, coal, fuel wood, cow dung, etc. relieving the poor of the hardships and health hazards from such fuels. While many consumers have given up subsidy voluntarily, it is felt that consumers in the higher income bracket should get LPG cylinders at the market price. Therefore, the Government has decided that the benefit of the LPG subsidy will not be available for LPG consumers if the consumer or his/her spouse had taxable income of more than ₹ 10,00,000/- during the previous financial year computed as per the Income Tax Act, 1961. In keeping with the approach of trusting the citizens, this will be given effect to initially on self-declaration basis while booking cylinders from January 2016 onwards. (pib.nic.in)

Govt relaxes guidelines for small, isolated gas fields

December 28, 2015. The government has further relaxed rules for selling natural gas produced from small and isolated fields by waiving off time stipulation for fields located in the North East India. The oil ministry had in July 2013 allowed pricing freedom for gas produced from small, isolated fields and given marketing freedom by imposing no obligation of seeking customers only from the fertiliser and power sectors. The policy however stipulated that only those customers who can take supply within 90-days be sold the gas. In view of the difficulties, this timeline has now been extended to one year, the oil ministry said. The National Oil Companies (NOCs) have brought to the notice of the Ministry that customers of North East Region are facing various difficulties in utilising the gas within 90 days and have been requesting for longer lead time for monetisation of gas from small and isolated fields. The policy allows producers from such fields to sell gas at market rates by inviting competitive bids from prospective consumers. Companies will fix minimum price for their gas, which would be the prevailing government-determined rate, and ask interested buyers to

offer more through bidding. Current gas price as per the formula approved by the BJP- led government in October last year, is USD 4.24 per million British thermal unit (mmBtu). The guidelines for marketing of gas from small, isolated stated that it was imperative that NOCs are able to quickly monetise the output of their discoveries and defined such fields as ones "whose peak production is less than 0.1 million standard cubic meters per day and are situated more than 10 km away from the gas grid." Oil and Natural Gas Corp (ONGC) had in November last year used e-tendering to finalise a price of USD 10.10-11.20 per mmBtu for sale of gas from new marginal fields in Gujarat and Andhra Pradesh. It finalised a price of USD 10.10 per mmBtu for gas from Gamij-GGS-2 field and a rate of USD 11.10 per mmBtu for Gamij-GGS-3 field, both in Gujarat. For the Warosan-4 field in Mehsana basin of Gujarat, it has finalised a rate of USD 10.50 per mmBtu. In case of Triputtallu, Kaza, Mandapeta-23, Gokarnapuram and Suyyaraopeta marginal fields in Andhra Pradesh, the firm has finalised a price of USD 11.20 per mmBtu. (economictimes.indiatimes.com)

Oil price slump a chance to enhance energy security: Oil Minister

December 27, 2015. India sees the current slump in oil prices as an opportunity to enhance its energy security, and the government has told state-owned companies in the sector to aggressively scout for acquisition of assets overseas, Oil Minister Dharmendra Pradhan has said. Noting that ONGC Videsh Ltd (OVL) has acquired a stake in Russia's second biggest oilfield of Vankor, the minister said he has already told state-owned oil companies to go in for aggressive acquisition of assets overseas. However, underlining that the Centre would not resort to a "knee-jerk" reaction vis-a-vis low oil prices, he expressed the view they could go up again and indicated that things cannot be taken for granted. India is the world's third largest importer of crude oil following the US and China. India reportedly saved ₹. 2.2 lakh crore on its oil imports during April-November 2015. Ever since the NDA government came to power in June last year, the price of petrol has been reduced more than 20 times and of diesel 16 times, resulting in net reduction in price of both fuels by ₹ 13 each. (www.ndtv.com)

BP opposes oil ministry's proposed revenue-sharing model of hydrocarbon auction

December 23, 2015. Reliance Industries' partner BP Plc has opposed the oil ministry's proposal to introduce a revenue-sharing model for the future auction of hydrocarbon reserves that would replace the current cost-recovery method, which obliges the government to micromanage oil and gas fields and has led to festering disputes between the oil ministry and Reliance Industries Ltd (RIL). The oil ministry had proposed the new system as part of a slew of planned reforms and sought comments from stakeholders. The proposals included freedom to companies to price gas from new blocks, liberty to carve out blocks for themselves and bid at a time of their choice. The government had also proposed unified license to allow firms to explore all types of hydrocarbons in its field, including oil and gas, shale reserves and coal-bed methane. The oil ministry has received comments from stakeholders and plans to begin the inter-ministerial consultation in January for the new policy, following which it will be sent to the cabinet for consideration. (www.diligentia.net.in)

Govt mulls new pricing formula for CBM

December 23, 2015. The government is looking at a new pricing regime for coal-bed methane (CBM) to help monetise the clean energy source lying below coal seams, Oil Minister Dharmendra Pradhan said. Producing gas trapped below coal seams considered uneconomical at current gas price of USD 4.24 per million British thermal unit considering that such an exploitation requires a huge number of well to be drilled and per well output is very low. India has prognosticated CBM resource of 63 trillion cubic feet (Tcf), of which 10 Tcf has been established. Pradhan said the endeavour is to bring a comprehensive and holistic policy that will help boost CBM production. Private firms like Essar Oil say pricing is inadequate and public sector companies like ONGC too in muted voices say the same thing, he said. (indiatoday.intoday.in)

[NATIONAL: POWER]

Generation.....

BHEL commissions Prayagraj power project unit

December 29, 2015. Bharat Heavy Electricals Ltd (BHEL) has commissioned a 660 MW unit of Prayagraj Super Thermal Power Project at Bara in Uttar Pradesh. According to the BHEL, this is the first supercritical thermal unit in the state to

achieve capacity addition on attaining full load. BHEL is the leading power equipment manufacturer in the country with orders of 43 sets of supercritical boilers and 38 sets of supercritical turbine generators by various customers. These orders have been received from central, state as well as private sector utilities that have reposed confidence in the company. Supercritical units are more efficient, consume lesser coal and are also eco-friendly. (www.thestatesman.com)

Tata Power refinances loan for Mundra power project

December 29, 2015. Tata Power said it has refinanced ₹ 3,864 crore loans for its 4,000 MW Mundra ultra mega power project (UMPP) in Gujarat, which it claimed would help the plant save around ₹ 77 crore a year in interest cost. The Mundra project is being implemented by Coastal Gujarat Power (CGPL), a wholly-owned subsidiary of Tata Power. Tata Power had earlier said that it was in discussion with a lenders' consortium to refinance loans extended to Mundra ultra mega power project. Tata Power is close to tying up a refinancing facility under the 5/25 scheme for ₹ 10,000 crore that it borrowed to set up the Mundra UMPP. Under the 5/25 scheme, banks can extend loan repayment for a period up to 25 years, with an option of refinancing the loan every five years. (profit.ndtv.com)

