

**BHUTAN INFOCOMM AND MEDIA AUTHORITY  
ROYAL GOVERNMENT OF BHUTAN**



**“RULES ON INFRASTRUCTURE SHARING: ELECTRICITY  
POLES BY THE COMMERCIAL CABLE TELEVISION  
OPERATORS”**

**MARCH 2012**



Chairperson

7<sup>th</sup> March 2011

## FOREWORD

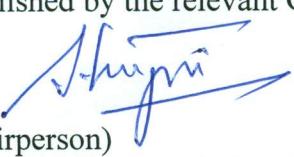
In accordance with Section 66 of the Bhutan Information, Communications and Media Act, 2006, the Bhutan InfoComm and Media Authority is mandated to prescribe rules for infrastructure sharing of facilities between or among ICT facility/service providers in the kingdom of Bhutan.

It is recognized that electricity is regulated by a separate regulatory framework. However, realizing the convenience and practical economic benefits, the Royal Government has accorded approval to lay the national All-Dielectric Self Supporting (ADSS) optical cable fibre network on the electrical poles. Following this decision, extensive deliberations were also initiated among the regulators, the industry and the stake holders to explore the possibilities of sharing this vital infrastructure to lay the ADSS of the cable television industry. All the stakeholders in particular the Bhutan Electricity Authority (BEA) and the Bhutan Power Corporation Ltd. (BPC) deserves special recognition and appreciation for the realization of the sharing of the electrical poles by the cable television service.

This Rule is therefore an outcome of extensive consultation with the stakeholders to optimize the use of physical infrastructures and reduce cost of providing different services. The rule among other things provides detailed technical and safety standards that needs to be followed during and after the installation of ADSS on electrical infrastructures.

Towards this end, and in accordance with the powers conferred by the Section 66 of the Act, the Authority hereby issues the “*Rules on Infrastructure Sharing: Electricity Poles by the Commercial Cable Television Operators*”.

The Rules should be read in conjunction with all other existing codes of practice and regulations established by the relevant Government agencies.

  
(Chairperson)

**BHUTAN INFOCOMM & MEDIA AUTHORITY**

## **Table of Contents**

1.	Background	1
2.	Legal Basis	1
3.	Commencement	1
4.	Scope of Application	1
5.	Amendments	1
6.	Definitions	2
7.	Legal Requirements and procedures	3
8.	Ownership	3
9.	Pricing and cost sharing	3
9.1	Option I	3
9.2	Option II	4
10.	Installation of ADSS on electric poles	4
10.1	Requirements	4
10.2	Method	4
11.	Operations and Maintenance	5
11.1	During dry weather conditions	5
11.2	During wet weather conditions	5
12.	Safety and standards	5
13.	Installation, testing and commissioning report	6
14.	Risk Management	6
15.	Dispute Resolution Mechanism	6
16.	Damages and Claim by third parties	7
17.	Investigation during accidents	7
	Glossary	8

## **1. Background**

The commercial Cable Television operators were using the Bhutan Power Corporation Limited's (BPC) electrical distribution poles for stringing ADSS (All-dielectric Self Supporting) Optical Cable fiber in many areas for distributing their cable television signals to its end users.

Bhutan Information, Communications and Media Act 2006 highlight the importance of infrastructure sharing among the ICT facility and service providers. An electricity pole of Bhutan Power Corporation Limited is a vital infrastructure that can be shared with cable television operators for laying their ADSS for cable network subject to conforming safety standards and other conditions stipulated in the rules or agreements. This arrangement for optimization of the use of infrastructure can prevent duplication of infrastructure and reduce cost of providing services to the Bhutanese citizens.

## **2. Legal Basis**

According to the section 27 (3) (d) and 66 of the Bhutan Information, Communications and Media Act, 2006, this Rule mandates the infrastructure sharing with an objective to maximize the optimum utilization of existing infrastructure. This is also as per Bhutan Electricity Authority Act 2001 that mandates the establishment of procedures, to follow and maintain the technical and safety standards and methods requirements for electrical infrastructures.

## **3. Commencement**

This Rule shall come into force on **7<sup>th</sup> March** of the year **2012**.

