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Can we do without nuclear power in India? - Shankar Sharma, Power Policy Analyst (Part 5)

True relevance of Renewable Energy Sources

Being a tropical country, India is endowed with huge potential in new and renewable energy sources as in the table below.

Energy Sources	Potential (Grid interactive power only)
1. Wind energy	50,000 MW (Onshore only) / (100,000 MW as per WISE) / 748,000 to 976,000 MW as per a recent study in 2011)
2. Small hydro	15,000 MW
3. Solar	Over 5,000 trillion kWh/year Potential (estimated to be many times more than the total energy needs of the country) / (200,000 MW of CSP as per WISE)
4. Bio-mass	> 50,000 MW
5. Ocean based	With about 7,000 km of coastal line potential should be huge, but no estimates available
6. Geo-thermal	Estimated to be considerable

(Primary Source: MNRE, Govt. of India)

Whereas the grid interactive potential of renewable energy sources itself is huge and is capable of meeting most of the electricity requirements of the country, effective deployment of such sources in a distributed mode such as roof top solar PV panels or community based bio-mass/ wind power units will provide much more benefits such as minimum T&D losses, accelerated rural electrification & development, and reduced expenditure to the STATE. Solar power alone is estimated to have the potential to meet the total energy needs of the country. As per a simulation by Greenpeace International, by 2050 India can meet around 65% of electricity and 50% of the Primary Energy demands from renewable energy sources. Being a poor and densely populated country, there is no alternative to India other than taking such rational approach. As per IPCC report 'Special Report Renewable Energy Sources (SRREN)' renewable energy could account for almost 80% of the world's energy supply within four decades.

Safety, social and environmental concerns

If resource rich, knowledgeable and quality/safety conscious countries (US, Russia and Japan) could not avert nuclear emergencies, can our densely populated and ill-prepared society ever hope to avert the possible human catastrophe from a nuclear mishap? It will be unrealistic to expect a risk free nuclear power plant. However small the probability of a nuclear accident may be, the consequences for a densely populated country like India can be horrendous. In the case of a complex technology such as nuclear power the true value and the credible risks to the entire society, including the flora and fauna, and general environment should be determined objectively.

While more and more complex safety systems/redundancies are being designed and built for the overall safety of nuclear power stations, it should be noted that they are only increasing the number of sub-systems and the complexity. Such complex systems can result in increasing the risk of failure of individual sub-systems/ sub-components (because of unintended/ unexpected interaction between sub-systems), and increasing new accident modes. All these can result in an increase in the number of automatic shutdown of reactors or catastrophic failures. The rapidity at which a minor problem in the complex system of safety can escalate into a major disaster is great in a nuclear power station, as experienced at Chernobyl.

TN Electricity News

Tamil Nadu Power projects delayed

When the state government lifted all the power restriction measures imposed in the state from June 1 this year, it pinned its hope on the commissioning of NTPL in August among others to meet the power shortage. The state would get 387 MW as its share from the power project. However, the joint venture project missed the deadline once again. The first 500 MW unit of this thermal plant was scheduled to be commissioned in March 2012 and second unit in August 2012. Till date both units were not yet synchronised with the grid even after missing the commissioning schedule by 30 months and 25 months respectively. The deadlines were postponed several times in the last two years .

NTPL attributed the project delay to shortage of skilled labourers for timely commissioning of the two units. "All power projects across the country are facing delay. Contractors are finding it difficult to mobilise required manpower, particularly skilled labourers to stick to the project deadline," sources pointed out. Besides, the delay was also due to change in design of foundation of main plant site and finalisation of civil contractors for the two unit- thermal plant in Thoothukudi, the official said. At present, the work on Unit-I have reached the advanced stage of commissioning, sources said, adding that pre-synchronisation testing and inspection works were being carried out.

