

Power Sector Restructuring: The Often Ignored Aspect of Water Sector Reforms

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Since 1991, large-scale changes have been initiated in India's economy with the liberalisation, privatisation and globalisation of almost every aspect of the economy. The water sector is also undergoing extensive restructuring along the same direction. A series of comprehensive legal, regulatory and institutional changes, euphemistically called as reforms, are transforming the water sector into a market and commercial operation.

Discussions on these reforms and their implications are focussed on the privatisation of water supply and irrigation, the creation of independent regulatory authorities in the water sector, measures like elimination of subsidies and tariffs based on full cost recovery. One important aspect that is often missed in these discussions is the privatisation of hydropower projects and the changes in the legal and policy regimes enabling it. This privatisation of hydropower has implications that are as serious as privatisation and commercialisation of water supply.

Initial Changes in the Legal Regime

Prior to 1991, the power sector was almost entirely in the public domain, with very small contribution from the private sector. An overwhelming part of the generation capacity and distribution was with the public sector. In 1991, the power sector was opened up to private participation as a part of the overall economic restructuring that started at the behest of the World Bank and IMF. The Government of India formulated a scheme to "encourage greater participation by private enterprises in electricity generation, supply and distribution..." to bring in "additionality of resources for the capacity addition programme of the electricity sector..." (Government of India, 1992).

As a part of this general opening up, private companies were allowed to set up hydropower plants. This necessitated a significant change in the legal regime, which was achieved through an amendment to the Indian Electricity Act 1910 and the Electricity (Supply) Act 1948. The amendment was enacted through the Electricity Laws (Amendment) Act 1991 (Act 50 of 1991, dated 27th September 1991) notified on 15 October 1991. The Industrial Policy Resolution was also amended in 1991 to remove power sector from the list of activities reserved for the public sector. (Varma and Jatana 1997: 307)

In effect, this can be said to be the first legal step in the current phase and direction of water sector reforms.

Along with this Amendment, a number of Government Notifications were also brought out, changing the financial and administrative regime governing the privatisation of the power sector in general and hydropower in particular. Some important provisions in the new regime included:

- Private sector allowed to set up any kind of electricity generating plants (excepting nuclear) of any size
- Captive power plant set up by industry will be allowed to sell power to State

Electricity Boards (SEBs)

- 100% foreign equity permitted
- Debt Equity ratio of 4:1
- Guaranteed 16% return on equity in currency of subscription
- Other bonuses increasing the likely rate of return significantly
- Cost-plus approach to tariff setting (tariff equals profits plus all costs)
- 100% repatriation of earnings
- Foreign exchange risks loaded on to tariff
- In case of hydropower, hydrological risk was to be borne by the Government (that is, the public)

The financial and other provisions made for hydropower in 1991-92 were not found attractive enough by the private sector and these were further liberalised in 1995 through another notification on 13 January 1995. (Government of India 1997: 20)

Privatised Projects

In the initial period, the states were allowed to allot power projects to private companies on the basis of negotiations and MoUs (Memorandum of Understandings). There was a spree of MoUs being signed and 243 MoUs for over 90,000 MW of capacity (more than the total installed capacity at that time) were signed. (Prayas 2001).

The vast majority of these 243 schemes were thermal. The exact number of hydro power schemes in this is not known, but from among the entities that signed MoUs for hydropower, many did not even proceed to obtain the required first stage in-principle clearance from the Central Electricity Authority. (Government of India 1997: 21) Just 13 schemes with total capacity of 4,318 MW had obtained the this in-principle clearance by 1996. Apart from this, the 400 MW Maheshwar project had also been given Techno-Economic clearance by CEA. (Varma and Jatana 1997: 305-307) A number of these projects have not been commissioned till date.

Electricity Act 2003

There were many serious concerns related to these and subsequent reforms in the power sector. We will not deal with them here as this is a vast subject by itself, and has been discussed extensively elsewhere by others. We will restrict our discussion to privatisation of hydropower.

