

Renewable sources of energy and open access under the Electricity Act, 2003

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Electricity generation from renewable energy sources in India is being promoted through a host of fiscal policies and preferential tariff for electricity produced from the same. The enactment of the Electricity Act, 2003 has lent further support to renewable energy by ensuring that the Appropriate Commissions take adequate steps to promote renewable sources of energy. The present article is an attempt to demonstrate how appropriate regulatory mechanism can augment the production energy through renewable sources.

In 2003, the Parliament enacted The Electricity Act, 2003 (hereinafter "Act/2003 Act") which was enacted to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity. The overall objective of the 2003 Act is the development of the electricity industry and promotion of competition.

One of the most important features of the 2003 Act is that it provides for provisions for open access in transmission. It was for the first time that any legislation dealing with the electricity laws had provisions relating to open access.

Another very significant feature of the 2003 Act is that the Act recognizes the significance of promoting renewable sources of energy. There are provisions in the 2003 Act which mandate Appropriate Commissions and Governments to take necessary steps to ensure that renewable sources of energy are promoted in an efficient manner and that there is a constant augmentation of renewable sources of energy to meet our present and future power needs.

The present paper highlights the importance of renewable sources of energy and seeks to demonstrate how the provisions of the 2003 Act and specifically how the system of open access can be utilized to promote renewable sources of energy. The present paper is divided into four parts. Part I analyzes some important provisions of the 2003 Act and other policies, which, if implemented in the right manner,

could assist in the promotion of renewable sources of energy. Part II concerns itself with the concept of open access as envisaged under the 2003 Act and the importance of having a robust system of open access. Further, part III highlights the current status of renewable sources of energy in the Indian energy sector and finally part IV concludes by recommending ways through which the system of open access and other regulatory mechanisms could be utilized to promote renewable sources of energy.

Legislative Framework and Renewable Sources of Energy

The present section is an attempt to highlight some important provisions in the 2003 Act which mandate the Appropriate Commissions and Governments to ensure that requisite measures are taken to promote renewable sources of energy. Some of the relevant sections are as follows:

Section 3 of the 2003 Act,¹ empowers the Central Government to prepare and publish from time to time, the National Electricity Policy and Tariff Policy for the development of power system based on optimal utilization of resources such

as coal, natural gas and other renewable sources of energy. This section casts an obligation upon the Central Government to prepare policies which would ensure that there is an optimal utilization of resources including renewable sources.

Further, section 4 of the 2003 Act² authorizes the Central Government to prepare and notify a national policy permitting stand alone systems (including those based on renewable sources of energy and other non conventional sources of energy) for rural areas in India.

Section 61 of the 2003 Act³ provides that whilst determining tariff, the Appropriate Commission shall take into consideration the promotion of cogeneration and generation of electricity from renewable sources. This clearly indicates that the 2003 Act provides the Appropriate Commissions with the power to promote generation of renewable sources of energy by way of tariff determination.

² Relevant portion of section 4 reads as follows:

4. National policy on stand alone systems for rural areas and Nonconventional energy systems- (4) The Central Government shall, after consultation with the State Governments, prepare and notify a national policy, permitting stand alone systems (including those based on renewable sources of energy and non-conventional sources of energy) for rural areas.

³ Relevant part of Section 61 reads as below:

61. Tariff Regulations- The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely: (h) the promotion of co-generation and generation of electricity from renewable sources of energy;

¹ Relevant part of section 3 reads as follows:

3. National Electricity Policy and Plan- (1) The Central Government shall, from time to time, prepare the national electricity policy and tariff policy, in consultation with the State Governments and the Authority for development of the power system based on optimal utilisation of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy.

Further, an obligation is cast on the State Electricity Regulatory Commissions under section 86 of the 2003 Act⁴ to promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person. This section also authorizes the State Commissions to specify a percentage of the total consumption of electricity in the area of a distribution license which such distribution licensee needs to procure from renewable sources.

Apart from the above-mentioned provisions of the 2003 Act, there are policies which have been framed by the Government of India which incentivize the use of renewable energy. For instance, the Government of India has notified the National Electricity Policy⁵ (hereinafter "NEP") which stresses the need for the promotion of non-conventional energy sources. The Central Government has also notified the National Tariff Policy⁶ (hereinafter "NTP") which provides that "Appropriate Commission shall fix a minimum percentage for purchase of energy from non-conventional sources taking into account availability of such resources in the region and its impact on retail tariffs..."⁷ The NTP also provides that procurement of power (through non-conventional sources) by distribution companies shall be done at preferential tariffs to be determined by the Appropriate Commissions.

From the above provisions it is amply clear that renewable energy as a source of energy is being promoted by appropriate legislative mechanisms and that steps are being taken to ensure that there isn't overdependence on conventional and exhaustible sources of energy.