"We are hopeful of synchronising the Unit-I with grid very soon," the official said, without committing on any particular date. A senior Tangedco official said that they have taken up the issue of delay in commissioning of the thermal units with NLC several times but to no avail. If both the units of the joint venture project starts generation, it will help bring down power shortage in the state to a extent following fall in wind generation drastically," the official said. ([DC](#), Sept 26, 2014

Tamil Nadu's solar mission grounded

The Tamil Nadu Electricity Regulatory Commission (TNERC) has passed an order stating that there is no legal sanctity to the Tamil Nadu Generation and Distribution Corporation's (Tangedco) transparent bidding process for solar power purchase from 52 companies. "The bidding process has no legal sanctity for consideration under Section 63 of the Electricity Act, 2003," said TNERC members S. Nagalsamy and G. Rajagopal in an order on Monday, a copy of which is available with The Hindu.

"The petitions suffer from the prerequisite of transparent bidding process in accordance with the guidelines issued by the Central government," the order said dismissing the Tangedco's petitions to approve its proposal to purchase 708 MW of solar power from 52 generators within the State for 20 years. Reproducing Section 63 (Determination of Tariff by bidding process) of the Electricity Act, 2003 in its order, the commission said the words "in accordance with the guidelines issued by the Central government" in the section were significant.

The TNERC said the petitioner had averred that there were no Central guidelines and the Ministry of Renewable Energy had issued draft guidelines only on December 27, 2012 – that is after the tender invited by the Tangedco. As specified in the Section 63, the Centre's guidelines were a prerequisite for the transparent process of bidding. Therefore, the Tangedco's bidding had no legal sanctity for consideration under Section 63 of the Electricity Act, 2003, the TNERC ruled.

When the Tangedco contended that they followed Tamil Nadu Transparency in Tenders Act 1998 for conducting the bidding, the TNERC said it was an accepted principle that "If a statute directs a thing to be done in certain way that thing shall not be done in any other way." "It is legally invalid to follow any other terms / procedure for the bidding process," the TNERC said categorically. ([The Hindu](#), 18 Sept, 2014)

India Electricity News

NTPC eyes stake in overseas coal mines

State-run NTPC is scouting for coal assets overseas and has invited proposals from coal miners interested in offloading stake. The move is aimed at ensuring a steady supply of imported coal which the power producer needs for its plants. NTPC, which generates 43,128 MW of power through its 38 power stations, imports coal to meet its fuel requirement. The company plans to use 17 million tonnes of imported coal this fiscal.

