LIGHTING UP LADAKH

Realizing the importance of off-grid energy solutions in the context of unique geographical reality

A LEGAL BRIEF

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JAMMU AND KASHMIR: STATE CONTEXT AND THE ELECTRICITY SCENARIO

One of the significant ways to bring stability in the otherwise disturbed state of Jammu and Kashmir is to create development opportunities for improving socio-economic condition of people and quality of life which are primarily dependent on the energy potential available in the state. On that account the power sector in Jammu & Kashmir is one of the most underdeveloped sectors in the state and has been unable to keep pace with the growing demand. Its supply to ultimate consumers has also been poor. In addition to this large unexplored hydro potential, inadequate transmission and distribution network, huge transmission and distribution (T&D) losses, low power tariff, power thefts as well as long gestation period of the power projects have contributed to the dismal situation.

An assessment of the load, consumption, distribution and purchase of power by the state government in the last fifteen years shows that the local existing capacity in the state could meet one third of the total demand only. Its is also estimated that the total requirement of power is going to increase as compared to previous years, which leaves a deficit of roughly 702 MW[1] . Statistics also show that there is an increased consumption of power in the domestic sector which has surfaced as the biggest consumer in the state in the last decade followed by agriculture and industry and the demand is likely to increase manifold if the grid is extended to rural areas. As it is known that the supply of power is measured by its own generation within the state, gross generation of power in the state is only 8.6 per cent of the total energy available as the remaining supply is obtained from power purchase from the Central Government and other sources[2].

Huge Transmission and Distribution Loses: Need for Off Grid energy solutions in the context of unique geographical reality

The State Power Report in the year 2001 took into account T&D losses in the state and accounted that T&D losses were as high as 47.5 per cent. These losses include transformation losses as well as unaccountable consumption, of which latter

accounts for more than half of the losses. Given this reality it can be estimated that if grid is extended to remote and inaccessible areas, there is going to be huge amount of financial and energy loss due to high amount transmission and distribution losses in extending the grid to these areas. Though the State Electricity Regulatory Commission Act, 2000[3] has been enacted and the State Electricity Regulatory Commission has been set up in 2006[4] with the Jammu and Kashmir Power Development Corporation Ltd[5], the power scenario in the state especially in the rural electrification is far from being satisfactory. Therefore there is a need to promote off-grid energy solutions considering the cost of huge transmission and distribution losses

STATUS OF RURAL ELECTRIFICATION IN J&K:

Kashmir has 6477 inhabited villages of which more than 654 villages and 1678 hamlets are un-electrified[6&7]. The reliable statistics on exact number of un-electrified villages in Ladakh is not known. The reason stated for no or slow electrification in Jammu and Kashmir is that most of the villages are remote, sparsely populated and inaccessible. It is also cited that the most of the remote villages in Kashmir do not fulfill the viability norms of the Rural Electrification Corporation (REC) loan Assistance which is the central assistance provided by the Government of India for rural electrification[8]. Though the number of rural electrification schemes in the state had increased from 137 to 189 in the 10th five year plan[9] and it is carried forward in the 11th Plan, there seems to be very insignificant progress in this area.

It is also noteworthy that village electrification was made a part of the Prime Minister's Gramodya Yojna (PMGY) from the year 2001-02. The funds for this program now flow to the state in the form of central assistance. Allocation under PMGY to Jammu and Kashmir was to the tune of Rs.19.60 crore in the 10th Plan (2002-2007) and very less work has commenced since then.

As discussed above, within the Kashmir region there are several remote and inaccessible areas where grid has not reached. Ladakh is being one such and largest region with the presence of strategically important Leh and Kargil regions and an unique governance system falling with in the twin Autonomous Councils, faces acute power shortage and specially in some of the remote and areas and that are not easily accis-

sible. Even if the region is connected to the Northern Grid in accordance with Prime Minister's Reconstruction Plan (PMRP) for Ladakh[10], the cost for the grid power is going to be exceptionally high due to the huge transmission and distribution losses. Therefore there is a need to understand the unique geographical and climatic reality of the Ladakh region and available energy options differently in a manner so as to create energy self sufficiency locally by utilizing natural resources such as solar or hydro potential in the region. It would thus be important to look at the current scenario and potential energy challenges that the Ladakh region faces today.

