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PROMOTING

HYDRO

POWER



A COUNTER STRATEGY AGAINST RISING FOSSIL FUEL PRICES

Focus: Policies & Regulations to Incentivise Speedy Implementation of Hydropower Projects

Options for Utilities & Power Consumers for Hydro Power Development

Date: 12th - 13th, December, 2013

Venue: The Taj Mahal Hotel, 1 Mansingh Road, New Delhi

Supporting Organization:



Hydro Power
Association
(INDIA)

TV Partner:



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Table of Contents

1.	Welcome Note	01

2.	Agenda	03

3.	A Theme Paper on Promoting Hydro Power – A Counter Strategy for Against Rising Fuel Prices <i>(By Shridhar Prabhu, Partner, Link Legal India Law Services)</i>	06

4.	Responsible Hydropower Development in India: Challenges for the Future Nirmalya Choudhury and Arunabha Ghosh	12

5.	Amendments Proposal for Tariff Policy <i>(Source: Ministry of Power Government of India)</i>	24

6.	Notes	33

Welcome Note

12 and 13 December 2013

The Taj Mahal Hotel, New Delhi

Dear Colleagues,

It gives me great pleasure to welcome you to the conference on 'Promoting Hydro Power – A counter strategy against rising fossil fuel prices' organized by the Independent Power Producers Association of India (IPPAI) in association with the Arunachal Pradesh Power Companies Association (APPCA).

The Indian Power Sector which has been growing steadily over the years is largely dependent on coal based thermal power plants which account for approximately 59% of the total installed generation capacity of 2,25,793 MW*. This is largely attributed to the abundant availability of coal in the country for this capacity. However, the future development of generation in the pipeline indicates a growing dependence on imported coal and gas. This dependence is seriously affecting the country's energy security and competitiveness of the economy due to the volatility of fuel, freight and foreign currencies.

In lieu of this, we have to look for alternative sources of energy as available in the country and clearly the answer is Hydro. The present share of hydro is only approximately 18% of the total power generation*. Further, the power produced from hydro is free in variable cost terms and a great factor in the energy security paradigm. In addition to insulating the economy from volatility, hydro power will be a great factor in offering a lower tariff to consumers in the country.

Considering the above issue and going by the need of the country for greater energy security, hydro power generation needs wholehearted policy support and encouragement. The country needs to debate whether it would like the economy to be competitive by having hydro power or be import dependent in the power sector. This has multiple impacts, including the increase in job generation and across the board development, be it in agriculture, industry, commerce etc and most importantly, in giving power to the consumer at a lower price. Development of hydro power would be a great counter strategy against rising fossil fuel prices and volatility.

The concept of Hydro Purchase Obligation (HPO) is critical at this stage. We need a clear environment policy. We need to save our pristine environment but we also need power as it has become a life giver. We need solutions at the ground level and handholding from government to support development of hydro power in the country, whether it is railways, roads or river ports, transmission and other infrastructure. This conference will deliberate on critical issues of the day including why power discoms are reluctant to make long term purchase of power.

The conference has participation from Regulators, Policy Makers, hydro power generators, utilities, Discoms, lawyers and experts. There will also be international case studies on development of hydro power projects keeping environmental, ecological and water related concerns in mind.

I welcome you all to the conference. I am sure that the conference will generate new ideas on how to take hydro power forward.

Yours sincerely,



Harry Dhaul

Director General

IPPAI

***Source: Website of the Ministry of Power, Government of India (June 2013 figures)**



In association with:

Arunachal Pradesh Power Companies Association



presents a conference on:

PROMOTING HYDRO POWER: A COUNTER STRATEGY AGAINST RISING FOSSIL FUEL PRICES

Focus: Policies & Regulations to Incentivise Speedy Implementation of Hydropower Projects
Options for Utilities & Power Consumers for Hydro Power Development

Date: December 12th - 13th (Thursday - Friday), 2013 | Venue: The Taj Mahal Hotel, 1 Mansingh Road, New Delhi

Supporting Organization:



Hydro Power Association (INDIA)

TV Partner:



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Agenda

DAY 1:	RATIONALISING POWER PROCUREMENT PRICES FOR UTILITIES AND CONSUMERS USING HYDRO POWER AND OVERCOMING CHALLENGES IN THE SUSTAINABLE DEVELOPMENT OF HYDRO POWER
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09:00 - 10:00
10:00 - 13:00

Networking Tea and Registration
Inaugural Session

- The importance of hydro power in India's energy portfolio
- Expediting Environment, Forest, Wildlife and other statutory clearances (The need for a holistic policy framework)
- Legal issues
 - Economic impact of judicial and environmental policy decisions on hydro power development. Economic Accountability of judicial authorities. (Case Studies: SC Judgement on Uttarakhand hydro projects; Karnataka High Court order on Hydro Projects in Western Ghats)
 - Riparian rights of states
- Impact of Hydro Power Development on Environment, Ecology and Livelihood
- Creation, implementation and enforcement of proposed Hydro Purchase Obligations (HPOs). Viability of HPOs.
- International case studies in hydro power: Brazil and China
 (Development of hydro power keeping water and environment sustainability in mind)

10:00 - 12:00

Panel A

Opening Remarks: **Shri Harry Dhaul**, Director General, IPPAI
 Generators' Perspective: **Shri Jayant Kawale**, Managing Director, Hydro & Renewables, Jindal Power Ltd.
Shri Rakesh Agrawal, Writer and Researcher
 Panellists: **Shri Ashwin Pandya**, Chairman, Central Water Commission
Shri Shridhar Prabhu, Partner, Link Legal, India Law Services
Shri Shashi Shekhar, Additional Secretary, Ministry of Environment & Forests
Shri Ajoy Mehta, Managing Director, MSEDCL
 Special Keynote: **Shri Devendra Chaudhry**, Additional Secretary, Ministry of Power, Govt. of India

12:00 - 12:15

Tea

12:15 - 13:30	<u>Panel B</u>
Keynote Address:	Shri BP Pandey , Additional Secretary (Power), Government of Uttarakhand Shri Himanshu Thakkar , Editor, Dams, River & People Magazine
International case studies:	Shri Dieter Hopf , Director, Andrade Gutierrez Shri Feng Yanan , India Representative, Sino Hydro Group, China Dr. S D Attri , Dy. Director General (Environment & International), Indian Meteorological Department, Ministry of Earth Sciences, Government of India Shri Awdhash Kaushal , Rural Litigation & Entitlement Kendra, Uttarakhand
Inaugural Address:	Shri Harish Rawat , Hon'ble Minister of Water Resources, Government of India
13:30 - 14:15	Lunch
14: 15 - 15:30	Session 1: Creating a market for hydro power and addressing challenges faced by utilities in procurement of power from hydro power generators • Incentivising long term power procurement of hydro power by discoms • How can implementation of proposed Hydro Purchase Obligations (HPOs) help improve hydro mix in overall power procurement of utilities? Implementation and enforcement of HPOs. • Can the negotiated contract route with regulated tariffs for power procurement provide more flexibility to discoms to choose a hydro power generator whose output better matches their load profile and vice-versa? • Regulatory issues relating to negotiated contract route for hydro power • Incentivising discoms and consumers to meet their peak load requirements through hydro power
Session Chair:	Shri Devendra Chaudhry , Additional Secretary, Ministry of Power, Govt. of India
Session Co-chair:	Shri BP Pandey , Additional Secretary (Power), Government of Uttarakhand Shri Amit Kapur , Partner, J Sagar Associates Shri Deepak Amitabh , Managing Director, PTC India Ltd Shri Alok Shankar , Advocate Shri SC Shrivastava , Jt. Chief - Engg., Central Electricity Regulatory Commission Shri Asok Dasgupta , President, IPPAI
15:30 - 15:45	Tea
15:45 - 17:30	Session 2: Transmission issues for hydro projects Issues faced in the timely implementation of transmission projects (Focus: North East Region and Eastern Region) • Is basin wise development required for faster and more cost effective power evacuation for hydro power projects in North East India? • Issues arising out of possible low utilisation of Transmission capacity • Increasing transmission capacity at various levels to ensure evacuation and last mile supply of power to utility / consumer: inter-regional connects; intra-state and local level transmission sub systems • Will long term PPAs help improve transmission planning Addressing operational issues in transmission to ensure power capacity is not stranded • Controllability in transmission to manage seasonal variability of power flows • Issues in Open access; does connectivity ensure successful flow of power from generator to consumer
Keynote Address:	Shri SK Ray Mohapatra , Member Secretary, NERPC Shri YK Sehgal , Head - CTU, Power Grid Corporation of India Ltd Shri P Mukhopadhyay , GM, NRLDC / Shri Rajiv Porwal , CM, NRLDC Shri LN Mishra , Sr. Vice President, Reliance Power Transmission Ltd.
18:00 onwards	Cocktails followed by Dinner (Venue: Terrace Garden, The Taj Mahal Hotel)

DAY 2:**OVERCOMING CHALLENGES IN IMPLEMENTATION OF HYDRO POWER GENERATION AND EXPEDITING SUSTAINABLE DEVELOPMENT OF HYDRO POWER****10:00 - 12:45****Session 3:Overcoming challenges faced in the timely implementation of hydro powergeneration****Issues in Water, Environment Management & Forest Clearances**

- Need for a holistic policy framework for development of hydro power - Are policies working at cross purposes (stipulations of MoEF versus CEA/CWC)
- Environment, Forest & Water Clearances
- Issues in Cumulative basin study, Environmental Flow, Bio-diversity and Public Consultation
- CAMPA utilisation

Expediting sustainable development of hydro power

- Need for building infrastructure for movement of men and equipment to remote plant sites: Roads and River Ports
- Competitive Bidding vs. MoU Route for award of projects- which is more effective for hydro projects?