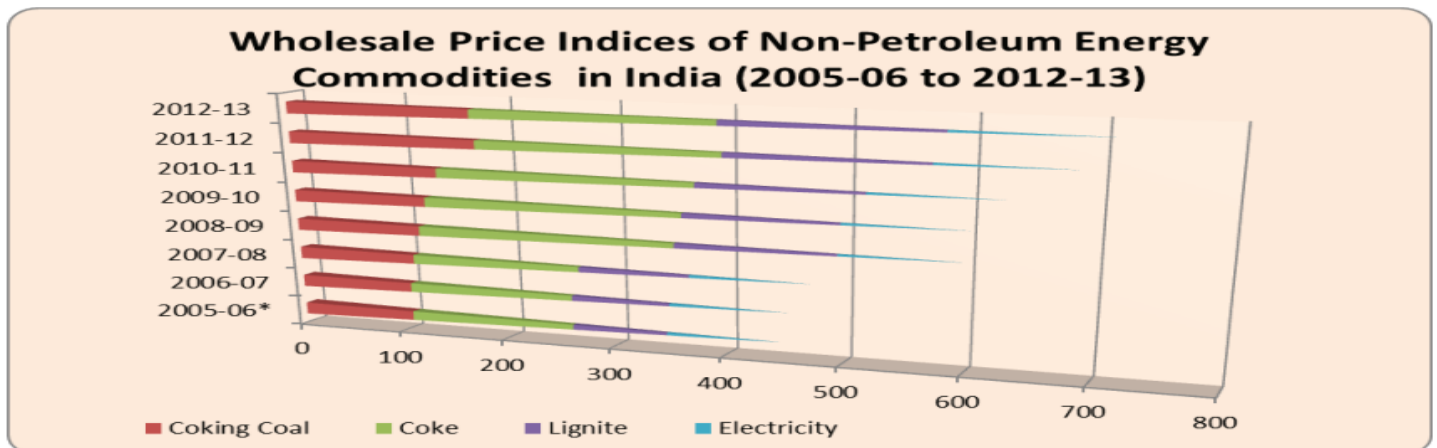
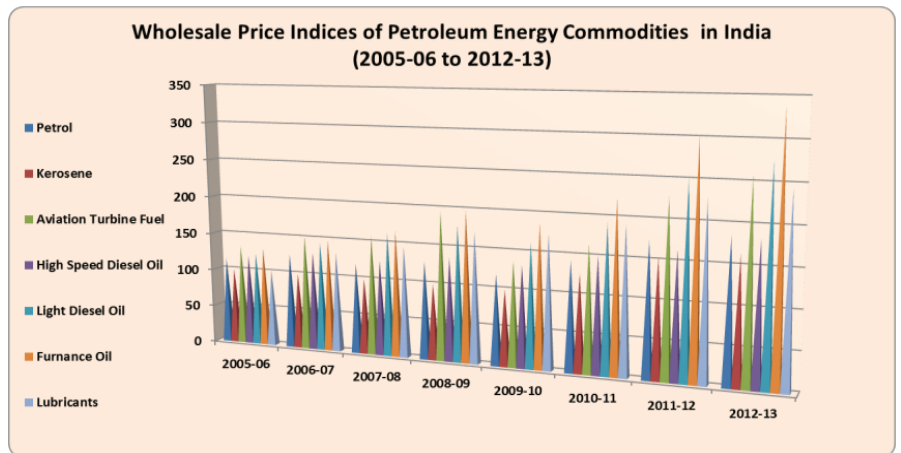
An NTPC executive said the company has floated an expression of interest seeking to acquire strategic stake in coal mines against which the mining company will offer a longterm commitment for off-take of coal. The last date for submission of bids is October 1. "We have floated an expression of interest, which may lead us to some attractive offers as imported coal prices are at an all-time low," he said. "As the requirement of imported coal for sustaining generation at various power stations is likely to continue, we are exploring longterm tie-ups for imported thermal coal through strategic acquisitions in overseas coal mines." Once the bids are in, NTPC will carry out due diligence by engaging independent consultants specialising in the fields of technical, legal, tax, accounting and finance.

In 2013-14, NTPC consumed about 148 million tonnes of domestic coal and 10.8 million tonnes of the imported variety. For the current year, it has already invited tenders for 13 million tonnes of imported coal. India does not produce enough coal to feed all its thermal power plants. Of the 100 coal-based power plants monitored by the Central Electricity Authority, 53 are operating with less than a week's coal stock while 30 are running with less than four days' stock. State-run Coal India, which accounts for most of the domestic production, is taking emergency steps to supply to plants that have stocks for less than four days. The company is clearing stockpile at railway sidings and other loading areas. ([Economic Times](#), 18 September 2014)

India Electricity News

Whole Sale Prices Energy Commodities Energy Statistics 2014 (MOSPI)

- The wholesale price index remained constant for Coke at 219.3 for the period 2011-13.
- Wholesale Price Index of Electricity recorded an increase of 12.87% during 2012-13 over 2011-12.
- Wholesale Price Index of Petroleum Products recorded an increase ranging from 5.47% to 12.40% from 2011-12 to 2012-13.
- The maximum increase was observed in Aviation Turbine Fuel(12.40%) followed by High Speed Diesel oil



Consumer Corner

Electricity Consumers - Rights Statement ([Maharashtra Distribution Company—MAHADISCOM](#)) (Part-6)

STANDARDS OF PERFORMANCE OF ELECTRICITY DISTRIBUTION COMPANIES

Certain standards of performance of the electricity distribution companies are guaranteed under the Standards of Performance regulations notified by the MERC. Consumers have a right to receive service at such standards, some of which are provided below:

1. To receive supply at the voltage and frequency as per Standards of Performance regulations notified by the MERC at the point of supply.
2. To lodge a complaint to customer care centre and get it rectified in case of
 - 2.1 Failure of supply,
 - 2.2 Unsafe or dangerous condition (e.g. electric shock, fire etc) of installation or distribution - transmission system.
 - 2.3 Theft or unauthorized use of electricity. Distribution Licensee shall take necessary actions and ensure about remedy.
3. To have meter (s) read by the authorized representative (s) of the electricity distribution company as per time schedule provided in the Standards of Performance regulations notified by the MERC.
4. To seek change in name or change in tariff category.
5. To seek addition/reduction in contract demand/ sanctioned load.
6. To seek closure of account.
7. To claim compensation on account of failure to maintain Standards of Performance by the electricity distribution company.

