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Conference on

## Managing Cost of Energy for Industries

Effective Strategies and Best Practices

April 7, 2020, Le Meridien, New Delhi

Conference on

## Renewable Options for Captive Power

Cost Economics, Opportunity Size and Segment Outlook

April 8, 2020, Le Meridien, New Delhi

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Conference on

## Open Access and Energy Trading

Moving Towards a Vibrant Short-term Market and Growing Role of Renewables

April 9, 2020, Le Meridien, New Delhi

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## Mission

- High energy costs exert a downward pressure on the profit margins of industries by increasing their overall cost of production. While there is limited control that companies have over energy prices, they can use levers like adopting smart procurement methods, employing co-generation and tri-generation strategies, diversifying their power mix, and deploying energy efficiency technologies.
- Captive power generation has emerged as a viable option for industrial consumers as a means of managing their energy costs against high grid tariffs. While coal, gas and liquid fuel-based captive power plants have been used traditionally, renewable energy-based captive generation, including rooftop solar, is now being progressively adopted owing to its improved cost economics.
- Procurement of power through exchanges and open access also presents an attractive alternative for industries to lower their energy bills. During 2018-19, industrial consumers procured about 11,240 MUs of electricity through power exchanges, at an average price ranging from Rs 3.27 to Rs 3.48 per kWh.
- Further, many industrial users are adopting cogeneration and trigeneration strategies. Trigenation plants, which can enable up to 80 per cent of primary energy to reach end use as compared to only 25 per cent in conventional power plants, have found application in large manufacturing industries such as dairy, food, beverage and pharmaceuticals. Cogeneration, which has traditionally been promoted for biomass and bagasse fuels, is most widely used in agriculture-based industries. Natural gas-based cogeneration and waste heat recovery are also emerging as energy efficiency measures.
- While managing the cost of energy supply is one option, industries are increasingly adopting energy efficiency technologies to reduce consumption. Retrofitting of energy-efficient motors, pumps, compressors, lighting systems, variable frequency drives, controls and sensors leads to high capital costs but also presents a significant saving potential. A disciplined approach to predictive maintenance of this equipment can further lead to energy savings.
- Launched in 2008, the Perform, Achieve and Trade (PAT) scheme has proved to be an enabling market-based mechanism for enhancing cost effectiveness through the certification of excess energy savings, which can be traded as energy saving certificates. Four cycles of the PAT scheme have concluded and the fifth edition has come into effect from April 2019 for the period 2019-20 to 2021-22. The expected savings from all previous PAT cycles is estimated at around 66 million tonnes of CO<sub>2</sub> equivalent.
- **The mission of this conference is to provide a platform for industrial consumers to discuss the various measures for energy cost optimisation, best practices for energy efficiency and strategies for power sourcing. The conference will also showcase energy efficient technologies and noteworthy projects across various industries.**

## AGENDA/STRUCTURE

### ENERGY COST MANAGEMENT STRATEGIES AND BEST PRACTICES

- ❖ What are the key strategies that industries can adopt for energy cost management?
- ❖ What are their cost implications? What are the challenges in deploying them?
- ❖ What are the industry best practices?

### GRID POWER TARIFF TRENDS

- ❖ What have been the grid power tariff trends for industrial consumers?
- ❖ What are the factors influencing the trend in industrial tariffs?
- ❖ What is the future outlook?

### CAPTIVE POWER ECONOMICS

- ❖ What is the cost economics of captive power generation with various fuels?
- ❖ How does the per unit cost of generation compare with that of grid power?
- ❖ What are the trends in renewable energy captive power plants?

### FUEL PROCUREMENT SCENARIO AND OUTLOOK

- ❖ How have the demand, supply and fuel procurement costs of coal, oil and gas evolved over the past five years?
- ❖ What are the strategies for industries to reduce their fuel costs?
- ❖ How do renewable sources of power fare vis-à-vis traditional energy sources? What is the outlook?

### OPTIONS IN POWER TRADING

- ❖ What short-term power trading strategies can industries utilise to manage their cost of energy?
- ❖ What are the trends in power procurement costs and surplus power sale by industries in the trading market?
- ❖ How has the open access market evolved? What is the outlook?