Day 2, Opening Remarks: **Shri Harry Dhaul**, Director General, IPPAIWelcome Address: **Shri Jayant Kawale**, Managing Director, Hydro & Renewables, Jindal Power Ltd.

Keynote Address:

Shri BG Verghese, Sr. Journalist and Columnist "Political Economy of Water"**Shri Bibhas Kumar**, Former Chairman, Central Water Commission**Shri KashindraYadav**, Chairman, Brahmaputra Board**Shri Arunabha Ghosh**, CEO, Council on Energy, Environment & Water**Shri RD Singh**, Director, National Institute of Hydrology**Shri PR Baidya**, Sr. Scientist (Seismology), Indian Meteorological Department**Shri Shridhar Prabhu**, Partner, Link Legal India Law Services**Shri Pankaj Kulshreshth**, DGM, UJVNL**12:45 - 13:00****Closing Remarks and Vote of Thanks****13:00 - 14:00****Lunch****Esteemed Guests include:****Shri Mukesh Jain**, Joint Secretary (Hydro), Ministry of Power, Government of India**Shri Tapan Chatterjee**, Member (Technical), Assam Electricity Regulatory Commission**Shri TT Dorji**, Chairperson, Sikkim Electricity Regulatory Commission**Shri D.A. Shishak**, Chairperson cum Member, Nagaland Electricity Regulatory Commission**Shri N. Shyamsundar Singh**, Member, JERC of Manipur and Mizoram**Brigadier VS Kattarya**, Deputy Director, Border Roads Organisation

A conference DVD comprising of videos, presentations, photographs and details from the event will be prepared after the event. We would request participants to submit their visiting cards at the registration desk. Please do register at the website www.ippai.org for post conference updates and power sector news. (Web registration is free).

A THEME PAPER ON

PROMOTING HYDRO POWER

– A COUNTER STRATEGY FOR AGAINST RISING FUEL PRICES

(By Shridhar Prabhu, Partner, Link Legal India Law Services)

(shridhar@linklegal.in)

As per a recent study conducted by an industry association¹, the top ten highest average power tariffs paid by the domestic and non-domestic consumers in India, as on February, 2013, are as follows:

Rank	State	Average Power Tariff (INR/ kWh)
1	Maharashtra	9.85
2	Andhra Pradesh	8.15
3	West Bengal	8.00
4	Kerala	8.00
5	Karnataka	6.95
6	Delhi	6.80
7	Tamil Nadu	6.40
8	Andaman Nicobar Islands	6.20
9	Odisha	6.15
10	Rajasthan	6.05

Table: 1

Top 10 average power tariffs paid by consumers in India

A significant development that occurred subsequent to this Study (that as has gone largely unnoticed) is a Judgement passed by the Hon'ble Appellate Tribunal for Electricity (APTEL) in OP No.1 of 2012 dated 14th November, 2013, in which APTEL has directed the Delhi Electricity Regulatory Commission (DERC) to pass a consequent order by formulating an efficacious fuel price adjustment. DERC has not captured the increase on account of fuel price escalation for past nine years, barring an ad hoc pass through of 5% of 2012².

It is anybody's guess as to what may be the tariffs in Delhi, if the cumulative fuel price escalation is factored by the Distribution Companies of Delhi (and then by DERC). This is just one simple illustration of Delhi, which ranks sixth in the table.

1 http://www.phdcci.in/admin/admin_logged/banner_images/1374649649.pdf

2 [http://aptel.gov.in/judgements/OP_No.1_&_2_of__2012_\(1\).pdf](http://aptel.gov.in/judgements/OP_No.1_&_2_of__2012_(1).pdf)

Withering of the Hydro from Energy Baskets

Consider this amazing fact about Karnataka. Generation was unbundled from Distribution and transmission way back in 1970. Until 1985, one hundred percent of power generation in the State of Karnataka was from Hydro. Today, in just about thirty years, Hydro (including mini and micro hydro plants under the renewable energy category) is at 24% of the State's generation basket³.

In a *business-as-usual scenario*, without doubt, average power tariffs in India are going to reach double digit levels, say in next one to two fiscals.

Hydro is definitely the part of the answer and is in fact, an anathema and an antidote to the rising fuel prices.

A Case for Hydro Power Obligations (HPOs)

The logical next step, therefore, is to formulate a proper policy and regulatory framework for mandating the Hydro Purchase Obligation (HPOs) across the State Utilities and Open Access Consumers.

As per the present legal scheme, it is a statutory function of a State Commission to promote renewable energy sources. It is important to highlight herein that the term "*renewable sources energy*" is no doubt used in sections 3, 4, 61 (1) (h) and 86 (1) of the Electricity Act, 2003 (the "**Act**"), but the Act does not define it.

One significant moot issue would be whether all Hydro Projects, irrespective of their installed capacity, by virtue of their being renewable sources of energy, qualify to be under the RPO and / or a distinct HPO should be devised for them. If a 500 MW Wind Power Project can be considered under the RPO, why a 50 MW Hydro should not be considered?

In a significant development, APTEL has recognised the Conventional Power Projects under the Cogeneration Projects viz., **Century Rayon** and **Vedanta** Judgments⁴. If a Coal based cogeneration project of 1000 + MW can qualify as Cogeneration (akin to Renewable), then, there is definitely an arguable case for Hydro Projects of all sizes and capacities to be qualified under the RPO. The Ministry of New and Renewable Sources ("**MNRE**") and the Ministry of Power ("**MoP**") have to evolve a consorted legal, Regulatory and Policy Framework for bringing Hydro under the RPO and/or introduce Hydro Power Obligations (HPO).

Expediting Statutory Clearances:

As per the EIA Notification, all Hydro Projects above 25 MW have to get mandatory Environment Clearance. It is pertinent to note that Wind and Solar Energy Projects of all capacities are exempted from the rigour of EIA process. Even Biomass and Co Generation Projects (regarded as Thermal Project with any Fuel under the EIA Notification, 2006) too with capacities equivalent to or below 50 MW are exempted⁵.

Therefore, to begin with, all Hydro Projects below 50 MW should be exempted from EIA rigour. Further instead of three (3) season EIA data only one (1) season (monsoon) EIA data may be mandated.

3 http://www.karnataka.gov.in/KERC/STUDIES/Karnataka_Power_Sector_Roadmap.pdf

4 http://aptel.gov.in/judgements/Judgements%20APPEAL%20No.59%20of%202012_31012013.pdf

5 <http://envfor.nic.in/legis/eia/so1533.pdf>

Recently, an important amendment to the EIA Notification was brought about exempting National Highways Project below 100 km from the rigour of EIA. A number of other concessions were extended viz., delinking of Environmental Clearance from Forest Clearance to the National Highway Projects by the due intervention of the Hon'ble Prime Minister's Office. In the case of Hydro also the Hon'ble PMO may ensure personal interventions and similar concessions should be extended as well⁶.

Net Present Value

As regards the Net Present value ("NPV"), the Wind Energy Projects are getting 50% exemption. However, the same is not available to the Hydro Projects. Wind Energy Projects made series of Representation before the Kanchan Chopra Committee⁷ in the year 2005-06, which resulted in this concession. A similar intervention is the need of the hour.

In fact as per the "Report of the Expert Committee on Net Present Value" (Kanchan Chopra Committee Report) 30% concession in the NPV was recommended for the major irrigation and the Hydro Projects, fifty percent (50%) concession was recommended to the Nonconventional Energy Projects and 90% exemption was recommended for the Wind Projects. However, there was no clarity and certainty on precise exemption and concessions granted to the Hydro Projects.

The formats for Forest Lease rentals and more particularly, the quantum of rental vary from State to State. The disproportionate levy of lease rentals has sealed the fate of several Hydro Projects.

Supreme Court Judgement in Uttarakhand

In a recent judgment dated 13th September, 2013 in the case of Alaknanda Hydro Power Company Limited [2013 (10) SCALE 261], the Hon'ble Supreme Court of India has directed the MoEF as well as the State of Uttarakhand not to grant any further Environment or Forest Clearances in the State of Uttarakhand, until further Orders.

An enquiry is ordered into the existing Hydro Power Projects. This seals the fate of nearly twenty four (24) Hydro Projects in the pipeline because an enquiry is ordered on the possible bio diversity impact of these Projects on the river basins.

