(80)

POWER PURCHASE AGREEMENT BETWEEN PTC INDIA LIMITED AND DRUK GREEN POWER CORPORATION LIMITED FOR SALE AND PURCHASE OF MANGDECHHU POWER

This Agreement is executed on this 15th day of August, **Two Thousand Nineteen** between **PTC India Limited**, a company incorporated under the provisions of the Companies Act of the Republic of India, 1956/2013 and having its Registered office at 2nd Floor, NBCC Tower, 15 Bhikaji Cama Place, New Delhi – 110 066, INDIA (hereinafter referred to as **"PTC"** which expression shall unless repugnant to the context or meaning thereof, include its successors and assigns) as party of the **FIRST PART;**

AND

Druk Green Power Corporation Limited, a company incorporated under the provisions of the Companies Act of Kingdom of Bhutan, 2000 and having its registered office at PO Box 1351, Thimphu, Bhutan (hereinafter referred to as **"DGPC",** which expression shall unless repugnant to the context or meaning thereof include its successors and assigns) as party of the **SECOND PART**, each also individually referred to as the **"Party"** and collectively referred to as **"Parties".**

WHEREAS, the Royal Government of Bhutan (RGoB) and the Government of the Republic of India (GoI) by an Agreement dated April 30, 2010 and Protocol to the Agreement dated April 23, 2019 had, inter-alia, agreed that the Royal Government of Bhutan shall sell the "surplus power" available from the Mangdechhu Hydroelectric Project (**"Project"**) to the Government of the Republic of India and the Government of the Republic of India had agreed to purchase all the surplus power from this Project;

AND WHEREAS, the Protocol to the Agreement between the Government of the Republic of India and the Royal Government of Bhutan regarding the Mangdechhu Hydroelectric Project of April 23, 2019, enclosed as **Annexure-I,** has designated PTC India Ltd and Druk Green Power Corporation Ltd as nodal agencies in India and Bhutan respectively for the inter-country sale of Mangdechhu power;

AND WHEREAS, the Government of the Republic of India in the context of the 2010 Mangdechhu Agreement and the April 23, 2019 Protocol to the Agreement between the Government of the Republic of India and the Royal Government of Bhutan, has authorized PTC and DGPC to enter into a Power Purchase Agreement for sale and purchase of all the surplus power available from the Project.

NOW THEREFORE, in consideration of the premises, term and conditions as herein incorporated, the parties hereto mutually agree, covenant and declare as under:-

ARITCLE - I

1.0 DEFINITIONS

The words/expressions mentioned below shall have the meanings as respectively assigned to them as hereunder, except the context otherwise requires:

a.	Bhutanese Grid	Means the networks of electricity transmission lines in Bhutan upto Indo-Bhutan international border;
b.	BPC	Means the Bhutan Power Corporation Limited;
c.	BPSO	Means the Bhutan Power System Operator;
d.	CEA	Means the Central Electricity Authority in India;
e.	CERC	Means the Central Electricity Regulatory Commission in India;
f.	CHP	Means the Chhukha Hydropower Plant;
g.	Day	From 00.00 hours to 24.00 hours of Indian Standard Time;
h.	DHPS	Means the Department of Hydropower & Power Systems of Bhutan;
i.	Due Date	Shall have the meaning as set forth in Clause 7.3. If the due date falls on a bank holiday in Delhi, the immediately succeeding day when the banks are open for business in Delhi shall be considered as the due date;
j.	Energy	Means the electricity energy measured in kWh (Units);
k.	ERPC	Means the Eastern Regional Power Committee in India;
l.	ERLDC	Means the Eastern Regional Load Dispatch Centre in India;
m.	IEC	Means the International Electro-Technical Commission;
n.	IEGC	Means the CERC (Indian Electricity Grid Code) Regulations 2010, as amended from time to time or re-enacted thereof;
o.	Indian Grid	Means the networks of electricity transmission lines in India;
p.	KHP	Means the Kurichhu Hydropower Plant;
q.	Month	Means the English calendar month;
r.	MHP	Means the Mangdechhu Hydropower Plant;
s.	NLDC	Means the National Load Dispatch Centre in India;
t.	Outage	Means the state of a component when it is not available to perform its intended function due to some event directly associated with that component;
u.	POSOCO	Means the Power System Operation Corporation Limited in India;
v.	Power	Means the electrical Power measured in MW;