LADAKH: AVAILABLE ENERGY POTENTIAL AND RESOURCES

The way forward for energy development in the Ladakh region has to be understood in the context of available natural resources and energy potential in the region and the portion of it that can be used for lighting up most remote and not easily accessible areas in the region where grid cannot reach. Owing to the immense hydro potential in the region, hydel energy is considered as the main and cheapest source of energy available in the state[11]. The Hydro potential in Ladakh is estimated to be more than 1000 MW of which 90 MW is currently used by the two recently installed hydro projects in Nimo Bazgo and Chutuk. Thermal energy is used as standby to back the hydel plants whose generation capabilities fall during winter season due to low river discharge[12]. Ladakh also receives abundant sunlight which provides unique opportunities for the power sector, yet Ladakh is a power deficient region, despite the tremendous need of power due to strategic importance and local energy needs. In addition to this the region has immense potential for tourism which currently relies on diesel generated power, thus adding environmental cost in the fragile ecosystem in the region.

POWER AND ENERGY SCENARIO AS PER THE LADAKH VISION 2025

The present demand for power in Ladakh is 59 MW (approximately) of which a substantial portion is used for the Army. The Ladakh Vision 2025 which was formulated in 2005 estimated that at an annual rate of increase in power consumption of 7%, this requirement of power is set to swell to 94 MW in the coming year 2012, and 140.5 MW by 2025. Further the Vision Document also states that the current installed generation capacity in Ladakh is 13.5 (8.7 diesel, 4.8 hydel)[13]. Clearly, the power deficient situation in Ladakh is alarming. The other reality is the power supply cut for long hours. The current situation is that an average household in Ladakh gets only a few hours of electricity every day. Needless to add that this scenario on extreme power poverty needs to change for the better in this very important and strategic geo-political region.

CONNECTING LADAKH TO THE NORTHERN GRID-NEED TO REVISIT THE PLAN IN THE INTEREST OF PRIORITIZING LOCAL SOLUTIONS AND IN THE INTEREST OF PRIORITIZING LOCAL SOLUTIONS

Connecting Ladakh, the cold desert region in the country with the Northern Grid for meeting its electricity requirement was mooted about 4-5 years back and the scheme was also included in the Prime Minister's Reconstruction Plan (PMRP) announced by Dr Manmohan Singh during his first tenure as Prime Minister. Subsequently, the Power Grid Corporation of India Limited (PGCIL) started survey for proposed transmission line. However, the scheme was dropped as the then Government bartered the transmission line in lieu of two hydro electric projects-Nimo Bazgo in Leh and Chutuk in Kargil districts, which it considered was the immediate necessity. Later it was realized that in winter months, the electricity generation from Chutuk as well as Nimo Bazgo hydroelectric projects will come down to 10 Mega Watts thereby creating huge shortfall in the demand and supply. Thereafter it was also realized that both the hydro electric projects, would be able to meet the electricity requirement of Ladakh region up to certain extent only. Further, as per the estimates of the Planning Commission the idea of having the twin power stations is an expensive idea for reasons that the project would be generating the most expensive energy (over Rs 10 a unit). The government sources also state that in view of the restriction imposed by the Indus Water Treaty no pondage is allowed on river Indus. As a result of this, the generation will drop down to less than one third of the installed capacity during winter due to low discharge in the river.