This Judgment raises several important questions on the economic accountability issues, particularly in the wake of a huge power deficit of more than 2000 MW in the State of Uttarakhand. In fact Uttarakhand's dependence on interstate power is to the tune of around 5200 MW.

Uttarakhand is also known for restriction and control measures aimed at chopping the demand. Even in this restricted demand scenario, the State has to import more than 2000 MW power under Short Term Open Access.

Karnataka High Court Judgement

Well before the rulings of the Hon'ble Supreme Court, the Hon'ble High Court of Karnataka in its Interim Order dated 18th April, 2012 in WP No. 10980 of 2010 ordered prohibition of all future development of Hydro Power Projects in the Forest lands in the State of Karnataka.

The series of Interim Orders passed in this case resulted in the cancellation of nearly one dozen Hydro

6 <http://pmindia.nic.in/press-details.php?nodeid=1734>

7 [http://www.fedmin.com/upload/npvk\(1\).pdf](http://www.fedmin.com/upload/npvk(1).pdf)

Projects in the State. In fact, the Karnataka Government has taken a Policy Decisions of not permitting any Mini Hydro Projects in the Forest Land.

Riparian Rights:

An efficacious resolution of the Riparian Rights of the Nations and the States is an essential condition for the healthy development of the Hydro Projects.

While resolution of Interstate disputes is the need of the hour, there is need to look at the bigger picture viz., Sino-Indian River water sharing relationships.

Chinese water crisis (660 cities in China are said to be reeling under acute water crisis) and China's "South-North Water Diversion Project" and "Great Western Route Diversion Project" particularly, changing the entire geometry of Brahmaputra at "Shuomatan Point" or the "Great Bend" will have significant impact on the India's water and power scenario, particularly in the Brahmaputra Valley⁸.

Some respite has come on 23rd October, 2013, as China and India signed an MoU in Beijing wherein the two sides agreed to further strengthen cooperation on trans-border Rivers, cooperate through the existing Expert Level Mechanism on provision of flood-season hydrological data and emergency management, and exchange views on other issues of mutual interest.

Policy makers must focus on creating a stronger South Asian Water Regulatory Framework to address these issues, particularly, when there is no institutional disputes redressal or regulatory framework in the Asian region.

Lessons from the Kishenganga Interim Award

A recent landmark judgement by the Permanent Court of Arbitration (PCA) of Indus Waters **Kishenganga Arbitration (Pakistan v. India)** shows what an institutional framework can achieve in the river water dispute resolution⁹.

Pakistan took India to Arbitration at the PCA in 2010, wherein its claim was concerning the construction and operation of Kishenganga hydro-electric project located in Jammu and Kashmir as well as the depletion of the reservoirs of certain Indian plants.

The Kishenganga-Neelum River, a tributary of the Jhelum River, was part of India's project to divert water from a dam site within the Gurez valley to the Bonar Nallah via a tunnel system powered by turbines. Pakistan challenged this, primarily arguing that operation of the 330-megawatt hydroelectric project would deliberately divert the course of the Neelum River, and subsequently decrease the South Asian state's access to water used for irrigation, and in turn breach the treaty. Islamabad claimed that completion of the project will cause a 27% deficit in its water supply, and create problems for its very own hydroelectric project: a 969-megawatt Neelum-Jhelum plant that runs upstream. Initially, there was a stay granted by PCA in October, 2011 against India. However, this is now vacated and on 18th February, 2013, the PCA passed a partial judgment while rendering a unanimous decision stating that India's project constitutes a Run-of-River Plant in accordance with Article 15(iii) of the Indus Water Treaty, and therein allowed India to divert water from the Kishenganga-Neelum River for power generation. India is also, however, obliged to maintain a minimum flow of water into the river – at a rate to be determined by the PCA in a final award at the end of this year.

8 <http://cdpsindia.org/pdf/Water%20war.pdf>

9 http://www.pca-cpa.org/showpage.asp?pag_id=1392

Transmission Issues for Hydro

One another issue ailing Hydro Sector is the lack of adequate transmission infrastructure and policy framework for the Hydro Projects in India. In this regard, there is a take-home lesson from Karnataka as to how Power Projects have to be empowered in the transmission regime. Government of Karnataka has passed an Order under section 164 conferring the powers of the telegraphic authority, onto all the power producers in the State of Karnataka. Consequently, the generators are as empowered as the licensees to lay transmission lines. The operative portion of the Notification reads thus:

"In exercise of powers conferred by Section 164 of the Electricity Act, 2003 (Central Act 36 of 2003), the Government of Karnataka hereby order for the placing of electricity supply lines, appliances and apparatus for the transmission of energy hereby confers upon the Karnataka Power Transmission Corporation Limited, all Electricity Supply Companies and Generating Companies of the State, the powers which the telegraphic authority possesses under Sections 10 - 19 and 19-A of the Indian Telegraph Act, 1885 (Central Act 13 of 1885) with respect to placing of telegraph lines and posts for the purpose of telegraph established or maintained by the Government or to be so established or maintained; and the Government of Karnataka further directs that the powers conferred under this order are exercise be subject to the provisions of the Indian Telegraph Act, 1885."

The validity of such empowerment was challenged and the Division Bench of the Hon'ble Karnataka High Court has upheld the validity [2009(6) KLJ267].

A recent judgement of the Hon'ble APTEL, in the case of **North Karanpura Transmission Company Limited vs. CERC**¹⁰, elaborately discusses the legal framework on transmission lines.

Summary and Conclusions:

In conclusion, the pertinent needs of the hour for the Hydro Projects in India are as under:

1. In their policy formulation and legislations, the Hydro Projects must be recognised as an antidote to the rising fuel prices.
2. There is a pertinent need for creation of a benign legal, regulatory and policy framework for the Hydro Projects and evolve HPOs.
3. Hydro Projects of 50 MW and below should be exempted from the rigour of EIA.
4. Concessions of at least 30% for the Net Present Value (NPV) should be considered for Hydro Projects, as per the recommendations of the Kanchan Chopra Committee constituted by the Hon'ble Apex Court.

10 http://aptel.gov.in/judgements/Final%20Judgment%20in%20Appeal%20No.139%20&%20140%20of%202013_02.12.2013.pdf

5. As proposed by the Hydro Development Plan for 12th Five Year Plan, the norms of Net Present Value and its upfront payment for assessing the cost of forest diversion need to be reviewed as the same have added huge financial burden on the storage hydro schemes making them unviable.
6. Uniform and concessional Lease Rental mechanism for Forest Land Diversions must be considered for the Hydro Projects.
7. Delinking of Forest Clearance from Environment Clearance and several other benign measures along the lines of National Highway Projects ensured with the due intervention by the PMO, must be ensured for the Hydro Projects.
8. State Governments must empower the Hydro Power Projects by passing Notifications under section 164 of the Electricity Act, 2003 conferring powers of Licensees
9. Integrated River Basin Authority for Brahmaputra must be implemented with the consensus of all States and Stakeholders.
10. International Cooperation, particularly, between India-China-Pakistan, aimed at resolving International River disputes must be strengthened by envisaging a South Asian Regulator for River Disputes.

Responsible Hydropower Development in India: Challenges for the Future

Nirmalya Choudhury¹ and Arunabha Ghosh²

Hydropower is an important source of renewable energy. In recent years, both at the national level and in various states, policy impetus has been given for increasing hydropower generation through new projects and by encouraging private sector investment. The importance of hydropower increases given that only around 16% of the hydro potential in the country has been used even as the country remains woefully short of electricity to meet growing demand. But a renewed focus on hydroelectric projects may result in a situation of “rapid” hydropower development rather than social and environmentally “responsible” hydropower development. This article argues that, although hydropower will continue to remain an important source for electricity, focus needs to be on “responsible” hydropower development. Responsible hydropower development is also likely to ensure more stable and sustainable investment in the sector over the medium-to-long term.

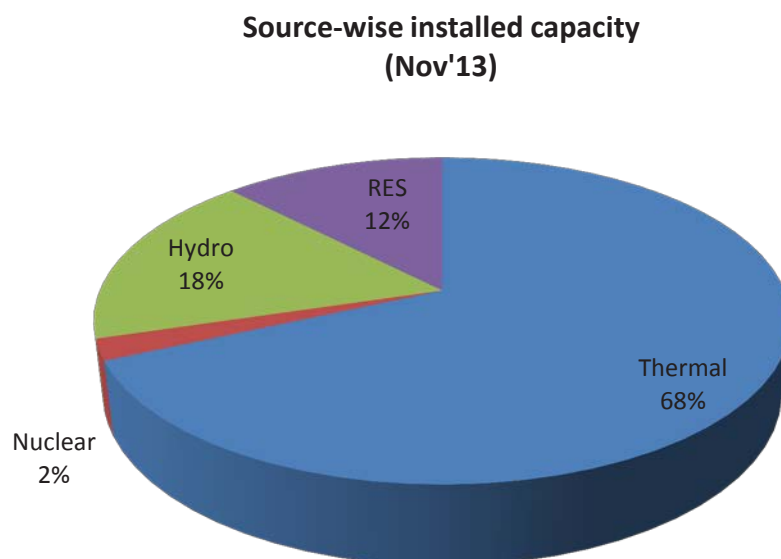
Hydropower generation in India: unmet potential

Hydropower generation has been an important component within the overall electricity portfolio of the country. By the end of the fourth year of the Eleventh Five Year Plan (March 2011) hydropower contributed around 22% of total generation (CEA, 2011). As on date, of the total installed capacity of 229 Gigawatts (GW) in the country, hydropower’s contribution is around 39.8 GW (CEA, 2013) or 18% of the total (Figure 1). At the same time, hydropower generation has failed to keep pace with the rapid increase in thermal power generation. As a result there has been a consistent decline in the proportion of hydropower generation within the total grid connected generation in the country.

