

Too Many Fancy Bottles ! In Nepal's New Power Sector Institutions Electricity Development Decade 2072

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Abstract: Seven years after Prime Minister Dr. BR Bhattarai's 38 Point programs to Mitigate National Electricity Crisis, the Energy Ministry of Prime Minister KP Sharma (Oli) recently unveiled another program to Eradicate National Electricity Crisis along with a concept paper and work plan on Electricity Development Decade 2072. This article will focus only with the Energy Ministry's institutional arrangements. The Energy Ministry appears to have come to the grand conclusion that the present state of Bungled power crisis is all due to the Bundled NEA. Hence, the Ministry's prescription has been to unbundle NEA down to its bare skeleton! There is not a word on the Department of Electricity Development or the Nepal Investment Board – both high caste thread-bearing organizations! It is hoped that a thorough Implementation Completion Report (ICR) will be conducted on three decades of bungled/bundled power sector in Nepal by the World Bank, now that the prodigal son has returned after the 1995 Arun III debacle. Without the findings of that ICR/PCR, the multilaterals should refrain from the itch to unload their one billion US\$ excess baggage on Nepal's power sector.

Keywords: Power sector, load shedding, institutional improvements, storage project, NEA, Nepal

Prologue

Smitten with 6 to 15 hours of load shedding every day in the last ten years, the government of Prime Minister KP Sharma (Oli) with Top Bahadur Rayamajhi as his Energy Minister unveiled on the 6th of Falgun 2072 (February 18, 2016) the Concept Paper on National Energy Crisis Eradication and Electricity Development Decade, 2072. This Concept Paper was based on various reports prepared by the following seven Task Forces:

1. regarding Forest, Environment, Land acquisition, Compensation and Shares to be issued to locals along with disruptions by locals;
2. regarding Procurement and Improvement in Nepal Electricity Authority's management;
3. **regarding Institutional Improvements in Power Sector;**
4. regarding Distribution Management and Loss Control;
5. regarding Prioritization of Projects and Investment Arrangements;
6. regarding Electricity Market and its Arrangement;
7. regarding Purchase Rate assessment of Solar and Wind Energy;

This article will focus only on the above item 3) regarding Institutional Improvements in Nepal's Power Sector.

Institutions and Corporate Arrangements in Nepal's Electricity Development Decade, 2072

The following are the twelve sub-items identified under the heading Institutions and Corporate Arrangements that the Energy Ministry intends to take actions on. The 12 sub-items are followed by the writer's comments in italics.

i) Central Energy Crisis Eradication Coordination Committee: establishment of this Committee for effective implementation of Energy Crisis Eradication Decade under the chairmanship of Energy Minister with Secretaries from Ministries

of Forest, Home, Land Reform, Population/Environment, Finance, Energy and representative from Security Sector; also "*District Level Energy Crisis Eradication Coordination Committee*" under the CDO¹ chairmanship with representatives from the offices of Forest, Malpot, Land Revenue, Police, Survey, DDC and district level technical offices;

Comments: *Forest, land, environment and security are no doubt some of the main woes be-devilling hydropower development. But can the Energy Minister chaired Committee of Secretaries override the laws and regulations formulated during the Panchyat regime? In the last two and half decades, while Democracy/Loktantra enlightened the people of their **Rights**, it miserably failed to enlighten them with their **Duties**. Employees' unions have mushroomed all over the country eroding away the very concept of **Duties** in civil servants. Gross negligence of duties from the Ministry down to District level, coupled with rampant politicization and corruption, are the true woes (in forest, home, land, environment, finance, energy etc.) of hydropower development.*

ii) Focal Person: nomination of a Joint Secretary level "*Focal Person*" to coordinate between electricity related ministries to *facilitate and solve* the problems of projects. If this Joint Secretary level coordination fails then a Committee under the chairmanship of Chief Secretary and concerned Ministry's Secretary will be formed to solve the problems.