Despite these estimates, Hindustan Construction Corporation (HCC) had set up NHPCs twin project - Rs 611 crores 45-MW Nimo Bazgo (Leh) and Rs 621.27 crores 44-MW Chuttak (Kargil). The projects were launched in June previous year with the active involvement of the two Autonomous Hill

Development Councils in Leh and Kargil. Given the low pondage levels and massive fall in the availability of water, officials accept that the two projects will do no wonders. In addition to this, the State Government recently took up the issue of connecting Ladakh region with Northern Grid and Prime Minister agreed to the same and sanctioned Rs 900 crore after the region was affected by a natural calamity

Laying down transmission line to connect Ladakh region with Northern Grid by laying 325 to 350 kilometers long transmission lines would take three years. On the other side the Ministry of New and Renewable Energy led by Mr. Farukh Abdullah has sanctioned Rs 473 crore for the installation to fulfill energy requirements of the region more importantly by providing off grid solutions.

In the light of these developments, it seems that the two approaches to provide electricity to Ladakh need to converge at some point in the interest of local realities and cost of supplying most expensive power to the remote population, which in future might render the grid financially unviable[14].

AVAILABLE ENERGY POTENTIAL AND CHALLENGES FOR THE DEVELOPMENT OF SOLAR ENERGY IN THE LADAKH REGION

With more and more tourist influx and change in the lifestyle of local people where the rate of energy consumption has increased much more than it used to be in the past, the following needs to be considered

i)There are no deposits of fossil fuel in the region; energy based on fossil fuel is therefore not the answer to the Ladakh's growing power demand.

ii)The current dependence for power requirements is on the imported fossil fuel.

iii)Difficulties in Supplying Power to Remote Areas. There are many regions in Ladakh that are still largely isolated from the rest of the region, especially during the winter months. Supplying power to such areas is a formidable challenge, and it is virtually impossible to do so by the use of transmission lines from a centralized grid, which is neither a technically feasible nor an economically viable option

iv)Two major challenges are heavy reliance on diesel and kerosene and multiple, overlapping and unclear administrative set up for power delivery especially in the context of solar power.

Ladakh's increasing diesel dependence and environmental concerns

Currently, 8000 litres of diesel are needed to generate sufficient power for a day's consumption in Ladakh, and all of this fuel if imported from outside. In the peak tourist season additional demand is increased by 3-4000 liters. Clearly, this is an unsustainable arrangement, economically as well as environmentally. Conservative estimates also suggest that power development department, army and other appendages of the government are burning kerosene worth Rs 1200 crores a year for lighting purposes alone which has a huge impact on region's fragile ecology. This is notwithstanding the huge climate impacts.

Multiple and over lapping Administrative Set up for power development in the region

There are several agencies involved in Ladakh's power generation with administrative overlaps- such as the Jammu & Kashmir Power Development Department (JKPDD), the Jammu & Kashmir Power Development Corporation (JKPDC), and the Ladakh Renewable Energy Development Agency (LREDA). The mandate for these agencieshas not been clearly defined, and even basic data to prepare new power projects is not readily available. Further central assistance for rural electrification is further controlled by the Rural Electrification Corporation. An unclear and multiple set up for power development especially in the context of an autonomous Ladakh Hill council is not an ideal scenario especially for the development of local energy solutions

100 % ELECTRIFIED?

It is indeed surprising that the entire Ladakh Region, covering both Leh and Kargil districts, is considered as 100% electrified region by the Ministry of New and Renewable Energy, Government of India[15A]. We are not sure whether it is considered electrified as per the definition of Remote Village Electrification Policy or any other parameter. As per the Remote Village Electrification Policy, A village is considered electrified if the following criteria were satisfied:

- The basic infrastructure (such as distribution transformer and/or distribution lines) is made available in the inhabited locality within the rev-

enue boundary of the village, including available power supply on demand at at least one hamlet/Dalit Basti as applicable, and any of the public places like schools, Panchayat Office (village council), health centers, dispensaries, community centers etc.; and

■ The number of households electrified should be at least 10% of the total households in the village."