¹ Dr Nirmalya Choudhury is Senior Research Associate, Council on Energy, Environment and Water

² Dr Arunabha Ghosh is CEO, Council on Energy, Environment and Water, an independent policy research institution (<http://ceew.in>)

Figure 1: Hydropower's share in electricity generation capacity less than one-fifth

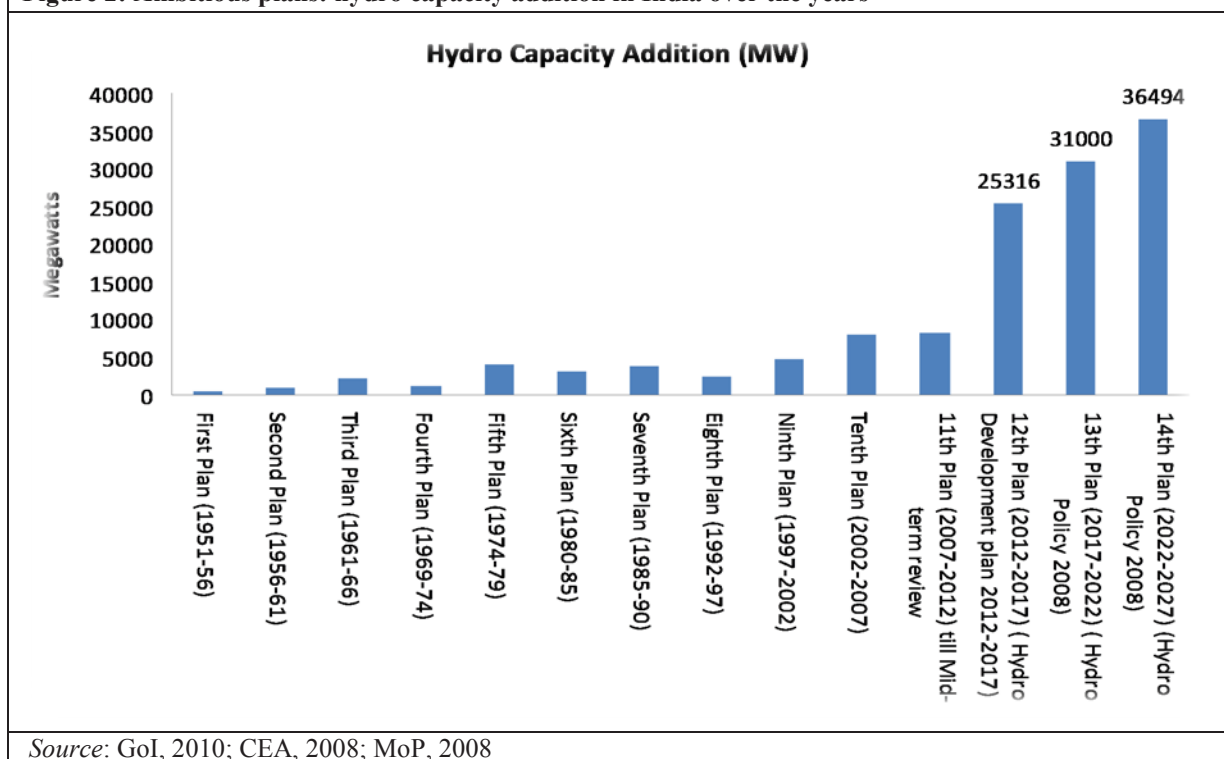


Source: (CEA, 2013)

Resurgence of hydropower in India's energy planning

While hydropower's contribution in the overall portfolio has declined over the years, the sector is beginning to make a comeback – at least in the vision articulated in plan documents. While only 8237 megawatts (MW) of hydropower generation was envisioned in the Eleventh Five Year Plan, three times that amount (around 25316 MW) are planned during the Twelfth Plan (2012-2017), followed by 31000 MW and 36494 MW in the Thirteenth (2017-2022) and Fourteenth (2022-2027) Plans, respectively (CEA 2008; MoP 2008; GoI 2010). Until 2007, a total of 34653 MW of hydropower had been installed. By contrast, each of the five year plans starting from the Twelfth to the Fourteenth is expected to add new hydropower capacity of around 30000 MW, with the aim of harnessing the entire hydropower potential of the country by 2027(Figure 2).

Figure 2: Ambitious plans: hydro capacity addition in India over the years



Private sector seen as an important actor for hydropower development

Traditionally hydropower generation has been the forte of public sector generation companies. Around 97% of the hydropower generation companies are from the public sector (IDC 2013). But the current plan period envisages that the private sector will emerge as one of the leading participants in hydropower development. According to the Hydro Development Plan for the Twelfth Five Year Plan, around 39% of new capacity addition (12,007 MW) is expected to be installed via private investment (CEA 2008).

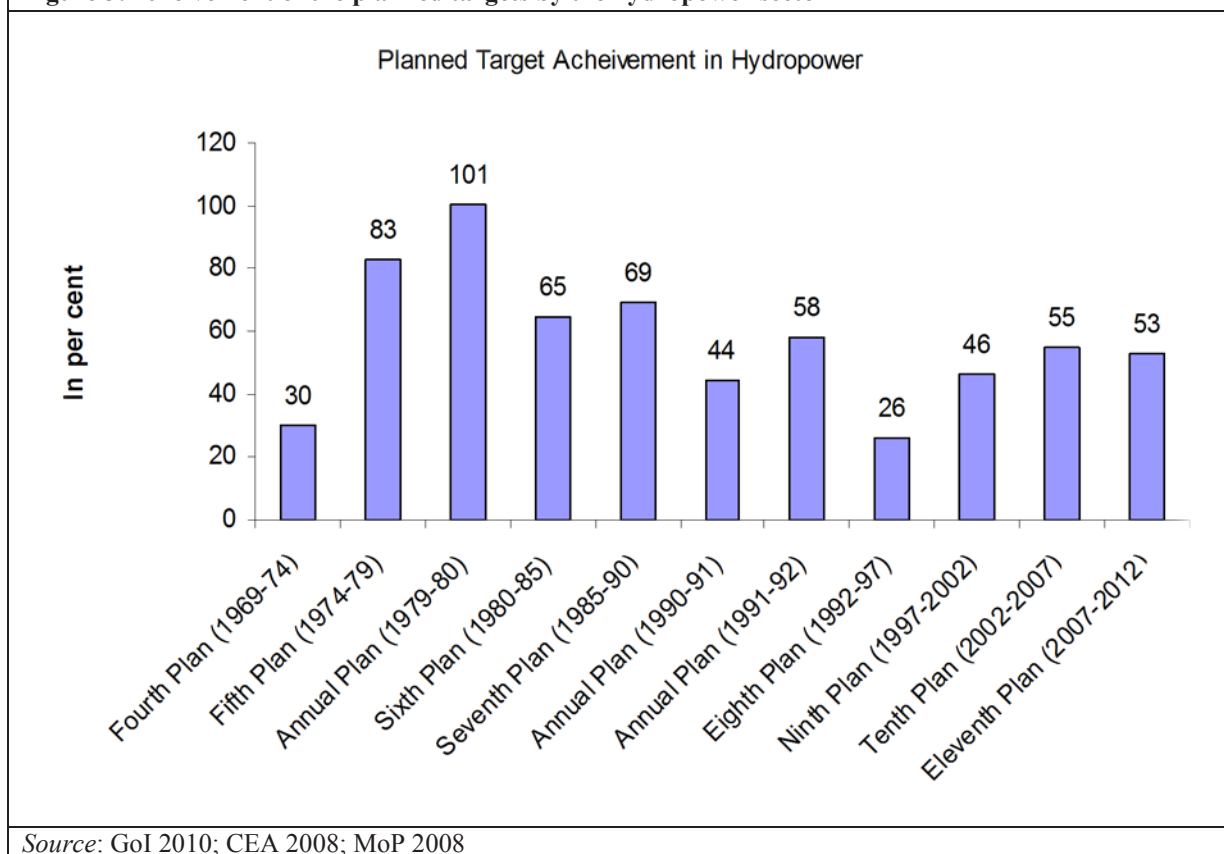
That private sector is seen as an important driver for hydropower development in the future is best witnessed in the states where a bulk of the hydropower potential exists: Arunachal Pradesh (34% of the total potential in India), Himachal Pradesh (13%), Uttarakhand (12%), and Sikkim (3%). A significant share of new hydropower projects in these “hydropower states” are to be developed through the private sector (Table 1). At the national level also, the Hydro Policy 2008 aimed to provide incentives to the private sector to make hydropower projects as attractive as thermal power projects for private sector investment (MoP, 2008).