NEEPCO starts commercial production from Manarchak plant

December 27, 2015. North Eastern Electric Power Corporation (NEEPCO) has started commercial production from its Manarchak power plant in Sepahijala district. The Central Electricity Regulatory Commission (CERC) was informed that the production cost per unit was ₹ 3.88 and the final decision regarding the rate per unit would be taken by CERC itself. Currently, NEEPCO is supplying power to the state government as 'unscheduled' power and once the power tariff is fixed by the CERC, the regional power company will supply on the basis of new power tariff. (economictimes.indiatimes.com)

Bajaj group synchronizes second 660 MW unit at Lalitpur plant

December 23, 2015. Bajaj group said it has synchronised the second 660 MW unit of its power plant at Lalitpur in Uttar Pradesh. The first unit of 660 MW was commissioned in September and the third unit of similar capacity is in an advanced stage of completion, it said. This milestone strengthens the presence of the Bajaj group as a major power producer in Uttar Pradesh (UP) where it already has a presence through its existing 1,100 MW thermal power capacity, it said. The group's power venture includes Bajaj Energy Pvt Ltd, with 450 MW thermal power generation commissioned in 2012 and the Lalitpur Power Generation Co Ltd (LPGCL) with a total of 1,980 MW thermal power generation capacity. (timesofindia.indiatimes.com)

Transmission / Distribution / Trade...

Govt in process of granting transmission connectivity to 20 power plants

December 29, 2015. The government is in the process of granting electricity transmission connectivity to 20 power plants with a generation capacity of 11,000 MW, completing a chain of reforms in the sector including easing coal and gas availability, revival of state distribution companies, expediting project clearances and a push to renewable energy. Electricity transmission capacity to southern states has been increased by 71% in the last 18 months with the commissioning of new lines. The average transfer capacity to south India is expected to increase to 18,000 MW by 2019-20 from the present 5,900 MW with the commissioning of few more power transmission lines. The government has already taken a slew of initiatives to expedite forest clearances and other regulatory clearances to transmission projects. The focus on electricity transmission sector is followed by key initiatives taken by the government to resolve numerous outstanding issues in the power sector. The sector had seen a wave of private investment without any thought for fuel supply, leading to a huge bottleneck that the current government inherited. The power, coal and renewable energy minister, has pushed hard for reforms and higher coal output, which has prompted Coal India Ltd to open a new mine every month and increase coal production significantly. As per the Index of Industrial Production, electricity grew at 9% in October, while Coal India's output rose 9% during April-November. Coal India has produced more coal in 2014-15 than the last four years, leading to 49% dip in imports during November 2016 against the same month last year. Coal supply position at the 100-odd coal power stations monitored by the Central Electricity Authority is comfortable while last year about two-thirds of the projects had critical coal stock. The Union Power ministry's imported gas supply scheme to stranded gas-based power plants has resulted in revival of 11,000 MW plants. The government has taken steps to revive state power distribution utilities that at the end of 2013-14 had accumulated losses of ₹ 3.2 lakh crore. With the debt-recast package, all discoms are expected to be profitable by 2019. The government also plans to save 22,000 MW of electricity generation by 2018 by retrofitting 77 crore bulbs with LED lamps. The price of LED bulbs have fallen by

more than 75% and over 4 crore such bulbs have been distributed in the past year. The government says it is on track to distribute 77 crore bulbs by 2018. With the use of LED bulbs in streetlights as well as households, peak-load demand is expected to fall significantly. (economictimes.indiatimes.com)

Sterlite emerges lowest bidder for Odisha transmission project

December 28, 2015. Sterlite Grid has emerged as the lowest bidder for a ₹ 1,500 crore transmission project in Odisha by quoting a lowest annual tariff of ₹ 139.79 crore. Apart from these three companies, Power Grid, Kalpataru Power Transmission Ltd (KPTL) and a consortium of Gayatri Projects Ltd and Engineering and Infrastructure Ltd had qualified for submitting financial bids for the project. However, later these firms did not submitted financial bids. The Odisha project consists of 350 km of 765 kV double circuit line and 50 km of 400 kV of double circuit line. The government plans to auction transmission projects worth ₹ 1 lakh crore through tariff-based competitive bidding route. Under the system, the developer quoting the lowest tariff would be awarded the project. After the Odisha project, the largest project to be awarded through tariff-based competitive bidding is Warangal Project for which PFC Consulting is managing the auction. (www.business-standard.com)

Power prices fall 22 percent in 2015

December 27, 2015. With 2015 seeing considerable improvement in fuel availability, the power supply position, as well as prices, eased considerably. Power prices fell by as much as 22 percent in the spot market from a year ago, ₹ 2.81 a unit against ₹ 3.59 in 2014. The power market witnessed a healthy reduction in prices in 2015 with increase in supply thanks to addition in capacity and generation during the year, said market analysts. The peak-demand months of June, July and August witnessed prices falling by 34 percent, 27 percent and 37 percent, respectively. According to the monthly report of the Central Electricity Authority (CEA), power generation between April and October 2015 was 646 billion units with energy deficit of 2.4 percent. Generation during the corresponding period last year was 617 billion units, while energy deficit was 4.1 percent. Power prices fall 22% in 2015. The fuel constraints, which prevailed in 2014, especially coal shortage, eased significantly in 2015. The average coal stock position has also increased to 21 days as on November 30, 2015 from seven days a year ago, India Energy Exchange (IEX) said. However, tepid demand from the beleaguered state power distribution companies has dampened the demand. According to CEA's October report, coal production during April-November 2015 has been 321 million tonnes (mt), an eight percent increase over 295 mt in the previous year. However, there was no change in demand pattern. The Centre offered coal blocks to state and private sector power plants to the tune of 28,000 MW. Cheap domestic gas was also made available to gas-based power plants totalling 14,000 MW. According to IEX, inter-state transmission system congestion was eased significantly, especially towards the north. However, southern states continue to witness power deficit. (www.business-standard.com)

KEI industries bags order worth ₹ 3.8 bn from PGCIL

December 25, 2015. Cable maker KEI Industries said that it has bagged an order worth ₹ 384.53 crore from Power Grid Corporation of India Ltd (PGCIL). The company said the order is for supply and service contracts for package A & B under integrated power development scheme (IDPS) works in Varanasi, Uttar Pradesh. The Integrated Power Development Scheme (IPDS) is one of the flagship schemes of the Ministry of Power and will be at the core attempt to ensure round the clock power for all. The IPDS announced in the Union Budget 2014-15 envisages strengthening of sub-transmission network, metering, IT application, customer care services, provisioning of solar panels and the completion of the ongoing works of Restructured Accelerated Power Development and completion of the Reforms Programme (RAPDRP). (indiatoday.intoday.in)

