

VISION 2020: Hydropower (NEA)

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NATIONAL VISION 2020

Happy,
Prosperous and
Developed Nepal
by 2020.

- Why Vision?
 - If you do not know where you have to go any bus can take you there.
 - To fix destination
- Which bus can take us to that destination?

PROSPERITY OF NATIONS

- Prosperity of nation as-
 - material
 - gross happiness
- Certain level of material prosperity is must .
- Material Prosperity comes from:
 - growth of domestic production and
 - international trade.
- Mercantilism Era:
 - Till the beginning of 18th century Nation States in Europe believed that gold holding through export surplus as key to prosperity of Nations.
- Economic Science Era:
 - Disagreeing with Mercantilism, economists presented following theories about how Nation get prosperous.

ECONOMIC THEORIES OF PROSPERITY

- Classical Approach
 - Theory of Absolute cost advantage Theory (Adam Smith)
 - Comparative cost advantage Theory (Ricardo)
- Factor Proportion Theory (Heckscher and Ohlin)
- Neo Factor Proportion Theory
 - Human capital
 - Skill intensity
 - Economies of scale
 - R&D including technological innovations
- Country Similarity Theory
- National Competitive Advantage (Porter)
 - Factor conditions
 - Demand conditions
 - Supporting industries
 - Strategy, structure and rivalry

HOW TO ATTAIN PROSPERITY?

- Through National Competitive advantage.
- Competitive advantage can be created through country advantages that include
 - Natural advantage and
 - Acquired advantage
- Our most important Country Natural Advantage is **Hydro Potential**.
- So, the right bus for our journey to Vision 2020 shall be **Hydropower**.
- Natural advantage of Hydro Potential mixed with Acquired advantages can create Hydropower as our National Competitive Advantage National Competitive Advantage.

HYDRO POWER VISION 2020
needs to be stated
concurrent to
NATIONAL VISION 2020

HYDROPOWER VISION 2020



- Hydropower Vision 2020 may be outlined as “ **Nepal as major energy exporting country of South Asia by 2020**”
- Mission of Hydropower Vision 2020:
 - Hydropower generating capacity 10,000 MW.
 - Export after fulfillment of domestic requirement ensured.
 - Every house hold having access to electricity.
 - Most mineral fuel based energy substituted by electricity.
 - Major contribution in GDP through hydropower.

HOW?



- Hydro potential is our comparative natural advantage
- A comparative natural advantage is useful if it is converted into competitive advantage
- Converting hydropower as competitive advantage by developing it strategically.
- Strategic development means SWOT based planning and implementation.
- So we need to have long term strategic plan about how to develop our hydro potential.

VISION 2020: Hydropower



- 2008 and 2009 are gloomy years of acute power shortage, heavy load shedding and uncertainty.
- But at the same time years of planning.
- 2010 will be celebrated as beginning of hydropower development decade based on planning of 2008 and 2009.
- A decade long effort will take us to new heights of economic growth.

CONCEPT



- If government produces National Strategic Plan and Phased Development Program, it is immaterial who is the developer.
 - It may be through Local Financing or FDI
 - It may be through, public sector or private sector
 - It may be through National, Regional or MNCs
 - It may be through cooperatives or solo
 - It may be any kind of partnership like PPP and others.
- Basic issues is how to ensure that:
 - *Best and cheapest projects are developed first.*
 - Projects are developed in the best interest of the country.
 - Projects physically develop not in the papers and workshops.

ISSUES



- Electricity is a special commodity
 - Has to be consumed the moment it is produced
 - Has hardware connection from generator to consumer
 - All generators and consumers interconnected to form a **SYSTEM.**
- Transmission
- Resource Optimization
- System Balancing against seasonal variations
- Market model
- Two part commodity
 - (social and economic/ domestic and export/ dual state policy)

**ISSUES MENTIONED ABOVE
SHALL GUIDE THE WAY
FOR VISION 2020: HYDRO POWER**



NEA ROLE BEFORE 2049

- NEA Act 2041 and Formation of NEA:
 - Single monopoly exercised by NEA
 - NEA assumed role of
 - National Power Sector Planner for generation, transmission and distribution expansion
 - Implementing and executing agency for generation, transmission and distribution expansions
 - Direct responsible party for state policy and program regarding power sector
- Electricity Act 2049 :

Changed market model but NEA Act of monopoly not touched.
NEA roles have been minimized after Electricity Act 2049.