### FOCUS ON COGENERATION, TRIGENERATION AND WASTE HEAT RECOVERY

- ❖ What has been the experience of using cogeneration and trigeneration technologies across industries?
- ❖ What are the typical costs incurred and energy savings accrued by deploying these strategies?
- ❖ What are the various technologies being used for waste heat recovery? What have been the key challenges?

### INDUSTRIAL PROCESS STRATEGIES FOR ENERGY MANAGEMENT

- ❖ What are the key equipment requirements for enhancing energy efficiency across industries?
- ❖ How do operations and maintenance practices impact energy costs?
- ❖ What solutions are being adopted for higher energy efficiency of buildings through heat/ventilation/air conditioning?
- ❖ What are some of the best practices/case studies in reducing the associated energy costs?

### UPDATE ON PAT

- ❖ What have been the achievements of the PAT cycles introduced so far?
- ❖ What strategies have been deployed by designated consumers to meet their PAT targets?
- ❖ What is the status of the PAT V cycle? What are its key features? What are the issues and challenges?

### FOCUS ON ESCerts

- ❖ What is the status of the energy saving certificates (ESCert) market?
- ❖ What are the key terms and conditions for the exchange of ESCerts?
- ❖ How is the market likely to evolve in the future?

# RENEWABLE OPTIONS FOR CAPTIVE POWER (April 8, 2020)

## Mission

- In India, most states have significantly higher tariffs for commercial and industrial (C&I) consumers as compared to residential and public sector consumers. These users are, therefore, looking at renewable energy-based captive power plants (CPPs) to meet their power needs owing to better cost economics of renewable power plants, and favourable state and central government policies.
- Besides, high cross-subsidy surcharge has restricted industries from buying cheaper power outside their state through third-party power purchase agreements. Renewable-based CPPs, on the other hand, are exempted from paying transmission and wheeling charges as well as cross-subsidy surcharges. They also help C&I consumers to directly meet their renewable purchase obligations (RPOs) instead of investing in RECs.
- While traditionally most of the renewable energy-based CPPs came up in the wind, biomass and bagasse cogeneration segments, of late the share of solar power has been increasing owing to favourable cost economics, widespread resource availability, ease of implementation and exemptions offered by state governments. In comparison, biomass and bagasse-based projects face implementation challenges, cost constraints and logistics issues while wind power projects are constrained by the limited availability of good wind sites.
- Another emerging trend in recent times is that of renewable-based group captives being preferred by industrial users to meet their electricity needs. The group captive model enables small and medium industries that do not have the required investment and experience in setting up and managing an individual CPP but need uninterrupted power for their business operations. Renewable-based group captives also offer the benefit of meeting renewable purchase obligations and selling renewable energy certificates in the open market. The group CPP model, moreover, provides benefits of economies of scale and reduces the power purchase agreement risk by having multiple offtakers.
- **The mission of this conference is to discuss the opportunity for renewable-based captives, highlight the impact of recent policy developments that will help propel the segment in the next few years, and provide insights into the relevant aspects of the market in the current context such as tariff trends, wheeling and transmission charges, costs, emission standards, grid reliability, and group captives.**

## AGENDA/STRUCTURE

### KEY TRENDS AND OUTLOOK

- ❖ What are the segment- and industry-wise growth trends in renewable-based CPPs?
- ❖ What are the key risks and roadblocks in setting up renewable-based CPPs and group captive power projects?
- ❖ What is the capacity addition outlook?
- ❖ What are the key growth drivers?

### CPP PERSPECTIVE: RPOs, RECs AND COST ECONOMICS

- ❖ What is the perspective of renewable CPPs? What share of RPOs are they meeting through captive production?
- ❖ How do direct investments in renewable captives compare vis-à-vis participation in the REC market?
- ❖ What are the key challenges?
- ❖ What are their future plans?

### GOVERNMENT PERSPECTIVE ON RENEWABLE CPPs

- ❖ What are the targets and policies for this segment?
- ❖ What are the key policy risks and potential solutions?
- ❖ What is the outlook?

### GRID TARIFF TRENDS AND OUTLOOK FOR C&I CONSUMERS

- ❖ What has been the trend in grid power tariffs for C&I consumers?
- ❖ How does it vary across states?
- ❖ What is the short-, medium- and long-term outlook for these tariffs?

### FOCUS ON SOLAR CAPTIVES

- ❖ What are the notable solar-based CPPs? What has been the operational experience?
- ❖ What is the cost economics of solar captive plants? How does the per unit cost compare with grid tariffs?
- ❖ What are the potential savings vis-à-vis grid-based power? What is the cost and tariff outlook?