Transmission lines ready to supply another 100 MW to Bangladesh

December 25, 2015. The Power Grid Corporation of India Ltd (PGCIL) and the Power Generation Company of Bangladesh (PGCB), both government-owned companies, erected the transmission lines in their respective areas for the supply of electricity from the Palatana power plant in southern Tripura. PGCIL said that the company has invested ₹ 90 crore to erect an 18-km transmission line on Indian territory and to provide compensation to the people for land acquisition. The power will help Bangladesh to end the energy crisis in the country's eastern part. The 100 MW of power will be in addition to the 500 MW Bangladesh already receives from West Bengal. A like amount is also on the cards from the state, as the two neighbours enter a new phase of bilateral cooperation for regional benefit. Prime Minister Narendra Modi discussed power supply from Tripura with his Bangladeshi counterpart Sheikh Hasina during his Dhaka visit. Modi had declared that India would eventually enhance the power supply to Bangladesh to 1,100 MW. Tripura Chief Minister

Manik Sarkar, who initiated a few years ago the move to supply 100 MW of power to Bangladesh, had earlier said that after a new 101 MW gas-based power project at Monarchak (10 km from the Bangladesh border) is completed, at least 200 MW of power would be surplus in Tripura. India had begun supplying 500 MW of power to Bangladesh in 2013 after the government-run Bangladesh Power Development Board and India's NTPC Vidyut Vyapar Nigam Ltd (NVVN), a subsidiary of NTPC, signed a deal on Feb 28, 2012, following an agreement signed during Hasina's visit to New Delhi in January 2010. (www.newkerala.com)

Policy / Performance.....

No hike in power tariffs during present govt's tenure: Haryana CM

December 29, 2015. Under persistent attack by the opposition on power tariff hike issue, Chief Minister (CM) Manohar Lal Khattar said that electricity tariffs would not be raised during the tenure of present BJP government in Haryana. Earlier, the Haryana State Electricity Regulatory Commission (HERC) implemented the decision to increase power tariff which taken by the Cabinet of the previous government, he said. The Chief Minister said that some opposition leaders were misleading the people on the power tariff issue. He said that in a letter written to the Centre by the state, an offer to surrender the Aravali NTPC Jhajjar Plant for a period of one year was made, which is causing huge fixed expenses to the power department. Khattar said that measures are being taken to overcome the losses of power distribution companies in the state which have increased to ₹ 29,000 crore. He said that Haryana has given its consent to the Centre under the scheme so that the burden of accumulated losses on power discoms could be minimised. The Chief Minister said that in order to make utilities profitable and to provide people uninterrupted 24-hour power supply, 'Mhara Gaon Jagmag Gaon' scheme has been started on 83 feeders. (www.tribuneindia.com)

UMPPs to be protected from uncertainties in coal imports

December 29, 2015. The power ministry has proposed to shield electricity producers from uncertainties in coal imports, a problem that had affected earlier Ultra Mega Power Projects (UMPPs) that were to use imported fuel. The power ministry issued draft guidelines for UMPPs that use imported coal. It contains elaborate provisions for unforeseen events related to imports. The draft documents provided that imposition of sanctions by foreign countries on India with regard to supplies of coal, resulting in the cessation of coal supply to developers of UMPPs and the consequent inability of the company to locate coal from any other source, shall be construed as an indirect non-natural force majeure event. Lack of such provisions for earlier UMPPs had led to legal tangles. Of the four UMPPs bid out so far, two were proposed to be based on imported coal. While Tata Power awaits compensatory tariff for its Mundra UMPP in Gujarat, Reliance Power stalled work on its Krishnapatnam UMPP. (economictimes.indiatimes.com)

Russia to establish more nuclear units in India

December 28, 2015. India has signed cooperation agreements with Russia in various fields including nuclear energy and solar power. The agreements followed talks between Russian President Vladimir Putin and Indian Prime Minister Narendra Modi during the latter's two-day visit to Russia. Russia will construct 12 atomic plants in India, in partnership with local companies. Russian state nuclear company Rosatom will consider manufacturing of nuclear reactor units in India as part of the government's 'Make in India' campaign. (nuclear.energy-business-review.com)

India says closing in on Westinghouse deal to build 6 nuclear reactors

December 23, 2015. India expects to seal a contract with Westinghouse Electric Co LLC to build six nuclear reactors in the first half of next year, in a sign its \$150 billion dollar nuclear power programme is getting off the ground. The proposed power plant in Prime Minister Narendra Modi's home state of Gujarat will accelerate India's plans to build roughly 60 reactors, which would make it the world's second-biggest nuclear energy market after China. India wants to dramatically increase its nuclear capacity to 63,000 MW by 2032, from 5,780 MW, as part of a broader push to move away from fossil fuels, cut greenhouse gas emissions and avoid the dangerous effects of climate change. (www.firstpost.com)

Meghalaya CM inaugurates power sub-station

December 23, 2015. Meghalaya Chief Minister (CM) Mukul Sangma inaugurated a power sub-station at Mendipathar in North Garo Hills district, aimed at improvement of power supplies to the entire Garo Hills region. The project was funded by North Eastern Council with a total cost of ₹ 14.5 crore and is the third sub-station in Garo Hills after Nongalbibra and

Rongkhon substations. The Chief Minister informed that this year out of Rural Infrastructure Development Fund (RIDF) fund ₹ 112 crore has been earmarked for Ganol hydro project, urging concerned parties to complete the project on time. He also said that with uninterrupted fund flow, the Ganol project is expected to be completed by 2017, adding that this will be fastest power project in the country as far as hydro power project is concerned. He also informed that the substation would be linked with the State Load Despatch Centre in Shillong which monitors online all the sub-stations in the State. (timesofindia.indiatimes.com)

Govt to soon come out with coal linkage, new tariff policies

December 23, 2015. Government will soon come out with a coal linkage policy to ensure supply of fossil fuel and a new tariff policy aimed at boosting regulatory mechanism for discoms and attracting investments. On the concerns expressed by the Finance Ministry that the implementation of bailout scheme for discoms UDAY will push up the combined fiscal deficit of states and Centre, Coal and Power Minister Piyush Goyal. The government had earlier said the framing of new tariff policy is in the final stages and will be placed before the Cabinet for approval. The central government in 2006 had approved the Tariff Policy under the provisions of Electricity Act, 2003. The Power Ministry has to get the approval from the Cabinet for a new electricity tariff policy. The minister had indicated the new tariff policy will give a big push to electricity generated from renewable energy sources and address concerns related to the environment. (economictimes.indiatimes.com)

[INTERNATIONAL: OIL & GAS]

Upstream.....