In 1998, the Government of India came up with a new Hydropower policy. In the same year, the Government of India also passed the Electricity Regulatory Commissions Act 1998, creating the Central Electricity Regulatory Commission, considered to be a key necessity for privatisation in the power sector. Subsequently several states also passed their own laws for creating similar state level commissions, or used the Central act to do so.

It was expected that this would boost privatisation, but the response of the hydropower sector was not very enthusiastic.

In 2003, the Government of India passed the Electricity Act 2003. (Actually introduced in 2001, it took two more years to pass). This all-encompassing Act received the assent of the President on 26th May 2003 and was notified on 2 June 2003. It repealed the

three central Acts in force, namely the Indian Electricity Act 1910 and the Electricity (Supply) Act 1948 and the Electricity Regulatory Commissions Act 1998, consolidating their provisions within itself.

Among the most important provisions introduced by the Electricity Act 2003 (E Act 2003) was that of Open Access. Till then, all generating companies were essentially required to sell their power to the SEBs. The E Act 2003 allowed generating companies to sell power to any distributing company they wanted, or even directly to consumers. It also mandated transmission and distribution companies to give access to their networks for such sales. As one of key perceived constraints to wide-spread privatisation in the power sector is the financial ill-health of the SEBs (and hence the high risks of selling electricity to them), this move is expected to be a key incentive for the private sector.

The Act has also enabled trading in electricity as a distinct activity, separate from generation, transmission and distribution. This has led to the emergence of several power trading companies and now recently a power exchange.

National Hydropower Policy 2008

The Hydropower Policy of 1998 was also found inadequate and a new hydropower policy was approved by the Government in January 2008. (Government of India 2008) The very first of the the stated Objectives of this policy is "inducing private investment in hydro power development" and the policy describes itself as "one such initiative which seeks to induce substantial private investments in hydro power development." (Government of India 2008: 2-3) Among the important provisions in the policy to achieve this are:

- **Exempting private hydropower plants from tariff-based competitive bidding:** Earlier, cost-plus based tariff setting was leading to many distortions, and in 2006, the new Tariff Policy made it mandatory for distribution companies to source long-term supplies based on tariff based competitive bidding. That is, generation companies will have to quote the tariff at which they will supply power and the lowest bidder would be selected. Electricity sourced from public sector hydropower generating companies was exempt from this and this exemption has now been extended to the private companies.
- **Cost plus, assured returns, tariff setting:** This method of tariff setting is back now, even though it has been under lot of controversy as this is likely to lead to cost-padding, that is artificially inflating project costs so as to earn more from tariffs. Albeit, there are certain safeguards like mandating international competitive bidding for the equipment as well as the construction, but these safeguards are not full-proof.
- **Merchant Sales of upto 40% Saleable Power:** Merchant sales are electricity sales made without any long-term power purchase agreements.

Spurt of Privatisation

In the last few years, there has been a spurt of privatisation in the hydropower sector, with several states, especially Arunachal Pradesh, Uttaranchal, Sikkim and Himachal Pradesh signing large number of MoUs allotting projects to private companies. The

situation became so serious that Minister of State for Power, Shri Jairam Ramesh, remarked that the hydropower sector has been afflicted by the "MoU virus." (The Hindu, 29 May 2008)

According to the list given in the Hydropower Policy 2008 (Government of India 2008), ten private hydropower projects of 3991 MW were under construction as on 31.12.2007, another 67 projects totalling to 18,030 MW had been allotted to the private sector and a further 29 projects of 4,292 MW were proposed to be offered to private companies. This totals to 26,313 MW, about 75% of the existing hydro capacity. Also, the actual number of projects being offered to the private sector is likely to exceed this.

The reason for this renewed interest in hydropower by the private sector seems to be the new legal and policy regime. This new regime offers private sector the opportunity to make large profits at relatively small risks. However, this very equation raises questions about the implications for public at large, including the cost of the power generated and whether the poor and vulnerable sections will be able to access electricity available from these projects.

Implications

Cost of Power

Several of the new provisions may act as incentives to attract private hydropower developers, but the same are likely to lead to higher cost of production and higher tariffs.