### SOLAR ADOPTION BY COMMERCIAL BUILDINGS

- ❖ What factors have led to solar adoption in commercial buildings?
- ❖ What has been the experience in terms of O&M and energy bill savings?
- ❖ What are the future plans?

### FOCUS ON WIND CAPTIVES

- ❖ What are the notable wind-based CPPs? What has been the operational experience?
- ❖ What is the cost economics of windcaptive plants? How does the per unit cost compare with grid tariffs?
- ❖ What are the potential savings vis-à-vis grid power? What is the cost and tariff outlook?

### FOCUS ON BIOMASS/BAGASSE CAPTIVES

- ❖ What are the key biomass-based CPPs? What has been the operational experience?
- ❖ What is the cost economics of such captive plants? How does the per unit cost compare with grid tariffs?
- ❖ What are the potential savings vis-à-vis grid power? What is the cost and tariff outlook?

### EMERGING REGULATORY SCENARIO

- ❖ What is the emerging regulatory scenario for renewable energy-based CPPs?
- ❖ What are the regulatory charges (wheeling, transmission, subsidies, etc.) on CPPs?
- ❖ What steps have been taken to enforce RPOs on CPPs? What is the outlook?

### STATE FOCUS

- ❖ What is the discoms' perspective on the growth of CPPs?
- ❖ What has been the progress of renewable energy-based CPPs across states?
- ❖ What is the emerging policy and regulatory framework for CPPs across these states?

### CASE FOR GROUP CAPTIVES

- ❖ What is the business case for group captives across various states?
- ❖ What are the key growth drivers for these projects?
- ❖ What are the key risks and challenges pertaining to these projects?

# OPEN ACCESS AND ENERGY TRADING (April 9, 2020)

## Mission

- Open access, which allows end users to buy power directly from the power plant of his choice via bilateral deals or spot market purchases on the exchanges has not thrived as envisaged by policymakers. The primary reason for this trend has been the resistance by discoms which are reluctant to lose their high-paying consumers.
- While the Electricity Act, 2003 allows non-discriminatory use of transmission and distribution infrastructure of the licensees by open access consumers for procuring electricity from the source of their choice, there have been various imposts on such purchases by discoms, inflating the cost of electricity tied up via this route.
- The trend is, however, beginning to change with open access dealings gradually picking up, helped by renewable energy policies of several states such as Karnataka, Uttar Pradesh and Haryana. Many states have removed extra costs (surcharges) imposed on such transactions if power is procured from solar and wind plants.
- A number of renewable energy-based open access models are emerging. Notable among those is the Rewa project in Madhya Pradesh which looked beyond discoms and sought institutional consumers like DMRC to buy solar power. Indian Railways' open access-led strategy is another successful example of how this approach can help achieve better cost economics and higher savings in energy bills.
- Meanwhile, on the power exchanges, apart from discoms, a growing number of industrial consumers are participating owing to competitive prices. In 2018-19, over 4,950 open access consumers procured power through the two exchanges, as compared to around 4,807 consumers in 2017-18. Open access transactions accounted for 22 per cent of the total volumes traded on the IEX and 24 per cent on PXIL. The numbers are projected to increase further in 2019-20.
- That said, the process to procure power through open access remains fraught with numerous roadblocks posed by state utilities. More progressive steps are needed at the state level for facilitating open access to help industries become more competitive and improve overall.
- **The mission of this conference is to discuss the key trends and opportunities in the open access power market, study the notable policy and regulatory developments and their impact, assess key developments on energy trading platforms, and highlight the key issues and concerns and mitigation strategies. The conference will also provide a platform to government stakeholders, open access power consumers and producers, and power trading platform providers to share their experience and exchange ideas.**

## AGENDA/STRUCTURE

### KEY TRENDS AND OUTLOOK

- ❖ What have been the key trends in the open access power space? What are the growth drivers?
- ❖ What are the emerging power sale options for open access power producers?
- ❖ What are the key issues and concerns? What is the outlook?

### GOVERNMENT PERSPECTIVE

- ❖ What is the government's view on the open access power market?
- ❖ What have been key government initiatives to promote open access projects?
- ❖ What are the key areas of concern and future outlook?