Russia's Lukoil says oil output exceeds 100 mn tonnes in 2015

December 29, 2015. Russian second-largest oil producer Lukoil said its yearly crude oil output had surpassed 100 million tonnes (2 million barrels per day) for the first time. It rose by 3.5 percent from a year-ago period thanks to higher output at its West Qurna-2 oilfield in Iraq, as well as in Timan-Pechora, Perm and Caspian regions in Russia. (af.reuters.com)

Sinopec plans to double Fuling shale gas capacity by 2017

December 29, 2015. China Petrochemical Corp., China's second-biggest oil and gas producer, plans to double annual shale gas production capacity at its Fuling project in southwest China in the next two years to 10 billion cubic meters. The Beijing-based company known as Sinopec Group has steadily produced 15 million cubic meters of shale gas a day at the site for more than a month, it said. Current gas production could meet daily gas demand of 30 million families, it said. The combined shale gas output from Sinopec Group and PetroChina Co., the country's biggest oil and gas producer, may reach 5.1 billion cubic meters this year, lagging China's output target of 6.5 billion cubic meters. Proved shale gas reserves at Fuling more than tripled to 380.6 billion cubic meters making it the world's second-largest shale gas field outside North America, China Petroleum & Chemical Corp., or Sinopec said. The project sits in mountainous rural Chongqing and has produced 3.9 billion cubic meters of the fuel since starting production. China's total proven shale gas reserves are estimated at 500 billion cubic meters, according to the Chinese Academy of Engineering. (www.bloomberg.com)

Downstream.....

Russia's November refinery runs up 10.2 percent from October

December 23, 2015. Russian oil refinery runs rose 10.2 percent in November from the previous month, or 527,609 barrels per day (bpd), after major seasonal maintenance in September and October, Energy Ministry data showed. Refineries processed 5.706 million bpd of crude oil versus 5.179 million in October. State-owned oil major company Rosneft increased its total processing volumes by 22.5 percent after planned maintenance of Syzran, Achinsk and Saratov refineries ended. Gazprom Neft's Moscow and Omsk refineries grew their capacity by 29.8 percent and 15.4 percent, respectively. The Kirishi refinery increased its oil processing by 10.5 percent to 390,518 bpd. According to the Energy Ministry data, Russian oil refinery runs fell in November by 4.7 percent, or 279,713 bpd, from the same month a year ago. (af.reuters.com)

Russia's Gazprom cancels tender for work on gas pipeline to China

December 29, 2015. Russia's Gazprom has cancelled a tender for construction of around half of its Power of Siberia gas pipeline to China worth almost 156 billion roubles (\$2.2 billion), it said. In a separate tender, Gazprom awarded Stroygazmontazh, owned by Arkady Rotenberg, an ally of Russian President Vladimir Putin, contracts worth almost \$3 billion for work on the pipeline. The pipeline is designed to deliver 38 billion cubic metres of gas per year to China over 30 years, with first deliveries scheduled for 2019. (af.reuters.com)

Japan's JOGMEC buys LPG for national reserves

December 28, 2015. Japan Oil, Gas and Metals National Corp (JOGMEC) bought liquefied petroleum gas (LPG) to store in its national reserves, the trade ministry said. JOGMEC did not award the tender and it decided to buy after negotiating with the lowest price bidder, the ministry said. JOGMEC was seeking 22,000 tonnes of propane for a stockpiling base in Namikata in Ehime prefecture, for delivery until Jan. 31. JOGMEC has so far bought 132,000 tonnes via five tenders in the fiscal year that started in April. The trade ministry said it aimed to buy 198,000 tonnes of LPG during 2015/16. Japan, which has five national LPG stockpiling bases with a total capacity of 1.5 million tonnes, plans to increase stockpiles to full capacity by the end of March 2018. (af.reuters.com)

Beijing shivers as natural gas import delay turns down heat

December 28, 2015. Beijing ordered offices to cut heating to as low as 14 degrees Celsius (57 Fahrenheit) in response to a natural-gas shortage that resulted from import delays by PetroChina Co. Gas supplies have dwindled in northern China as heavy fog and wind delayed unloading tankers carrying liquefied natural gas imports meant to satisfy peak winter demand, PetroChina's parent, China National Petroleum Corp. (CNPC), said. Heating in public buildings including offices, malls and supermarkets in the capital was curtailed and authorities are working with PetroChina to restore deliveries as soon as possible, Beijing authorities said. Northern China is feeling the lowest temperatures in 64 years, leading to an increase in natural gas consumption, according to CNPC. China cut prices for the fuel last month for business and industrial users in areas including Beijing, Shanghai and Guangdong as it seeks to reduce a reliance on coal and address pollution, according to the National Development and Reform Commission. (www.bloomberg.com)

November Asian imports of Iran oil drop 16.2 percent on India, Korea cuts

December 28, 2015. Asian imports of Iranian oil in November fell by the most in nine months with India and South Korea cutting their imports as buyers mainly hold off on raising their purchases after July's landmark agreement on Tehran's disputed nuclear program. Imports by Iran's four biggest buyers - China, India, Japan, and South Korea - came to 894,685 barrels per day (bpd) last month, down 16.2 percent from the same month a year ago and the sharpest decline since February, government and tanker-tracking data show. However, imports rebounded 11.3 percent from October. The decline was mostly in line with loading data at Iranian ports for the arrival month. Exports to Asia are set to rise above 1 million bpd this month. India and South Korea led the drop in Iranian imports. India's intake declined to 138,100 bpd, down 44.9 percent from the same time a year ago and the lowest since March, while South Korean imports decreased to 97,200 bpd, down 28.8 percent and the lowest since July. Japan's oil imports from Iran in November rose 3.1 percent from a year earlier to 168,285 bpd, trade ministry data showed. Average total imports by the top four Asian buyers have fallen 7.1 percent to 1.03 million bpd in the first 11 months of the year, the data showed. Despite the slump in oil prices, Iran has vowed to ramp up crude oil production and reclaim its lost share of exports after international sanctions on the OPEC member are lifted in January 2016. Iran's crude oil exports could rise by half a million barrels per day within 6-12 months once sanctions against it are lifted, the International Energy Agency (IEA) said. (www.reuters.com)

Thai PTT plans to invest \$8.2 bn over next 5 yrs

December 25, 2015. Thailand's biggest energy firm PTT Pcl plans to spend 297 billion baht (\$8.2 billion) over the next five years, mainly on building infrastructure such as natural gas pipelines. The investment budget for next year is 50.8 billion baht, broadly similar to the company's 2015 spending of about 50 billion baht. Domestic demand for energy is expected to increase by 2 percent next year, with Thai GDP growth seen at 3.7 percent next year - up from 2.8-3.0 percent this year. (af.reuters.com)

Chevron signs 10 year LNG supply agreement with China Huadian

December 24, 2015. Chevron and China Huadian have signed a 10-year non-binding Heads of Agreement (HOA) on the supply by Chevron of up to 1 million tonnes per year of LNG from its gas holdings in Australia to China Huadian. LNG deliveries are expected to start in 2020 and to last until 2030. Chevron's subsidiaries in Australia are also developing the 8.9 million tonnes per year Wheatstone LNG project near Onslow, in the Pilbara region of Western Australia; commissioning of the first train is scheduled for 2016 and the second train is planned for 2017. (www.enerdata.net)

Shell New Zealand sells Maui gas pipeline to First State Investments

December 24, 2015. Shell has reached an agreement with Australian infrastructure asset manager First State Investment on the sale of the Māui natural gas pipeline, which transports around 78% of all natural gas produced in New Zealand, for NZ\$335 mn (US\$228 mn). The sale, announced in early 2015, is conditional on certain regulatory approvals being obtained by First State Investments but the parties hope to finalise the transaction by the middle of 2016. First State Investment recently acquired 100% of Vector Gas Limited (VGL) from Vector Ltd; VGL owns the Vector gas transmission network and a major part of its gas distribution network in New Zealand. (www.enerdata.net)

GLNG signs gas purchase agreement with AGL

December 24, 2015. Santos announced that the GLNG project participants have executed an agreement with AGL Energy Limited (AGL) for the purchase of 254 petajoules of gas for supply to the GLNG project. The gas will be delivered at Wallumbilla over a period of 11 years commencing in January 2017, with pricing based on an oil-linked formula. GLNG said the agreement with AGL adds to GLNG's diverse gas supply portfolio, comprising supply from GLNG's own coal seam gas fields, Santos portfolio gas, underground storage and third party supply. (www.energy-business-review.com)

Policy / Performance.....