As a consequence of this new definition for electrification, many villages that were previously considered electrified fell by definition into the un-electrified category[15B].

Neither the State Government nor the local government in Ladakh (LAHDC) is aware of this assumption by the MNRE as there are statistics to prove the contrary. The statistics provided in the Ladakh Vision Document 2020 and annual rural electrification targets by JKEDA[16] show very clearly that Ladakh needs to go a long way as far as energy security and village energy self sufficiency in the region is concerned[17].

SOLAR ENERGY AS THE MOST VIABLE OPTION BUT IS FACED WITH NUMBER OF REGIONAL AND AREA SPECIFIC CHALLENGES

With the Jawahar Lal Nehru National Solar Mission (JNNSM) on its way in the First Phase which ends in 2012, the power scenario in the country is going through dynamic changes. There are number of new technologies and trends in solar enegy that are paving the way in the power sector.

In Ladakh, there is substantial number of remote villages in the difficult and inaccessible areas where Grid can not reach. In addition, the topographical conditions are such that villages are scattered over long distances. Due to this, a central generating and evacuating system with large T &D network does not seem to be feasible. The power solution for the region lies in the dual strategy of concentrated generating system for pockets where population is concentrated and decentralized system for less populated areas. The Solar potential in the state has already been estimated and it has been identified that more than 300 days in a year are sunny and dry. However, the solar energy development in the region faces multiple challenges which include but are not limited to the following:

i. The existing legal and institutional framework especially with respect to the requirement of Land is complex.

ii. Due to extreme weather conditions there is an increased cost of the equipment.

iii. Transportation cost increases the financial viability of the project.

iv. For the large solar projects interface with the J &K Power Development Corporation and State Electricity Regulatory Commission is required, which increases the multiplicity of players in the areas and makes the clearance procedure for the solar power plant complex. The Twin Autonomous Hill Development Council plays the central role in any case. In the light of these challenges it is incumbent to look at the existing legal framework concerning power generation and use of natural resources in Ladakh that can be used for the development of solar energy in the region.

THE LEGAL AND THE INSTITUTIONAL FRAMEWORK ON SOLAR ENERGY DEVELOPMENT IN THE LADAKH REGION

Broadly, the Ladakh Autonomous Hill Council Act, 1995 governs all major functions in the region. But several other legislations become important for the development of energy security in the region that can be potentially used for improving power scenario of Ladakh

a) Ladakh Autonomous Hill Development Council Act, 1997- a unique administrative set up with the Presence of Twin Autonomous Hill Development Councils (Leh and Kargil) can help in a great way for the development of Solar Energy

Ladakh Autonomous Hill Development Council was constituted in accordance with the Ladakh Autonomous Hill Development Council Act, 1995. It was introduced in Kargil during the year 2003. The Council came into being with the holding of elections on August 28, 1995. The Council has executive powers to regulate number of functions and development activities in the Ladakh region[18]. The powers of the Council are vide and provide for the regulation of all the development activities in the region. It is important to mention that power to regulate development of non conventional energy sources is with the Council[19]. The Council has vide powers for the formulation of development program for the District in respect of district component Schemes of the state government and Centrally Sponsored Schemes and indicate priority for various schemes and consider issues related to speedy development of district[20]. This provision is of specific importance for the development of alterative and more localized energy development in the region and can be used for the successful implementation of the National Solar Mission in Ladakh. The Council is empowered to take special measures for creating employment opportunities and

poverty alleviation[21]. The Council also has powers related to Budget and powers relating to monitoring and implementation. Further, the land in Ladakh vests in the Council and council controls the allotment, use and occupation of Land in the area[22]. As per the LAHCDA Land in the region may be transferred to the council in the district unless the land may be required for public purpose[23]. The Council is also empowered to develop District Plan as the Council is also the designated district planning and development board[24]. The Council is also empowered to regulate and issue executive instructions on any other matter as may be entrusted to it by the notification in the Official Gazette[25] . Thus there are number of powers with the Ladkah Autonomous Development Hill Council (Leh and Kargil) that can be used for the successful implementation of National Solar Mission in Ladakh. In addition to the Council's power to control the allotment of land, the forest land in the region is controlled and managed by the specialized department and requisite permission of the forest department is required for the use of forest land for non forest purposes such commissioning of SPV plants. It would thus be important to understand the provisions of Forest Conservation Act as applicable in Ladakh.