Comments: *Nomination of a focal person and formation of committees are mere ad hoc arrangements. Far more imperative is the necessity to find the root cause of the problem and remedy it with proper prescription.*

iii) Water and Energy Commission: provide WEC with the new mandate to: analyze Electricity Demand Forecast, evaluate electricity consumption and formulate resource replacement policy, update generation/transmission/distribution master plan

and besides the techno-economic clearance also carry out the electricity projects' analysis in totality; bearing in mind the multipurpose uses of Nepal's water resources update the master plan of River Basins within two years;

Comments: Historically, the institution of WECS has been (mis)used as the dumping ground of technical bureaucrats. Already WECS is under pressure for failing to fulfill its mandate of coordinating various water-related agencies and providing water sector and energy policy feedbacks, particularly on multipurpose projects, to the government. WECS' other equally important mandate is to render advice/recommendation on bi-lateral and regional water resources and energy related matter. It is difficult to understand why WECS, already charged with non-performance, has been dumped with additional unrelated tasks of Load Forecast, updating electricity Master Plans and techno-economic clearances.

The IPPs and Department of Electricity Development (DOED) have been frequently voicing their grievances over NEA's so called "pessimistic" Load Forecasts. When the country's GDP is creeping at dismally low Hindu rate of 2/3 percent growths, an exponential load growth in electricity will be mere pipe-dreams. While the IPPs, to conclude their PPAs, badly want their projects within NEA's load forecast envelope, DOED similarly is keen to issue as many survey/generation licenses as possible. Hence, both perceived NEA's load forecast as the principal "criminal" in hydropower development. In the pre-NEA (1985) days when Electricity Department and Electricity Corporation existed, the national Load Forecast was prepared by Electricity Department. The Corporation, as a commercial organization, also prepared its own Load Forecast. The load forecasts of these two organizations generally did not tally – resulting at times in bitter disputes between the Chief Engineer/ED and General Manager/NEC. In such disputes, the Ministry used its own wisdom. It is indeed unfortunate that the Energy Ministry opted to take the path of least resistance – dumping electricity related master plans and load forecast tasks on water-related WECS with 30 staffs instead of the electricity-related Department of Electricity Development³ with 149 staffs.

iv) Establishment of Various Storage Project Companies: government companies will be established based on the progress in development/construction, its impact and usefulness; West Seti Storage Project with private sector participation will be accelerated;

With acute energy shortages in the dry season, the government has proposed⁴ 11 Storage Projects of various sizes and modalities totaling 5,373 MW to be completed within a decade by 2082 BS. The small 140 MW Tanahu (former upper Seti) with finances from large donors (ADB-US\$ 150 M, JICA-US\$ 183 M and EIB-US\$ 85 M) at an expensive US\$ 3 million per MW is under execution. The large

1,200 MW Budhi Gandaki is moving ahead robustly like an army tank under the Development Board model supposedly with finances from India's one billion dollar soft loan promised by Prime Minister Modi during his 2014 Nepal visit. Similarly, the 410 MW Nalsingh Gad is moving ahead on the same development board model though its financing is still under the cloud. The other large 750 MW West Seti, under the 17 year-clutch of Snowy Mountain and still dangled as an ideal private sector participation project, is now in the hands of China Three Gorges Corporation. Besides, DOED has already issued survey licenses to such medium-sized Storage Projects like 480 MW Bheri-3, 300 MW Uttar Ganga, 300 MW Dudhkoshi, 200 MW Tamor and 180 MW Andhi Khola.

