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stoppwatch

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Educating & Informing Stakeholders on Energy, Environment & Thermal Power Plants

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Relevant Websites & Contacts

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THERMAL POWER PLANTS & AMBIENT AIR QUALITY— PART IV

Emission control through technology

Mercury:

Mercury emissions can be controlled by flue gas desulphurization units, fabric filters, and electrostatic precipitators. Fuel washing and fuel substitution are the major pre-treatment process that can reduce the emission of various pollutants due to combustion. Mercury pollution can be averted by selective mining of coal having less mercury content, changes in combustion techniques.

Sulphur dioxide (SO₂):

Sulphur Dioxide emission can be reduced by switching high sulphur content coal to low sulphur content coal, blending high sulphur to low sulphur coal, coal cleaning, or all the processes combined based on target. Releasing sulphur into atmosphere might lead to [acid rain](#) as the sulphur reacts with water molecules present in the air to become sulphuric acid. They precipitate to form acid rain. Acid rain damages crops and buildings. Switching from coal to coal bed methane, wherein methane present above the coal bed, can be extracted and used as a primary less polluting fuel source with appropriate technological modifications in the existing power plants.

Nitrogen oxides or Oxides of nitrogen (NO_x):

Nitrogen oxides are formed as a by-product of process of combustion at higher temperature. Formation of NO_x increases exponentially with increase in temperature. The focus should be to reduce the residence time for the ambient air, which is used for combustion. The concentration of oxygen can also be reduced in the combustion chamber. The temperature of combustion chamber can be monitored to reduce the formation of NO_x.

Particulate matter (PM):

Particulate Matter are smaller in size. It does not have a single chemical composition attached to it and consists of a combination of chemicals. This can be removed using a set of techniques. For example, [Electrostatic precipitators \(ESP\)](#) can be used to separate electrically active particles. Other innovative techniques are [Fabric filters](#), which are of three types - shaker, reverse air and pulse jet, having 99% efficiency in removing PM. Other techniques include [mechanical collectors](#) and [venture scrubbers](#).

Conclusion:

In this series, the importance of coal as a fuel source for power production was highlighted. Further, the effects of coal fired thermal power plants, including its damage to the environment and air quality were seen. The emission standards prevailing in India and also agencies in India and other countries responsible for preparing thermal power plants and some technologies that can be adopted to control the criteria pollutants were discussed. Protecting populations from exposure to harmful air pollutants will require effective control and monitoring measures, requiring continuous and rigorous interventions. Additionally, investing in advanced thermal power technologies should be explored e.g. [Clean Coal Technology](#) has a dual benefit of having high energy dense fuel and less pollutant per unit of power produced. Proper monitoring involves investment in updated technology and instruments, with frequent site visit to monitoring stations. Standards related to thermal power plants to control its adverse effects should be made progressively upgraded, on a long term basis.

MCL ANGUL COAL WASHERY ON WAY TO GET GREEN NOD

The Expert Appraisal Committee (EAC) of the Ministry of Environment, Forest and Climate Change has recommended environment clearance to Mahanadi Coalfields Ltd (MCL) for setting up a 10 million tonnes per annum capacity coal washery in Angul district.

MCL, a subsidiary of the Coal India Limited (CIL), had proposed to set up Jagannath Coal Washery in an area of 29.94 hectare at Hensmul village in Talcher.

"The EAC recommended for grant of environmental clearance (EC) to the proposed washery subject to compliance of all generic conditions applicable for washery as well as fulfillment of other conditions," stated the order.

MCL has been asked to set up the washery as per the project report submitted to the committee. It has been told to transport raw coal through pipe-belt conveyor, and clean coal and rejected ones by rail with wagon

loading through silo, the EAC said. The panel has asked MCL to utilize rejected coal in power generation through joint venture companies which have been set up with NTPC. The technology should conform to 'Zero Liquid Discharge'.

The EAC has further asked MCL to develop thick green belt of 30-45 metre width around the washery to mitigate dust pollution. A three-tier avenue plantation should also be developed along vacant areas, storage yards, loading/transfer points and also along internal main approach roads.

Normally, the Ministry gives final green clearance on the projects based on the recommendations of the EAC.

Coal washeries are beneficiation plant that separates mined coal from impurities such as sand and stones and in the process, minimizes ash content

in it. Coal produced by MCL, with more than 40 per cent ash content, is mostly used for power generation.

MCL intends to bring down ash content to less than 34 per cent, the mandatory limit prescribed by the Union Government for thermal power plants located less than 500 km from coal mines.