b) Jammu and Kashmir Forest (Conservation) Act, 1997

In Ladakh, forest and forest land is regulated under the specific legislation namely the J&K Forest Conservation Act, 1997. The Act becomes particularly important for the purposes of solar energy development as it imposes restrictions on dereservation or use of Forest Land for non forestry purposes[26]. Clearly, installation of solar power plants falls in the category of non forestry purpose and therefore as per the procedure provided in the Act, the installation of solar panels on the forest land in Ladakh can only be done on a resolution of the Council of Ministers who will have to consult the Advisory Committee constituted for recommending the diversion of forest land. Presently, the Act allows the construction of Border road or roads required for the development of rural areas or construction work required for agriculture purposes to pass through demarcated or undemarcated forest with the permission of the Minister in charge and on the recommendation of the Advisory Committee constituted for the purpose. Very clearly, the clearance procedure for the use of forest land for non forestry purposes is very cumbersome and requires involvement of high level officials in the state. This might act as a hindrance in the smooth commissioning of Solar Energy projects in the villages which are inhabited on the forest land.

B) Jammu and Kashmir Electricity Act, 2010

The State Government of Jammu and Kashmir has recently enacted its Electricity Act. The Act provides that the state government shall frame programs and polices for the development of renewable energy[27]. So far state government has not been able to formulate any specific program or policy on the promotion of renewable energy in the difficult areas where grid connectivity is not there. However, there is a potential to use the provisions of the Act for the development of Renewable Energy.

C) State Electricity Regulatory Commission Act, 2000

The Regulatory Commission Act provides for the establishment of a State Electricity Regulatory Commission, rationalization of electricity tariff, transparent policies regarding subsidies, promotion of efficient and environmentally benign polices. The significant power of the Commission is in reference to its tariff determination[28]. In determination of tariff for the supply and purchase of electricity including solar power the Commission shall be guided by the principles provided under the Electricity Act of 2010.

IDENTIFICATION OF CASE STUDIES AND GOOD PRACTICES:

Case Study 1:

The 250 KVA Diesel Generator at Tangtse in Durbuk block of Leh district supplied electricity to three villages for domestic lighting. The diesel generator besides polluting the fragile environment consumed an average of 48,200 litres annually. Then in collaboration with India Canada Environment Facility (ICEF), MNRE, Ladakh Autonomous Hill Development Council (LAHDC) and people of Durbuk block, TATA BP Solar a 4X25kWp solar photovoltaic power plant was installed at Tangtse village, which completely replaced the existing Diesel Generator set. The solar photovoltaic plant is now managed by the local people through a cooperative society known as Renewable Energy Development Cooperative Limited or REDCO.

Some facts about the project:

The project is implemented by LEDeG, with technical support from one of the private developer TATA BP Solar India Ltd. It uses a participatory, approach since the time of conceptualizing of the project. All the villagers were involved in the activities of the project, including operation and maintenance of the systems. The power plant is now run and maintained by the REDCO, a cooperative society formed by local people in the village. The operator of SPV system is a youth from the Tangtse village trained by the developer to maintain and operate the system. The salary of the operator is paid by the Developer as 10 years of operational cost is inbuilt in the project cost. The villages covered are Poon Poon, Laga, Tangtse, Shuchikul, Tharuk, Chilam, Aerat in Durbuk block.