In the pre-private sector days, NEA used to conduct the Least Cost Generation Expansion Plan (LCGEP) to determine the sequence of projects for implementation to fulfill the requirement of its power system. NEA's LCGEP and Load Forecast were made redundant when both the private sector and DOED cried 'foul!' So in the absence of an authority deciding which project comes when, the system has gone haywire on a loose freefall. In a free for all competition, Projects like 30 MW Chameliya, 50 MW Upper Marsyangdi A and even 140 MW Tanahu were pursued on the strength of '**Jiske hath me lathi, uske bhains – He, who holds the stick, owns the buffalo!**' Now, with the high caste thread-bearing DOED refusing to undertake the mundane tasks of Load Forecast, Master Plans and techno-economic clearances, can the undermanned WECS be expected to fulfill these tasks? Besides, whose pockets will the resource-constrained nation dig into for financing the implementation of 5,000 MW storage projects?

The government's concept paper also fails to address two storage project related issues: regulated water and market. Storage projects impound vast quantities of valuable freshwater at a huge cost by submerging scarce fertile lands and uprooting large number of people. However, the outdated 2034 BS Panchyat era acquisition and compensation laws still prevail. On market, as the domestic one is small, the tendency for the last fifty years has been to ogle at the 'huge' Indian market. But because of the 'orchestrated' Indian market Snowy Mountain/Australia's 750 MW West Seti and SN Holding/Norway's 880 MW Tamakoshi 3 failed to materialize. Thailand's electricity market is accessed by land-locked hydropower rich Laos through a mere MOU that permits 7,000 MW of power trading. Despite the much trumpeted 2014 Indo-Nepal Power Trade Agreement that was expected to be the 'open sesame' to Indian market, foreign investors still fail to see the silver lining in Nepal's dark hydropower clouds.

v) Village Electrification cum Energy Efficiency institution: For reinforcing the village economy through Village electrification campaign and mitigate to a certain extent the present electricity

crisis through demand management, a Village Electrification and Energy Efficiency institution will be established;

The necessity for such an institution was felt over two decades ago. We are extremely agile at walking the talk with no results. Without much ado, such an institution must be established immediately.

vi) National Electricity Generation

Company: In order to fulfill the country's medium and long term electricity demands, the Nepal Government will immediately establish a National Electricity Generation Company that will carry out the study, construct and operate medium and large hydroelectric projects;

vii) Engineering Consultancy Services

Company: Establish a powerful “*shrot/sadhan yukta*” (resourceful) consultancy company having the shares of NEA and other Institutions for study/research of hydropower and other infrastructures to produce skilled manpower and become self-sufficient on consultancy services has become an urgent necessity;

viii) National Transmission Grid Company:

This Nepal Government's already established company will be made operational after financial and institutional restructuring. NEA's manpower, structures and assets will be adjusted into this company. In the context of the company's present and future assets, NEA's share will be established.

Without any due diligence, the government has already established the Transmission Grid Company and now has decided to establish immediately Electricity Generation Company along with an Engineering Consultancy Company. If one peruses the history of British power sector in the 1950s when it was still struggling with rural electrification, it was noted that 'Great expenditure is being incurred in many directions, and as in our view that expenditure is not being employed to best advantage, not only is waste taking place, but further obstacles are being placed in the way of rapid and efficient development along the right lines.' This led to the creation in 1947 of Central Electricity Generating Board (CEGB) with both generation and transmission under its fold. Closer home, the Electricity Generating Authority of Thailand (EGAT) with 30,000 MW of installed capacity has similarly been handling both generation and transmission since 1969.

It is indeed a great folly on the part of the government to unbundle generation and transmission in a system having a mere 1,000 MW capacity. Right before the eyes of the Energy Ministry a scenario is unfolding in Nepal's banking sector – the commercial Banks that glutted the market are now, of their own accord, opting for mergers! Whether banks or power utilities, what matters in the end is the balance sheet's financial clout. On the Engineering Consultancy Company, the Energy Ministry merely needs to mull over the fate of a similar Consultancy Company established by the Roads Department many years ago.

ix) Distribution Companies: Establishment of Distribution companies will be started based on NEA's Distribution 'electrical boundary' to be set up as per the Provinces;