(a) Exemption from tariff based bidding and the option of cost-plus, assured return tariff setting is likely to increase the cost of power generated due to chances of cost padding, fewer incentives to lower costs, and assured profits to the private companies.

(b) Most of the private hydropower projects (as indeed much of the new proposed hydro capacity addition) is in the Himalayas. The difficult terrain and remote locations are likely to make these projects costlier.

(c) Higher Transmission costs: As most of the new hydropower capacity planned is in the Himalayan region and far away from major load centres, the transmission costs will be higher.

(d) Hydrological Risks being passed on to the consumers: The current tariff setting mechanism for hydropower plants is based on a certain design energy that the plant is expected to generate. In case the plant cannot generate this much electricity due to shortage of water in the river, it is still paid for this full generation. However, when the plant generates more than design energy, the benefit is not passed on to the consumers.¹ (See, among others, CERC 2008)

¹ This could change in the new tariff regulations under consideration by the CERC, but only to some extent as even the new regulations provide for the developers to take up the hydrological risks only partially.

Beneficiaries of the Electricity Generated

Another major issue is who will benefit from the power generated by these projects. As we have seen, the cost of the power is likely to be high from these projects. This means that it will be difficult for the power from these projects to be used for supplying the weaker sections of the society.

Moreover, the E Act 2003 has introduced the provision of open access. Using this provision, generating companies can supply electricity directly to consumers. Section 49 of the Act also allows the generating companies and the open access customers to negotiate bilaterally the terms and conditions including tariffs of this supply / purchase. Considering that industrial consumers are paying high tariffs at this point of time, there is significant incentive for such consumers to tie up for purchase of power directly from the generating companies. They are in a position to get power at rates lower than what they are paying now, even though it would still be at a fairly high cost. The generating companies get customers with high paying capacity and creditworthiness, so they are assured of the sale of their electricity and payment of bills. Thus, it is a "win-win" situation, so long as one just considers the generating companies and the bigger consumers. However, this is likely to lead to the emergence of an enclave like situation, with the producers of electricity supplying directly to the high paying capacity consumers, and the weaker sections effectively being pushed out of the scene.

There are three mechanisms by which the weaker sections can possibly get power from these projects.

The free power given to home states can be used by them to supply to the weaker sections. However, this benefit will obviously remain limited to the particular state itself. Secondly, it has been found that the states are actually selling this power in the open market where electricity prices can go up as high as Rs. 6 to Rs. 8 per unit and higher. A recent Staff Paper, dated 1 Sept 2008, by the Central Electricity Regulatory Commission titled *Measures for restraining the prices of electricity in short-term sale/trading states:* .

"Therefore, one can not escape the conclusion that most of the traded power which is costing less than Rs. 4 per unit is being sold in the price range of Rs 6 to Rs 8.5 per unit. The deficit States perceive it as a profiteering by the surplus states. The surplus States perceive it as an exercise in cost optimisation which helps them to wipe off their accumulated losses and avoid tariff hikes. But this ploughing back of trading profits to ARR of distribution utilities falsifies, to large extent, the premise that market driven prices are helping accelerate capacity addition by incentivising generators..."

"It is felt that one of the more plausible reasons for increase in the sale price of electricity in short-term is profiteering by the sellers in period of increasing shortages. This has also enhanced the perverse incentive for distribution utilities to cut down the supply to their own consumers and make money in short-term market."

The new hydropower policy also provides for the developer to allot an additional 1% of

power for Local Area Development Fund. Some of this could be used to provide electricity to the weaker sections. This would be by definition restricted to the "local area". The policy also has a provision for 100 units per day to be supplied to every Project Affected Family (PAF) for 10 years. However, it is not clear what would happen if the distribution network is not in place. There is also a provision to pay cash for electricity not drawn by the PAFs from this, which creates the risk that the electricity entitlement will be substituted by cash, something that would be very convenient for the generating companies but would defeat the very purpose of the provision.