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Open Access

One of the key features of the 2003 Act is that it provides for a system of open access as a matter of right. In other words, the 2003 Act provides that any entity engaged in the generation of electricity can use the transmission facilities in accordance with the regulations specified by the Appropriate Commission in this regard. Section 2(47) of the 2003 Act defines open access. The said section reads as follows:

"open access" means the non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines or system by any licensee or consumer or a person engaged in generation in accordance with the regulations specified by the Appropriate Commission

The rationale for having a system of open access is the promotion of competition amongst the generation companies who can, by virtue of the right to open access, now sell to distribution licensees across the country. It is a vital mechanism through which one of the fundamental objectives of the 2003 Act, viz. development of electricity industry and promotion of competition, can be efficiently achieved.

The importance of having a transparent and a healthy open access system has been emphasized in various policy documents and other judicial/ quasi-judicial pronouncements. For instance, the NEP in clause 5.3.3 recognizes the significance of having a stable system of open access. Clause 5.3.3 reads as under:

"5.3.3 Open access in transmission has been introduced to promote competition amongst the generating companies who can now sell to different distribution licensees across the country. This should lead to avail-

ability of cheaper power. The Act mandates non-discriminatory open access in transmission from the very beginning. When open access to distribution networks is introduced by the respective State Commissions for enabling bulk consumers to buy directly from competing generators, competition in the market would increase the availability of cheaper and reliable power supply. The Regulatory Commissions need to provide facilitative framework for non-discriminatory open access..."

Similarly, the Appellate Tribunal for Electricity (hereinafter "ATE") and the Central Electricity Regulatory Commission (hereinafter "CERC") in their orders have observed that open access is one of the most important objects of the 2003 Act.⁸

Therefore, from the above it is clear that open access is undeniably an important mechanism through which the 2003 Act seeks to promote competition within the electricity sector. In fact, it is stated that the system of open access, if used appropriately, can be utilized to promote renewable sources of energy in India.⁹

Current status of Renewable Sources of energy in the Indian Energy Sector

As a consequence of decades of heavy dependence upon conventional sources of electricity we have been fast consuming traditional sources of energy production. This rapid depletion of traditional sources of energy, such as coal, has raised concerns all over the world. Thus, energy conservation and the promotion of non-conventional sources of energy is on the agenda of almost all nations and the various international bodies.

It is stated that India being a fast-growing economy, we face a greater challenge to meet our energy needs in a responsible and sustainable manner. India's task is to provide energy to over 600,000

4 Relevant part of Section 86 reads as below:
86. Functions of State Commission-
The State Commission shall discharge the following functions, namely:-
(e) promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution license.

5 Vide Ministry of Power Notification No. 23/40/2004-R&R (Vol-II) dated 12.02.2005

6 Vide Ministry of Power Notification No.23/2/2005-R&R (Vol. III) dated 06.01.2006

7 See clause 6.4 of the NTP

8 See ATE Order dated 22nd January, 2007 in Execution Petition No. 1/2006 in the matter of The RPPL Limited v. Transmission Corporation of A.P. and Others; See also CERC Order dated 5th May, 2009 in Petition 21/2009 in the matter of GMR Energy Trading Ltd. v. Karnataka Power Transmission Corporation Ltd.

9 See infra Part IV

human settlements, spread over 300,000 square km of territory, with a population of over one billion. The total primary energy supply in India has grown at a compounded rate of around 3.4 per cent since independence to reach 537.7 Mtoe (million tonnes of oil equivalent) in the year 2005.¹⁰ As a result, the share of commercial energy grew from 28 per cent in 1950 to around 70 per cent in 2004.¹¹ Further, the consumption of electricity in India rose from 4,157 GWh in 1950 to 3,86,134 GWh in 2004-05. Despite this significant growth in electricity generation, shortage of power continues to exist. This shortage is primarily due to the growth in power demand outstripping the growth in generation and generating capacity addition. In May 2007, the country experienced an estimated eight per cent energy shortage and 12.3 per cent shortage of peaking power.¹² Even so, the 2001 census recorded 12.5% of urban households and 56.5% of rural households as still not electrified. It is also worthy to note that the Integrated Energy Policy Committee of the Planning Commission has estimated that in order to meet the projected Gross Domestic Product growth of eight percent per annum by 2031-2032, the demand for primary energy will increase to 1835 Mtoe representing a four fold increase from the year 04-05.