Like the Institution for Rural Electrification, Distribution Companies should be established immediately – subject to the finalization of the Provinces' boundaries. A decade of talks to create Distribution Companies merely ended in talks. Much of the woes of the power sector would have been rectified or mitigated if the government had established the Distribution Companies with the same zeal that it took in establishing Transmission Line Company. Britain's Electricity Act of 1947 created 14 Area Boards that bought bulk electricity from CEGB for distribution. While Thailand's Metropolitan Electricity Authority (MEA) similarly buys electricity in bulk from EGAT for distribution in Bangkok, in the provinces this mandate is given to a single entity, the Provincial Electricity Authority (PEA).

x) National Electricity Trading Company:

Nepal Government will establish this company for electricity trading within and outside the country; the Company will carry out the entire work that NEA's existing power Trade Department is doing; this Company will undertake the entire responsibility for all Power Purchase Agreements concluded and done with Independent Power Producers;

Power trading on the domestic front is presently only to the tune⁶ of about 300 MW and NEA has so far concluded about 1,500 MW worth of PPAs. On the import/export front, the existing 250 MW import from India is expected to rise to 600 MW shortly. Such quantum of power trading does not justify an immediate establishment of a separate Trading company. The Energy Ministry should hop over to Bangkok and find out how EGAT itself handles over 15,000 MW of power trading. It is still not too late to catch NAC's Airbus to Bangkok!

xi) Nepal Electricity Authority: By adjusting NEA's existing manpower, structures and assets, the following Companies will be formed with NEA as the holding company:

- a) Electricity Generation Company/Companies of NEA's under-construction and under-operation generation plants and
- b) Distribution Companies formed from NEA's under-construction and existing distribution system below 33 kV with 'electrical boundary' demarcated as per the Provinces;

Having stripped NEA's Generation, Transmission, Distribution, Engineering and Power Trading activities along with all its manpower and assets, the Energy Ministry still believes that NEA would be moving around intact on its bare skeleton!

It should be borne in mind that Nepal's varied power sector was bundled into NEA in 1985 at the behest of the World Bank and ADB – of course, with

the tacit consent of Nepal government. The same multilateral institutions, after watching Nepal writhe in acute power shortages pain for over a decade from the fence, are coming back with a big bang - one billion US\$ credit⁷. If these multilaterals have any conscience left then, before unbundling the NEA that they had themselves fathered, a robust Implementation Completion Report (ICR/PCR) should be conducted to evaluate three decades of Nepal's Bundled power sector. The multilaterals should immediately urge the Energy Ministry not to proceed with any drastic restructuring of power sector institutions until the findings of that ICR.

xii) Nepal Electricity Regulatory Commission: establishment of the Regulatory Commission with an appellate court;

Ever since India established her Electricity Regulatory Commissions through the Electricity Act 2003, Nepal governments have been talking the talks on the necessity of such a regulator. Sans the regulator, Nepal's hydropower sector has been a haven for all kinds of spurious players (developers, middle agents, financiers and even power sector bureaucracy) always ready to fish in troubled waters. If such a Regulatory Commission had been established a decade ago, then many of the power sector woes would have been curbed to a great extent particularly the rapacious appetite of the market forces. Sans the regulator, transparency is not the name either in DOED's licensing or even in NEA's PPAs for 60 MW Khimti, 82 MW Lower Solu or the 50 MW Upper Marsyangdi A. The presence of such a regulator was acutely felt when the Nepal Investment Board dished out nonchalantly the Project Development Agreements to Satluj Jal Vidyut Nigam and GMR to develop 900 MW Arun III and 900 MW Upper Karnali respectively.

While private sector in Electricity was initiated through the 1991 Electricity Act, the sister, Telecommunication, had it enacted only later in 1997. While Nepal Telecommunication Authority, the regulator, was immediately established on March 4, 1998, the electricity sector did not see the necessity for it. One of the reasons why the regulator failed to materialize was because the Electricity Development Centre (EDC), created in 1993 to advise the Ministry of Water Resources, preferred to act as the regulator. The Department of Electricity Development, upgraded from EDC in 2000, still prefers to act as the government's de facto regulator despite being mandated recently with the task of implementing hydropower projects also.

