

**PUNJAB STATE ELECTRICITY REGULATORY COMMISSION
SCO NO. 220-221, SECTOR 34-A, CHANDIGARH**

Petition No. 08 of 2017(Suo-Motu)
Date of Order: 05.06.2018

Present: Ms. Kusumjit Sidhu, Chairperson
Sh. S.S. Sarna, Member
Ms. Anjali Chandra, Member

In the matter of: Compliance of Renewable Purchase Obligation
by PSPCL and related/consequential matters.

AND

In the matter of: 1. Govt. of Punjab, Department of NRES, Udyog
Bhawan, Sector-17, Chandigarh.
2. Govt. of Punjab, Department of Power,
Chandigarh.
3. Punjab Energy Development Agency (PEDA),
Solar Passive Complex, Plot No. 1 & 2, Sector
33-D, Chandigarh.
4. Punjab State Power Corporation Limited
(PSPCL), The Mall, Patiala.

ORDER

The Commission took Suo-Motu cognizance of Ministry of Power order dated 22.07.2016 vide which MoP has desired that uniform long term RPO trajectory by all States and shortfall in Non-Solar capacity addition / RPO compliance & excess solar capacity addition / RPO compliance by PSPCL and related / consequential matters. Hence the Commission initiated Suo-Motu proceeding in this petition for comprehensive action.

2. The Commission is mandated under Section 86 (1)(e) of the Electricity Act, 2003 (Act) to promote co-generation and generation

of electricity from renewable sources of energy (RE) by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee. In this regard, the Commission issued notice to the following parties:

1. Principal Secretary, Govt. of Punjab, Department of Power.
2. Principal Secretary, Govt. of Punjab, Department of NRES.
3. Chairman-cum-Managing Director, PSPCL.
4. Chief Executive, PEDDA.
5. Chief Engineer, ARR & TR, PSPCL.

Notice

Whereas, the Commission is mandated under Section 86 (1)(e) of The Electricity Act 2003 (Act) to promote co-generation and generation of electricity from renewable sources (RE) 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 licensee. In this regard, the Commission takes note of the following:

- i) Copy of D.O. letter no. 53/14/2016-WE dated 25.10.2016 from Joint Secretary, MNRE, Govt. of India addressed to the Principal Secretary to the Govt. of Punjab, Department of Power with a copy to the Commission wherein it has been informed that for achieving 175 GW of Renewable Power Capacity in the Country by 2022, 60 GW is to come from wind energy. Ministry of Power has issued uniform long term RPO trajectory for all States vide Order dated 22.07.2016. It has been stated that considering

the fact that renewable power potential particularly wind is concentrated in some of the States, and the renewable power generated from these potential States is required to be transmitted to other States using Inter State Transmission System (ISTS), the Tariff Policy provides for waiver of ISTS charges and losses to facilitate inter-state transmission of solar and wind power. An order dated 30.09.2016 in this regard has already been issued by the MoP whereby it has been notified that:

“(i) For generation projects based on wind resources, no inter-state transmission charges and losses will be levied on transmission of the electricity through the inter-state transmission system for sale by such projects commissioned till 31.03.2019.

Provided that the above waiver will be available for a period of 25 years from the date of commissioning of such projects.

Provided further that such waiver will be available only for the projects entering into Power Purchase Agreements (PPAs) for sale of electricity to the Distribution Companies for compliance of their renewable purchase obligation.

.....”

Ministry has sanctioned a scheme for setting up of 1000 MW ISTS-connected wind power projects in order to facilitate non-wind States / UTs to fulfill their non-solar RPO obligations through purchase of wind power at a price determined through transparent competitive bidding process. The projects will be selected through open competitive bidding process followed by e-reverse auction.

In the said letter, it is stated that State of Punjab has an opportunity to buy wind power under the scheme at competitive rate without payment of ISTS charges and losses to fulfill its non-solar RPO. MNRE has estimated that with the present RPO levels declared by the Commission, the State of Punjab requires around

650 MW of additional wind power capacity to fulfill its non-solar RPO for FY 2016-17. Considering the RPO trajectory issued by MoP's Order dated 22.07.2016, this requirement works out to be around 1290 MW.

ii) Ministry of Power vide Order dated 22.07.2016, in exercise of power conferred under The Electricity Act, 2003, requested that SERCs may consider to notify RPO for their respective States in line with the following uniform RPO trajectory, initially for three years from FY 2016-17 to FY 2018-19:

Long trajectory term	2016-17	2017-18	2018-19
Non-Solar	8.75%	9.50%	10.25%
Solar	2.75%	4.75%	6.75%
Total	11.50%	14.25%	17.00%

The aforementioned non-solar long term trajectory for FY 2016-17 to FY 2018-19 has been calculated by excluding hydro power. Clause 6.4 (1) of the revised Tariff Policy dated 28.01.2016 provides as under:

“Pursuant to provisions of section 86 (1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage of the total consumption of electricity in the area of a distribution licensee for purchase of energy from renewable energy sources, taking into account availability of such resources and its impact on retail tariffs. Cost of purchase of renewable energy shall be taken into account while determining tariff by SERCs. Long term growth trajectory of Renewable Purchase Obligation (RPOs) will be prescribed by the Ministry of Power in consultation with MNRE.