Table 1: Hydropower development plan in the “hydropower states” of the country				
State	Arunachal Pradesh	Himachal Pradesh	Uttarakhand	Sikkim
Total Hydropower Potential (in MW)	57072.5	23000	25000	8000
Total Hydropower Potential realised [Under construction/operation] (in MW)	59.215	6728	3163.85	100.7
Total hydropower projects under Central Sector (in MW)	8735	9095	7302	1300
Total hydropower projects under State Sector (in MW)		3428	2815.3	24.5
Total hydropower projects under Private Sector/JV (in MW)	32253.4	8192	2118.4	3820
Source: Based on the Annual Reports and the data available on the websites of the respective state nodal hydropower development agencies				

But are these targets achievable?

Historically, the performance of the hydropower sector in achieving planned targets has been dismal. On average, the sector has only been able to achieve 57.5% of its planned targets between the fourth and the eleventh five year plans (Figure 3). Set against this historical record, the targets for the next 15 years seem unrealistically optimistic.

Figure 3: Achievement of the planned targets by the hydropower sector



There are a host of reasons behind hydropower's inability to fulfill the targets over the years. The Policy on Hydropower Development in 1998 identified that apart from technical, financial and tariff related issues, socio-political issues like land acquisition had resulted in a decline in hydropower capacity investment. This policy accepted the then reality that private sector investment in the hydropower sector was minimal. In order to boost private sector investment, it espoused that the public sector would undertake the contentious pre-construction activities, including land acquisition and Resettlement and Rehabilitation (R&R) *before* handing the project to the private sector. The policy also proposed easier transfer of statutory clearances from the public sector to the private sector (MoP, 1998).

A decade later, in the Hydro Policy 2008, among various incentives was a draft Rehabilitation and Resettlement Policy for project-affected populations. This was done to make land acquisition (a process that was delaying projects and making them more risky) smoother and project design more amenable to public acceptance and consent.

As a part of a liberal R&R mandate of the Hydro Policy 2008 several provisions were undertaken. The Project Affected Family was broadly defined as any family, even if only one household, whose "place of residence or other property or source of livelihood" had been affected by the hydropower project and which had been staying in the affected area for a period of more than two years preceding the Notification, in accordance with Land Acquisition Act 1894, including agricultural and non-agricultural labourers and squatters.

The Hydro Policy 2008 also mandated that, in addition to the 12% free electricity that would accrue to the states where the project was located, another 1% free power would be given for the purposes of financing a Local Area Development Fund (with matching grants from the state government). For the Project Affected Families, the Hydro Policy 2008 made a provision for 100 units of free electricity for a period of ten years.

The Hydro Policy 2008 did not directly argue for any employment-based compensation of the project-affected families, but it had references to skill development of the local population to increase their employability within the project.

Not “rapid” hydropower generation but “responsible” hydropower development

One of the reasons for the resurgence in interest for private sector driven hydropower development is that hydropower is less carbon intensive than thermal power. But there are still challenges that the sector needs to address not just to achieve the targets but to achieve them in a responsible manner. In other words, hydropower development in India in the coming years has to ensure not just “rapid” hydropower development but “responsible” hydropower development. In the pathway towards responsible hydropower development it

has to ensure that the fragile environmental systems within which the projects are constructed are taken care of and the social systems that project affect, directly or indirectly, are taken on board to minimise opposition. Towards these ends, the hydropower sector needs to address two priorities: going beyond environment impact assessments (EIA) to EIA follow-up; and to increase public involvement in decision-making through better processes, which go beyond public hearings.

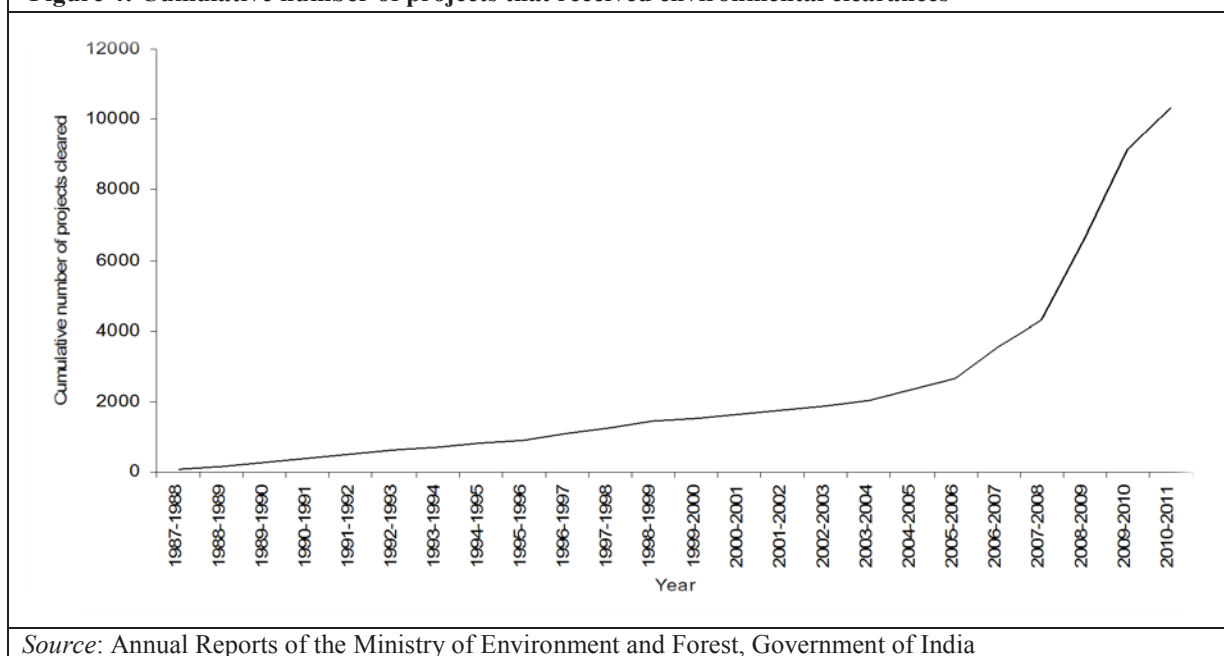
Environment Impact Assessment and follow-up

EIA follow-up is a process including a range of activities, designed during the environmental clearance stage of a project, and implemented during the construction, operation and decommissioning phases of a project (Jha-Thakur et al. 2009). These activities include: *monitoring* of environmental impacts on a real time basis through *compliance* and *outcome* monitoring; *evaluation* of the same with respect to expected impacts as mentioned during the EIA; adaptive *management* of the impacts; and – most importantly – *communication* of the same to the community (Arts et al. 2001). EIA follow-up also helps closing existing knowledge gaps. In the short and medium terms, the EIA follow-up process strengthens the planning and operation of on-going projects through monitoring and evaluation of impacts. This is often defined as *single-loop learning*. In the long term the monitoring and evaluation of real-time environmental data strengthens the understanding of *cause-effect relationships* and leads to better prediction of the environmental impacts in the future. This is often defined as *double-loop learning* (Marshall et al. 2005, Morrison-Saunders & Arts 2005, Marshall 2005, Arts & Nooteboom 1999).

Globally, EIA follow-up is seen to be driven by three factors. First, the project proponent could independently initiate EIA follow-up, also known as first-party EIA follow-up, even if the developer is not legally bound to do so. By establishing Environmental Management Systems within the organisation and compliance with ISO14000 standards a project proponent might voluntarily undertake some EIA follow-up activities. Secondly, an EIA follow-up could also be driven by a regulatory authority. In this case the permission to commence with a project is contingent upon its environmental clearance. The third important driver of EIA follow-ups is the “community”. This can take many forms, from a local community immediately affected by a project to a consortium of international pressure groups criticising large infrastructure projects (Morrison-Saunders et al. 2003, 2001; Arts et al. 2001). Within India there is no dearth of cases of local community mobilisation. From the Sardar Sarovar Project to the Jaitapur Nuclear Project superior social and environmental standards at the project level have been driven by pressure from the local community and from civil society organisations.