Surprisingly, **Nepal Telecom** does not have a Department at the Ministry breathing down its neck. At the Ministry level there are three Departments sans Communication: Postal, Information and Printing. On the **Communication side** there is just the Division **Frequency Management and Technology Analysis** that has three Sections: that has Frequency Management Section,

Telecommunication Technology Analysis Section and Monitoring Section. Yet the Telecom Policy 2060 (2004) was passed and with **Nepal Telecom** bulging with money it has invested 6% shares in 456 MW Upper Tamakoshi Hydropower Ltd and 30% shares in 37 MW Trishuli Jal Vidhyut Company Ltd. So what's wrong in the power sector? Apparently, we have too many cooks cooking the broth – NEA, DOED, Nepal Investment Board etc.! And now the Energy Ministry deems it fit to hire more cooks with many more pots in its Electricity Development Decade 2072!

It is only hoped that the “too late” establishment of Nepal Electricity Regulatory Commission would not be empowered with “too little” to tackle the powerful market forces that have already tasted blood!

Epilogue

Seven years ago on Poush 9, 2065 (December 24, 2008) Prime Minister Dr. Baburam Bhattarai declared National Electricity Crisis with much drum-beating bringing out the 35 Point (later increased to 38) National Electricity Crisis Mitigation Programs. Among the 25 Immediate Programs, the controversial 200 MW thermal plants was slated to be installed ‘within Jestha 2066.’ More interesting are the following 7 Long Term Programs:

1. feasibility studies of **Storage Power Plants** for each of five development regions;
2. **245 MW Naumure Project** in coordination with Government of India (GOI) that agreed to construct it on Grant basis;
3. **Multipurpose Projects** in coordination with GOI on construction of **6,480 MW Pancheshwar**, obtain political consensus for completing joint studies of **3,000 MW Saptakoshi** and explore possibilities of constructing **10,800 MW Karnali Chisapani**;
4. **400 kV Dhalkebar-Muzaffarpur** transmission line;
5. **WECS** to formulate **Transmission Line Master Plan** for both domestic and export needs by 2066/067;
6. **WECS and NPC** to prepare immediate, short term and long term **Energy Policy** and
7. Committee comprising of representatives of Auditor General's Office, MoF, MoWR and NEA to restructure government's outstanding arrears owed to NEA.

On Naumure project, as India was unhappy with Nepalese plans to divert West Rapti's waters to Kapilvastu, the ‘grant-in-aid’ project has been cold stored. Instead, the 1,200 MW (upgraded recently from 600 MW) Budhi Gandaki has raised its ‘fair’ head. The government plans to utilize 50% of the US\$ one billion soft loan promised by Prime Minister Modi during his 2014 Nepal visit. By submerging Nepalese homes, farms, flora and fauna, Budhi Gandaki will store 2.3 billion cubic meter of freshwater equivalent

to that of Tehri Dam in Uttaranchal. This regulated water will irrigate, by Nepal's own default, farms in Bihar and UP through the Eastern and Western Canals of Gandak Project. For the last 20 years since 1996, the 'signed, sealed and done' 6,480 MW Pancheshwar still awaits implementation for reasons best known only to the External Affairs Ministries of India and Nepal. Saptakoshi and Karnali Chisapani have already been lined up as the next Nepalese brides to be sold to India's Rs 5,600 billion (US\$ 186 billion) Interlinking of Rivers Project. While the 400 kV Dhalkebar-Muzaffarpur transmission line has finally been completed and charged presently at 132 kV, it appears to be a "one-way power traffic" – IN and not OUT of Nepal! WECS, the government's 'dumping ground', has been dumped, without any note of dissent, the country's Transmission Line Master Plan formulation!