Provided that co-generation from sources other than renewable sources shall not be excluded from the applicability of RPOs:

(i) within the percentage so made applicable, to start with, the SERCs shall also reserve a minimum percentage for

purchase of solar energy from the date of notification of this policy which shall be such that it reaches 8% of total consumption of energy, excluding Hydro Power, by March 2022 or as notified by the Central Government from time to time.....”

iii) The Commission after carrying out the due process and obtaining inputs from PSPCL/PEDA, specified the RPO from FY 2015-16 to FY 2019-20 vide gazette notification dated 06.05.2015 as under.

Year	2015-16	2016-17	2017-18	2018-19	2019-20
Non-Solar RPO (%)	3.9	4.1	4.2	4.3	4.5
Solar RPO (%)	1.0	1.3	1.8	2.2	2.5
Total	4.9	5.4	6.0	6.5	7.0

iv) Based on information received from PEDA vide letter dated 08.11.2016, the installed capacity of RE Projects upto 31.03.2016 and projections for FY 2016-17 as brought out in the tariff order for PSPCL for FY 2016-17, are as hereunder:

	Solar	Non-Solar				Total (Solar + Non-Solar)	
	Solar	Biomass	Non-fossil fuel Co-generation	Small Hydro	Biogas + Waste to Energy		Total
	(MW)	(MW)	(MW)	(MW)	(MW)		(MW)
Installed capacity* (upto 31.03.2016)	472.27	72.50	155.00	132.00	1 (0+1)	360.50	832.77
Projections for FY 2016-17	582	14.00	13.70	34.35	1 (1+0)	63.05	645.05

*Committed to PSPCL

Non-Solar RPO

v) The estimates for non-solar RE capacity addition from FY 2015-16 (revised) to FY 2019-20 are as under:

NRSE Projects	Projections*					
	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	Total
	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)
Biomass	46.00	30.00	30.00	30.00	30.00	166.00
Co-gen	13.70	18.00	20.00	30.00	30.00	111.70
MHP	34.35	9.80	6.00	2.50	10.00	62.65
Biogas	1.00	2.00	0.00	5.00	5.00	13.00
Total	95.05	59.80	56.00	67.50	75.00	353.35

* Projections as per PEDAs letter dated 09.04.2015

The achievements for non-solar capacity addition for the last 4 years are as under:

NRSE Projects	Upto 31.03. 2012	2012-13		2013-14		2014-15		2015-16		Total (2012-13 to 2015-16)	
		Proj.*	Act.	Proj.*	Act.	Proj.*	Act.	Proj.	Act.	Proj.	Act.
Biomass (MW)	50.50	48.00	6.00	54.00	16.00	26.00	0.00	46.00	0.00	174.00	22.00
Non-Fossil Fuel based Co-generation (MW)	47.20	15.00	100.00	8.00	0.00	11.50	7.80	13.70	0.00	48.20	107.80
Small Hydro (MW)	129.50	8.03	1.20	31.05	0.00	20.65	1.30	34.35	0.00	94.08	2.50
Waste to Energy (MW)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Biogas	0.00					1.00	0.00	1.00	0.00	2.00	0.00
Total	228.20	71.03	107.20	93.05	16.00	59.15	9.10	95.05	0.00	318.28	132.30

* Projections as per PEDAs letter dated 09.05.2011

From the tabulated details above, it is seen that the non-solar capacity growth during the last few years has not been in line with the projections made by the Nodal Agency PEDAs. Only 132.30 MW non-solar capacity has been added in the State as against 318.28 MW projected by PEDAs for FY 2012-13 to FY 2015-16. 'Nil' non-solar capacity was added during FY 2015-16 and only 25.10 MW non-solar capacity has been added as against the projections of 247.25 MW during the last three years from FY 2013-14 to FY 2015-16, which is merely 10% of the projected capacity.