Saudi economic shake-up shows it is planning for cheap oil

December 29, 2015. Saudi Arabia's planned cuts in spending and energy subsidies signal that the world's largest crude exporter is bracing for a prolonged period of low oil prices. The Organization of the Petroleum Exporting Countries (OPEC) heavyweight shows no signs of wavering in the long-term oil strategy it has orchestrated since last year. Instead, it appears willing to continue tolerating cheap crude to defend market share and wait for the market to balance without cutting supplies, analysts said. In one of the strongest signals that the kingdom will stay the course despite the impact on its finances, Saudi Aramco's chairman Khalid al-Falih said it could outlast others. Analysts said the plans announced to shrink a record state budget deficit with spending cuts, reforms to energy subsidies and a drive to raise revenues from taxes and privatization showed Riyadh was expecting lower revenues. The Finance Ministry did not disclose the average oil price assumed in its 2016 budget calculations but economists estimated it was about \$40 a barrel and saw crude production remaining high at above 10 million barrels per day next year. (www.reuters.com)

Iran adding to global oil glut dims hopes for recovery next year

December 29, 2015. Investors are losing faith in an oil-price recovery next year as Iran prepares to add more crude to a global glut. That's good news for American drivers who have enjoyed the lowest gasoline prices in six years. Iran's priority is to boost shipments to pre-sanction levels, Oil Minister Bijan Namdar Zanganeh said. The nation sees the potential for further oil-price declines as it plans to boost supply amid a lack of OPEC cooperation, National Iranian Oil Co. (NIOC) said. The Iranian government plans to add 500,000 barrels a day of exports within a week of the removal of sanctions and 1 million within six months, NIOC said. (www.bloomberg.com)

Saudi Arabia to raise petrol prices by up to 40 percent

December 28, 2015. Saudi Arabia said it was raising petrol prices by up to 40 percent as it cuts a range of subsidies after posting a record budget deficit. Saudi Arabia said that this year's budget deficit amounted to \$98 billion (367 billion riyals) as lower oil prices cut into the government's main source of revenue, prompting the kingdom to scale back spending for the coming year. For the third consecutive year, the kingdom said it will post a budget shortfall in 2016, projecting a deficit of \$87 billion (327 billion riyals). The government said it projects expenditures of \$224 billion (840 billion riyals) in 2016, roughly \$5 billion (20 billion riyals) less than what the government projected in 2015. The budget is being watched closely by investors to see how the government plans to consolidate years of heavy spending when oil prices were more than double what they are now. Next year's budget suggests Saudi Arabia is basing its revenue on a

price of \$26 a barrel for export crude, if production remains at 10.2 million barrels per day, said Fahad Alturki, chief economist and head of research at Saudi-based Jadwa Investment. That's less than half the \$56 per barrel priced into the projected 2015 budget. (www.firstpost.com)

End to US oil export ban should not affect market: Russian Energy Minister

December 24, 2015. Russia, the world's top oil producer, believes the United States decision to lift a 40-year ban on exporting crude oil will not affect the global oil market, Russian Energy Minister Alexander Novak said. Global oil prices are down to under \$40 per barrel, trading close to an 11-year low, pressured by oversupply amid resistance by the leading producers, including Russia, to cut output. Congress voted to repeal the 40-year-old ban on exporting U.S. crude oil, imposed after the Arab oil embargo of the early 1970s that sent gasoline prices soaring and contributed to runaway inflation. U.S. energy group Enterprise and oil trader Vitol became the first firms eager to "stress test" the lifting of the export ban. The United States consumed around 19 million barrels per day (bpd) of oil products in 2014, a fifth of the world's total, with net imports of oil and oil products accounting for just over a quarter of total U.S. consumption, according to the U.S. Energy Information Administration. Novak also said that Russian oil companies were examining stress scenarios for an oil price of \$30-\$35 a barrel and that Russian preliminary oil output in 2015 was around 533 million tonnes, or 10.70 million bpd. Low oil prices along with Western sanctions on Russia have put pressure on the rouble since last year, making the Russian oil industry one of the lowest cost and helping to increase investments. Novak said that investments in Russian oil production were around 1.1 trillion roubles (\$15.7 billion) this year, up from some 980 billion roubles in 2014. Oil output in Russia is expected to rise to a new post-Soviet average high in 2016, 10.78 million bpd, as new fields come online and producers enjoy lower costs, a poll showed. (uk.reuters.com)

[INTERNATIONAL: POWER]

Generation.....

ENAP partners with Mitsui to build 1.3 GW of power generation plants in Chile

December 24, 2015. Chilean state oil company ENAP and Japan's Mitsui have signed an agreement to jointly develop two power generation projects, which will have combined installed capacity of approximately 1,300 MW, in Chile. Under the terms of the deal, Mitsui will partner with ENAP to build two combined-cycle gas turbine power projects with an estimated investment of nearly \$1.3 bn. The projects include the 760 MW combined-cycle Luz Minera project in northern Chile and 510 MW Nueva ERA power plant in Concon on the central coast. The firms, through these projects, plan to jointly bid in the tenders for long-term electricity supply between 2016 and 2018 to tariff-regulated customers. (fossilfuel.energy-business-review.com)

YTL Power to build \$2.7 bn coal-fired power plant in Indonesia

December 23, 2015. YTL Power International will build the 1320 MW Tanjung Jati A coal-fired power plant in Cirebon, West Java, Indonesia, with an investment of \$2.7 bn. The development is a part of a long-term deal signed by YTL Power to supply power from the proposed plant to Indonesian Government-owned utility PT PLN (Persero). As per the 30-year power purchase agreement (PPA), YTL Power International's 80%-owned subsidiary PT Tanjung Jati Power will sell energy and capacity generated from the facility to Persero upon completion. The company has signed an amended PPA which was signed initially for the proposed power generation project in April 1997. Comprising two units of 660 MW capacity each, the power plant will feature new coal-fired technology. It is expected to be one of the most efficient plants in the country. The project represents YTL Power's second investment in Indonesia. The first project for the firm is 1,220 MW Jawa Power generation facility. The government has announced its plan to have 35,000 MW of installed power generation capacity in the next five years to address power crises. (fossilfuel.energy-business-review.com)

