POLICIES, DEVELOPMENT AND PRIORITIES OF HYDROPOWER PROJECTS FOR SUSTAINABLE DEVELOPMENT

G.P. Patel  
Managing Director  
UJVN Limited  
gppatel@ujvnl.com

Sandeep Singhal  
Director (Projects)  
UJVN Limited  
sandysinghal14@hotmail.com

ABSTRACT

The population of world is increasing and living standards of people is improving day by day, consequently gap between demand and supply of energy is increasing also. There are two available modes of resources for development of energy i.e. renewable and non-renewable. Saved energy from already generating plants cannot mitigate the deficit between demand and supply of energy. The total demand of energy is 10987 MU and total availability is 8834 MU. Two big Asian countries India and China are fighting for development and industrialization is at faster rate than ever. Utilization of non renewable resources are polluting environment and earth is getting warmer, there may be a case that some new resource of energy will come up with technological advancement but in reality it will take time. In view of above scenario our mind stuck on development of Hydropower Projects. Environment will surely be affected by development of Hydropower Projects but that is repairable and with strict monitoring and follow up of forest conservation laws sustainable development is possible. Development of Hydropower Projects requires a clear cut policy and deciding priorities afterwards. Policies for rehabilitation & resettlement and Local area development fund have been prepared to address problems related to social issues.

Key words: Hydropower, Sustainable development

1. INTRODUCTION

The energy consumption in India is the fourth biggest after China, USA and Russia. India is endowed with economically exploitable and viable hydro potential assessed to be about 84,000 MW at 60% capacity factor. In addition, 6,780 MW in terms of installed capacity from Small, Mini, and Micro Hydel schemes have been assessed. Also, 56 sites for pumped storage schemes with an aggregate installed capacity of 94,000 MW have been identified for catering to peak electricity demand and water pumping for irrigation needs. It is the most widely used form of renewable energy. The hydro-electric potential of India ranks 5th in terms of exploitable hydro-potential on global scenario. The installed capacity of hydro power is 40,730 MW as of June, 2014. India ranks sixth in hydro electricity generation globally after China, Canada, Brazil, USA and Russia in the year 2013.

Generation of electricity from hydropower projects is need of country to fulfill deficit in demand and supply. Govt. of India and Govt. of Uttarakhand has framed policies for taking measures that can guide us to Sustainable Development.
2. GOI Policy for development of Hydropower Projects

2.1 Issues addressed by the policy

The policy seeks to address the following issues:

(i) Rural Electrification
(ii) Generation
(iii) Transmission
(iv) Distribution
(v) Recovery of Cost of services & Targetted Subsidies.
(vi) Technology Development and Research and Development (R&D)
(vii) Competition aimed at Consumer Benefits
(viii) Financing Power Sector Programmes Including Private Sector Participation.
(ix) Energy Conservation
(x) Environmental Issues
(xi) Training and Human Resource Development
(xii) Cogeneration and Non-Conventional Energy Sources
(xiii) Protection of Consumer interests and Quality Standards

2.2 Issues addressed by the policy for Hydropower projects

For hydroelectric generation, the limit of capital expenditure, above which concurrence of CEA is required, was raised suitably from the present level. Captive generation has been freed from all controls. In creating new generation capacities, appropriate technology may be considered keeping in view the likely widening of the difference between peak demand and the base load. Harnessing hydro potential speedily will also facilitate economic development of States, particularly North-Eastern States, Sikkim, Uttarakhand, Himachal Pradesh and J&K, since a large proportion of our hydro power potential is located in these States. The States with hydro potential need to focus on the full development of these potentials at the earliest.

Hydel projects call for comparatively larger capital investment. Therefore, debt financing of longer tenure would need to be made available for hydro projects. Central Government is committed to policies that ensure financing of viable hydro projects. State Governments need to review procedures for land acquisition, and other approvals/clearances for speedy implementation of hydroelectric projects. Proper implementation of National Policy on Rehabilitation and Resettlement (R&R) would be essential in this regard so as to ensure that the concerns of project-affected families are addressed adequately.