The non-solar capacity of 360.50 (228.20+132.30) MW has generated 1083.18 MU during the year FY 2015-16 which

translates to RPO compliance of 2.3%. The projections by PEDDA for non-solar capacity to come up in FY 2016-17 as brought out in the Tariff Order for PSPCL for FY 2016-17 is 63.05 MW. PEDDA vide letter dated 08.11.2016 has informed that 6.40 MW capacity (Small-Hydro) has been added upto 31.10.2016 and 24.45 MW non-solar capacity is projected to be added upto 31.03.2017. Accordingly, the non-solar capacity addition in FY 2016-17 is likely to be 30.85 MW (6.40 + 24.45). The likely non-solar capacity as on 31.03.2017 would be around 391.35MW (360.50 + 30.85) and with this capacity, the projected non-solar RPO compliance is likely to remain at 2.3%. The non-solar RPO specified by MoP is 8.75%, 9.50% and 10.25% (excluding Hydro) for FY 2016-17, 2017-18 & 2018-19 respectively. As per the Joint Secretary, MNRE D.O. letter dated 25.10.2016, the additional capacity required to achieve the said RPO suggested by MoP for FY 2016-17 works out to 1290 MW (excluding Hydro).

PEDDA vide letter dated 22.11.2016 informed that keeping in view the shortfall in non-solar RPO, it issued RfP for allotting 100 MW capacity of rice straw based biomass power projects on BOO basis on 03.11.2016. PEDDA submitted that PSPCL vide letter no. 1819/20/IPC-265 dated 01.11.2016 has shown its reluctance to purchase this proposed 100 MW rice straw based biomass power stating that Punjab is power surplus State and PSPCL has to back down conventional power projects and cheaper power has to be surrendered totally in winter season in order to assimilate RE power. PSPCL has also indicated that power generation from all Renewable Energy Sources is infirm power and cannot be relied upon to meet the load profile of the system. Further, PSPCL has

stated that due to huge surplus conventional power at their disposal, there is hardly any need for costlier RE power (Non-Solar) to be added in the PSPCL system.

The Non-Solar RPO compliance by PSPCL is as under:

FY 2011-12 to FY 2014-15

		FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15
Input Energy (MU)		41530.30	43548	42726	46531
Non-Solar RPO specified	%	2.37	2.83	3.37	3.81
	MU	984.27	1232.41	1439.87	1772.83
Non-Solar RE procured	MU	698.91	1117.61	1020.67	1050.93
RECs purchased	MU	285.36 (2,85,350 purchased in FY 2012-13)	-	483.33 (4,83,333 purchased in FY 2013-14)	-
Total: RE Power + RECs purchased for RPO compliance	MU	984.27	1117.61*	1504.00**	1050.93***
RPO compliance after carry forward	%	2.37	2.83	3.37	3.81
			*RPO shortfall of 114.80 MU (1232.41 - 1117.61) was allowed to be carried forward to the next year on petition by PSPCL which was complied by PSPCL	**RPO shortfall of 50.67 MU [(1439.87 + 114.80) - (1020.67 + 483.33)] was allowed to be carried forward upto 31.12.2014 on petition by PSPCL which was complied by PSPCL	***RPO shortfall of 772.57 MU (1772.83 + 50.67 - 1050.93) was allowed to be carried forward upto 31.12.2015 on petition by PSPCL which was complied by PSPCL

FY 2015-16 and FY 2016-17 (upto 31.08.2016)

	FY 2015-16	FY 2016-17
Input Energy (MU)	46389	50585
Non-Solar RPO specified by the Commission (%)	3.9	4.1
Non-Solar RE Obligation (MU)	1809.17	2073.99
Non-Solar RE procured (MU)	1083.18	482.66 (upto 31.08.2016)
Non-Solar RECs/equivalent MU procured	0.00	
Total Non-Solar RE available for RPO compliance	1083.18	
Carry forward from previous years (MU)	772.57	
Net non-solar RPO available for compliance (MU)	310.61	
Non-Solar RPO Shortfall (MU)	1498.56	
Non-Solar RPO met (%)	0.67	
Enforcement Status (complied/not complied/carry forward/waived)	Petition No. 61 of 2016 filed by PSPCL praying for carry forward of shortfall of 1498.56 MU is under adjudication	

Solar RPO

vi) Principal Secretary, NRES, Govt. of Punjab sought a meeting with the Commission with regard to notifying long-term RPO growth trajectory in accordance with Order dated 22.07.2016 of the Ministry of Power, Govt. of India. The meeting was held on 28.10.2016. As per the minutes of the meeting issued vide Commission's letter 6153 dated 17.11.2016, it has been estimated that 1054 MW solar capacity would be in place by 31.03.2017. As such solar RPO of 4.60% & 4.40% is projected to be met as against 1.8% & 2.2% specified by the Commission for FY 2017-18 and FY 2018-19 respectively.

vii) In the discussion above, it is seen that Solar RPO of 4.60% & 4.40% are projected to be met as against 1.8% & 2.2% specified by the Commission for FY 2017-18 and FY 2018-19 respectively

whereas in case of non-solar RPO compliance, the same is around 2.3% as against 3.9% specified by the Commission for FY 2015-16. Further, with the addition of 30.85 MW of Non-Solar capacity in FY 2016-17 as projected by PEDDA, the Non-Solar RPO compliance is likely to remain the same at 2.3% as against 4.1% specified by the Commission for FY 2016-17.