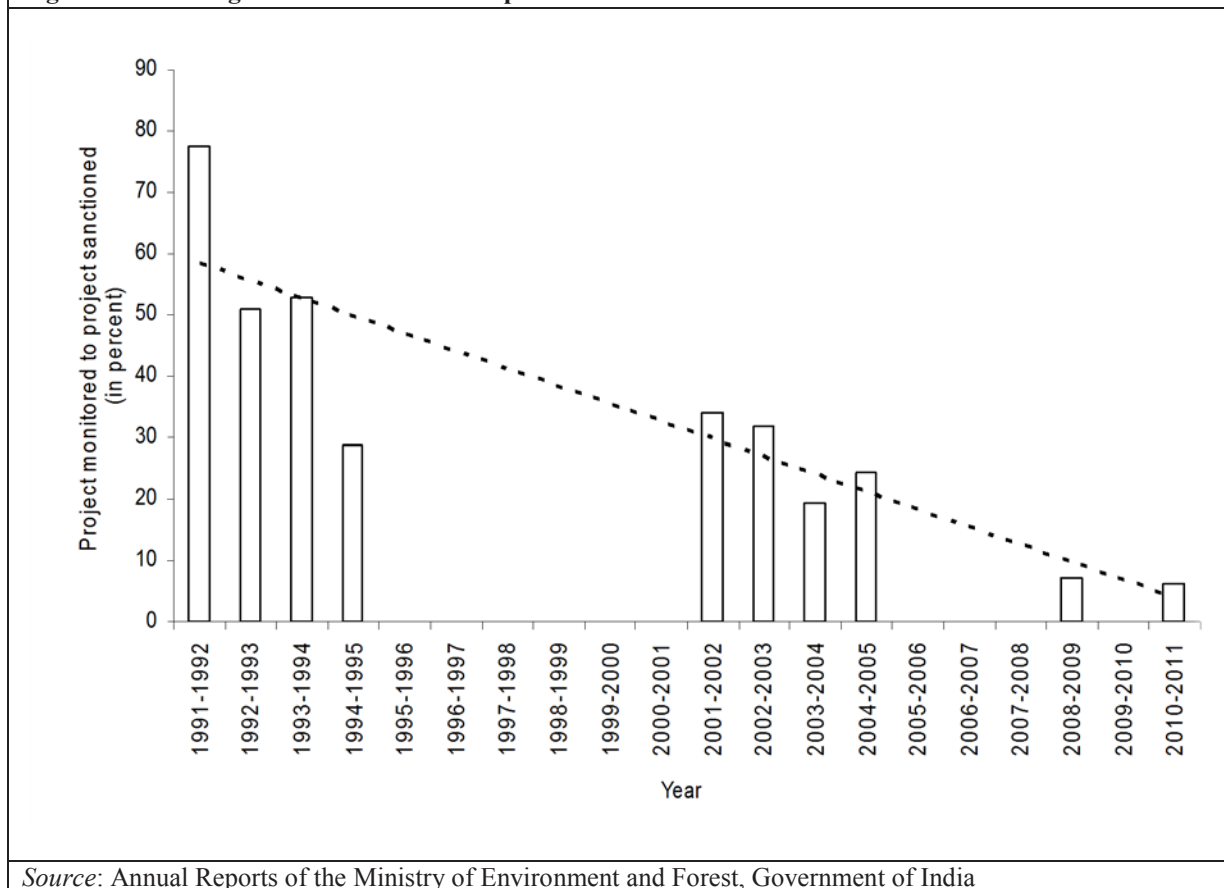
In India, EIA is a regulatory requirement and EIA follow-up, at least in terms of compliance, emanates from the regulatory requirement. Hence, India predominantly follows the second route. The use of the EIA process has increased over the years from being an administrative requirement, only used for multipurpose river valley and hydropower projects in the early 1980s, to a statutory requirement covering around thirty different types of projects under eight broad categories, namely coal mining, industrial projects, infrastructure and Coastal Regulatory Zone, mining, new construction and industrial estates, nuclear, thermal projects, and river valley and hydroelectric projects. This has resulted in an exponential increase in the number of projects (not just those related to hydropower), which have obtained environmental clearances over the last three decades (Figure 4).

Figure 4: Cumulative number of projects that received environmental clearances



While the coverage of EIA increased consistently (in fact, exponentially in recent years) the number of projects which were subjected to compliance-monitoring decreased. Thus, the coverage of EIA follow-up – even by the limited interpretation of compliance monitoring – has consistently declined over the years. The coverage of EIA follow-up is measured by the ratio between the number of projects monitored in a particular year and the total number of projects that have received environmental clearances prior to the year under analysis. The information on monitoring of environmental clearances in ten of the last 25 years shows that the coverage of EIA follow-up over the entire period is around 36%, with high variation but with a consistently declining trend (Figure 5).

Figure 5: Declining trends in EIA follow-up in India



Source: Annual Reports of the Ministry of Environment and Forest, Government of India

A decline in compliance monitoring over the years is not a good sign because it hides the rising risk of local opposition, stalled projects, delays and cost escalations, and loss of public credibility. Given that EIA in India is regulator-driven and not developer-driven, there is a danger of equating adherence to minimal regulatory demands with legitimacy for projects. If EIA follow up is weak in India, some project developers might (wrongly) interpret it as an opportunity to rush through projects, disregarding the environmental consequences or sources of community discontent. By contrast, more pragmatic project developers, with a longer time horizon, would have to be more proactive in future to initiate EIA follow up procedures, going beyond what is mandated by law. Moreover, if hydropower is to be developed in an environmentally responsible way, then the natural course of action should be the eventual strengthening of regulatory mandates and project implementation norms within the sector.

Gaining public support or facing public backlash

Hydropower projects are usually equated with large dam construction and the latter engenders an extremely polarised discourse in India – any discourse is quickly labelled as “pro-dam” or “anti-dam”. A number of hydropower projects take time to commence thanks to

stiff opposition from local communities. Some of the opposition could be on ideological grounds, with people fundamentally against construction of large projects. Finding a middle ground is difficult in such cases. But a lot of opposition takes place because projects tend to go ahead without taking the concerns of the local population on board, without gaining public acceptance and with little public involvement during the planning phase. The hydropower sector is fraught with such examples. More recently, two big projects in the North East – 2000 MW Lower Subansiri Project and 3000 MW Dibang Multipurpose Project – faced a stalemate-like situation thanks to inadequate public involvement in the planning phase.

Invariably cases where local livelihoods are threatened and adequate mitigation measures are not implemented result in social mobilisation against projects, which then get stalled or get delayed. In such a situation all stakeholders lose. The project developer and financiers lose on account of time and hence cost escalation. The project-affected populace perceive little benefit for itself. And the government falls short of achieving planned targets. Often such stalemate situations result in knee-jerk responses like a stay order on the project, promises of a better compensation package and so on. But the root cause of the problem remains unaddressed, namely that people were not adequately and effectively consulted during the project planning process and the lack of transparency and selective reporting on project-related information increases distrust.

Public involvement during project planning is important as it helps to secure information about the local populace and how they would be affected, address immediate problems and legitimise decisions. Most importantly, public involvement, through a well-designed social impact assessment and social management plan, can smoothen the way for the project proponents to get legal - and more importantly - social consent (Dore & Lebel, 2010; Petts, 1999). In the Indian context it is very difficult to find a single example, because public involvement is given the least importance. Nevertheless, in the case of the 192 MW Allain Duhangan project (in Himachal Pradesh), the public hearing process went beyond what was required under the EIA Notification 2006 (largely because project developers were pressured to adhere to a higher standard of one of the major investors, the International Finance Corporation). In this case, there was greater public acceptance. However, a lack of EIA follow up during the implementation phase again emboldened the section of the community that had initially opposed the project. This case underscores how EIA follow up and public involvement go hand-in-hand, and progress on one front can be undermined if there is lack of sincerity on the other.

One problem that affects all the stakeholders in hydropower projects is the misunderstanding of “public participation”. The phrase is interpreted differently by various stakeholders, resulting in misperceptions and mistaken expectations on all sides. Public involvement can take three forms based on the flow of information (Rowe and Frewer, 2005): public information (one-way flow of information from the project developers to the participants),

public consultation (one-way flow of information from the participants to the developers), or public participation (simultaneous bi-directional flow of information in the process, with maximum informational exchange and processing).

In India social impact assessment is still at nascent stage and the only institutionalised form of involving the public is during public hearings – a component that takes place quite late within the environmental decision-making process. Public hearings, according to the EIA Notification 1994 (post 1997 amendment) and EIA Notification 2006, are structurally not suited for being an arena for proper public deliberation, or gaining public acceptance. Given that they take place quite late in the project decision-making process, they are often seen as an arena to elicit consensus rather than deliberate on the merits of the project or those of the arguments of dissenters. Public hearings in India have limited scope. They are at best an arena for public consultation but mostly public information. But the participants of a public hearing exercise (wrongly) perceive the exercise as that of public participation. The multiple interpretations of the same exercise mean that the limited legal scope of the process is often considered inadequate and illegitimate by the participants. The mismatch of legality and legitimacy then results in a stalemate situation, at best, and escalation of conflict for worse (Choudhury, 2013).

Public involvement in India, to be legitimate in the eyes of the participants, has to go beyond mere compliance with the limited legal mandate. At an operational level this means that the public involvement component should be made an integral part of the screening and scoping phase of the environmental clearance procedures. This also means that social impact assessments have to be given due importance and the process of undertaking social impact assessment should be participatory and transparent. The overarching value of socially responsible hydropower development should be that the project affected populace should be the first beneficiary of the project and should be able to improve their livelihoods as a result of the project.