## **4. Scope of Application**

This Rule shall apply to all the Cable television operators for stringing of All-dielectric Self Supporting Optical Cable (ADSS) fibre. This Rule shall be read in conjunction with all other existing rules and regulations established by the relevant Government agencies.

## **5. Amendments**

This Rule is subject to amendment and changes when required. Such amendment and changes shall be made in accordance with the needs and changes in technical requirements, national priorities, government policies, industry trends and regulatory frameworks. Amendment of this Rule by way of addition, variation or repeal may be effected by the respective Authorities in consultation with the stakeholders.

## **6. Definitions**

Unless the context otherwise requires, the following words, terms, phrases and their derivations in this Rule shall have the following meanings assigned to them.

“ADSS” means (All-dielectric Self Supporting) Optical fiber Cable

“BPC” means Bhutan Power Corporation Limited

“BEA” means Bhutan Electricity Authority

“BICMA” means Bhutan InfoComm and Media Authority

“BICM Act” means Bhutan Information, Communications and Media Act 2006

“Cable television operator (CTO)” means any person who provides cable service through a cable television system or otherwise controls or is responsible for the management and operation of a cable television system

“Infrastructure” means the physical structure needed for the operation of services and facilities. The infrastructure here means the BPC’s electrical poles.

“Operations and Maintenance (O&M)” means the operation, maintenance and repair of infrastructure due to the degradation or damage.

“Pole Rental Agreement (PRA)” means the agreement signed between the BPC and the CTOs.

“Splicing” means joining of two or more fibre by fusion.

“Scintillation” means phenomenon in which when the voltage is induced from a phase conductor to ADSS cable fibre when the resistance of the cable sheath to the grounding location is very low.

General interpretation in this Rule:

- a) any word in the singular shall include the plural and vice versa; and
- b) any overlap or inconsistency between the functions, responsibilities and powers of the BEA on the one hand and those of the BICMA on the other hand, shall be resolved keeping in mind the provisions of the Bhutan Electricity Act and the Bhutan Information, Communications and Media Act.

## **7. Legal Requirements and procedures**

- a) A Cable Television Operator (CTO) shall submit an application to the BPC in the form of proposal with detail design (project) Plan for the use of infrastructure.
- b) The parties, BPC and the CTO shall enter into a Pole rental agreement (PRA) containing detailed terms and conditions such as payment schedules and liabilities as negotiated.
- c) The Pole rental agreement (PRA) shall specify delineation of responsibility as well as accountability of both the signatories.

## **8. Ownership**

- a) An individual CTO who has laid the ADSS on the BPC electric poles shall have the ownership of the ADSS.
- b) BPC may explore the possibility of procuring existing ADSS from a CTO or build its own ADSS.

## **9. Pricing and cost sharing**

The CTO shall have two options (I and II) of paying the BPC for the use of infrastructure.

### **9.1 Option I**

- a) The installation and O&M of ADSS shall be undertaken by CTO based on an approval from BPC.
- b) BPC shall provide supervision for installation and O&M on mutually agreed terms, conditions and fees.
- c) A CTO shall pay the infrastructure usage fee at the rate of Nu10 per pole per month (**Nu 10/pole/month**) to BPC. This rate shall be reviewed on an annual basis.
- d) A CTO shall pay BPC the infrastructure usage fee and the other charges excluding supervision as specified in the PRA for the period of one year in lump sum amount at the beginning of the year.
- e) The payment and other terms and condition of infrastructure usage fee, operation and maintenance (O&M) fees and installation fees shall be specified in the PRA signed between BPC and the CTO.

## **9.2 Option II**

- a) Where the CTO has installed 4wires (or more) and provides 2 wires (Tx and Rx) to the BPC for its own use, the CTO shall not be required to make payment to the BPC except the pole rental fee.

## **10. Installation of ADSS on electric poles**

### **10.1 Requirements**

Installation of ADSS on electricity poles shall meet the following requirements:

- i) CTO shall seek the approval from BPC for installation of ADSS in the CTO's licensed area for either online or offline mode of installation. BPC shall furnish the rate to the CTO for selection of the mode.
- ii) The CTO shall submit the technical specification, drawings and manufacturer's type test and routine test reports to BPC for approval. Accordingly BPC shall provide the procurement clearance.
- iii) BPC shall verify the quality of ADSS and its hardware fittings and accessories before installation.
- iv) ADSS shall be installed only by the competent employees of CTO upon strict supervision by BPC supervisors for compliance on safety, quality and technical standards.