After careful consideration of the above, the Commission has decided to initiate Suo-Motu proceedings with regard to shortfall in Non-Solar capacity addition/RPO compliance and excess in solar capacity addition/RPO compliance and related/consequential matters and issued notice as follows:

Take notice that the petition be taken up for hearing on 02.02.2017 at 11:30 AM.

Proceedings by the Commission

1. The petition was taken up for hearing on 02.02.2017 and vide order dated 08.02.2017, PSPCL and PEDDA were directed to file their respective reply by 20.03.2017. PEDDA submitted its reply vide letter no. 1872-75 dated 20.03.2017. PSPCL submitted its reply vide memo no. 5371/TR-5/831 dated 27.03.2017. Thereafter the matter was taken up for hearing on 04.05.2017, however, Department of NRES & Department of Power (GoP), did not appear. Vide order dated 08.05.2017 the Commission, directed to issue fresh notice to Department of NRES and Department of Power (GoP) along with the copies of the replies filed by PEDDA and PSPCL, directing that reply be submitted by 22.05.2017. PSPCL was directed on 08.05.2017 to file a detailed reply in the form of an affidavit on all the issues raised in the petition by

22.05.2017. The next date of hearing was fixed as 25.05.2017. A notice dated 11.05.2017 was issued to Department of NRES & Department of Power (GoP) for hearing on 25.05.2017. Department of Power (GoP) vide Memo no. 1/8/2017-EB (PR)/316 dated 19.05.2017 submitted that it concurs with the reply filed by PSPCL and the same may be treated as the reply of the State Govt. Vide Memo no. 7/65/2017-EB 1/1610 dated 02.06.2017, Department of NRES (Energy Branch), GoP submitted that the reply filed by PEDDA be treated as the reply of the State Govt. PSPCL vide email dated 23.05.2017 requested to grant three weeks for filing reply and to list the matter after that. Acceding to the prayer of PSPCL, the date for hearing was fixed as 04.07.2017 and PSPCL was directed to file reply by 22.06.2017. The Commission postponed the date of hearing to 13.07.2017.

In compliance to the order dated 08.05.2017, PSPCL submitted an additional reply vide memo no. 6399 dated 03.07.2017. The petition was taken up for hearing on 13.07.2017. The Commission vide order dated 18.07.2017 observed that the replies filed by PSPCL and PEDDA are at variance on certain issues which need to be sorted out by holding a joint meeting of the Officers of PSPCL and PEDDA, with the Officers of Department of NRES & Department of Power (GoP) and to file a report by 28.07.2017. Next date of hearing was fixed as 17.08.2017. However, as per report of the meeting.....the Commission adjourned the date of hearing to 11.10.2017.

PEDDA and PSPCL submitted report of their joint meeting vide letter no. 5395-98 dated 28.08.2017 and memo no. 5167 dated 29.09.2017 respectively. The petition was taken up for

hearing on 11.10.2017. The Commission vide order dated 13.10.2017 directed PSPCL to submit a concrete & firm action plan indicating source wise information in MW capacity and power to be procured (MU) from such renewable energy sources for meeting the shortfall in RPO compliance for FY 2015-16 and FY 2016-17 as also for compliance of the RPO specified by the Commission for the years FY 2017-18, FY 2018-19 and FY 2019-20 by 27.10.2017. PEDDA was directed to submit the details of the total potential in the State of Punjab from renewable energy sources (non-solar) in MW capacity and Million Units, both tapped and untapped & also indicating the plan of year wise capacity addition of such untapped potential by 10.11.2017. The next date for hearing was fixed as 13.12.2017.

PEDDA submitted its submissions on 02.11.2017 and PSPCL submitted its reply vide Memo no. 5534 dated 20.11.2017. The petition was taken up for hearing as 13.12.2017. Vide order dated 01.01.2018, it was observed by the Commission that the reply submitted by PSPCL is not comprehensive. Accordingly, PSPCL was again directed to submit the concrete action plan/comprehensive submission (year wise) as directed by the Commission in its earlier order dated 13.10.2017. The Commission further directed PSPCL to submit the details of the PPAs terminated by PSPCL as also details of projects where Implementation Agreements (IAs) have been signed by PEDDA, but PPAs have not been signed by PSPCL although PSPCL participated in the selection process of developer. PSPCL indicated that they were not signing PPA's as cost of Bio-mass project were high and they would be willing to procure at Rs.