Public hearing was cancelled in February following stiff opposition from the local villagers. They claimed that it would add to the environment pollution in and around Talcher.

The green panel has deferred its decision on granting environment clearance to Mahanadi Coalfields Ltd (MCL) for a 336.9 crore coal washery project in Jharsuguda district due to objections raised by local villages.

[The New Indian Express](#) July 25, 2016

Switch off electrical appliances at the plug instead of using the 'standby' function. Appliances are still using electricity when on 'standby', and account for a massive 6% of all electricity usage in the home.

POLLUTION BOARD TO KEEP AN EYE ON POLLUTING INDUSTRIES

The District Pollution Board has succeeded in goading major polluting industries in Ghaziabad and Hapur to install online pollution monitoring systems. As per Pollution Board officials a total of 22 industries, under 'most polluting' category have installed a system called Continuous Stack Emission Monitoring Systems (CSEMS) which enables the pollution board to keep a tab on the discharge of effluents on a real time basis without physically visiting the site.

"While online monitoring system has been installed at all slaughter houses and sugar industries, web cameras have been installed in distillery and paper industries," says Parashnath, District

Pollution Board chief. This is in compliance with 2015 Central Pollution Control Board directive which had ordered installation of Continuous Stack Emission Monitoring Systems (CSEMS) in all polluting industries in NCR.

Explaining the mechanism, Parashnath says, "sensors have been fitted which measures chemical oxygen demand (COD), biological oxygen demand (BOD), Total dissolved solid (TSS), pH and flow of effluent." "The measurement displays on a screen installed in the plant and at CPCB and District pollution Board through GPRS and sets off the buzzer if any of on any parameters men-

tioned discharge crosses standard limit," adds Parashnath.

The CPCB and District pollution Board centres have been provided with login id and passwords, which can be logged at all times to check quality of effluent discharge at any point of time.

There are more than 350 air polluting industries and equal number of water polluting industries in Ghaziabad and Hapur. CPCB has put 17 categories of polluting units under most polluting industries category which includes paper and pulp industries, slaughter houses and distilleries.

[The Times Of India](#) July 6, 2016

CHINA SUSPENDS BUILDING OF NEW COAL POWER STATIONS

China is to stop granting permission for new coal-fired power stations until at least 2018, according to state media reports.

The country currently can produce more than 900,000 megawatts (MW) of electricity from its coal power plants, but a slowdown in economic growth means up to 300,000MW is redundant, according to an analysis by Greenpeace.

Xinhua News' Economic Information Daily has now reported that Beijing has ordered a ban on all new coal power stations as part of its five-year energy plan. This follows a ban announced in April on new plants in areas with surplus supplies.

Tim Buckley, of the Institute for Energy Economics and Financial Analysis, told the Financial Re-

view that China's vast coal energy sector was at odds with the rest of the world's move towards renewables. "Once wind, solar and hydro [power plants] are built they will always be cheaper than coal," he said.

Greenpeace said Chinese firms had been starting to build two coal power plants every week, despite the Government's attempts to reduce the oversupply of electricity.

"The coal power overcapacity crisis has continued to grow in 2016, with total power generation from coal falling by four per cent in the first five months of 2016, another 25 large coal-fired plants brought online, and capacity utilization falling by another 10 per cent from the record-low levels in 2015," the environmental campaign group

said. However China has been investing huge amounts in renewable energy.

A report by the Renewable Energy Policy Network for the 21st Century (Ren21) found that China had invested more in renewable power and fuels – not including large-scale hydroelectric schemes – than any other country in the world. The US was second, followed by Japan, the UK and India.

Christine Lins, REN21's executive secretary, said: "Countries are opting for renewables because they are not only the most environmentally sound, but also the cheapest option. It's a clear signal of its economic viability."

[The Independent](#) July 13, 2016

SOUTH KOREA TO SHUT 10 AGEING COAL-FIRED POWER PLANTS BY 2025

South Korea plans to shut 10 ageing coal-fired power plants by 2025, as Asia's fourth-largest economy seeks to cut its reliance on dirtier fuels after a pledge at last year's Paris climate summit to reduce greenhouse gas emissions.

Coal accounts for 40 percent of South Korea's electricity supplies, but in a tilt towards cleaner fuels Seoul recently said it was targeting \$37 billion in renewable energy investment by 2020.

The shutting of the coal plants could also lower fine dust levels by 24 percent by 2030 from 2015 levels, the energy ministry said.

