



## Bhutan Electricity Authority



# LICENCE CONDITIONS TO GENERATE, SUPPLY, IMPORT AND EXPORT ELECTRICAL ENERGY.

*Reprinted August 2011*



**LICENCE CONDITIONS TO GENERATE,  
SUPPLY,  
IMPORT AND EXPORT ELECTRICAL ENERGY  
IN THE KINGDOM OF BHUTAN**

**GRANTED TO**

**CHUKHA HYDROPOWER PLANT**

**PURSUANT TO THE  
ELECTRICITY ACT OF BHUTAN, 2001**

Under the authority granted to it by the Electricity Act of Bhutan, 2001, the Bhutan Electricity Authority hereby grants this Licence to **Druk Green Power Corporation Limited** (hereinafter referred to as the Licensee) to carry out the activities of Generation, Supply, Import and Export of electrical energy from the **336 MW Chhukha Hydropower plant** as defined in the Licence Conditions attached to this Licence.

This Licence shall be subject to the Electricity Act of Bhutan, 2001, regulations and directives made by the Bhutan Electricity Authority from time to time and any other applicable laws of Bhutan. This Licence is also subject to the Licence Conditions included herein and attached to this Licence and made an integral part hereof. The Authority shall have the right to revoke the Licence without compensation to the Licensee for any breach of the Licence Conditions.

Granted on this **1<sup>st</sup> day of January 2009** corresponding to 5<sup>th</sup> day of the 11<sup>th</sup> Month of the Male Earth Rat Year.

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## **1 Definitions**

The following words and phrases used in this Licence and Schedule attached hereto, when capitalized, shall have the meanings set forth below:

“Act” means the Electricity Act of Bhutan, 2001;

“Associated Business” means any business or company which directly or indirectly, in whole or in part, is owned by the Licensee, including any subsidiaries or joint ventures; owns the Licensee; or is owned by a company which owns or is owned by the Licensee;

“Authority” means the Bhutan Electricity Authority;

“Cross Subsidy” means the transfer of assets, either in cash or kind, or allocation of costs within the accounts of the Licensee or among Associated Businesses for the financial support of one activity or business or customer group at the expense of another;

“Environmental Clearance” means a permit awarded by the National Environment Commission in accordance with the Environmental Assessment Act, 2000;

“Export” means the export of electrical energy to another country;

“Generation Facilities” means the equipment and installations used to generate electrical energy, including any associated civil, electrical and hydro-mechanical works;

“Grid Code” means the Bhutan Electricity Authority – Grid Code Regulations;

“Import” means the import of electrical energy from another country;

“kV” means kilo-volt;

“Licence” means a licence issued pursuant to Part 3 of the Act;

“Licence Condition” means any provision contained in this Licence, or any amendment thereto;

“Licensed Activities” means those activities as defined in Section 3.1 of the Licence Conditions;

“Licensee” means any person issued with a Licence pursuant to Part 3 of the Act and “the Licensee” here refers to Generation Companies Limited;

“MW” means mega-watt;

“Performance Agreement” means an agreement between the Licensee and the Authority which establishes incentives and penalties related to the measurable performance by the Licensee of specific actions which are designed to improve the efficiency and effectiveness of the Licensed Activities;

“System Operator” means the person designated by the Authority in this role, whose function is defined under Section 39 of the Act;

“Transmission System” means the electric lines, transformer substations, and other facilities operating at a voltage greater than 66 kV.



## **2. General Conditions**

- 2.1 This Licence is governed by the Act and other applicable laws of Bhutan.
- 2.2 The Authority may modify the terms and conditions of the Licence in accordance with Section 29 of the Act.
- 2.3 The Licensee may on its own initiative apply to the Authority in writing requesting that the Licence be modified in accordance with Section 30 of the Act.
- 2.4 This Licence shall not be transferred without the written consent of the Authority and payment of applicable fees. The Licensee may apply to the Authority for the transfer of this Licence pursuant to subsection 32.2 of the Act.
- 2.5 The Licensee shall not assign, transfer, sublet or otherwise dispose of its rights, duties, liabilities, obligations and privileges under this Licence to any person or persons except with the written consent of the Authority.
- 2.6 The Licensee shall pay regulatory and other fees on a regular and continuous basis during the term of the Licence as determined by the Authority.
- 2.7 The Licensee is obliged to obtain an Environmental Clearance for new installations as may be required according to the Environmental Assessment Act 2000.
- 2.8 The Licensee shall enter into one or more Performance Agreements, as and when required by the Authority.