3.47/kWh. PSPCL was directed to indicate the amount of subsidy that would be required if PPAs at Rs.3.47/kWh are to be signed with the developers of projects based on Anaerobic Digestion of straw based bio fuel and waste to energy projects, as indicated in its letter dated 27.09.2017 addressed to PEDDA. PEDDA was directed to submit the details of the corpus fund created by PEDDA under NRSE policies for promotion of NRSE projects by charging a percentage of energy share from power sold by developers to PSPCL along with the details including the total amount of the fund, year wise additions, amount spent and balance as on date and the purposes where the same has been spent by PEDDA by 16.01.2018. The petition was fixed for hearing on 24.01.2018. PSPCL was directed to submit the requisite information by 16.01.2018.

In compliance to the Order dated 01.01.2018, PSPCL submitted additional submission vide Memo no. 6199/TR-5/831 dated 16.01.2018. PEDDA also filed its submissions vide Memo no. 391-394 dated 22.01.2018 in compliance to the Order dated 01.01.2018 including the details of the corpus fund created by PEDDA under NRSE policies for promotion of NRSE projects by charging a percentage of energy shares from power sold by developers to PSPCL.

After hearing the parties on 24.01.2018, Order was reserved vide order dated 01.02.2018.

2. PEDDA's submissions, in brief, are as under:

- i) As per the minutes of meeting held on 28.10.2016 in the Commission's office with the Principal Secretary, NRES,

GoP, PSPCL is surplus in power to the extent of 18124 MUs and approximately Rs. 2075 crore shall be payable by it on account of fixed charges during FY 2016-17. This position of surplus power is likely to continue atleast for next 5 years. It was decided in the meeting that no additional solar capacity is required to be added in FY 2017-18. However, in order to keep the solar projects alive, 100 MW rooftop solar capacity shall be announced for addition during FY 2017-18. The Commission is yet to fix the revised solar trajectory accordingly.

- ii) 182 MW biomass based power projects are likely to be set up by FY 2018-19 for which allotment letters have been issued to the developers and Implementation Agreements for 147.5 MW have been signed by PEDDA with the developers to comply with Non-Solar RPO requirement. PEDDA informed that PSPCL has not signed PPA with any developer despite having knowledge of the fact that control period of the Tariff would cease on 31.03.2017. The shortfall in Non-Solar RPO compliance by PSPCL is 1498.56 MUs in FY 2015-16 and PEDDA is making all efforts to bring additional Non-Solar capacity.
- iii) PEDDA invited proposals under phase-1 for setting up 200 MW 100% rice straw based biomass power projects against which only 30 MW capacity could be allocated in Feb., 2016 to comply with the shortfall in Non-Solar RPO compliance,.
- iv) PEDDA again invited proposals under phase-II for allocation of 200 MW capacity 100% rice straw based biomass power

projects in May, 2016 against which 152.50 MW capacity has been allocated in Sept., 2016. PSPCL has not signed the PPAs with the developers till date.

- v) PSPCL had signed IA cum PPA in FY 2003-04 for 12 nos. rice straw thermal plants with each one of them having 12 MW capacity. Only 1 project out of the 12 projects has been commissioned till date. These projects, if commissioned, would have contributed 810 MUs approx. of Non-Solar Renewable Energy for FY 2015-16.
- vi) A meeting was held on 09.08.2017 under the Chairmanship of Principal Secretary, Deptt. of New and Renewable Energy, GoP with regard to compliance of RPO by PSPCL and other related/ consequential matters on the directions issued by PSERC. The Principal Secretary, Deptt. of Power, GoP and representatives of PSPCL and PEDDA participated in the meeting. The matter regarding the non-signing of PPAs by PSPCL with 100% rice straw based biomass power projects was discussed and PSPCL informed that the same were not signed due to election code of conduct and also due to lack of some information / data regarding higher cost of proposed biomass projects.

As regards the contention of PSPCL with respect to availability of cheap power from hydro sources and surplus power in the state, it was informed that biomass power projects in the state not only contribute towards fulfillment of Non-Solar RPO but also provide a lot of socio-economic benefits in terms of environmental benefits and employment

generation.