Leveraging existing regulations for responsible hydro development

Hydropower is an important component – perhaps the most important – of renewable energy, even though large hydro projects are seldom counted in assessments of renewable energy potential and growth. The increasing demand for electricity, the current low electricity coverage and increase in coverage in future, and mismatches in electricity demand and supply mean that installed hydropower capacity has to increase in the country. Hydropower will remain an important component in the overall electricity portfolio. Also it is true that hydropower is less carbon intensive than coal-based thermal power plants, which dominate our electricity portfolio. Thus, hydropower development needs to be promoted through policy initiatives and by encouraging private investment. These are reflected in the various policy

documents and targets and increasing number of memoranda of understanding that have been signed in various states with large hydropower potential.

But the resurgence in hydropower development runs a risk of being “rapid” hydropower development at the expense of long term sustainability. For the long term benefit of the hydropower sector it is important that “responsible” hydropower development becomes the underlying philosophy in India. This article has identified two key priorities: strengthening EIA follow up, and gaining public support through greater public involvement during the planning process. The voluntary environmental, social and governance standards drafted by the Ministry of Corporate Affairs, the mandatory Business Responsibility Reports to be filed with the Securities and Exchange Board of India (SEBI) and new legal statutes like the Right to Fair Compensation and Transparency in Land Acquisition and Rehabilitation and Resettlement Act, 2013, could open up new arenas through which socially and environmentally responsible hydropower development could be promoted.

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Proposal for Amendments in Tariff Policy

(Source: Ministry of Power Government of India)

Para of Tariff Policy	Existing Provisions	Proposed	Justification
Para 8.3	8.3(1) In accordance with the National Electricity Policy, consumers below poverty line who consume below a specified level, say 30 units per month, may receive a special support through cross subsidy. Tariffs for such designated group of consumers will be at least 50% of the average cost of supply. This provision will be re-examined after five years.	8.3(1) In accordance with the National Electricity Policy, consumers below poverty line who consume below a specified level, say 30 units per month, may receive a special support through cross subsidy. Tariffs for such designated group of consumers will be at least 50% of the average cost of supply. This provision will be re-examined after five years.	The review of the above clause was considered by the Working Group and observed that no modification of the clause is required and hence, the same provision can be continued further and therefore the phrase "This provision will be re-examined after five years" is now required to be deleted.
Para 8.5	8.5.1 National Electricity Policy lays down.....is used to bring about competition in the larger interest of consumers. Accordingly, when open access is allowed the surcharge for the purpose of sections 38,39,40 and sub-section 2 of section 42 would be computed as the difference between (i) the tariff applicable to the relevant category of consumers and (ii) the cost of the distribution licensee to supply electricity to the consumers of the	8.5.1 National Electricity Policy lays down.....is used to bring about competition in the larger interest of consumers Accordingly, when open access is allowed the surcharge for the purpose of sections 38,39,40 and sub-section 2 of section 42 would be computed as the difference between (i) the tariff applicable to the relevant category of consumers and (ii) the cost of the distribution licensee to	An opinion was expressed for review of the formula given in the Tariff Policy which uses the weighted average cost of power purchase of top 5 % as a factor and leads to a negative cross subsidy surcharge in certain cases. Allowing consumers to migrate to open access under these conditions increases the burden of the DISCOM and this was not in line with the spirit of the cross – subsidy surcharge as per the Tariff Policy. There is thus a need to re-determine the formula for calculating cross subsidy surcharge. The options suggested were based on the average cost or bottom 5% costs. Section 61 (g) of the Electricity Act, 2003 provides that

applicable class. In case of a consumer opting for open access, the distribution licensee could be in a position to discontinue purchase of power at the margin in the merit order. Accordingly, the cost of supply to the consumer for this purpose may be computed as the aggregate of (a) the weighted average of power purchase costs (inclusive of fixed and variable charges) of top 5% power at the margin, excluding liquid fuel based generation, in the merit order approved by the SERC adjusted for average loss compensation of the relevant voltage level and (b) the distribution charges determined on the principles as laid down for intra-state transmission charges. Surcharge formula: $S = T - [C (1 + L / 100) + D]$ Where S is the surcharge T is the Tariff payable by the relevant category of consumers; C is the Weighted average cost of power purchase of top 5% at the margin excluding liquid fuel based	supply electricity to the consumers of the applicable class. In case of a consumer opting for open access, the distribution licensee could be in a position to discontinue purchase of power at the margin in the merit order. Accordingly, the cost of supply to the consumer for this purpose may be computed as the aggregate of (a) the weighted average of power purchase costs (inclusive of fixed and variable charges) of top 5% power at the margin, excluding liquid fuel based generation, in the merit order approved by the SERC adjusted for average loss compensation of the relevant voltage level and (b) the distribution charges determined on the principles as laid down for intra-state transmission charges. Surcharge formula: $S = T - [C (1 + L / 100) + D]$ Where S is the surcharge T is the Tariff payable by the relevant category of consumers;	appropriate Commission shall determine tariff keeping in view the factor that the tariff progressively reflects the cost of supply of electricity and also, reduces cross-subsidies in the manner specified by the Appropriate Commission. However, very few SERCs have specified the roadmap of reduction of cross subsidies. Therefore, roadmap of reduction of cross subsidies should be specified by SERCs in line with the spirit of the Act.
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	generation and renewable power D is the Wheeling charge L is the system Losses for the applicable voltage level, expressed as a percentage The cross-subsidy surcharge should be brought down progressively and, as far as possible, at a linear rate to a maximum of 20% of its opening level by the year 2010-11.	C is the Weighted average cost of power purchase of top 5% at the margin excluding liquid fuel based generation and renewable power D is the Wheeling charge L is the system Losses for the applicable voltage level, expressed as a percentage The cross-subsidy surcharge should be brought down progressively and, as far as possible, at a linear rate to a maximum of 20% of its opening level by the year 2010-11. Accordingly, an alternative formulation for calculating cross subsidy surcharge could be worked out to ensure that neither open access is throttled nor does the host DISCOM unduly suffer. SERCs may calculate Cross-Subsidy Surcharge based on the assumptions that the power available as a result of exit of open access consumer will be sold at the average revenue realization rate. This appears to be the most practical scenario in a situation of shortage of power	
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		supply. The SERCs may assume certain percentage (say, 10%) of the total consumption by eligible open access consumers for the purpose of estimation of power available for sale at average realization rate. The wheeling charge (grossed up by the system loss at appropriate level) to be recovered from the open access consumers should also be factored into computation of surcharge. At the same time it should also be ensured that the formula incentivizes the distribution licensees to reduce their distribution losses. For a situation where there is no power cut, SERCs may calculate Cross-Subsidy Surcharge based on the estimation that the DISCOM will avoid purchase of the quantum of power for which open access has been sought. This principle of avoided cost method should be adopted in areas where there are no power shortages. Other assumptions relating to quantum of power avoided and the wheeling charges could be on the same	
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		lines as above.	
Para 8.5.6	In case of outages of generator supplying to a consumer on open access, standby arrangements should be provided by the licensee on the payment of tariff for temporary connection to that consumer category as specified by the Appropriate Commission.	8.5.6 In case of outages of generator supplying to a consumer on open access, standby arrangements should be provided by the licensee on the payment of tariff for temporary connection to that consumer category as specified by the Appropriate Commission. charges may be decided by mutual agreement between the open access consumers and the distribution companies.	The issue of Universal Service Obligation (USO) and standby charges was taken up by the Task Force on Operationalisation of Open Access in the Planning Commission with the M/o Law & Justice. After consultation with M/o Law & Justice/Ld. Attorney General of India Ministry of Power had issued clarification vide letter dated 30.11.2011 that "<i>all 1MW and above consumers are deemed to be open access consumers and that the regulator has no jurisdiction over fixing the energy charges for them</i>". All concerned have been requested to take necessary steps for implementing the provisions relating to open access in the Electricity Act, 2003 in light of the said opinion.
Para 6.4	1(iii) It will take some time before non-conventional technologies can compete with conventional sources in terms of cost of electricity. Therefore, procurement by distribution companies shall be done at preferential tariffs determined by the Appropriate Commission. 2. Such procurement	1(iii) It will take some time before non-conventional technologies can compete with conventional sources in terms of cost of electricity. Therefore, procurement by distribution companies shall be done at preferential tariffs determined by the Appropriate Commission. 2. Such procurement	In order to bring more competition to the Renewable Energy sector with consequent reduction in prices of power production through the renewable sources of energy, the following options were deliberated: a) Long term procurement of power by the distribution licensee to be done only through competitive bidding process (CBP) and Power Purchase Agreements (PPA).