w.	POWERGRID	Means the Power Grid Corporation of India Limited;
x.	Regional Energy Accounts	Means as defined in the IEGC and issued by ERPC secretariat or other appropriate agency for each Month (as per their prescribed methodology), including the revisions and amendments thereof;
y.	RMA	Means the Royal Monetary Authority of Bhutan;
z.	SEM	Means the Bi-directional Special Energy Meters of 0.2 accuracy class or better conforming to the latest IEC and shall meet the requirement of IEGC;
aa.	THP	Means the Tala Hydropower Plant;
bb.	Transmission Losses	Means the loss of energy due to its transmission over a particular section of a transmission line and/ or its transformation from one voltage level to another;
cc.	Wheeling Charges	Means charges for transfer of power payable to the owner of the transmission network.

ARTICLE – II

2.0 ALLOCATION OF POWER AND ENERGY

2.1 Mangdechhu Hydropower Plant ("MHP") under DGPC is a run - of - river hydroelectric scheme with installed capacity of 720 MW (4 x 180 MW) with an annual estimated generation capacity of 3008 million units during 90% dependable year. The machines have additional 10% continuous overload capacity.

2.2 DGPC shall supply to PTC, and PTC shall purchase all surplus energy from MHP that is in excess of the requirements within Bhutan.

2.3 DGPC shall intimate to PTC through the BPSO, the estimated quantum of power and energy, which shall be made available to PTC on monthly basis in the month of December of the preceding year. This data will be reviewed by DGPC on a monthly basis and the revised data shall be intimated to PTC and/or the agency authorized by PTC at least 7 days before commencement of the month.

ARITICLE - III

3.0 GENERAL OBLIGATIONS

3.1 Delivery Point(s):

3.1.1 The Indo-Bhutan international border at Jigmeling shall be deemed to be the Delivery Point for the energy to be received by PTC for power flowing on the 4 Nos. of 400 kV Mangdechhu – Alipurduar transmission lines and also for power flowing through 400/132 KV ICT at MHP pot head yard.

3.1.2 For Mangdechhu power flowing through transmission lines other than provided in Clause 3.1.1 above, Indo-Bhutan international border shall be deemed to be the Delivery Point for energy received by PTC.

3.2 **Wheeling Charges and Transmission Losses:**

3.2.1 Charges for Wheeling and Transmission Losses within Bhutan upto the Indo - Bhutan international border for supply of power by MHP shall be borne by DGPC.

3.3 **System Monitoring and Control:**

3.3.1 The National Load Dispatch Centre (NLDC) operating under the supervision of POSOCO is entrusted with the responsibility for coordination of scheduling, monitoring and controlling the operation of the power system and its parameters such as voltage, frequency, active and reactive power flows for cross border trade of electricity with neighboring countries of India. Similarly, ERLDC has the above responsibility for power flow in the Eastern Regional Grid in India. The BPSO is entrusted with the responsibility for coordination of scheduling, monitoring and controlling the operation of power system and its parameters such as voltage, frequency, active and reactive power flows in Bhutan. PTC shall make arrangements jointly with NLDC/ERLDC to ensure that the grid parameters are maintained within the permissible limits which are usual and incidental to the generation and transmission of energy, and that MHP is not asked to operate beyond its designed limits.

3.3.2 DGPC through BPSO shall, on daily basis, provide the control center of NLDC (POSOCO) and ERLDC, and/or the agency authorized by PTC, an estimate of 15 minutes time block wise schedule of power and energy available for the day.

3.3.3 In case of any change/variation in generation plan for the day due to any reason, the BPSO shall intimate at least six time blocks (i.e. 1.5 hours) in advance of the revised estimate schedule of power and energy available for the remaining duration of the day, so as to facilitate in maintaining stability of the Indian Grid.