It was decided that PEDA and PSPCL shall work jointly and put in the best of their efforts for meeting the Non-Solar RPO.

vii) The total potential in the State of Punjab from renewable energy sources (Non-Solar) is as under:-

a) Paddy straw based:

As per the data obtained from Punjab Pollution Control Board, paddy cultivation produces approximately 19.7 million ton per year of paddy straw out of which 4.3 million ton is consumed in biomass waste power plants, paper / cardboard mills and animal fodder etc. Based on the availability of balance 15.40 million ton per year paddy straw, the conservative estimated potential for generation of power from Non-Solar Renewable Energy sources is 1100 MW approx. from which 7708 MUs of renewable energy can be generated.

b) Small Hydro Power:

There is potential of about 400 MW capacity of small hydro power in the State on different streams. Out of the above 400 MW capacity, 156.15 MW capacity has already been commissioned and 17.20 MW capacity is under execution. The balance potential of about 225 MW out of 400 MW, is as under:

i) 65 MW on Bhakra Main Line Canal:

This potential is on the inter-state canal for which there is dispute between the partner states and matter is pending with Govt. of India for NOC.

ii) 75 MW on UBDC streams :

This potential was allotted by PSPCL to Bhilwara Energy Limited to be developed as large Hydro, which has not come up and PSPCL is in the cancellation process of the same. If cancelled by PSPCL, this 75 MW potential can be harnessed as Small Hydro Project, with approval of the Govt.

iii) 50 MW on the proposed Mukerian Hydrel Channel-III, i.e. from the tail of PSPCL 18 MW project on MHC-II near Terkiana Upto Harike Pattan & the scheme is with PSPCL for harnessing this potential.

iv) About 20-22 MW on tail of Anandpur Sahib Hydrel Channel (ASHC) to Ropar Headworks, but the matter is linked with SYL Canal.

v) About 10-12 MW are very very low head sites/ low discharge sites on the canals which can only be harnessed subject to availability of low head technology/ viability owing to low discharge.

vi) A five years strategy paper alongwith 2 year priority agenda has already been submitted to Department of Planning and NITI Aayog for formulation of vision document. Accordingly, the projected targets are as under:

- a) FY 2017-18: 125 MW (Solar); 46 MW (Non-Solar)
- b) FY 2018-19: 250 MW (Solar); 55 MW (Non-Solar)
- c) FY 2017-22 (5 years): 2097 MW (Solar);
1132.65 MW (Non-Solar)

vii) PSPCL time and again showing its reluctance to sign PPAs in the non-solar category quoting that the State of Punjab is Power Surplus and there is hardly any need of costly non-solar renewable energy to be procured by PSPCL.

viii) PSPCL has unilaterally terminated PPAs of 14 MW biomass projects allocated by PEDDA during the year 2007-08 which were on the verge of the commissioning. Such actions of PSPCL are creating a disabling and discouraging environment in the RE sector.

ix) As regards setting up of 4.985 MW Anaerobic Digestion of Straw based Biofuel Power Project and proposal for setting up of 1.5 MW capacity waste to energy power project based on Bio-Methanation technology in District Sangrur, PSPCL has conveyed that it may buy power from these projects @ Rs. 3.47 / kWh with cross subsidization from GoP. Otherwise, PSPCL would prefer to fulfill its Non-Solar RPO requirement by purchasing Renewable Energy Certificates from the market, which would be far cheaper than the tariff proposed for the said projects.

x) PEDDA was directed by the Commission to submit the details of corpus fund created by PEDDA under NRSE policies for promotion of NRSE projects by charging a percentage of energy share from power sold by developers to PSPCL. The balance in the fund is Rs. 39.98 crore. Rs. 50 crore is the committed expenditure in FY 2017-18 and FY 2018-19 which shall be utilized for setting up of 2556 nos. Solar PV Agriculture pumps under MNRE, GoI demonstration Solar pumping programme in the State of Punjab to be met from the Renewable Energy Corpus. The usage of Renewable Energy Corpus fund is solely at the discretion of GoP.

3. PSPCL's submissions, in brief, are as under:

- i) PSPCL has taken all necessary steps to procure renewable energy for RPO compliance but there has been some shortfall in non-solar RPO compliance due to reasons beyond the control of PSPCL. The major reasons for shortfall is the inadequate capacity addition as envisaged and inadequate generation of the existing Non-Solar generating stations. PEDDA has cancelled 90.93 MW Non-Solar projects for which Implementation Agreements were signed. PSPCL signed the PPAs for 453.75 MW Non-Solar capacity against which 373.6 MW capacity has been commissioned. The expected generation from Non-Solar Renewable Energy projects was 2262 MUs in FY 2015-16 against which these projects generated only 1083 MUs resulting in shortfall in Non-Solar RPO compliance.