### **3 Licensed Activities**

- 3.1 The Licensee is hereby authorised, on a non-exclusive basis, to:
- i) Operate its Generation Facilities to generate electrical energy and provide ancillary services;
  - ii) Supply electrical energy to other Licensees in Bhutan;
  - iii) Import and export electrical energy from and to other countries;
  - iv) Distribute and supply electrical energy to consumers located within the premises of the Licensee, subject to the approval of the Authority.
- 3.2 The Licensed Activities shall be implemented through the installations operated by the Licensee which are identified in Schedule I, which shall be updated annually based on a submission by the Licensee to the Authority.
- 3.3 Any construction of additional facilities, or changes of existing facilities that may impact the cost of supply, is subject to a prior approval, or award of an additional Licence, by the Authority.
- 3.4 The Authority may introduce limitations on the extent of Licensed Activities that may be undertaken by the Licensee.
- 3.5 The Licensee may be authorised to hold additional Licences for generation, transmission, distribution and supply of electrical energy and the export or import of electrical energy to or from other countries.
- 3.6 The Licensee shall take all prudent, necessary measures to increase the operational and economic efficiency of the Licensed Activities in order to assure the quality and reliability of services for the benefit of consumers.

- 3.7 The Licensee shall not engage in other activities that impede or may impede the proper performance of its Licensed Activities. The Licensee shall inform the Authority before undertaking any activity other than the Licensed Activities. The Authority may prohibit or otherwise restrict the Licensee from engaging in any other activity, other than the Licensed Activities, or impose conditions on the performance of such other activity, as necessary to protect the interests of consumers.
- 3.8 Unless otherwise approved by the Authority, the Licensee shall perform its Licensed Activities in a manner that avoids the creation of any direct or indirect Cross Subsidy between its Licensed Activities and Associated Business activities.

## **4 Licence Term**

- 4.1 This Licence shall be valid for duration of thirty (30) years from the date of issue unless revoked earlier. The Licensee may in accordance with Section 31 of the Act within three years before the expiry of the Licence, apply for a renewal of the Licence. The Licence may be renewed on such terms and conditions as determined by the Authority.
- 4.2 The Licensee shall, on the expiry or revocation of the Licence, remove on its expense and to the satisfaction of the Authority all installations as considered by the Authority as inappropriate for further operation based on the objectives of the Authority.

## **5 Tariffs and metering**

### **5.1 Tariffs**

- 5.1.1 The Licensee shall not charge customers and other Licensees any tariffs or charges other than those approved

by the Authority, and determined in accordance with the Bhutan Electricity Authority - Tariff Determination Regulations.

5.1.2 Prices for export and import of electricity shall not be subject to the approval of the Authority.

## 5.2 Metering

5.2.1 The Licensee shall provide metering equipment and keep records of all energy flows at all connection points with the Transmission System on an hourly basis or more frequently as may be provided in the Grid Code.

5.2.2 The Licensee shall provide to the System Operator timely access to metered data and estimates of energy flows, collected or developed in accordance with Section 5.2.1.

## 6 Relationship with other Licensees

6.1 The Licensee shall enter into an agreement with the appropriate Transmission Licensee dealing with the connection of its facilities to the Transmission System.

6.2 The Licensee shall not collude in any way with other Licensees.

6.3 In the event of a dispute between Licensees under the Act, the parties to the dispute shall follow the procedures as set out in the Bhutan Electricity Authority -Dispute Resolution Regulations.

## **7 Conduct of the Licensee**

### **7.1 Co-operation with other authorities**

7.1.1 The Licensee shall co-operate with appropriate national, regional and local authorities to assure the necessary coordination with other infrastructure development, construction and planning activities. The Licensee should present all relevant plans for new installations to the authorities responsible for planning and construction as well as affected private landowners.

### **7.2 Business conduct of the Licensee**

7.2.1 The Licensee shall not impede, prevent or attempt to prevent other Licensees or potential competitors from engaging in, or entering into the electricity supply industry in Bhutan.

7.2.2 The Licensee shall conduct its Licensed Activities and execute its Licensed Activities on a non-discriminatory basis.