Using Passive Solar Architecture: Linking energy conservation with clean energy

■ With the temperature dropping down to -40 Degree Celsius, room heating primarily in the evening and early morning is a necessity. The conventional methods of room heating is the use of kitchen stove and Chullah (stove) fuelled with dung, wood and kerosene. Use of Trombe wall technology is an extremely simple technology built on the principle of passive solar gain and minimization of heat loss through various design and insulation techniques.

■ In 1984, in collaboration with Ladakh project, there was installation of 75 solar retrofitted houses. Trombe house can reduce reliance on heating fuels by about two-third, besides reducing indoor air pollution and health hazards.

EMERGING ISSUES ON SOLAR POWER DEVELOPMENT AND RECOMMENDATIONS:

■ Increased transportation cost due to difficult terrain and the need to inbuild the cost: Under the Ladakh project 100% grant is being given by

MNRE for SPV and 50% grant for Solar Thermal. But the grant given falls short of the total actual cost required for the commissioning of solar power plants in the area due to the increased transportation component. There is thus need to understand the geographical reality while making the grant per/mw from renewable resources as the cost varies due to transportation cost becoming very high for the region. As an example there is a hydro power project being developed by NHPC at Alchi which has been given an extended cost support of Rs 20 crore per MW keeping in mind the higher transportation cost and higher labor cost.

■ JNNSM has not taken off in Ladakh !
Till December 2010, there have been no projects approved under JNNSM due to refusal by the JK Department of Power. Sources reveal that the power department is refusing to sign MoU with the developers for purchase of power from the solar plant. This MoU is a prerequisite to be eligible for the benefit under the schemes under the JNNSM. Two reasons that are cited in the local context by NGOs and specialist working on renewable energy development in the region are- pressure from diesel lobby and other being that JKPDD does not want to purchase power at such a high cost as even conventional power is being supplied to J&K under special scheme and the arrears of the same are not recovered by the central transmission utility.

■ Subsidy ignores the geographical reality-
The subsidy that is presently being given by MNRE for the Commissioning of the Plants is taking into account system cost in the plain area; the cost of the same system is much higher in Hilly areas as in this region solar thermal system requires thick insulation to keep the water from freezing. The cost of systems in areas like Ladakh should be customized taking into account the specific conditions. Further the schemes/policies that are developed are keeping in mind the situation in the plains so are not workable in areas like Leh in Ladakh. They need to be customized for such areas and the subsidy that are attached have to be scaled up accordingly. For example, the national scheme for setting up rural godowns specifies eligibility that rural godown would be set up for minimum storage of 25 metric tons which is not possible in Ladakh as such a scheme can only be applied in agricultural states of Punjab and Haryana.

■ **Component Subsidy as against Composite Subsidy:**
Under the current subsidies available there is a subsidy on components only. Whereas there is a need for subsidy for composite project cost and not just component as setting up SPV requires civil works, controller room, fencing of the power plant, small transmission lines from the local network. Thermal system requires anti freeze liquid, insulation of water pipes, indirect heating system etc. Therefore there is a need for having composite subsidy for equipments to be installed in Ladakh.

■ Lack of power to create fund with the local government-Need for customized policies and financial powers with the local government
The LHDAC has no power to create post or fund the running of LREDA. The persons employed with the Agency are on contract basis. The Agency is sustained on basis of the projects. Therefore there is a need for strengthening the Agency with funds and human resources that have technical expertise and are aware of local realities.

■ Innovation in Technology to suit high altitude:
Technology is to be developed in such a manner that it can be applied to a high altitude area like Ladakh as the standards equipments especially in solar thermal fail to work in extreme winter conditions due to freezing of water, so innovation in solar thermal technology is required for such areas.

■ Decentralize Power Distribution Network:
As seen in the case study 1 (Durbuk), there is a need for increasing the decentralization of power and creating local solar power stations managed and run by the community with assistance from the local government and LREDA and overall supervision of LAHDC.