### REGULATORY SCENARIO: OPEN ACCESS CHARGES AND RESTRICTIONS

- ❖ What are the various charges on open access projects and how have these changed over time?
- ❖ How do they vary across states? How are these determined?
- ❖ What are the other regulatory roadblocks? By when (or whether) the regulatory roadblocks are likely to be removed for open access?

### PRODUCERS' PERSPECTIVE

- ❖ What is the power producers' experience of installing and operating open access projects?
- ❖ How do the various power sale options compare for them (bilateral, RECs, etc.)
- ❖ How does the economics work vis-à-vis projects with discom-based PPAs? What are their future plans?

### OPEN ACCESS CONSUMERS' PERSPECTIVE

- ❖ What is the perspective of open access consumers of power?
- ❖ What are the key challenges faced by them?
- ❖ What are the possible solutions?

### THIRD-PARTY PPAs

- ❖ What are the key PPA considerations for projects developers and open access users?
- ❖ What are the common challenges?
- ❖ How do the third-party PPAs address the challenge of changing open access charges?

### ROLE OF DISCOMS

- ❖ What is the share of C&I consumers in discoms' portfolio?
- ❖ What is the perspective of discoms on the open access segment?
- ❖ What steps can be taken by discoms to make renewable-based open access a win-win proposition?

### EXPERIENCE AT THE POWER TRADING PLATFORMS

- ❖ What has been the experience of power trading platforms in the open access segment?
- ❖ What have been the key trading trends? What are the key growth drivers?
- ❖ What are their plans to increase the participation of open access users?

### COST ECONOMICS AND RETURNS

- ❖ What has been the trend in third-party tariffs vis-à-vis grid tariffs?
- ❖ What are the potential returns for renewable open access project developers and consumers?
- ❖ What is the outlook for short-, medium- and long-term tariffs?

### STATE FOCUS

- ❖ What are the noteworthy states where open access has been more successful than in other states?
- ❖ What are their open access policies?
- ❖ What is the outlook for the segment in these states?

# Target Audience

The conference is targeted at officials and managers from:

- ❖ Industrial consumers
- ❖ PAT designated consumers
- ❖ Captive plant operators
- ❖ Independent power producers
- ❖ HT consumers
- ❖ Industrial development corporations
- ❖ Regulatory agencies
- ❖ State electricity boards
- ❖ Gencos, transcos and discoms
- ❖ Power trading companies
- ❖ Renewable energy service providers
- ❖ Solar power developers
- ❖ Wind power developers
- ❖ Energy management consultants
- ❖ Research and development organisations
- ❖ Consultancy organisations
- ❖ Technology providers (hybrid renewables, trigeneration, microgrids, etc.)
- ❖ Equipment manufacturers
- ❖ HVAC and lighting providers
- ❖ Equity analysts
- ❖ Financiers/Investors, etc.

*The conference will be particularly useful for finance, operations, planning and energy managers from organisations in the cement, iron, steel, sugar, textile, tyre, fertiliser, paper/pulp, aluminium, chemical, railways, oil-refineries, petrochemical, thermal power, and other power-intensive industries. It will also be useful for managers in the power sector who cater to these organisations.*