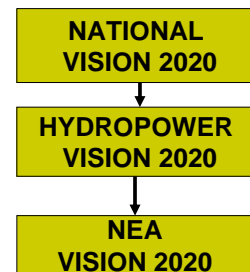
NEA ROLES (Expected)

- All expectations from state/government are directed towards NEA:
 - Should plan for generation, transmission, distribution
 - Should manage supply for all
 - Should supply quality power
 - Should purchase power from IPPs
 - Should expand transmission and distribution network in all parts of country
 - Should promote cooperatives (CP Rs 5.30, SP Rs 3.50)
 - Should bear market risk
 - Should manage system reserves at own cost
 - Should have social pricing
- NEA, on behalf of government, should help, cooperate, promote everybody for benefits without increasing tariff.
- But to do this, no special privileges to NEA.

ROLES (Limited)

- Should obtain generation, transmission and distribution license for the area interested in.
- No special right to hold attractive sites for domestic use for longer duration to address people's expectation from the government.
- Has no monopoly in generation, transmission and distribution and hence no protection.
- Has to run commercially according to own corporate plan for investment.
- However NEA is committed to contribute for Vision 2020 by out lining its own Vision 2020 as guide to its corporate plan.
- In future NEA may not remain in the shape it is now but unbundled (if) entities of NEA shall bear their responsibilities for vision 2020.

VISION 2020: Hydropower (NEA)



NEA: SYSTEM OPERATOR'S VISION

- NEA as it is or its unbundled segment shall be responsible for managing system size of 10,000 MW.
- For this purpose NEA shall work on system reliability
- It shall prepare for System Interconnection with India for which
 - System study and PSS tuning
 - Grid code harmonization
 - System operation hierarchy
 - Commercial arrangements
 - Protection requirement
 - Other reinforcements
 - Interconnection Implementation
- Cross border energy exchange through :
 - Trading or
 - Market coupling and Common market

NEA: TRANSMISSION OPERATOR'S VISION

- Once the government has identified target projects for 10,000 MW NEA shall work on TSMP.
- Transmission plan shall have four components.
 - Dedicated transmission lines of large export projects
 - Integrated export network
 - Integrated domestic network
 - Cross border interface of domestic network with export.
- This Master Plan shall be:
 - Region and basin based plan
 - Phased plan in accordance with generation development
- Phased implementation
- Different models of development and financing for different type of components

NEA: GENERATION VISION



- Generation expansion
 - NEA shall prepare its generation expansion plan to support 10,000 MW.
 - For that NEA shall target 1500 MW capacity addition on its initiation.
 - Chameliya, KL3, Upper Tamakoshi, Trishuli 3A and 3B, Upper Modi A, Rahughat, Upper Seti, Nalsyagu gad are already identified and few more shall be explored.
 - NEA shall use various models of development mainly through SPVs in partnership with public or private.
- NEA shall focus generation expansion to facilitate system operation i.e.
 - NEA shall develop seasonal variation balance storage plants like Budhigandaki in J/V with other parties.
 - Shall manage spinning reserve
 - Shall plan for Voltage management
 - Shall take care of Auxiliary services requirements

NEA : DISTRIBUTION VISION



- NEA shall expand its distribution network in all 75 districts.
- As a distribution system owner, NEA shall encourage supply business through local bodies and cooperatives.
- NEA shall plan for supply in special industrial sites like Cement Industries etc.
- NEA shall facilitate supply to SEZs.

NEA: TRADING VISION



- NEA has conceived a domestic market model that has two components.
 - Long term social market
 - Short term economic marketNEA shall facilitate trading in economic market.
- NEA shall also facilitate cross border trading of integrated internal surplus
- NEA shall facilitate trading in/from Indian market

NEA: MARKET OPERATOR'S VISION



- Most generators serving domestic market shall have long term PPA. A long term domestic social market shall be operated through this.
- Every generator shall take certain predefined part of its generation (say 10%) to economic market.
- Distributors or direct consumers shall purchase excess power from competitive economic market.
- Economic market shall operate in week ahead or day ahead basis.

THANKS