Adequate safeguards for environmental protection with suitable mechanism for monitoring of implementation of Environmental Action Plan and R&R Schemes will be put in place.
2.3 Issues addressed in the policy for Environment

Environmental concerns would be suitably addressed through appropriate advance action by way of comprehensive Environmental Impact Assessment and implementation of Environment Action Plan (EAP).

Steps would be taken for coordinating the efforts for streamlining the procedures in regard to grant of environmental clearances including setting up of ‘Land Bank’ and ‘Forest Bank’. Appropriate catchment area treatment for hydro projects would also be ensured and monitored.

Full compliance with prescribed environmental norms and standards must be achieved in operations of all generating plants.

3 GOUK POLICIES

3.1 GOUK for development of Hydropower Projects

Energy policy in Uttarakhand has been framed to achieve following objectives:

(i) To create conditions conducive to Private Sector/Community Participation in power projects based on RE Sources in the State.
(ii) To harness the environment friendly RE resources and enhance their contribution to the socio-economic development of the State.
(iii) To meet and supplement minimum rural energy needs through sustainable RE projects.
(iv) To provide decentralized energy supply to agriculture, industry, commercial and household sector.
(v) To improve the quality of grid power through such projects, as a consequence of tail-end generation and feeding.
(vi) To enhance the use of energy sources that assist in mitigating environmental pollution.
(vii) To support efforts for developing, demonstrating and commercializing new and emerging technologies in the RE sector and, to this end, help establish linkages with national and international institutions for active collaboration.
(viii) To create conditions conducive to the involvement of private investors in RE projects.
(ix) To create public awareness and involve users/local community along with their capacity building in establishing, operating and managing RE projects.
(x) To create direct and indirect employment opportunities in the State.

3.2 Rehabilitation and Resettlement policy for Hydropower projects 2013

This policy has been framed on the basis of G.O. of Power Corporation limited of Himanchal Govt., for R&R, National R&R policy 2007 and National Hydro policy 2008. Gist of policy is as below:
(i) Panchayat will be treated as unit.

(ii) To take care of interests of partially or fully Project Affected Family (PAF) separate commissioner shall be appointed.

(iii) Appointed NGOs will evaluate the effect of rehabilitation on social matters including basic needs.

(iv) Either along with EIA or separately public hearing shall be conducted.

(v) Compensation will be done as per rates of Senior Land Acquisition Officer (SLAO) on the basis of Land Acquisition Act 1894.

(vi) If compensation in terms of money for land will be given, an additional amount equal to 1.5 times of circle rates will be given.

(vii) For construction of houses compensation will be given as per rates of PWD.

(viii) Rehabilitation grant will also be given to the affected families, shopkeepers etc. Rehabilitation colonies will be developed with every basic facility by the developer.

(ix) In the selection of group-c employees representation of each PAF will be considered with some minimum qualification criteria.

(x) The developer will provide indirect employment opportunities through various educational and scholarship programs.

(xi) PAF living on rent from 3 years before date of this G.O. will be given one time compensation.

(xii) BPL card holders and landless agriculture labours residing or making a living in the area from 3 years before date of this G.O. will be given one time compensation.

(xiii) Schedule cast, Schedule tribes of the area will be given one time compensation.

(xiv) Those who are not covered under this G.O. shall be governed by NPRR 2007 policy.

3.3 Draft Local Area Development Fund policy Hydropower projects 2013

The LADF will consist of money received from following modes:

Money received from revenue of 12% free energy to State Government as matching share from State Govt. 1% of the total cost of Hydropower projects will be deposited by the developer in different phases before and during construction of project to Local Area Development Fund. Developer will deposit the money received as revenue of 1% of total electricity generated to this fund which is termed as additional free electricity. The total money received from developer and bank interest will be used for development of the project affected area in the chairmanship of District Magistrate.

3.4 Development plan in policy and highlights

To fulfill the above objectives following measures are proposed to be adopted:
Impetus is on power generation through Hydro projects, Co-generation in industries such as Sugar, Paper, Fertilizer and Chemical etc., power generation from Biomass/ Agricultural residue, urban, municipal and industrial waste, solar energy, wind energy, geothermal energy.

Energy conservation in domestic, agriculture, industrial, commercial and transport sectors through induction of administrative/statutory/ legislative/ technical solutions and imposing stringent conditions for all categories of consumers is also an important part of the policy to mitigate the energy deficit.