From the above statistics, it is evident that in an effort to procure energy for the exponentially growing demand and also attempting to conserve the same, we are falling short. One of the major reasons for the same is the under-exploitation of the renewable energy sources in the country. At the end of 2008, renewable sources of energy amounted to a mere 9% of the total installed power capacity of the country.¹³ In 2008 8,757 MW were being

MANY STATE REGULATORY COMMISSIONS HAVE NOTIFIED REGULATIONS WHICH MAKE IT COMPULSORY FOR DISTRIBUTION COMPANIES TO PROCURE A CERTAIN QUANTUM OF POWER FROM RENEWABLE SOURCES OF ENERGY

generated by grid interactive wind energy plants, 2,181 MW by the grid interactive small hydro plants, 801 MW by the bagasse CHP plants; and 2 MW by grid interactive solar PV plants. Apart from these there were over 4 million Family Biogas plants and about 363,399 solar home systems.¹⁴ Given the fact that the country has an estimated renewable energy potential of around 85,000 MW from commercially exploitable sources, the under utilization of the renewable energy sources is evident.¹⁵

A major hurdle in allotting a greater share to renewable energy in fulfilling the electricity demand relates to their dependence on the geography. Plants like small hydro plants, wind plants etc, can only be setup given the abundance and bestowment of favourable topography and geographical conditions. Therefore, it is imperative that requisite regulatory and technical mechanisms are in place to ensure that plants which are setup in a particular area are in a position to transmit their electricity to other parts of the country at competitive prices. Such an exhaustive transmission network would not only act as an incentive for plants generating energy through renewable sources but would also ensure that these plants produce at their maximum capacity and procure competitive prices for their electricity.

Open Access and Renewable Sources of Energy

As noted in the preceding sections of this paper, open access is a vital mechanism for the promotion of competition in the electricity sector. It is stated that open access can be utilized to promote the generation of renewable sources of energy. The following sections highlight how appropriate regulatory framework could prove useful in promoting renewable sources of energy-

Many State Regulatory Commissions have notified Regulations which make it compulsory for distribution companies to procure a certain quantum of power from renewable sources of energy.¹⁶ Further, some of these Regulations also provide that any person generating electricity from renewable sources, irrespective of the installed capacity, shall have preference in open access to any licensee's transmission system and/or distribution system. For instance, the Chhattisgarh State Electricity Regulatory Commission (Procurement of Power from renewable sources of energy by distribution licensees) Regulations, 2008, vide Regulation 4.1, provide as follows:

"4. Priority for connectivity / transmission / wheeling:

4.1- Licensees shall give Priority to connectivity / transmission / wheeling of renewable energy through the grid system. Any person generating electricity from renewable sources, irrespective of the installed capacity, shall have preference in open access to any licensee's transmission system and/or distribution system or grid or to any captive user or third parties as the case may be. On an application from such person, the STU or transmission licensee or distribution licensee shall provide appropriate

¹⁰ See V. Subramaniam, Renewable energy in India: Status and Future Prospects, available at www.climateactionprogramme.org/features/article/renewable_energy_in_india_status_and_future_prospects.htm

¹¹ Id

¹² Id

¹³ Ministry of New and Renewable Energy, 2008 cf. V. Subramaniam, Renewable energy in India: Status and Future Prospects, available at www.climateactionprogramme.org/features/article/renewable_energy_in_india_status_and_future_prospects.htm

¹⁴ Ministry of New and Renewable Energy, 2008a cf. Shoumyo Majumdar, A report on the current scenario of developments in renewable energy in India, Renewable energy and efficiency partnership; available at, www.reeep.org/file_upload/5272_tmpphpJPhOrP.pdf

¹⁵ See Shoumyo Majumdar, A report on the current scenario of developments in renewable energy in India, Renewable energy and efficiency partnership; available at www.reeep.org/file_upload/5272_tmpphpJPhOrP.pdf.

¹⁶ This ranges from as low as 0.5% for Madhya Pradesh to as high as 10% for Tamil Nadu. As per the provisions of the National Electricity Policy, these obligations need to be increased in future. The prescribed level of Renewable Portfolio Standard (RPS) for some of the states in the United States of America are—California 20% by 2017, Nevada 20% by 2015, New Mexico 10% by 2011, Texas 5% (2015) and New York 25% by 2013. The RPS for some of the smaller states are—Massachusetts 4% by 2009, DC 11% by 2022 and New Jersey 6.5% by 2008. See Anoop Singh, A Market for renewable energy credits in the Indian power sector, Renew Sustain Energy Review (2007), doi:10.1016/j.rser.2007.10.011

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interconnection facilities, as is feasible, within the time period specified under the standards of performance regulations notified by the Commission. Such interconnection shall also follow the State Grid Code as notified by the Commission."