3.3.4 The generation of power and energy shall be done in close coordination on daily basis by DGPC/BPSO in coordination with NLDC/ERLDC taking in account the internal constraint, if any, of Bhutan system, pattern of water inflow to avoid any spillage, inherent limitations of the generating units, demand profile of eastern region in India and shall be regulated by DGPC in consultation with NLDC/ERLDC during contingency arising as result of abnormal grid conditions.

3.4 Outage and Maintenance Schedule

The supply of energy to PTC shall be subject to scheduled outages as may be necessary or unscheduled outages on account of removal from service of the MHP generating units and the associated transmission system of BPC/POWERGIRD for inspection, maintenance or repair or for any other reason beyond the reasonable control of DGPC, BPC and POWERGIRD. The periodicity and duration of scheduled outage shall be such as may be agreed to in advance by ERPC/PTC/BPSO, POWERGRID, BPC and DGPC. In the case of unscheduled outages, BPSO shall intimate ERLDC and PTC and/or the agency authorized by PTC immediately, the nature and likely duration of outage. The likely time by which the affected equipment shall be back in service shall also be intimated.

3.5 PTC and DGPC shall ensure jointly that all the generation capability of MHP is fully utilized by giving due regard that the MHP is operated most efficiently and optimally with respect to available water inflow.

In the event of any failure in the generation or transmission systems, every effort shall be made by DGPC, BPC, PTC, POWERGIRD and/or the agency authorized by PTC to restore services at the earliest to minimize the generation loss.

ARTICLE – IV

4.0 ENERGY TARIFF:

4.1 The tariff at which the energy will be sold by DGPC to PTC at the Delivery Point as defined in Article – III of this Agreement shall be Rs. 4.12 (Indian Rupees Four Point One Two) per kWh.

4.2 The revision of the aforementioned tariff shall be as agreed between the two governments as outlined below:

(a) The tariff arrived at Clause 4.1 above shall be increased by 10% every five years (6^{th}, 11^{th} and 16^{th} years from the date of commercial operation of the Project).

(b) Thereafter, three increases of 5% every five years (21^{st}, 26^{th} & 31^{st} years from the date of commercial operation of the Project).

(c) In case of any unforeseen event requiring excessive expenditure not covered by insurance, such unforeseen event would also be considered and provided for, through suitable adjustment.

(d) Tariff trajectory in line with Clause 4.2 (a) and (b) above is as given below:

Year	Tariff (Rs/kWh)	Year	Tariff (Rs/kWh)	Year	Tariff (Rs/kWh)
1	4.12	13	4.99	25	5.76
2	4.12	14	4.99	26	6.05
3	4.12	15	4.99	27	6.05
4	4.12	16	5.49	28	6.05
5	4.12	17	5.49	29	6.05
6	4.54	18	5.49	30	6.05
7	4.54	19	5.49	31	6.35
8	4.54	20	5.49	32	6.35
9	4.54	21	5.76	33	6.35
10	4.54	22	5.76	34	6.35
11	4.99	23	5.76	35	6.35
12	4.99	24	5.76		

ARTICLE – V

5.0 **METERING**

5.1 The metering arrangements shall be provided such as to permit accounting of energy for actual drawal by PTC.

5.2 SEM type meters capable of registering data on at least 15 minutes time block basis shall be installed at the following locations:

(a) One main and one check energy meter each on the 4 Nos. of 400 kV Mangdechhu - Jigmeling incoming feeders at Jigmeling end.

(b) One main and one check energy meter each on the 4 Nos. of 400 kV Mangdechhu - Jigmeling outgoing feeders at Mangdechhu end.

(c) One main and one check energy meter on the 400 KV side of the 400/132 KV ICT at Mangdechhu pot head yard.

(d) At other suitable specified locations as may be jointly decided among Bhutanese authority and Indian authority.

5.3 The main meters and check meters shall be provided by DGPC in their territory up to Jigmeling. Check meters at the Jigmeling end shall be provided by the POWERGRID. DGPC/BPSO shall provide the SEM readings on weekly basis by each Tuesday noon to NLDC/ERLDC of the meters installed in Bhutanese territory so as to facilitate energy accounting by ERPC.

5.4 The energy recorded by the main meters shall be used for computing the energy received by PTC, provided that the main meters have been in continuous service throughout the month. Should any one or more meters be removed from service for any reasons, readings of the corresponding check meter or meters shall be taken as the basis for accounting purpose.