Around the World

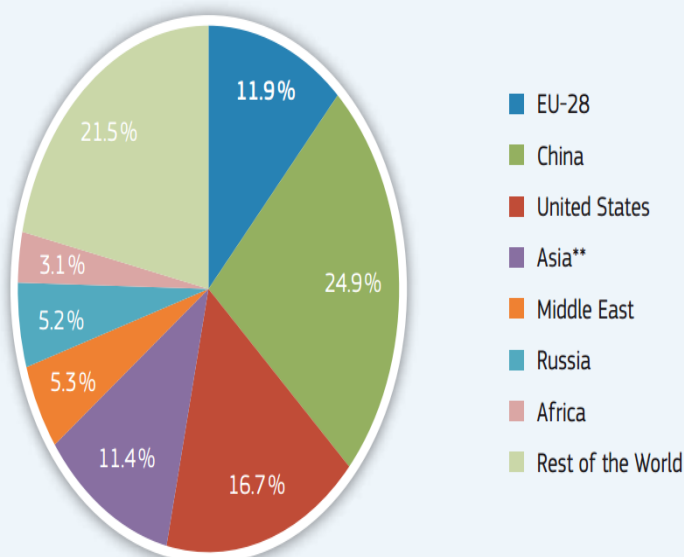
World CO₂ Emissions by Region—EU Energy—2014

World CO₂ Emissions* by Region

Mio ton CO ₂	1995	2000	2005	2010	2011	2011 (%)
EU-28	4 062	4 099	4 279	3 968	3 846	11.9%
China	3 085	3 382	5 503	7 393	8 094	24.9%
United States	5 275	5 844	5 922	5 577	5 435	16.7%
Asia**	1 796	2 247	2 761	3 608	3 699	11.4%
Middle East	843	980	1 269	1 649	1 711	5.3%
Russia	1 573	1 510	1 527	1 600	1 682	5.2%
Africa	635	721	867	1 007	1 007	3.1%
Rest of the World	5 291	5 812	6 347	6 805	6 983	21.5%
World	22 560	24 595	28 475	31 606	32 456	100.0%

World CO₂ Emissions by Region (%)

Total 2011 = 32 456 Mio ton CO₂



* Sectoral Approach, including Bunkers ** Excluding China – Source: IEA, May 2014
Methodology and Notes: See Appendix 13 – No 1



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Publications

- IEA, Insights Paper Mapping Multilateral Collaboration on Low-Carbon Energy Technologies , 2014. click [here](#)
- Rafael Leal-Arcas, International Energy Governance: Selected Legal Issues, 2014, Edward Elgar, 2014. click [here](#)

Latest Regulations

- Central Electricity Authority (Installation and Operation of Meters) Amendment Regulations, 2013. click [here](#)
- Central Electricity Authority, Technical Standards for Construction of Electrical Plants and Electric Lines- Amendment Regulation 2013. click [here](#)

Miscellaneous

- MNRE, Invitation of Proposal, Development of Green Campus/townships/SEZs/ industrial towns, Institutional campus under the "Development of Solar Cities" programme. Click [here](#)
- OECD Global Forum on Environment, "New Perspectives on the Water-Energy-Food Nexus", 27-28 November 2014 at the OECD headquarters in Paris. Click [here](#)

ABOUT CAG

Established in 1985, Citizen consumer and civic Action Group (CAG) is an advocacy and campaigning group that works towards protecting citizens rights in consumer and environmental issues and promotes good governance processes including transparency, accountability and participatory decision-making.