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Enviro Legal Defence Firm aims at mainstreaming the discipline of environment and development law, resolving conflicts over natural resources and strengthening environmental jurisprudence. It's our belief that there is a great potential to contribute to this discipline by bridging the gap that exists between the field-based conflicts and the courts. 'Practicing law' has to grow beyond formal courts of law. We aim at providing a unique institutional framework that would sustain major legal initiatives both within and outside the courts. ELDF is an independent team of erudite legal professionals, which provides services to any one who approaches us, including Governments, Non-Government Organizations, Educational Institutions, Individuals, Private and External Agencies engaged in areas of environment and development law. It is our endeavor to ensure that the service provided by us are free from all biases and prejudices and speaks frankly about legal aspects- as we understand them.
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END NOTES

1 The total agreement load in 2008-09 in the State stood at 1,969 MW with number of consumers of all categories standing at 12.16 lakh. Demand of power in the same year was 2,120 MW while as local availability stood between 716 and 941 MW. Energy purchased in the same period was 9,147 MU, costing over Rs. 1,600 crore. Demand in the State during 2009-10 is estimated at 2,247 MW, against availability of 1,545 MW, which leaves a deficit of 702 MW.
2 State Power Report 2002, State Government of Jammu and Kashmir
3 http://www.jkserc.nic.in/act2000.pdf
4 http://www.jkserc.nic.in/jkStateElectricityGrid%20Code.pdf
5 http://www.jkspdc.nic.in/sg.pdf
6 10th Five Year Plan , 2002-2007, http://planningcommission.gov.in/plans/planrel/fiveyr/welcome.html
7 jakeda.nic.in/RFP%20II.doc
8 Kashmir: the economics of peace building : a report of the CSIS South Asia
9 http://planningcommission.gov.in/plans/planrel/fiveyr/welcome.html
10 http://www.dailyexcelsior.com/web1/10june09/news1.htm
11 The state has a huge hydel potential estimated at 20,000 MW. Of which less than 10 percent has been exploited so far. Among the primary sources of commercial energy, Jammu & Kashmir has proven reserves of coal and lignite. The production of non-coking coal in 1999-2000 was 28 thousand tonne and lignite reserves in the state were 128 million tonne
12 The installed capacity in thermal plants is 184 MW.
13 This capacity was accounted in the year 2005, Ladakh Vision Document, 2005
14 The Cost of Grid power in the remote villages of Ladakh region is estimated to cost Rs 10 per unit of electricity.
15A http://mnre.gov.in/annualreport/2002_2003_English/ch4_pg11.htm
15B O.M. No.42/1/2001-D(RE) dated 5th February 2004 , Ministry of Power, Government of India
16 jakeda.nic.in/RFP%20II.doc
17 See Ladakh Vision 2020
18 Chapter III deals with powers and functions of the Council, where Section 22 states the mechanisms to conduct of business Section 23 mentions matters under the control and administration of the council. The council will have the executive powers in the district where sub-section (xxxiv) mention about the local road transport and its development. Sections 29 to section 37 mention the powers of the executive council.
19 Section 23 (xxvii), power to regulate non conventional energy sources, LAHDCA, 1997
20 Section 23 (ii) LAHDCA, 1997
21 ibid
22 Section 23 (i), LAHDCA, 1997
23 Section 42, Ladakh Autonomous Hill Council Development Act
24 Section 48 of the LAHDCA deals with formulation of the district plan
25 Section 23 (xxviii), LAHDCA, 1997
26 Section 2 of the J&K Forest (Conservation) Act, 2007
27 Section 3 (1), J &K Electricity Act, 2010
28 The tariff by the Commission.-(I) Notwithstanding anything contained in any other law, the tariff for interstate transmission of electricity and the tariff for supply of electricity, grid, wholesale, bulk or retail, as the case may be, in the State (hereunder referred to as the "tariff"), shall be subject to the provisions of this Act and the tariff shall be determined by the Commission in accordance with the provisions of this Act.

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