While the introvert Prime Minister Dr. BR Bhattarai abstained from tinkering around with institutions in his 2065 National Electricity Crisis, Prime Minister KP Sharma (Oli), the extrovert, turned the power sector institutions completely topsy-turvy through his above "agragami" 2072 National Energy Crisis Eradication programs. In another four years in 2020, fifty percent of Khimti shares will be handed over to NEA for a payment of mere one Rupee. This will, of course, have some beneficial repercussion on NEA's finances. In another 2/3 years when some of the 2,300 MW under-construction IPPs begin commercial operation, heavy energy spill during the wet season will occur. When NEA is stripped bare to its skeleton, which institutions are supposed to do what to tackle this looming crisis already on the horizon? The government appears to be keenly mulling over Energy Banking with India at extremely low 'rubbish' energy prices. And in another decade and half, the older IPPs will begin to hand over their Projects to the government. Is the government comparing notes on how it intends to take over these projects – the operation/maintenance of growing number and capacity of projects and in particular the fate of the promoter/local shares? Besides, which institution of the government is responsible for the safety of hydropower structure, both small and big dams? The recent 2015 earthquake⁸ that caused the deaths of over 8,600 Nepalese must surely have opened the Energy Ministry's eyes. These are some of the issues that the government's 2072 "agragami" concept paper fails to embrace.

Finally, the immediate establishment of Nepal Electricity Regulatory Commission with more teeth, the unbundling of Distribution from NEA as separate Companies and the creation of a Rural Electrification institution would, indeed, be the right first steps in Nepal's bungled power sector. Other than that in the present circumstances, to strip NEA down to its bare skeleton would be a folly of astronomical proportion. It is hoped the multilaterals, that fathered Nepal's power sector with NEA as the bastion, will not relieve themselves from the responsibility of producing their usual Implementation Completion Reports (ICR/

PCR) on three decades of bundled/bungled power sector in Nepal. Without such a standard-practice findings of the ICR/PCR, the multilaterals' decision to go ahead with their one billion US\$ package on the Energy Ministry's "agragami" programs will be another astronomical folly!

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Footnotes

1. The post of CDO has been so much misused (from law and order, citizenship, missing boundary pillars etc. down to inaugurations and marriages) that the District CEO will not be able to differentiate the forest from the trees!
2. See Annex 1 (page 27 and 28) in Energy Ministry's Falgun 2072 booklet on National Energy Crisis Eradication and Electricity Development Decade, 2072 where NEA and the Energy Ministry's forecasts are indicated.
3. While DOED has five divisions (Project Planning, Project Licensing, Project Inspection/Monitoring, Project Studies and Project Implementation), WECS has four divisions (Water Resources, Energy Planning, Legal/Institutional and Social/Economic/Environment). Apparently DOED, having finally got the mandate to implement 20 MW Budhi Ganga as its first project, would much rather execute projects than be engaged in the preparation of Load Forecasts and updating generation/transmission/distribution Master Plans!
4. Energy Ministry's Falgun 2072 booklet on National Energy Crisis Eradication and Electricity Development Decade, 2072.
5. Kathmandu Post, Money, April 18, 2016 (Baisakh 6, 2072).
6. NEA's A Year in Review – Fiscal Year 2014/2015
7. Kathmandu Post. June 15, 2016 (Asar 1, 2072): WB, ADB 'to extend' \$1b Line of Credit.
8. According to the Energy Ministry's Post Disaster Needs Assessment while 115 MW capacity of various under operation hydropower plants out of the total of 787 MW capacity was 'severely damaged', 60 MW capacity was 'partially damaged'. About 1,000 MW of under-construction projects in the public and private sector have been partially damaged thus pushing back their commissioning dates. The total cost of physical damage to the energy sector has been assessed at Rs 18.68 billion with the public sector (NEA) sustaining a damage of Rs 7.18 billion and the private sector Rs 11.5 billion.