There is a provision for incentive to encourage the developers. The State Government would provide requisite clearances in a time bound manner through a single window mechanism. For clarity in evaluation and allotment of projects, categorization has been done. State would also encourage projects to obtain the benefits available under the Clean Development Mechanism (CDM).

4 WHAT IS SUSTAINABLE DEVELOPMENT

In April 1987, the United Nations World Commission on Environment and Development defined Sustainable Development as “Development that meets the needs of the people today without compromising the ability of future generations to meet their own needs.”

Sustainable development in the build environment has following basic principles:

(i) Optimize size potential
(ii) Optimize energy use
(iii) Protect and conserve water
(iv) Use environment preferable product and services
(v) Enhance indoor environment quality
(vi) Optimize operation and maintenance activities

5 WHY HYDROPOWER IS MOST PREFERRED OPTION

Categorization of sources of energy can be done as follows:

i) Conventional sources of energy: - flowing water and fossil fuels (coal, petroleum, natural gas).

ii) Non conventional sources of energy: - solar energy, wind energy, biomass energy, ocean energy (tidal energy, wave energy, ocean thermal energy), geothermal energy, nuclear energy etc.

Some sources of energy are renewable like sun, wind, flowing water, ocean, wood, biomass etc.

Some sources of energy are non renewable like coal, petroleum and natural gas.
The amount of land required for utility-scale solar power plants — currently approximately 1 km² (250 acres) for every 20–60 MW generated. Solar-generation costs are around ₹18 a kWh, whereas power from imported coal and domestically-produced natural gas currently costs around ₹4.5 a kWh and it is increasing with time.

Hydropower projects that are developed and operated in an economically viable, environmentally sound and socially responsible manner represent sustainable development at its best. Hydro power has an important role to play in meeting long term sustainable development goals; it is a renewable and clean source which is available in region where the needs are greatest.

The answer to the question why hydropower is most preferred option is listed below:

(i) There is an abundant potential available in the country,
(ii) It can lead to energy security
(iii) It is ideal to meet peaking demand
(iv) It improves system stability
(v) It provides inflation free power
(vi) It is environmental friendly
(vii) It opens avenues for socio-economic development of the remote areas
(viii) It is a renewable source of energy
(ix) It is Cost effective
(x) It has additional benefits like irrigation, flood control, tourism etc.

To make the hydropower more sustainable and economical additional opportunities are available through CDM benefits, assured return on equity, water resources co-operation amongst SAARC countries. It is also supported by World Bank, Asian Development Bank and OECD. Till now only 25% of actual power potential has so far been exploited in India. That means still 75% power potential is available for development.

Major social and environmental impacts due to development of hydropower projects are as below:

(i) Resettlement causing social inequities
(ii) Blocking fish migration leading to decreased catches
(iii) Construction affecting water quantity and quality
(iv) Reservoir and riverbank soil erosion causing impairment to water quality
(v) Effects on groundwater hydrology
(vi) Downstream flow variations disturbing fisheries
(vii) Downstream water quality impaired (e.g., reservoir biomass)

All these issues are taken into account while planning and designing a Hydropower Project. The policies mentioned above have been framed to deal with these issues.
6 IMPLEMENTING SUSTAINABILITY

6.1 In design stage

i. Select a designer with experience of environment friendly design
ii. Conduct a design charrette which includes designer, user and installation experts and
prepare cost estimate accordingly.
iii. Use environment friendly methods of construction such as, less use of water, conserve
energy, material friendly to environment, day-lighting arrangement in buildings.

6.2 In construction stage

Select a contractor with experience of environment friendly construction. Important issues that
should be addressed during construction are:

(i) Procurement
(ii) Site/Environment
(iii) Material selection
(iv) Water prevention
(v) Recycling
(vi) Energy
(vii) Building and material reuse
(viii) Construction technologies
(ix) Health and Safety
(x) Indoor environment quality
(xi) Waste management plan

7 DEVELOPMENT OF HYDRO POWER POTENTIAL IN UTTARAKHAND

The development of Hydropower Projects in an effective manner can be achieved by
practicing following procedures:

(i) Involve proven developers for large Projects,
(ii) Offer projects PFR to private sector for time-bound & committed
development by the bidder,
(iii) Facilitating development of six to eight projects simultaneously at any given
stage by various developers,
(iv) Providing benefits (cost & time reduction) from competitive bench marking
amongst developers working simultaneously
(v) Enhance the acknowledged human resource of Uttarakhand in the field of
Hydro Power.