- ii) The compliance of Solar RPO is more than that specified by the Commission whereas there is shortfall in Non-Solar RPO compliance. The excess renewable energy from one source may be taken into consideration for fulfillment of shortfall in RPO from another source by the Commission. The principle of Non-Solar RPO being adjusted by excess solar energy has been upheld by Hon'ble APTEL in its order dated 25.04.2014 in Appeal No. 24 of 2013.
- iii) As regards PSPCL's reluctance to sign the PPAs for the purchase of power from the rice straw based biomass power projects, PSPCL submitted that it is not deficit in power. Buying biomass based power @ Rs. 8.66 / kWh will cause huge financial loss of around Rs. 823 crore as PSPCL will have to surrender equivalent units @ Rs. 4.66 / kWh. The further financial loss of Rs. 238 crore for 1766 MUs will be caused on account of back down of existing thermal / IPPs. Therefore PSPCL has not yet signed the PPAs. Further, the shortfall in Non-Solar RPO compliance is due to inadequate generation and not for want of capacity tied up. PSPCL had signed 12 nos. PPAs for 12 MW capacity each rice straw thermal plants against which only one project has been commissioned. PSPCL is in the process of cancellation of PPAs for the same.
- iv) The Commission may issue suitable directions regarding the penalty in the tariff or otherwise to be imposed on the renewable energy generators for not maintaining the requisite PLF and for ensuring that optimum generation is

made from the existing projects so that the RPO obligation can be fulfilled without any difficulty.

- v) A tender was called for procurement of Non-Solar energy from outside the State of Punjab w.e.f. December, 2016 to March, 2017 for 50 MW (RTC) and April, 2017 to September, 2017 for 100 MW (RTC). PSPCL has issued LOI for 100 MW (RTC) from May, 2017 to September, 2017. PSPCL has also participated for FY 2016-17 and FY 2017-18 in HPSEBL tender enquiry for sale of 1214 MUs per annum during FY 2016-17 for FY 2021-22 wherein the final decision of HPSEBL is awaited.
- vi) The RPO target for Non-Solar @ 4% and Solar power @ 2.5% can be achieved according to the project capacity available to PSPCL in Punjab which will help in renewable energy generation in the State and avoid purchase of the same from resources outside the State to meet with higher RPO targets. The higher RPO targets will only help other States which have surplus renewable energy available with them.
- vii) PSPCL is already surplus in power and is making efforts to sell power to other States. PSPCL has to pay fixed charges for plant capacity available which is more than actual demand. Due to purchase of renewable energy at higher tariff than conventional energy, PSPCL has to bear additional financial burden.
- viii) While considering any future revision / determination of RPO targets, the Commission may take into account the following:

- a) Actual capacity addition,
- b) Load profile of the State of Punjab during summer & winter seasons
- c) Stability of grid due to large share of infirm power (especially in winter)
- d) Conventional power surplus in the State of Punjab.
- e) The operational level of the power projects in the States.
- f) The generation that is being made available from the renewable power projects.

4. In reply to the order dated 13.10.2017 and 01.01.2018 asking for the details of Non-Solar projects & their generation for FY 2017-18 to FY 2019-20, PSPCL stated that expected generation from all these projects is 2268.79 MUs, 1401.98 MUs and 1881.41 MUs in FY 2017-18, FY 2018-19 and FY 2019-20 respectively. PSPCL further submitted as under:

- i) The expected Solar generation is 1373.90 MUs, 1506.40 MUs and 1588.90 MUs in FY 2017-18, FY 2018-19 and FY 2019-20 with installed Solar capacity of 1059.27 MW.
- ii) After considering the previous year's Non-Solar shortfall of 2225.03 MUs, there will be shortfall of 2199.19 MUs, 996.76 MUs & 743.07 MUs in Non-Solar RPO compliance for FY 2017-18, FY 2018-19 and FY 2019-20 respectively. To meet with above shortfall in RPO compliance, RECs amounting to Rs. 329.88 crore, Rs. 149.51 crore & Rs.111.46 crore shall be required to be purchased by PSPCL in FY 2017-18 FY

2018-19 and FY 2019-20 respectively. However, if the commission allows the adjustment of excess solar power against the non-solar RPO shortfall, then RECs amounting to Rs. 230.50 crore, Rs.60.33 crore and Rs.36.56 crore shall be required to be purchased in FY 2017-18, FY 2018-19 and FY 2019-20 respectively.