7.2.3 The Licensee shall not engage in any form of monopoly abuse.

### **7.3 Use of information**

7.3.1 The Licensee shall ensure that any confidential or privileged information obtained as a result of its activities shall not be revealed to anyone, except to persons who are authorised to receive such information. The Licensee shall also ensure that such confidential or privileged

information is not used for conducting any other activities, other than the Licensed Activities.

7.3.2 The Licensee shall ensure that no person, including any Associated Business, uses any information in the Licensee's possession to gain an unjustified competitive advantage.

7.3.3 The Authority may require the Licensee to develop and submit procedures for ensuring compliance with the conditions set out in subsections 7.3.1 and 7.3.2 above.

## **8 Compliance with Act and regulations**

8.1 The Licensee shall comply with the Act, the terms of this Licence, all regulations, codes and standards issued by the Authority, including but not limited to:

- i) The Bhutan Electricity Authority Grid Code Regulations;
- ii) The Bhutan Electricity Authority Tariff Determination Regulations;
- iii) The Bhutan Electricity Authority Dispute Resolution Regulations;
- iv) The Bhutan Electricity Authority Regulatory Fees Regulations;
- v) The Bhutan Electricity Authority Safety Regulations;
- vi) The Bhutan Electricity Authority Accounting and Reporting Regulations.

8.2 The Authority may initiate an investigation of the Licensee's compliance with any Licence Condition, including examination of the Licensee's business practices with respect to these conditions.

- 8.3 Authorised representatives of the Authority shall be given access to inspect the Licensee’s premises, its equipment and documents for the purpose of investigating the Licensee’s compliance with the Licence Conditions. The Licensee shall provide any required assistance necessary for the Authority to conduct its work efficiently. Except in cases of emergencies, reasonable notice shall be given by the Authority to the Licensee for such inspections.
- 8.4 If the Licensee is found to breach any of the Licence Conditions, the Authority may take any of the following actions:
- i) Order compliance in accordance with section 28 of the Act;
  - ii) Modify the Licence in accordance with section 29 of the Act;
  - iii) Revoke the Licence in accordance with section 34 of the Act;
  - iv) Impose fines, sanctions and penalties in accordance with subsection 11.1 vi) and Part 9, Offences of the Act.
- 8.5 The Licensee shall inform the Authority of any violation of the Licence Conditions within one week from such violation becoming known to the Licensee.
- 8.6 Where the Authority determines that the Licensee has breached or is likely to breach a Licence Condition or the provisions of applicable laws and, where the Authority is confident that immediate action is necessary, it may direct the Licensee to take immediate action to discontinue or refrain from that practice to:
- i) Protect public health, safety and the environment; or
  - ii) Prevent the destruction of public property.

8.7 Where the Licensee does not take action according to section 8.6, the Authority may take action on behalf of the Licensee at the cost of the Licensee.

## **9 Reliability and quality of supply**

9.1 The Licensee shall develop and promote procedures and programmes to achieve a high level of quality and reliability of services.

9.2 The Licensee shall promptly notify the Authority of any circumstances which may lead to changes in the capacity of its generation facilities, which may significantly and adversely affect service to customers for a period exceeding thirty (30) days.

### **9.3 Reliability of supply**

9.3.1 The Licensee shall install, operate and maintain such apparatus or facilities as may be necessary to provide protection from faults or equipment failure. The apparatus and facilities shall also provide protection for other emergency situations or contingencies as may be reasonably foreseen.

9.3.2 The Licensee may suspend or interrupt the supply temporarily or partially in order to undertake necessary maintenance, repairs and extensions of his installations or equipment or to restore supply. Such interruptions shall be limited to the extent possible in terms of duration and frequency and scheduled to periods where they are likely to cause least possible inconvenience to consumers.



9.3.3 The Licensee shall be required to make reasonable provisions to meet emergencies resulting from a failure of supply.

9.3.4 The Licensee shall notify the System Operator of the dates, estimated time and duration of any planned interruptions at least two (2) weeks ahead of the interruption.

9.3.5 The Licensee shall notify the System Operator immediately if any sudden disruptions or emergencies occur in its generation facilities, or in facilities with which its system is interconnected. The System Operator shall be kept informed of system conditions during the duration of any such events.