Vietnam seeks foreign investment for power generation

December 23, 2015. EVN said that from 2020 onwards, EVN would cease investing in all power projects but nuclear and thermal power plants in southern Vietnam, paving the way for foreign investors to increase their presence in the power generation industry. Foreign investors are involved in 33 projects under the build-operate-transfer format, EVN chairman Duong Quang Thanh said. Regarding power supply for enterprises, Thanh of EVN said the country's total power generation capacity is 38,800 MW, with a backup capacity accounting for around 20%. With the existing supply sources, EVN can meet annual power consumption growth of 11-12% in the next five years, he said. According to Thanh, many

local and foreign enterprises have got involved in power generation projects. EVN will launch a competitive wholesale market on a trial basis in 2016 and 2017 before it is made formal in 2018. All enterprises with high power demands will be able to buy at competitive prices, instead of purchasing from EVN-affiliated power companies. Vietnam will develop a competitive retail power market on a trial basis in 2021-2023 before a fully competitive retail market is in place from 2014, according to Prime Minister's Decision 63/2013/QD-TTg issued in 2013. (english.vietnamnet.vn)

Pernix Group receives Samoa power plant contract

December 23, 2015. Pernix Group, Inc., in joint venture with MAP projects, has been awarded a \$9.9 million contract by Electric Power Corp. for the engineering, procurement and construction of the rehabilitation of Samasoni, Fale ole Fee and Alaoa small hydro power stations in Western Samoa. The contract is an Electric Power Corporation subproject of the Renewable Energy Development and Power Sector Rehabilitation Project. Pernix currently operates on Fiji, Vanuatu, Guam and Papua New Guinea within the Pacific Rim and has been working in the region for nearly twenty years. (www.dailyherald.com)

Transmission / Distribution / Trade...

Australia approves doubling capacity of Abbot Point coal terminal

December 24, 2015. The Federal Ministry of Environment of Australia has given its approval to revised expansion plans for the Abbot Point coal terminal in Queensland, which had been approved by the Queensland government in August 2015. The Ministry's approval will expire on 31 January 2031, and construction must be under way within five years for the approval to be maintained. The expansion project aims at more than doubling the coal export capacity of the terminal from 50 million tonnes per year to 120 million tonnes per year. The approval opens bright perspectives for Indian coal mining companies Adani and GVK, which plan to develop coal mines in the Galilee basin of Queensland and to export their production from the Abbot Point terminal. (www.enerdata.net)

Spain's power consumption increased by 1.9 percent in 2015

December 23, 2015. According to preliminary data by Spanish electricity transmission network operator REE, electricity consumption in Spain increased by 1.9% in 2015, for the first time after four years of decrease. Power generation increased by 0.4%, due to a 22% increase in coal-fired power generation and to a 17% increase in CCGT power generation. Hydropower generation fell by more than 28%, while nuclear dipped by 1% to 21% of the power mix. (www.enerdata.net)

Policy / Performance.....

Bangladesh approves \$12.6 bn nuclear power plant development contract

December 24, 2015. The Bangladesh government has approved the plan to build a 2,400 MW nuclear power plant, with an estimated investment of \$12.65 bn. The cabinet purchase committee has approved the contract with Russia for the construction of the Rooppur nuclear power plant in Ishwardi, Pabna. The contract will be awarded by Bangladesh Atomic Energy Commission, under the Science and Technology Ministry, to a subsidiary of Russian state nuclear power company Rosatom. Bangladesh Prime Minister Sheikh Hasina said that the Rooppur nuclear power plant will help the country have 20,000 MW of installed power generation capacity by 2021. Bangladesh signed an agreement with Russia in 2011 for the construction of the nuclear power plant, which will feature two VVER-1200 nuclear reactors with 1,200 MW capacity each, at Rooppur in Pabna. In January 2013, Russia had agreed to provide a \$500 mn loan to Bangladesh to help finance engineering surveys on the site, in project development and provide personnel training. The first unit of the facility is planned to be commissioned by 2021 followed by the second unit by 2022. The power plant is expected to have an operational life of 60 years and can be extended for another 20 years. (nuclear.energy-business-review.com)

Iran expects nuclear plant construction to start before year end

December 24, 2015. Iran expects Russian companies to start building two nuclear power reactors in Iran before the end of 2015. The new nuclear power plants will be built in the southern province of Bushehr, where the sole nuclear power plant of the country is operating (915 MW Bushehr-1 connected to the grid in September 2011 and in commercial operation since September 2013). The new projects will be developed in partnership with Rosatom (Russia) and will require a total investment of more than US\$10 bn. In November 2015, Russia and Iran signed an agreement to build up to eight new reactors in Iran. (www.enerdata.net)

[RENEWABLE ENERGY / CLIMATE CHANGE TRENDS]

National.....

Solar firms offer power to UP @ ₹ 9 per unit

December 29, 2015. While the cost of solar power production is falling across the country, the companies which have approached the Uttar Pradesh (UP) Electricity Regulatory Commission (UPERC) for its approval to sell solar power to the state have quoted rates as high as ₹ 9 plus per unit. This, when the neighbouring Madhya Pradesh recently received bids from companies to sell solar power at the rate of less than ₹ 5 per unit for a period of 20 years. While a company called Jakson has sought to sell at the rate of ₹ 9.24 per unit from its proposed 30 MW power plant, Sukhbir Solar Energy Private Limited has petitioned the electricity regulator seeking its approval to sell power at the rate of ₹ 9.33 per unit. The latter has proposed to set up a 30 MW solar power plant in UP. 'Jatadhari Merchandise' has quoted a rate of ₹ 9.27 per unit. Similarly, KM has petitioned the UPERC to sell solar power to UP at the rate as high as ₹ 9.25 per unit. The company has proposed to set up a 5 MW solar power plant in the state. So is the case with Acme power which wants to sell electricity from a 30 MW power plant at the rate of Rs 8.93 per unit. Likewise, Moser Baer, which has proposed setting of a 40 MW solar power plant in Bundelkhand has also sought commission permission for selling at a price of around ₹ 9 per unit. Compared with the rate at which UP Power Corporation Limited buys power from various sources, while hydro-electric power plants sell at the rate of around barely 66 paise per unit, the cost of power from state owned thermal power plants is around ₹ 3.50 per unit. Even the cost of power from energy exchange hovers in the range of around ₹ 4 per unit, or even less. Experts said that cost of solar power should have witnessed a drop given the fact that increase in Chinese export of low-cost photovoltaic cells has led to an 80% drop in prices of solar panels. Also, the efficiency of the panels to convert solar energy into electricity has improved from 13% to 18%, resulting in cheaper power. The national average of solar power production was around ₹ 17 per unit in 2010, but it has come down to the range of Rs 5-6 per unit. Not surprisingly, the situation has invited the criticism of power experts. All India Power Engineers Federation said the whole solar power policy appears faulty. (timesofindia.indiatimes.com)