In the present scenario, when there is shortage of electricity in the country. Renovation,
modernization and up rating of existing and old Hydropower plants is considered the best
option as this is cost effective and quicker to achieve than setting of new green site power projects.

However by maintaining ecological health and avoiding social impacts through careful planning of dams and other development projects and adoption of appropriate measures is the major concern while planning a Hydropower Project. The second action to reduce water-related vulnerability in the State is to reach consensus on equitable upstream-downstream water utilization (including environmental flow requirements) in the Rivers.

8 PRIORITIES IN THE DEVELOPMENT OF HYDROPOWER PROJECTS

For sustainable development of Hydropower potential in Uttarakhand merely formulation of policies is not going to serve the purpose, in addition to this we should focus on certain priorities. By time bound monitoring and follow up, execution of projects can be ascertained in a time bound manner. This will reduce time and cost overrun considerably.

Our priorities should include participation of certain Govt. agencies and multilateral financial institutions that are averse to Hydro Projects, due to unfounded threats from environmentalists. Private Sector has not shown that much interest in hydropower as it has been for thermal and other power projects. Lately the private sector has started showing some interest. This development should benefit directly or indirectly to all people who live in the basin in terms of the social, environment and economic performance of projects

9 CONCLUSIONS AND DISCUSSION

Keeping in mind environment and development together sustainable development is certainly possible with the co-ordination among local inhabitants and hydropower developers. Provision for releasing minimum flow essential for aquatic life and maintaining ground water level, strict monitoring and implementation of environmental laws and measures suggested in this paper will safeguard our worries regarding environment.

10 REFERENCES

1. 6th International R & D Conference on Sustainable Development of Warm and Energy Resources Needs 2 007. Luck now. Uttar Pradesh, India
2. Unified Facility Criteria manual no. UFC-4-030-01 dated 21 december 2007
4. Executive summary June 2014 of Ministry of Power, Central Electricity Authority, New Delhi
CHALLENGES AND ISSUES
SMALL HYDRO POWER

Arun Sharma, President, Himalaya Power Producers Association

CHALLENGES OF SMALL HYDRO

1- Economy of Scale
2- Time Overrun
3- Land Transfer Issues
4- Geological Surprises
5- Hydrological Surprises
6- Frequent Policy Changes
7- Regulatory Issues
8- Expansive Financial Closure/RBI Norms
9- Poor Grid Connectivity
10- Poor Infrastructure
11- E&M Capacity Groups lack standardization
12- Suitable Civil Designs/Silt removal
13- Higher Maintenance Cost
14- Insurance Covers
15- Social & Local Issues
16- Disaster Management
KEY PLAYERS

1. Developer
2. Central Govt. Acts/Policies
3. State Govt. Policies
4. Nodal Agencies
5. Financial Institutions
6. Plant/Equipment & Manufactures
7. Consultants/Designers
8. Contractors
9. Local Administrative Authorities
10. Utilities/Connectivity-payments
11. Local support & Socio-economic issues
12. Regulatory Bodies, CERC, SERC
13. N.G.O’s
14. Investors

SPECIFIC ISSUES

- Statutory clearances Time schedule
- Forest land Transfer
- Impact of FRA 2006
- Transfer of Private land
- Sale of RE Power (SHP)
- NAPCC - APCC
- Open Access -Third Party -Captive Use
- Loan Period & Interest Rate
- Disaster Funding
- Labour cess on SHP Projects
- Implementation Agreement
- NPV and lease deed
- Power transmission line Forest area
- Low RE Generic Tariff in SHP
- REC Mechanism
- PPA TENURE
- Financing SHP
- Insurance coverage
- NPA Norms
- Taxes and entry cess on procurement of SHP equipments
### Subjects required to be taken up for deliberations during Conference