9.3.6 The Licensee shall keep a complete record of all interruptions, both emergency and scheduled. These recordings shall include the cause of interruptions, date, time duration, location and quantity of supply lost. In cases of emergency interruptions, the reporting shall also include the remedy and steps taken to prevent recurrence.

#### 9.4 Quality of supply

9.4.1 The Licensee shall comply with the quality of supply requirements and indicators as set out in the Grid Code.

### **10 Accounting and Reporting**

10.1 The Licensee shall keep accounting records and prepare financial statements separately for the Licensed Activities and any Associated Businesses, in accordance with any rules and regulations of the Authority.

- 10.2 The Licensee shall allocate common expenses between its Licensed Activities and any Associated Businesses on a reasonable basis in accordance with generally accepted accounting practices.
- 10.3 The Licensee shall submit to the Authority, upon its request and in a form and within the time set by the Authority, any information, including information provided to other government entities, that the Authority considers reasonably necessary to conduct its regulatory responsibilities.
- 10.4 The Licensee shall, at the end of each financial year, prepare and submit to the Authority, in the form prescribed by the Authority, an annual report on the operations and services of the Licensee, and the extent to which the Licence Conditions are being followed, in accordance with the Bhutan Electricity Authority - Accounting and Reporting Regulations.
- 10.5 Information provided to the Authority by the Licensee shall be considered public unless, upon specific request of the Licensee, the Authority ascertains that certain information is of a proprietary nature and that the public interest served by disclosure would not justify or offset the potential commercial harm to the Licensee.
- 10.6 The Licensee shall notify the Authority annually of any accident that has occurred in any part of the Licensee's works or in connection with its Licensed Activities. Notice of any loss of life or serious personal injury or damage to public property occasioned by such accident shall be reported to the Authority immediately after the accident.
- 10.7 The Licensee shall inform the Authority and the System Operator of its intention to reduce partially or totally the capacity of its

facilities at least twelve (12) months prior to execution of any such reduction. A detailed explanation of its proposed actions and the effect to other Licensees and consumers shall be included in this information.

10.8 Any loss of capacity due to events beyond the control of the Licensee shall be reported to the Authority immediately.

## **11 Miscellaneous Conditions**

11.1 Communication between the Licensee and the Authority pursuant to, or in connection with the Licence shall be given in writing and executed by a duly authorised officer of the Licensee or the Authority, respectively.

11.2 If any of the Licence Conditions becomes null and void or otherwise ceases to be effective, that condition shall be deleted and the remaining Licence Conditions shall continue to be in force and effect for the term of the Licence.

## **Schedule I: License Installation**

### **Site & Location: Chhukha, Bhutan**

Installed Capacity: 336MW (With 10% overloading provision)

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<b>Activity</b>	<b>Items</b>	<b>Description</b>
Generation	Dam Complex	Concrete gravity diversion dam-40m high and 105m wide at the top and 4 spillways with radial gates-three 19m high and one 10m high.
Water Conductor System	i. Intake structures-2nos with capacity 1.01m <sup>3</sup> /sec. ii. De-silting chambers each 347.5m long with a silt flushing tunnel. iii. A head tunnel, D-shape and 4.9m equivalent diameter and 6.513km long. iv. Surge shaft of 76.47m high and butterfly valve chamber. v. Pressure shafts-2nos each of 528m long and 3m diameter at an inclination 50degree, each bifurcating into two penstocks to feed water to the four hydro turbine generators. vi. Tail race tunnels- 2nos (920m and 970m) evacuate the discharges back to the river. vii. Tichhalumchhu originates at an elevation of about El 3220m, upstream of Chhukha Dam on the right bank. The catchment area is about 42.443sq.Km. up to its confluence with the Wangchhu.	

viii. Lubichhu originates at an elevation of about El 3880m on the left bank of Wangchhu. The catchment area upto its confluence with the Wangchhu is about 63.97sq.Km.

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Power House  
Complex

Switchyard and associated equipment  
Underground machine hall with 4 pelton turbines coupled through a vertical shaft to 4 generators each rated 84MW.

Switchyard and  
associated  
equipment

220kV switchyard: it is a 220kV outdoor switchyard. It has switchgears and other associated equipment that evacuate power to India and Bhutan. It has two main 220/66kV transformers for supply of power through 66kV lines within Bhutan as well as 66/11kV, 3MVA transformers for distribution of power within colony areas and supply of power to BVC and Dam.

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