5.5 Provided that if the reading of any main meter differ from the reading of the corresponding check meter by more than ± 0.4% or any other lower percentage as may be mutually agreed, the main and check meters shall be taken up for calibration or replaced by its owner. Energy figures recorded by the main meter for the month concerned shall be revised accordingly if the error on the main meter exceeds the above said percentage on actual testing.

5.6 Pending results of such testing being available, the accounting shall continue to be based on the energy recorded by the main meter.

5.7 All main and check energy meters pertaining to DGPC shall be tested and calibrated as per Grid Code Regulation of Bhutan 2008, and all main and check energy meters pertaining to PTC/POWERGRID shall be tested and calibrated as per CEA Metering Regulations notified vide No. 502/70/CEA/DP&D dated March 17, 2006, as amended/replaced from time to time, by the owners of the respective meters. Notwithstanding this provision, on representation by the other party, the energy meters shall be tested at any other time as well. Should the meter be found to be correct within the permissible limits of accuracy as mentioned above, the cost of such tests shall be borne by the party requesting the tests.

ARTICLE – VI

6.0 ACCOUNTING OF ENERGY

6.1 The quantum of MHP energy received by PTC during any month shall be accounted as below:

$$MHP_{EXP} = MJ1 + MJ2 + MJ3 + MJ4 +/- \{ICT\ (HV) - Transmission\ Loss\} - MHP_{INT}$$

Where:

- MHP_{EXP} is the quantum of MHP energy received by PTC during the month.
- MJ1, MJ2, MJ3 and MJ4 are the energy meter readings on the 4 Nos. of 400 KV Mangdechhu – Jigmeling incoming at Jigmeling end.
- ICT (HV) is the energy meter reading on the HV side of the 400/ 132 KV ICT at Mangdechhu pot head yard. *(The readings shall be considered positive for energy flowing from 400 KV to 132 KV side and the reading shall be considered negative for energy flowing from 132 KV to 400 KV side. The Transmission Loss shall be calculated and be applicable only when the energy flows from HV Side to LV Side).*
- Transmission Loss = % Average Transmission Loss in 400 kV Mangdechhu - Jigmeling 400 kV feeders * ICT(HV)
- MHP_{INT} is the quantum of MHP energy internally consumed by Bhutan during the month, which shall be determined as specified in Clause 6.2 below.

6.2 The internal power requirements within Bhutan during any month shall be met from the cheapest source among THP, KHP, CHP and MHP in the ascending order of its exportable tariff, as applicable from time to time.

ARTICLE – VII

7.0 **BILLING AND PAYMENT**

7.1 Bills for the quantum of energy supplied to PTC under this agreement shall be raised by DGPC subject to the terms, conditions and rates as laid down herein.

7.2 DGPC shall raise monthly bill for the energy supplied to PTC from MHP during the previous month within the 10th day of the succeeding month as per the Regional Energy Accounts issued by the ERPC. The energy received shall be worked out by ERPC in accordance with Article-VI of this agreement. PTC shall pay these bills as per the procedure indicated herein below.

7.3 While hard copy of the bill shall be sent by post, scanned PDF copy of the bill shall also be sent through designated email ID; the date of transmission by email shall be considered as the date of delivery. PTC shall make the payment within 30 days of the receipt of the scanned PDF copy of the bill (**"Due Date"**). In case PTC is in disagreement to the correctness of any bill(s) or a portion thereof, it shall intimate in writing to DGPC without withholding payment of such bill(s). On such objection being upheld by DGPC, the same shall be rectified within a period of 30 (thirty) days from the date of lodging of written objection by PTC. If on such rectification, it is found that PTC has paid an excess amount, such excess amount shall be credited to the account of PTC by DGPC towards the payment of the next/future bill(s). If PTC fails to make payment of the bills within the Due Date, it shall be liable to pay interest charges for the delay period in number of days at the rate of 1% per month on the amount outstanding of the bill(s) for the period of non-payment beyond the Due Date.