<table>
<thead>
<tr>
<th>Subject</th>
<th>Issue</th>
<th>Action by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statutory clearances</td>
<td>As per annexure enclosed SHP Project almost takes 108 months from project allotment to commissioning which must be reduced to 72 months and maximum 42 months after the implementation agreement. Many times there is a duplication of obtaining the same approval and it causes more hurdles when parties are asked for NOC after signing of the Implementation Agreement. It is suggested that IA should only be signed after receiving all statutory clearances (principle approval be obtained) so as developer only concentrates on the Implementation of the project.</td>
<td>-State Govt.</td>
</tr>
<tr>
<td>Time schedule</td>
<td></td>
<td>-Secretary Power</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Nodal Agency</td>
</tr>
<tr>
<td>Implementation</td>
<td>Implementation agreement should clearly state the clearances already received and fix responsibility on the Govt. Departments to facilitate the developer for implementation of the project. Since there are conditions for sale of private land in most of the hilly States principle approval with tentative areas along with change of land use also be mentioned in IA and final certificate can be given during implementation of the project.</td>
<td>-State Govt.</td>
</tr>
<tr>
<td>Agreement</td>
<td></td>
<td>-Secretary Power</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Nodal Agency</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time Schedule &amp; Issues</th>
<th>Time Taken</th>
<th>Reduced Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Allotments, M.O.U.</td>
<td>6 Months</td>
<td>3 Months</td>
</tr>
<tr>
<td>Surveys</td>
<td>12 Months</td>
<td></td>
</tr>
<tr>
<td>Investigations Geology/Hydrology</td>
<td>12 Months</td>
<td>12 Months</td>
</tr>
<tr>
<td>Detailed Project Report</td>
<td>6 Months</td>
<td>3 Months</td>
</tr>
<tr>
<td>Techno Economic Clearance</td>
<td>12 Months</td>
<td>3 Months</td>
</tr>
<tr>
<td>Implementation Agreements</td>
<td>6 Months</td>
<td>3 Months</td>
</tr>
<tr>
<td>Power Purchase Agreements</td>
<td>6 Months</td>
<td></td>
</tr>
<tr>
<td>Land Transfer Forest, Govt. &amp; Private***</td>
<td>6 Months</td>
<td></td>
</tr>
<tr>
<td>Statutory Clearances</td>
<td>6 Months</td>
<td></td>
</tr>
<tr>
<td>- Village/Local Level Permissions</td>
<td>12 Months</td>
<td></td>
</tr>
<tr>
<td>- Pollution Control Board/Environment</td>
<td>working all</td>
<td></td>
</tr>
<tr>
<td>- Irrigation &amp; Public Health</td>
<td>fronts in</td>
<td></td>
</tr>
<tr>
<td>- Fisheries</td>
<td>parallel</td>
<td></td>
</tr>
<tr>
<td>- Wild Life</td>
<td>parallel</td>
<td></td>
</tr>
<tr>
<td>- Essentiality Certificate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Once Techno Economic Clearance is obtained these clearances should be deemed approvals.

<table>
<thead>
<tr>
<th>Implementation Schedule</th>
<th>Present System</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tendering Process</td>
<td>3 Months</td>
<td>6 Months</td>
</tr>
</tbody>
</table>

| Financial Closure        | 3 Months       | Special long term funding arrangements |
| - Interest               |                |                                          |
| - Moratorium Period      |                |                                          |
| - Repayment Period       |                |                                          |
| - Equity requirement     |                |                                          |