## Previous Participants

*The participants in some of our related conferences included: ABB, ACC, Accenture, Acclona, Adani Power, Aditya Birla, Aggreko Energy Rental India, Air Liquide, Alliance for An Energy Efficient Economy, Ambuja Cement, Amplus Energy Solutions, AP Paper, Apollo Tyres, Arvind Mills, Asahi Glass, Atlas Copco, Bajaj Hindustan, BALCO, Ballarpur Industries, Bannari Amman, BEE, BHEL, Bhiwani Textiles, BILT, Birla Tyres, BKT Industries, Bosch, BPCL-Kochi Refinery, Britannia, BSES Rajdhani Power, Bureau of Energy Efficiency, Canadian Solar, Carrier, Ceat, Century, CESC, Chambal Fertilisers, Chemfab Alkalis, Chennai Metro Rail, Cipla, Clean Max Enviro Energy Solutions, CMS, Coastal Gujarat, Conzerv, Coromandel International, Cummins, Customised Energy Solutions, Cybermotion Technologies, Dalkia Energy, Dalmia Cement, DCM Shriram, Deepak Fertilisers, DLF Utilities, DPSC, DSCL, DVC, DVVNL, Electrosteel Castings, Emco, Emery, Essar Oil, Essar Power, Essar Steel, ETAmation Insights, ExxonMobil Lubricants, FLSmidth, Gabriel India, GAIL, Glinni Filaments, Glaxosmithkline, GMR, GNFC, GPCL, Grasim, GRIHA Council, Grundfos, GSECL, GSFCL, GSFC, Gujarat Alkalies and Chemicals, Gujarat Glass, Gujarat Industries Power Company, Haldia Energy, HCL Infosystems, HEG, Hero Future Energies, Hindalco, Hindustan Copper, Hindustan Paper, Hindustan Zinc, HMEL, Honda Sell, Honeywell, HPCL, HPGCL, HUL, HSIDC, HWB, ICF, ICRA, IEX, IFC, IFFCO, IISCO, Indian Metals & Ferro Alloys, Indian Railways, Indorama Synthetics, Indus Towers, IOCL, IPCA, Isgec Heavy Engineering, ITC, Jaypee, JCB, JFE Engineering, Jindal Power, JK Cement, JK Tyres, Johnson Controls, J P Mukherji & Associate, JSPL, JSW Steel, JSW Cement, JSW Power Trading Company, Kanoria Chemicals, KBL Indraprastha Power Generation, KCP Sugars, Kennametal, KOEL, KPMG, KRIBHCO, Kribhco Shyam Fertilizers, Lafarge Cements, Lakshmi Machine Works, Larsen & Toubro, LNJ Bhilwara, Mahindra & Mahindra -Nagpur, Mawana Sugars, McKinsey, Mecon, Meenakshi Energy, MIDC, Minda Group, MITCON, Moser Baer, MRF Tyres, MSP Steel & Power, Mysore Paper, NALCO, Nabha Power, National Fertilizers, NCC, NED Energy, NEEPCO, Nestle, NFL, NIS Marketing, NLC India, NMDC, NTPC, Oil India, ONGC, ONGC-Uran, Om Metals, Orient Cement, PFC, Phillips Carbon Black, Phillips India, Pipavav Energy, Polyplex, Pragati Power Corporation, Praxair, Prism Cement, PSL, PTC, PwC, Railway Energy Management Company, Raymond, Renuka Sugars, Research Designs & Standards Organisation, RIL, Rolls Royce, RP-SG Group - Haldia Energy, Ruchi Group, Sakthi Sugars, Saurashtra Cement, SCCL, Schneider Electric, Serum Institute, SGS India, Shakti Sustainable Energy Foundation, Shell, Siel Chemical Complex, Siemens, Singareni Collieries, SKF, Socomec, Southern Railways, SPIC, SREI, SRF, Sterlite, Surya Roshni, Suzlon Energy, Tata Chemicals, Tata Motors, Tata Power, Tata Power Trading Company, Tata Steel, TCS, Telangana State Genco, The Textile Association (India), Thermax, TMEIC, Torrent Power, Toshiba, Turbomach, Ultratech Cement, Vardhaman, Vedanta, Wartsila, Welspun Energy, WWF, Zamil Air Conditioners Zyduz Cadila, etc.*

## Organisers

*The conference is being organised by **India Infrastructure Publishing**, a leading provider of information on the infrastructure sectors through magazines, newsletters, reports and conferences. The company publishes **Power Line** (the premier magazine for the Indian power sector) and **Renewable Watch** (which covers the entire spectrum of renewable energy) and **Indian Infrastructure** magazines. It also publishes a series of research reports including **Cost of Power for Discoms and Industrial Users and Electricity Tariff Trends in India**, **Captive Power in India**, **Solar Power in India**, **Wind Power in India** and **Open Access for Renewables**. The company also publishes **Power Line Directory and Yearbook** and **Solar Directory and Yearbook** and weekly newsletter on the power sector.*

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Two delegates	25,000	4,500	29,500	492
Three delegates	35,000	6,300	41,300	688
<b>ANY TWO CONFERENCES</b>				
One delegate	22,500	4,050	26,550	443
Two delegates	37,500	6,750	44,250	738
Three delegates	52,500	9,450	61,950	1,033
<b>ALL THREE CONFERENCES</b>				
One delegate	30,000	5,400	35,400	590
Two delegates	50,000	9,000	59,000	983
Three delegates	70,000	12,600	82,600	1,377

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