Keltron bags ₹ 259.8 mn KSEB Solar project

December 29, 2015. Kerala State Electronics Development Corporation (Keltron) has bagged a contract order worth ₹ 25.98 crore from Kerala State Electricity Board (KSEB) for setting up a megawatt solar photo voltaic (PV) power grid project at Barapole in Kannur. As the Union Ministry of New and Renewable Energy (MNRE) approved 'Programme Administrator' for consulting and implementation of Solar Energy Systems, Keltron has won this order worth ₹ 25.98 crore from KSEB. The order is for the installation, testing and commissioning of 3 MW Grid tie canal top solar PV plant at Barapole in Kannur. Keltron has earlier bagged two solar projects from KSEB. It includes a project worth ₹ 4.3 crore from KSEB Ltd., for 400 KWp (Kilowatt peak) grid tie solar PV Plant at the Padinjarethara Dam site in Wayanad which Keltron is currently executing. Keltron has already handed over to KSEB Ltd, the 96KWp grid tie solar PV plant of ₹ 1.13 crore, implemented on the roof top of tribal colony at Agali in Palakkad. The Solar Projects in Kerala will be executed by Power Electronics Group of Keltron. (timesofindia.indiatimes.com)

PFS okays fresh loans of ₹ 8.2 bn for clean energy

December 28, 2015. Infrastructure finance company PTC India Financial Services (PFS) said it has sanctioned fresh loans of ₹ 825 crore to expand its renewable energy portfolio. With focus on increasing loan portfolio in clean energy projects in India, the company sanctioned loans in a meeting, it said. The fresh round of loan approvals will help company further expand into renewable energy projects. The cumulative loan assistance sanctioned during the current financial year (April-December) has reached about ₹ 4,330 crore as against ₹ 3,562 crore in the year-ago period, it said. (www.ptinews.com)

Suzlon's Gujarat wind mill achieves 35 percent PLF

December 28, 2015. Wind turbine maker, the Suzlon group said its S97-HT DFIG 2.1-MW wind turbine has achieved a 35% Plant Load Factor (PLF) over the last 12 months since its launch in November 2014. The prototype was commissioned on June 9, 2014, at Nani Ber district of Kutch, Gujarat, the company said. The wind turbine has received an "encouraging response" from customers across segments and reflects in the 350 MW of orders received. The S97-HT DFIG is the world's tallest All-Steel Hybrid Tower -- with a height of 120 metres -- the design of which combines both

lattice and tubular structures designed indigenously to harness the enhanced availability of wind resources at higher altitudes, making low wind sites viable. It increases energy output by 12-15% over other turbines of same capacity at a height of 90 metres. The combination of lattice and tubular gives enhanced tower strength at a lower cost. The three-dimensional lattice structure can support heavier weights due to the broad base and reduces the steel requirement, apart from being logistic-friendly. (www.dnaindia.com)

Infosys launches 6.6 MW solar power plant on its campus in Telangana

December 28, 2015. Infosys launched a 6.6 MW solar PV (photovoltaic) power plant on its Pocharam campus in Telangana. With this launch, combined with the existing 0.6 MW capacity rooftop solar plant, the Infosys campus in Pocharam will be one of the first corporate campuses in India that will be run completely by renewable energy. The plant, with a total capacity of 7.2 MW, has been successfully synchronized with the grid and is expected to generate 12 million kWh per annum. This initiative is expected to reduce the company's CO₂ emissions by 9,200 tons. Currently, the company has installed 12 MW solar power plants (onsite) across its campuses and another 3 MW is expected to be completed within the next two months. (timesofindia.indiatimes.com)

CERC capital cost move suggests solar tariff to fall further in FY17

December 25, 2015. Indicating a continued downward slide in solar photovoltaic (PV) power project tariffs, the Central Electricity Regulatory Commission (CERC) has proposed nearly 20% cut in the benchmark capital cost of such projects for FY17 compared to the current financial year. The electricity regulator is mandated to publish an annual revision in solar PV project cost. Though this benchmark does not play any operational role in tariff-based competitive bidding, it acts as an indicator and guiding principle for state electricity regulators, lenders and the companies for such projects. CERC has proposed that the benchmark cost for solar projects be ₹ 5.01 crore per megawatt for FY 17, down from ₹ 6.05 crore set for the current fiscal. The regulator has invited comments and suggestions from stakeholders on the proposal to finalise the cost. Based on the final cost, the regulator would then set a levelised tariff for such project by the end of this financial year. While the average tariff for the bids invited by states this year has hovered around ₹ 6 per unit, the recently concluded bid under the national solar mission saw the solar tariff plummeting to a historic low of ₹ 4.63 per unit. Of the seven parameters considered by the regulator, it reduced the cost associated with all of them except for land acquisition which remains at ₹ 25 lakh per megawatt. The most drastic fall was witnessed in the 'pre-operating expenses' category where cost reduced by 46%. The pre-operating expenses include transportation of equipment, storage of equipment at site, insurance, contingency, taxes and duties, interest during construction and finance charges, among others. In its analysis, the regulator concluded that the cost of solar modules fell by over 10% over the last 12 month, which prompted the downward revision in PV cost associated with a project. The commission brought down the cost of PV modules, which contributes to over 60% of project cost, by nearly 7% to ₹ 310 crore per megawatt. (www.financialexpress.com)

Govt issues strict norms for thermal plants

December 23, 2015. Moving towards stricter emission norms to minimise pollution, the Union environment ministry has notified revised norms of emission standards for coal-based thermal power plants in the country and made it mandatory for the existing plants to meet those parameters within two years. Besides tightening the emission norms, the ministry through the notification - issued on December 7 - also fixed water consumption parameters for all the existing and new plants, making it mandatory to use water more efficiently. Under the revised norms, the new power plants (to be commissioned from January 1, 2017 onwards) will have to achieve "zero waste water discharge" standard through putting up adequate captive infrastructure. All the upcoming power plants will be given environmental clearance only after getting such commitments under the new norms. The notification shows that the newer power plants will eventually be much cleaner as the revised norms will help keep strict tabs on emission of all pollutants. In case of PM₁₀, the new plants will have to restrict the emission to 30 mg per cubic meter as compared to 100 mg per cubic meter in older plants. Similarly, in case of Sulphur Dioxide (SO₂) and Nitrogen Oxide (NO₂), the new plants will have to restrict the emission at 100 mg per cubic meter as compared to 600 mg per cubic meter of the older plants, irrespective of the installed capacity of the power generating unit. The Delhi-based think-tank Centre for Science and Environment (CSE) had in February strongly pitched for stricter emission norms for thermal power plants after it analysed the functioning and status of major coal-based power plants across the country. It had found that most of India's thermal power generating units are among the "most inefficient" in the world in terms of compliance of pollution norms, use of resources and overall operational efficiency. The emission standards have, now, been made stringent for recent plants, compared to earlier

ones and most stringent for those plants to be set up in future. These standards are based on the recommendation of the Central Pollution Control Board (CPCB). Before notifying the revised emission standards, the ministry had also held extensive consultations with stakeholders. (timesofindia.indiatimes.com)

Global.....