	by Distribution Licensees for future requirements shall be done, as far as possible, through competitive bidding process under Section 63 of the Act within suppliers offering energy from same type of non-conventional sources. In the long-term, these technologies would need to compete with other sources in terms of full costs.	by Distribution Licensees for future requirements shall be done, as far as possible, through competitive bidding process under Section 63 of the Act within suppliers offering energy from same type of non-conventional sources. In the long-term, these technologies would need to compete with other sources in terms of full costs. Short term procurement through Purchase of Renewable Energy Certificates (REC) or at preferential tariffs.	b) REC Mechanism has already been launched by CERC which along with the preferential tariffs takes care of the short term procurement by the distribution licensees. <i>In the absence of competitive bidding for long term procurement from renewable energy sources there will be no competition in the sector and consumer will be deprived of the competitive rates for renewable energy.</i>
6.4	(1) Pursuant to provisions of section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage of the.....obligations. In view of the comparatively higher cost of electricity from solar energy currently, the REC mechanism should also have a solar specific REC. (iii) It will take some time before non-conventional technologies can compete with conventional sources in terms of cost of electricity. Therefore, procurement by distribution companies shall be done at preferential tariffs	Pursuant to provisions of section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage of the.....obligations. In view of the comparatively higher cost of electricity from solar energy currently, the REC mechanism should also have a solar specific REC. (iii) It will take some time before non-conventional technologies can compete with conventional sources in terms of cost of electricity. Therefore, procurement by distribution companies shall be done at preferential tariffs	Renewable Purchase Obligation (RPO) is fundamental to the growth of renewable energy as without this commitment, given higher cost of renewable energy, the States may not be willing to purchase such power. In order to meet the targets set up under the National Action Plan on Climate Change (NAPCC) the States should strive to make mandatory RPO equivalent to the minimum as per the NAPCC targets. Stable RPO regime is a pre-requisite for promotion of renewable energy sources. The long term trajectory for Renewable Purchase Obligation would give greater visibility for the market players to plan their investment in the Renewable Energy Sector.

	determined by the Appropriate Commission.	determined by the Appropriate Commission. Long term trajectory for RPO for the development of renewable energy to be prescribed by the Appropriate Commission.	It is desirable that States should formulate long term trajectory for RPO for the development of renewable energy sector.
Para 7.1 (6)	However, in the following cases the exemptions from competitive bidding route may be adopted: (i) First two experimental works for 1200 KV HVDC line. (ii) Works required to be done to cater to an urgent situation or which are required in a compressed time schedule by CTU/STUs as decided by the Central Government on a case to case basis. (iii) The intra-state transmission projects by STUs will be exempted from competitive bidding route for further 2 years	However, in the following cases the exemptions from competitive bidding route may be adopted: i) 1200 kV EHVAC and HVDC systems upto 13th Plan i.e. year 2021-22, after which it shall be reviewed for introduction of competitive bidding. ii) Works required to be done by CTU/STUs to cater to an urgent situation or, which are required in a compressed time schedule by CTU/STUs or, which are of National importance/backbone of National Grid, as decided by Central Government on case to case basis. iii) The intra-state transmission projects by STUs will be exempted from competitive bidding route for further 2	There is a difference between the technology for 1200 kV EHVAC lines and sub-stations and HVDC stations and bipole. This involves different sets of equipments. Therefore as recommended by Empowered Committee it would be desirable to seek exemption from 1200 kV EHVAC system separately. CEA is of the view that considering the technical complexity involved in the HVDC converter stations and the importance of control of flow of power in the HVDC converter stations in the national grid CEA is of the view that it should be exempted from tariff based competitive bidding route. HVDC bipole lines alongwith the converter stations form a complete system as a whole, and hence should not be seen in isolation, so both the bipole as well as converter stations may be exempted from the realm of competitive bidding.

	beyond 6.1.2011.	years _____ beyond 6.1.2011. _____ iii) Transmission scheme with estimated project cost less than Rs. 200 crores. This limit could be reviewed by the Ministry of Power from time to time.	In its 30 th meeting held on 31.10.2012 the Empowered Committee had recommended that projects costing less than Rs. 200 crores may be implemented through regulated tariff mechanism as small schemes are not amenable to tariff based competitive bidding as reputed parties may not be interested due to high overheads and the need for setting up independent O&M for 35 years.
Clause 5.1 (d)	Long-term PPA would be at least for 60% of the total saleable design energy. However, this figure of 60% would get enhanced by 5% for delay of every six months in commissioning of the last unit of the project against the scheduled date approved by the Appropriate Commission before commencement of the construction. The time period for commissioning of all the units of the project shall be four years from the date of approval of the commissioning schedule by the Appropriate Commission. However, the Appropriate Commission may, after recording reasons in writing, fix longer time period for large storage	Long-term PPA would be at least for 60% of the total saleable design energy. However, this figure of 60% would get enhanced by 5% for delay of every six months in commissioning of the last unit of the project against the scheduled date approved by the Appropriate Commission before commencement of the construction. The graded reduction in % of allowable merchant sales be limited to delays attributable to the developer. The time period for commissioning of all the units of the project shall be four years from the date of approval of the commissioning schedule by the	It has been observed over time that hydro projects are prone to time and cost over runs due the reasons which are beyond the control of the developers. Over the past few years IPPs have been raising the issue of reduction in maximum permissible limit of Merchant Sale in Hydro Projects (i.e. 40%) on account of delay in Project construction beyond six months @ 5% for delay of every six months in commissioning of the last unit of the project. The IPPs have assigned various reasons for delay in commissioning the units including inter-alia geological surprises, R&R issues, law & order problems etc. They have represented that they ought not to be penalized for reasons which are beyond their control. During the 5 th meeting of the Hydro Task Force some State Govts have raised the aforesaid issue of reduction in maximum permissible limit of merchant sale on account of delay in

	projects and run-of-river projects of more than 500 MW capacity. Adherence to the agreed timelines to achieve the fixed commissioning schedule shall be verified through independent third party verification.	Appropriate Commission. However, the Appropriate Commission may, after recording reasons in writing, fix longer time period for large storage projects and run-of-river projects of more than 500 MW capacity. Adherence to the agreed timelines to achieve the fixed commissioning schedule shall be verified through independent third party verification through a mechanism prescribed by the Central Government. The graded reduction in % of allowable merchant sales may not be completely dispensed with since the provision of merchant power has been extended as an incentive for timely completion of projects. However, it is also felt that the provision to reduce the permitted percentage of merchant sale for delays in commissioning of the project, the total delay may be limited to the delay which is attributable to the Developer.	commissioning of projects. The Division had suggested that notwithstanding the inherent uncertainties in completion of hydro projects as mentioned above, the graded reduction in % of allowable merchant sales may not be completely dispensed with since the provision of merchant power had been extended as an incentive for timely completion of projects. However, it is also felt that reduction in % of allowed merchant sale may be limited to the delay attributable to the Developer. The graded reduction in % of allowable merchant sales may not be completely dispensed with since the provision of merchant power has been extended as an incentive for timely completion of projects. However, it is also felt that the provision to reduce the permitted percentage of merchant sale for delays in commissioning of the project, the total delay may be limited to the delay which is attributable to the Developer.
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Independent Power Producers Association of India (IPPAI)

IPPAI is an aggregator of ideas for a more cohesive and better India, through the confluence of what is cerebral and what must be implementable. At IPPAI, we believe that change must be engineered through ideas that are actionable, steeped in innovation and in conformity with regulations.

The Independent Power Producers Association of India (IPPAI) was set up in 1994, after the Government of India opened power generation to private players and invited developers to set up power projects in India. IPPAI was set up with the idea to provide a neutral forum to IPPs to discuss various issues and bottlenecks that the nascent industry faced.

IPPAI provides a cerebral platform as also an engaging interface between players in the Energy Sector, Policy Makers (Central and State level), Electricity Boards, Financial Institutions, Ministries, Power Developers, Indian & Multinational Companies, Equipment Suppliers, EPC Contractors and Consultants.

IPPAI's primary goal is to bring together all the important players, including government officials and multi-lateral agencies to discuss generic issues and resolve problems that may retard the progress and development of projects in the Indian energy sector and to examine ways in which through the freshness of ideas as also a deeper understanding of issues, we can hope for resolution and progress.

IPPAI's initiatives are focused on policy, strategic, financial, legal, regulatory and technical issues in the power, oil & gas and allied sectors.

IPPAI has, over the past few years conducted over a hundred Workshops, Round table meetings, Energy Summits and International Conferences, featuring a wide range of subjects from Financing, Regulation, Policy Initiatives, Security Issues and Environmental and consumer concerns by NGOs.

For more details, please visit: <http://www.ippai.org>

Arunachal Pradesh Power Companies Association – Brief Profile

Arunachal Pradesh Power Companies Association (APPCA) is a joint forum of the developers of Hydro power projects in the State of Arunachal Pradesh. APPCA represents developers with combined allocated capacity of nearly 30,000 MW. Arunachal Pradesh has a potential of more than 50,000 MW of untapped hydropower.

Objective of APPCA is to undertake all necessary steps for expeditious development of Hydro power projects leading to social & economic development of Arunachal Pradesh

APPCA has been instrumental in articulating the issues related to Hydro power projects in the state and proposing measures thereof. APPCA is addressing challenges requiring support/ intervention of various departments of Government of Arunachal Pradesh and Government of India and closely working with industry & Government departments to help resolving the key challenges to expedite Hydro power development in Arunachal Pradesh to eradicate the power starved regions of the country.



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