7.4 All payments for supply of energy from MHP shall be made by PTC in Indian currency.

7.5 Payment of bill(s) shall be made by PTC to DGPC in RMA's current account No. 11128915297 maintained at State Bank of India, Hasimara Branch, District Jalpaiguri, West Bengal with the IFSC Code: SBIN0001447 for SBI, Hasimara Branch, or in any other designated accounts in India as may be intimated by DGPC. In case, the designated account happens to be in Bhutan, the bank charges shall be borne by DGPC.

7.6 PTC shall open a designated account for the purpose of collection of amount from the purchaser of MHP power in India. In case of event of default in payment by PTC to DGPC, DGPC shall have direct claim on such designated account for any defaulted payment due to them which shall also include any receivables by PTC in the futures. The claim of DGPC on such designated account shall continue to be in force till such time the event of default is cleared by PTC.

ARTICLE – VIII

8.0 DURATION OF THE AGREEMENT

8.1 This agreement shall come into force from the date of its signing and shall remain valid for 35 years with effect from the date of commercial operation of the Project, provided however, that this agreement may be extended beyond the initial period or be substituted by another agreement, as per the decision of the two governments.

ARTICLE – IX

9.0 SETTLEMENT OF DISPUTES

9.1 All questions, disputes or differences whatsoever relating to or in connection with or arising out of the application or interpretation of this agreement shall be settled mutually between the two Parties. Either of the Parties may give to the other, notice in writing for the existence of such question, dispute or difference. If, however, within 90 days after the aforesaid written notices has been served, the dispute is not satisfactorily resolved through mutual discussions, it shall be referred to the two Governments, i.e. the Government of the Republic of India and the Royal Government of Bhutan for settlement.

ARTICLE – X

10.0 FORCE MAJEURE

10.1 Both the Parties shall ensure compliance with the terms of this Agreement. However, no Party shall be liable for any claim for any loss or damage whatsoever arising out of failure to carry out the terms of the Agreement to the extent that such a failure is due to force majeure conditions on account of events such as war, rebellion, mutiny, civil commotion, fire, explosion, flood, cyclone, landslides, lightning, rainstorms, earthquake or other forces, accidents or Acts of God. Any Party in whose area the force majeure occurs shall notify the other Party, the existence of such a contingency within 24 hours and shall thereafter furnish to the other party full information of the existence and duration of such an event and the extent to which it is prevented from discharging its obligations under this Agreement.

10.2 The occurrence of force majeure shall operate to temporarily suspend this Agreement till such time the Party relying on the event is able to resume performance of its obligations under the Agreement.

ARTICLE – XI

11.0 IMPLEMENTATION OF THE AGREEMENT

11.1 All discretions to be exercised and directions, approvals, consents and notices to be given, and action to be taken under these presents, unless otherwise expressly provided herein, shall be exercised and given by the Parties to this Agreement or by duly authorised representatives(s) that each Party may nominate in this behalf in writing to the other Party.

11.2 All notices with regard to default or disputes relating to this Agreement shall be in writing and signed by the Parties to this Agreement or by the authorised representatives specifically nominated by them in writing as per Clause 11.1 above and would be deemed to take effect from the date of communication to the other Party.

ARTICLE – XII

12.0 TAXES, DUTIES, ETC.

12.1 No tax, cess, levy or any other imposition of fee or surcharge, except as per Article –VII of this agreement, shall be charged by DGPC on the energy sold to PTC. Similarly PTC shall not deduct any sur-charge, tax, cess or any levy on the amount billed by DGPC to PTC for the energy sold to PTC.

IN WITNESS WHEREOF the Parties have executed these presents through their authorised Representatives at Thimphu on the date, month and year first mentioned above in two originals, both in English.

For and on behalf of PTC India Limited	**For and on behalf of Druk Green Power Corporation Limited**
(Deepak Amitabh)	**(Dasho Chhewang Rinzin)**
Chairman & Managing Director	**Managing Director**
PTC India Limited	**Druk Green Power Corporation Limited**

WITNESS on behalf of PTC:	**WITNESS on behalf of DGPC:**
(Harish Saran)	**(Dorji Pavo Phuntsho)**
Executive Director (Marketing)	**Director (Projects)**