China to cut on-grid tariffs for solar, wind power: NDRC

December 24, 2015. China will cut payments to wind and solar electricity generators for contributing power to the grid, the National Development and Reform Commission (NDRC) said. Starting in 2016, on-grid tariffs for solar producers will be 0.02 to 0.10 yuan lower per kilowatt-hour - with the higher cuts applying in the country's less populated, arid western region - while tariffs for wind power generators will fall 0.02 to 0.03 yuan, the NDRC said. The cuts, which were expected, are in line with a 0.03 yuan cut to on-grid tariffs for thermal power. Coal still fires more than 70 percent of China's power generation. China is trying to reduce its dependence on fossil fuels that are contributing to choking smog. The city of Beijing declared two pollution "red alerts" this fall. Local governments have also been increasing the subsidies that solar producers have come to rely on, particularly in the country's eastern half, where solar has struggled to take off. The city of Beijing added a local subsidy for "distributed solar" - which includes rooftop and other small installations under 20 MW - in August, while surrounding Hebei province, the country's biggest steel-producing region and heavy coal user. Shanghai also instituted a loan program for distributed solar. China failed to meet ambitious targets for solar power last year, and re-doubled its efforts this year, calling for 23.1 GW of new solar farm capacity to be installed. The country's wind power capacity reached 113.3 GW at end-November, up from 95.8 GW last year, although in the first half of 2015, 15.2 percent of the power generated was wasted. (www.reuters.com)

Taiwan sets 500 MW solar PV target for 2016

December 24, 2015. The Ministry of Economic Affairs of Taiwan has set a target of 500 MW of new solar PV installations in 2016 and released new solar PV tariffs for 2016, raising tariffs by 5.6%, with up to 12.5% increase in the northern part of the country and in the Miaoli county. Taiwan introduced a feed-in tariff system in July 2009 under its Renewable Energy Development Act. Installed solar capacity was 620 MW and is expected to reach 1,110 MW in 2015; Taiwan aims to reach a total solar capacity of 3,615 MW by 2020, 6.2 GW by 2025 and 8.7 GW by 2030. (www.enerdata.net)

China says Paris climate deal 'imperfect' in funding, technology

December 23, 2015. China said the landmark climate-change agreement signed in Paris was "imperfect" in the areas of funding and technology transfer from developed countries to developing nations. The world's countries should finalize details of technology innovation, cooperation and transfer in follow-up negotiations, Xie Zhenhua, China's special representative on climate change, said. There's no timetable on the funding support the developed world will provide, he said. Envoys from more than 195 nations on Dec. 12 took the boldest steps yet to stem climate change in Paris, extending limits on fossil-fuel pollution to developing nations for the first time. While the package is a step forward, environmentalists said that more action is required to contain temperatures that are on track to set a record in 2015. China expects 15 percent of its energy use to be derived from non-fossil fuels, including renewable energy and nuclear, by 2020 from a target of 12 percent this year, Xie said. The share will climb to 20 percent by 2030, by which time the nation also aims to hit peak carbon emissions. The actions to counter climate change will also help China reduce smog, Xie said. Hazardous smog has blanketed most of China's northern and eastern regions in the past week. (www.bloomberg.com)

DEWA receives 21 bids for 800 MW solar power project

December 23, 2015. The Dubai Electricity and Water Authority (DEWA) has received 21 Requests for Qualification (RFQs) for the 800 MW third project of the Mohammed bin Rashid Al Maktoum solar power project in Dubai (United Arab Emirates). The project received 95 Expressions of Interest in September 2015 and the project tender is expected to be released in January 2016. The Mohammed bin Rashid Al Maktoum solar power project, developed on the Independent Power Producer (IPP) model, is developed in three phases, with the first one of 13 MW commissioned in 2013. The second phase of 200 MW will be commissioned by 2017. The third phase is expected in 2018. In the long term (by 2030), the park's capacity could be raised to 3,000 MW. (www.enerdata.net)

Dear Reader,

You may have received complimentary copies of the ORF Energy News Monitor. Our objective in bringing out the newsletter is to provide a platform for focused debate on India's energy future. You could be a partner in this effort by becoming a subscriber. You could also contribute recommendations for India's energy future in the form of brief insightful articles.

We look forward to receiving your patronage and support.

ORF Centre for Resources Management

ABOUT ENERGY NEWS MONITOR

This is a weekly publication of the ORF Centre for Resources Management that covers analysis articles as well as national and international news on energy categorised in a more useful manner. The year 2015 is the 12th continuous year of publication of the Newsletter.

*ORF objective
in bringing out the newsletter is to
provide a platform for focused debate on
India's energy future*

Subscription rate (for soft copy): ₹ 1000 per annum

To subscribe please visit here OR

SMS <ENERGY> <Your Name> <Organisation> <Mobile No.> <Email Id> to 9871417327

Registered with the Registrar of News Paper for India under No. DELENG / 2004 / 13485

Published on behalf of Observer Research Foundation, 20 Rouse Avenue, New Delhi-110 002.

Disclaimer: Information in this newsletter is for educational purposes only and has been compiled, adapted and edited from reliable sources. ORF does not accept any liability for errors therein. News material belongs to respective owners and is provided here for wider dissemination only. Sources will be provided on request.

Publisher: Baljit Kapoor

Contact: Vinod Kumar Tomar

ORF Centre for Resources Management,

20 Rouse Avenue, New Delhi - 110 002,

Phone +91.11.4352 0020, Extn 2120,

Fax: +91.11.4352 0003,

E-mail: vinodtomar@orfonline.org

Editorial Adviser: Lydia Powell

Editor: Akhilesh Sati

Content Development:

Ashish Gupta,

Dinesh Kumar Madhrey

About Observer Research Foundation

Observer Research Foundation was established on September 5, 1990 as non-profit public policy think-tank. It provides informed and viable inputs for the policy and decision-makers in the government and to the political and business leadership of the country by providing informed and productive inputs, in-depth research and stimulating discussions.

ORF Mission: Building partnerships for a Global India

ORF Objectives:

- *Aid and impact formulation of policies and evolve policy alternatives.*
- *Create a climate conducive to effective implementation of these policies.*
- *Strengthen India's democratic institutions to enable coherent, reasoned and consistent policy-making.*
- *Provide reasoned and consensual inputs representing a broad section of opinion to improve governance, accelerate economic development, and ensure a better quality of life for all Indians.*
- *Monitor strategic environment*
- *Work towards achieving international peace, harmony, and co-operation.*
- *Give direction to India's long-range foreign policy objectives.*