Further, Regulations in many other States also provide for open access in cases of renewable sources of energy. For instance, West Bengal Electricity Regulatory Commission (Cogeneration and Generation of Electricity from Renewable Sources of Energy) Regulations, 2008, vide Regulation 7 provide that "Any person generating electricity from cogeneration or renewable sources shall have open access..."¹⁷

It is evident that measures are being taken to promote renewable energy through the open access route. This step is particularly important since renewable sources of energy are primarily dependant on the topography of the concerned States. As a result the electricity generated through renewable sources might not always be consumed within that particular State. Non consumption of such excess electricity would result in huge economic losses and would also serve as a deterrent in the promotion of renewable sources of electricity. Therefore, the open access mechanism could be utilized to ensure that the generators of electricity can sell their electricity to a State where they get

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competitive rates for their electricity. This is because open access consumers are spread across the country and are keen to procure renewable energy from the least cost source. Therefore, it would be necessary to permit sale of renewable energy across State boundaries. This would not only ensure that electricity deficient States are provided with electricity but would also promote electricity from renewable sources. It is stated that all State Regulatory Commissions should frame such regulations and that the CERC should also take appropriate steps to ensure that renewable sources of energy are promoted through the open access route.

Further, despite steps being taken to promote renewable energy through the open access route, many States haven't seen capacity addition in renewable sources of energy.¹⁸ Experts believe that the main reason for the same has been the necessity to follow open access regulations for procurement of renewable energy.¹⁹ It may be noted that the existing open access regulations have been designed primarily for transmission of electricity generated from conventional sources of energy. As a result, currently renewable energy generation is subjected to heavy open access charges.²⁰ It is imperative that a cost effective mechanism is developed to ensure that open access consumers also purchase renewable energy. This could be done by either providing for separate regulations for

transmission of renewable energy through the open access route or amending the current regulations wherein the electricity generated through renewable sources is given a preferential treatment.

Finally, it is also important to ensure that the State Transmission Utilities do not deny open access in cases of renewable sources of energy citing orders issued by the State Governments under section 11 as the reason for such denial.²¹ This would ensure that generators of renewable sources of energy are assured of a market for their power and would consequently encourage the production for the same.

Conclusion

It has to be realized that in our quest for development we have consumed a large share of the planet's resources which can never be replenished. These non renewable sources have been the source of energy for a long period of time but now have been reduced to countable deposits which wouldn't last long. This is precisely where renewable energy has the potential to play a pivotal role in our efforts to conserve these non-renewable resources. It is undisputable that there is no dearth of these renewable resources, what is challenging is way in which these resources are to be harnessed in a systematic manner.

The lawmakers have duly taken note of the impending problem. Efforts are on and high priority is being given to the development of renewable sources of energy as a viable and an efficient substitute for the conventional sources. However, as this paper clearly shows that there is still a lot to be done. Examining the situation, the paper provides certain suggestions which, if implemented appropriately, may pioneer better utilization of renewable sources of energy. An effort has been made to work out a mode whereby the provisions of open access, as envisaged under the Act may help in making renewable sources of energy a more readily available and cheaper alternative for electricity from traditional sources.

17 See also Himachal Pradesh Electricity Regulatory Commission (Power Procurement from Renewable Sources and Co-generation by Distribution Licensee) Regulations, 2007 which, under Reg. 3 provide that "Any generator irrespective of installed capacity, shall have open access to any licensee's transmission system and/or distribution system or grid..."; Kerala State Electricity Regulatory Commission (Power procurement from Cogeneration by Distribution Licensee) Regulations, 2008 which, under Reg. 4 provide that "Any person generating electricity from renewable sources of energy shall have mandatory open access to any Licensee's transmission system and/or distribution system or grid as the case may be." See further (Draft) Madhya Pradesh Electricity Regulatory Commission (Cogeneration and Generation of Electricity from Renewable Sources of Energy) Regulation, 2008, which under Reg. 1.32 provides that "Any person generating electricity from cogeneration and renewable sources shall have open access..."; (Draft) Kerala State Electricity Regulatory Commission (Power procurement from Cogeneration by Distribution Licensee) Regulations, 2008, which under Reg. "Any person generating electricity from renewable sources of energy shall have mandatory open access to any Licensee's transmission system and/or distribution system..."

18 See Dr. Pramod Deo's (Chairman and Chairperson, Central Electricity Regulatory Commission) interview at www.inwea.org/pdev.htm

19 Id

20 For instance, open access charges in Assam are as high as Rs. 2.94/Kwh (Tariff being Rs. 3.25/Kwh). Such high open access charges could prove as a deterrent for producers of renewable energy which might hamper capacity addition through the renewable sources route. For a comparative chart of open access charges across various States, See <http://www.forumofregulators.org/OpenAccess.aspx>

21 It must be noted that this issue of denial of open access has gained considerable significance. The legality of the denial of open access by State Transmission Utilities citing orders issued under section 11 of the Act, is currently before the Hon'ble High Court of Karnataka.