<p>| Implementation            |                |                                          |
| - Insurance              |                |                                          |
| - Local Issues           |                |                                          |
| - Public Relations       |                |                                          |
| - Socio Development      |                |                                          |
| - Grid Connectivity      |                |                                          |
| - Explosive License      | 30 months      | 30 months |</p>
<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
<th>Responsible Authority</th>
</tr>
</thead>
</table>
| Forest land     | Maximum delays incur due to transfer and lease of the land which should be simplified with submission of DPR along with Application for clearance under FCA to be submitted by the developer. In addition to the hard copy a soft copy (online) also to be submitted to all concerned departments. Since it has now been agreed that case of 5 ha. shall be dealt at the State level it should be easy for the competent authorities to finally clear the same in 90 days & cases which go to the Regional Office of MOEF should be cleared maximum in 180 days. | - State Govt.  
- Secretary Forest  
- Secretary Revenue – MOEF |
| NPV and lease deed | After sanction of the forest land NPV is determined as per the classification of the Forest and in addition to land developer also deposits the cost of afforestation. Lease deed should also be immediately signed by the State Govt. Forest Department with a lease deed amount of 1% of NPV value or a token amount of Re 1/sq. mtr. for the period of the land lease. Lease deed and possession of the land to be given to the developer within 30 days of depositing of the fee. | - State Govt.  
- Secretary Forest  
- Secretary Revenue – MOEF |
| Impact FRA 2006 | To have the compliance of the Forest Right Act 2006, certificates issued by Dy. Commissioner and the State Government should be accepted by MOEF. Involvement of the developer in this issue creates more complication and Nodal Agencies should obtain the clearances for the project before implementation agreements are signed. | - State Govt.  
- Secretary Forest  
- Secretary Revenue  
- Secretary Power  
- Nodal Agencies |
| Transmission line Corridor area | The corridor width for 33kV / 66kV transmission line be limited to 3.5 M / 5.63 M respectively as also for other voltage transmission lines as per the SSI / IE rules. NPV & CA be worked on this basis. | - State Govt.  
- Secretary Forest  
- Secretary Revenue |
| Transfer Private Land | Hilly States have special laws under which the private land can be purchased for the project. Principle approval to the area of such land requirement be accorded in the Implementation Agreement. Though the developer negotiates the land price with the Farmers in case of dispute or to avoid delays the developer may deposit the money with the District Revenue Officer who will get the sale deed executed at the fair market value as per the location of the land. | - State Govt.  
- Secretary Revenue |
<table>
<thead>
<tr>
<th>Low RE Generic Tariff in SHP</th>
<th>The average cost of the SHP Project today is Rs. 10 Cr. / MW with average PLF 45-50%. (against Govt. Projects at 12 Cr. without IDC) CERC be requested to amend the same and EA2003 must be amended for SERC to follow the same.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNRE CERC SERC</td>
<td>State Govt. Secretary Power SERC</td>
</tr>
<tr>
<td>Sale of RE Power (SHP)</td>
<td>The State Govt. must ensure to purchase RE Power with adequate arrangements of Pooling Stations &amp; Grid Connectivity. The directions can even be given by State Govt. to SERC to give preferential tariff to SHP Sector. To give incentive to discom, those purchasing above RPO obligation should be entitled to have REC incentives.</td>
</tr>
<tr>
<td>REC Mechanism</td>
<td>There is lack of enforcement, CERC and Ministry of Power must make RPO Obligations mandatory. The existing Projects are being declared NFA inspite having huge REC receivables. At present around 1 Cr. REC’s valuing 1500 Cr. at Floor Price needs to be exhausted by special allocation of funds under National clean energy fund or other measures.</td>
</tr>
<tr>
<td>Ministry of Power MNRE CERC</td>
<td></td>
</tr>
<tr>
<td>NAPCC APPC</td>
<td>To ensure uniform Pronouncement of Renewable Purchase Obligation across the country by the State Regulators and to ensure strict compliance of the Pronounced Obligations, it is requested to make NAPCC a part of the National Tariff Policy / Electricity Act, 2003. To make the REC Mechanism equitable, a National Average Power Procurement Cost needs to be calculated and the projects in all those states which have APPC lower/higher than the National Average must be compensated by giving proportionate Multiplier so that they are at level playing field vis-à-vis those states having APPC higher than the National Average. The definition of APPC needs to be amended to include Average Procurement Cost of Power for the Conventional Project commissioned in last 10 years.</td>
</tr>
<tr>
<td>PPA TENURE</td>
<td>CERC Regulations allow PPA Tenure as 13 yrs. or 40 yrs. for projects above 5 MW. It is requested all RE Projects should have option to go for 13 yrs. or 40 yrs. PPA.</td>
</tr>
<tr>
<td>CERC SERC</td>
<td></td>
</tr>
<tr>
<td>-Open access. Third party. -Captive use</td>
<td>Provision of the Electricity act for open access, third party sales, captive use etc. should be freely available to the renewable energy projects. There should be 2% wheeling charges for captive use with in the State to encourage industry and employment opportunities. Since power generated is used in the same area it in fact reduces distribution losses and the replacement energy is given for captive use. For open access ISTS charges &amp; losses should be waived off for all renewable projects to make open access a viable option. These charges &amp; losses should be waived off for projects commissioned in 11th &amp; 12th plan atleast till their loan repayment period i.e. upto 2025.</td>
</tr>
<tr>
<td>CERC SERC</td>
<td></td>
</tr>
<tr>
<td>Financing SHP Loan Period Interest Rate</td>
<td>Hon’ble Minister of Power has emphasized long term financing model for which RBI Circular 15 Jul &amp; 7 Aug should be considered by the Banks / FI. The rate of Interest should be in line with those available to housing loans.</td>
</tr>
<tr>
<td>RBI Banks FI</td>
<td></td>
</tr>
</tbody>
</table>
COST OF THE SHP PROJECTS