- iii) PPAs were signed with Green Planet Energy on 14.10.2009 for purchase of power from its 26 MW biomass based projects. Two projects of 6 MW capacity each were commissioned on 10.05.2012 and 14.05.2013 respectively. Balance 14 MW capacity was not commissioned. As per PPA, the Agreement could be terminated if the generating facility fails to begin producing electric energy within three years from the planned COD. In view of the above, the PPAs were terminated.
- iv) PEDDA signed IAs for the 11 no. 100% rice straw fuel based power projects with a total capacity of 157.50 MW. PEDDA intimated PSPCL that it has refunded the facilitation service charges and PBG for three projects. Out of the remaining 8 projects, PSPCL management had decided to sign PPAs for two projects of Sukhbir Agro Energy Ltd. of 15 MW each located at Ferozepur and Jaito. The PPAs for the same were signed on 02.01.2018.
- v) If PSPCL is required to procure power @ of Rs.7.90 per kWh, then subsidy required would be Rs.4.43 per kWh. Accordingly, the subsidy required by PSPCL for purchase of

power from 20 MW waste to energy projects would be Rs. 3.10 crore assuming PLF of 80%.

5. **Commission's Observations, Findings and Decision**

The Commission has carefully gone through the replies of PSPCL, PEDDA, Department of NRES & Department of Power (GoP) and other submissions filed by PSPCL / PEDDA. The observations, findings and decision of the Commission are as hereunder:

The Commission had initiated Suo-Motu proceedings in the petition with regard to Ministry of Power order dated 22.07.2016 vide which it issued uniform long term RPO trajectory for all states and shortfall in Non-Solar capacity addition / RPO compliance and excess Solar capacity addition / RPO compliance by PSPCL and related / consequential matters.

The Commission is mandated under Section 86 (1)(e) of the Electricity Act 2003 (Act) to promote co-generation and generation of electricity from renewable sources (RE) 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 licensee.

The Commission observes that although there have been some factors beyond the reasonable control of PSPCL such as delay in commissioning of the new RE projects by the developers, less generation from existing & newly commissioned RE projects and financial constraints, the shortfall in RPO compliance can be met by purchase of RECs

which are freely available in the market. PSPCL did not purchase the same for RPO compliance.

The shortfall in Non-Solar RPO compliance needs to be complied with by PSPCL through purchase / generation of electricity from RE Projects or in case of non-availability of such electricity despite best efforts, through purchase of Non-Solar RECs from Power Exchange(s). PSPCL is also advised to participate in various schemes of Solar power and Wind power implemented at the behest of Ministry of New and Renewable Energy (MNRE) from time to time to fulfill its Solar / Non-Solar RPO compliance through purchase of Solar / Wind power available at competitive price. Further, PEDDA is directed to follow up with developers for timely execution / commissioning of the allotted projects and investigate reasons for less generation from existing NRSE Projects and take necessary measures.

The Commission in future intends not to allow, the carry forward of shortfall in RPO compliance of a particular year to next year barring exceptional circumstances. Accordingly, PSPCL is advised to meticulously comply with Renewable Purchase Obligation specified by the Commission for the respective years. In case of non-compliance of RPO by PSPCL, the penal provisions provided in PSERC Regulations may be invoked by the Commission.

The Commission notes that PEDDA has further submitted that the State has the potential of about 225 MW of small

hydro power which can be tapped. The Commission also notes that four micro hydel projects of PSPCL at Daudhar, Nidampur, Rohti and Thuhi (total capacity 3.9 MW) are non-functional for long. Further, 1st unit of MHP Stage-II 18 MW (2x9 MW) project in Distt. Hoshiarpur has been delayed considerably and has not commissioned in FY 2017-18. Also 2nd unit of project was commissioned in June, 2017 which went into shutdown in February, 2018 due to technical fault. The Commission directs PSPCL to take immediate necessary measures for the development, timely completion of the aforesaid projects and ensure proper and better maintenance of the Hydel Projects or other projects under its control for meeting its RPO obligations.

The Commission also specifically takes note of the submissions made by PEDDA with respect to availability of huge quantity of paddy straw in the state of Punjab which has the potential for generation of power of 1100 MW from which approx. 7708 MUs can be generated. The Commission is of the view that if the said potential is harnessed, the problem of air pollution due to burning of paddy straw can be solved to the great extent in addition to meeting the Non-Solar RPO. PEDDA and PSPCL may jointly investigate how these projects can be developed.

The Commission takes note of the Ministry of Power Order dated 22.07.2016 wherein it has been requested that SERCs may consider to notify RPO for their respective states

in line with the uniform RPO trajectory specified by the Ministry. Considering the submissions of all the stakeholders and keeping in view the trajectories suggested by MoP to meet the target, the Commission intends to review the Renewable Purchase Obligation (RPO) already specified by it, after following the due process.

The petition is disposed of accordingly.

-Sd/-

-Sd/-

-Sd/-

(Anjuli Chandra)
Member

(S.S. Sarna)
Member

(Kusumjit Sidhu)
Chairperson

Chandigarh

Dated: 05.06.2018