Windfall Profits

The new hydropower policy also offers as an incentive merchant sales of upto 40% of the saleable energy. With electricity trading at very high prices currently, this offers the developers a chance of high profits in the initial years, and windfall profits in the later years. This is because in case of hydropower, the main component of the cost of generation of electricity is the financial costs. (The social and environmental costs are mostly externalised). As the loans and interests thereon are paid off, the financial costs come down significantly. Thus, the cost of generating electricity comes down sharply. However, the prices remain the same in the market, and thus the generating company stands to make huge windfall profits. As the new hydropower policy document mentions (Government of India 2008):

"...from the point of view of the private sector the major incentive is the scope for trading - particularly in the later years when cost of generation goes down and the market price of power is high."

In the case of the public sector hydropower companies, when cost of generation falls during the later years of the project, this benefit will go towards lowering the average cost of production of electricity and will be passed on to the consumers. However, in case of a private developer, this benefit will go towards increasing the profits of the shareholders. In other words, a common property natural resource (water and river) is being diverted for profits of private interests.

Cross-Sectoral Issue/ Other Issues

In addition to these, there are several other issues that are important and need more study. We flag two of these issues here.

In several states, Independent Regulatory Commissions or Authorities for water section are being set up as a part of water sector reforms. Among the powers of these authorities is the allotment of entitlements to water and setting the tariffs. Will these authorities regulate the hydropower sector also, and if so, in what way? In particular, the allocation water entitlements could have very significant implications for hydropower. This issue assumes particular importance in states like Arunachal Pradesh which has already passed the Water Resources Regulatory Authority Act in 2006 and where huge hydropower capacity addition is being proposed.

Another important issue is related to the downstream social and environmental impacts of these projects. The downstream impacts of a hydropower projects are

crucially linked to the pattern of water releases from the project. If the developers avail of the incentives provided by the new hydropower policy, upto 40% of the electricity could be sold on a merchant basis. This means that the quantity and timing of the electricity sold would depend on the market. In turn, as electricity has to be generated when it has to be sold, the quantum of electricity generation and its timing will depend on the market conditions. The power generation determines the pattern and quantum of water releases downstream of the project. Thus, the downstream releases would be determined by the market requirements of electricity.

This has many implications for the downstream social and environmental impacts, including the uncertainty of downstream flows and hence the difficult of predicting, and hence managing impacts.

Conclusions

Thus, privatisation in the hydropower raises some very serious financial and economic issues including the cost of the power that will be generated from such projects, windfall profits to private interests and the likely exclusion and marginalisation of weaker sections of society from electricity to be generated from these projects.

These implications are in addition to other issues of social and environmental impacts. As many of the projects are still in the development stage, it is important to look at these concerns and re-evaluate this thrust on hydropower.

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References

CERC (2008): "*Press Release 12 February 2008, CERC proposal to amend tariff regulations for hydro generating stations*", Central Electricity Regulatory Commission, New Delhi.

<http://www.cercind.gov.in/09012008/hydro-tariff-12.2.2008.pdf> Accessed 10 Dec 2008

India, Government of (1992): "*India's Electricity Sector - Widening Opportunity for Private Participation*", Department of Power, Ministry of

Power and Non Conventional Energy Sources, Government of India.
India, Government of (1997): " <i>Report of Committee on Hydro Power</i> ", Ministry of Power, Government of India, New Delhi.
India, Government of (2008): " <i>Hydropower Policy 2008</i> ", Ministry of Power, Government of India. Available at http://powermin.nic.in/whats_new/pdf/new_hydro_policy.pdf Accessed July 12, 2008
Prayas (2001): " <i>India Power Sector Reforms Update- Issue 1, October 2001</i> ", Available at http://prayaspune.org/peg/publications/india_reform_update1_032A01.pdf tp://prayaspune.org/peg/publications/india_reform_update1_032A01.pdf
Special Correspondent (2008): " <i>Power projects: 'eliminate non-serious players'</i> " in The Hindu, 29 May 2008, at http://www.thehindu.com/2008/05/29/stories/2008052955971900.htm
Varma C.V.J and B. L. Jatana (Eds.), (1997): " <i>A Century of Hydropower Development in India</i> ", Central Board of Irrigation and Power, New Delhi.