➢ Thus the projects below 10 MW are today costing above Rs.10 Cr. per MW and projects between 10 MW to 28 MW are costing Rs.9 Cr./MW.
➢ Recommendations are required to be sent from MNRE to State Governments for not further loading these projects with additional levies / road tax on the equipments and additional fee rise by the various Government Department for the statutory clearances.
➢ State Govt.’s should collect respective fees, charges or any other levies only after the COD of the project so as construction cost is not overloaded.

FIELD LEVEL ORIENTATION/ ONLINE E-APPLICATION FORMS

➢ It has been observed that while the vision of the State Government for small hydro power sector will bring great prosperity and development to the rural area of the State the action plan lacks the commitment at the field level operations for want of proper orientation and training. While the SHP development in China in the similar terrain progress for past ten years has been a great contrast as they have implemented more than 5000 MW in small hydro power sector for reason to have focus on the project sites only than to lose time and energy for the procedural matters. HPPA offer its services in collaboration with Nodal Agency to hold the District Level Seminars and orientation programmes for all the concerned officials. It is also suggested that electronic forms be prepared for obtaining necessary clearances/approvals at the field level and on line work will greatly help to reduce the processing time (with copy of all concerned). This will make the system transparent and make single window clearance mechanism more effective.

FINANCING OF SHP PROJECTS TERM LOAN PERIOD & INTEREST RATE

➢ It is felt that SHP projects are being treated by the banks as normal industrial projects which is not correct as per the nature and capital deployed in SHP projects on long term basis. Hon’ble Minister of Power has kindly got a RBI notification issued for financing of SHP Projects upto 25 yrs. Same be recommended to financial Institutions and be got implemented in IREDA financing with encouragement to take over loans from other banks. All commercial banks need to have clear directive for switching to long term financing like housing loans.

To take care of many implementation issues stated above, it will be good idea to have an active single window system and clearances are obtained by the Nodal Agencies promoting the small hydro development sector. While implementation agreements are signed, it must be made mandatory for the utility, power distribution/transmission agencies to upgrade their system and grid facilities. Areas going to be power surplus in near future should allow export of power through National Grid or State Grid points and the preference for trading licenses
should be given to group of small hydro power developers to improve the viability of the project.

While the developed countries have totally harnessed their SHP potential in the mountain area, Asia has still lot to develop. China has almost 10 times the capacity addition in SHP sector in last ten years in comparison to India. This clearly reflects the approach and decision making required at the field level where projects are to be established. Whatever, good policy we may have, unless the actions are transformed into results with accountability of all stakeholders, SHP sector shall remain suppressed. Though the developer is responsible for the performance, he is unable to solve issues beyond his control.

Unlike other industrial projects, small hydro power is entirely a team work with involvement of all stakeholders and any week link can make it unviable. “On line monitoring” for all clearances and implementation with time bound action program under infrastructure development is the only way to take SHP sector forward. SHP Projects have strong long term fundamentals which should not be eroded for short term gains. Projects after few years of generation can pay the miscellaneous costs but should not be burdened during implementation. State Governments of Uttarakhand, Himachal Pradesh & other Hilly Regions have lately indicated to bring reforms and transparency in agencies connected with implementation of projects which is indeed a welcome sign.