"In response to growing concerns over fine dusts, we will lower the share of coal power

by shutting down old coal-fired power plants and restricting to add new coal-fired power plants in the future," the ministry said in a statement.

In Paris, South Korea agreed to reduce emissions by 37 percent by 2030 and a ministry official said reduced coal use is expected to curtail emissions by about 6 percent.

South Korea is still committed to building 20 new coal-fired plants by 2022, but no additional plants would be considered in a new power plan next year, the ministry said. Another ministry official said the amount of electricity produced by coal would also fall but no estimate was available yet.

BIOMASS: State-run utilities will spend \$8.68 billion on closures

and upgrading existing plants by 2030 to lower emissions.

Of the 10 plants due to be retired, two will use biomass rather than coal from 2017, the statement said.

Out of the remaining 43 coal power plants, eight that are more than 20-years old will be retrofitted to curtail emissions, while the rest will get expanded emission-reduction facilities. Currently, South Korea generates 30 percent of electricity from nuclear and 25 percent from liquefied natural gas.

A shift away from coal could help reduce South Korean imports in the long run, though nearer term coal demand is expected to rise as new plants open.

[Reuters](#) July 5, 2016

New Delhi has pledged to invest \$100 billion in clean energy investments over the next five years as well as to source 40 percent of its electricity from renewable and other low-carbon sources by 2030.

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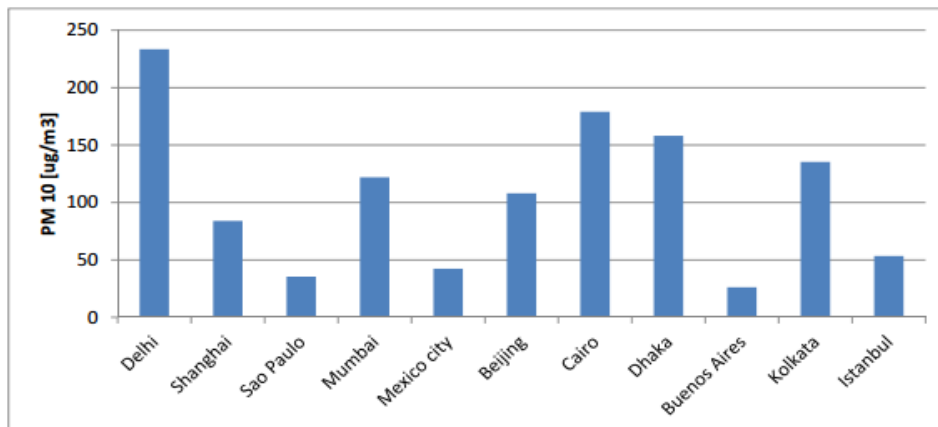
<http://thermalwatch.org.in/>



Citizen consumer and civic Action Group (CAG) is a non-profit, non-political and professional organization that works towards protecting citizens' rights in consumer and environmental issues and promoting good governance processes including transparency, accountability and participatory decision making.

STATISTICS-PM 10 LEVEL IN SELECT MEGA CITIES WHO, 2016

Figure 4: PM₁₀ levels for available mega-cities of more than 14 million habitants for the last available year in the period 2011-2015.



PM₁₀: Fine particulate matter of 10 microns or less.

REGULATIONS AND CASES

- Environmental clearance for minor minerals and environment clearance for leases in cluster; Amendments in the EIA Notification, 2006 dated:01.07.2016 S.O 2269(E) [Click here](#)
- Judgement of the Supreme Court of India regarding mining operations by Saniem Sacorda Iron Ore Mine even after the expiry of environmental clearance, Goa, 12/07/2016 [Click here](#)

PUBLICATIONS

- Boilley, D., Merchant, H., Raina, K., Mehta, S., (2016) *Red alert: India's Nuclear Disaster Plans, Out-Dated and Inadequate* [pdf] Bangalore: Greenpeace India society [Click here](#)
- International Monetary Fund, *Hydroelectric Power: A Guide for Developers and Investors*, IMF, 2015 click [here](#)

MISCELLANEOUS

- 2nd International Conference on Renewable Energy and Development (ICRED 2016) September 8-12, 2016 | Kitakyushu, Japan [Click here](#)
- Documents of proposed 5x800 MW Kadaladi thermal power plant at villages Tharaikudi, kan-nirajapuram and Narrypur, taluk Kadaladi, District Ramanathapuram, Tamil Nadu by M/s. Tamil Nadu Generation & Distribution Corporation Ltd., (TANGEDCO) [Click here](#)