### **10.2 Method**

Following methods shall be adopted for the installation of ADSS on the infrastructure

- i) Methods adopted and the equipment used shall be determined by considering the degree of exposure to electrical hazards and the soil conditions at the site.
- ii) All metallic equipments including hardware anchors and structures within such work sites must be common bonded together and then grounded to ensure safety.
- iii) ADSS should be grounded between the work area and the spans when splicing ADSS during wet or rainy conditions near active high voltage phase conductors. It is to prevent the dangerous leakage currents and transients from flowing through personnel.
- iv) All precautions outlined for Placing phase conductors shall be observed when aerial lift

equipment is used for Placing ADSS.

- v) The international standards and good industry practices shall be observed during pulling up and tensioning of ADSS.
- vi) No installation of ADSS on live electricity distribution pole shall be permitted during wet environmental conditions.
- vii) The safe approach distance should be maintained between phase conductors and ADSS as per the regulations and requirements of Bhutan Electricity Authority (BEA) for safety.
- viii) Multi-ADSS fibre installation on the same pole shall not be carried out due to technical constraints and electrical safety concern.
- ix) No conductive materials/cables including coaxial/RF cables and hanging/dangling of wires shall be strung or Placed near the power lines.

## **11. Operations and Maintenance**

All safety measures observed during installations shall also be followed during the operations and maintenance.

### **11.1 During dry weather conditions**

- i) The metal grips should be grounded before touching to avoid electrical dangerous shock.

### **11.2 During wet weather conditions**

- i) The ADSS should be grounded within 3 to 5 feet on both sides of the areas to be touched to avoid dangerous electrical hazards.

## **12. Safety and standards**

- a) The ADSS specification shall conform to the latest editions of the relevant ITU-T, International Electro technical Commission (IEC), IEEE and BIS as adopted in Bhutan.
- b) Elements consisting of ADSS should be non-metallic, should possess anti-electromagnetic, strong endurance of electrical effect and in worst case scenario no electricity should be conducted from the surface of the ADSS when charged electrical conductor touches the surface of ADSS cable.

- c) ADSS should possess good performance characteristics such as anti-impact, anti-vibration, anti-bending, prevention of thermal aging, flame retardant and UV protected.
- d) The spacing between overhead electrical conductor and ADSS fibre should be minimum 1.6m and the clearance from ground should be 2.75m or more.
- e) The ground clearance should be 6.1m or more in case of road crossing areas.
- f) The safety requirements shall include all the important safety procedures mentioned in installations, operations and maintenance of BEA.

### **13. Installation, testing and commissioning report**

- a) BPC and CTO shall compile and maintain installation, testing and commissioning report and shall provide the following information:
  - i. Quality and dimension of ADSS,
  - ii. Number of poles and length of the ADSS fiber strung.
  - iii. Pole identification number.
  - iv. Quality and dimensions of the hardware fittings and accessories,
  - v. Link from the distribution (head-end) centre to serving node,
  - vi. Lowest ADSS clearance from the power-line and the ground for each link,

### **14. Risk Management**

- a) For ensuring the safety of infrastructure, both BPC and CTO shall come out with their own risk management Plans and systems.
- b) The Risk Mitigation Plan should prioritize risk reducing controls and focus on electrical safety.
- c) The Risk Mitigation Plan should be evaluated and implemented by both parties.

### **15. Dispute Resolution Mechanism**

- a) Any disputes between the BPC and CTO or with other parties shall be resolved as per the provisions of existing laws of kingdom of Bhutan.
- b) To the extent possible, any disputes between BPC and CTO shall be mutually settled as per provision of the PRA or may use the services of an independent arbitrator.

## **16. Damages and Claim by third parties**

- a) If the ADSS installed on the BPC infrastructure is damaged due to:
  - i) force majeure conditions such as wind, storm, landslide, snow, flood etc. or by an unknown third party or reason, the cost of replacement of material shall be borne by the respective CTOs; and
  - ii) Willful negligence of BPC personnel while carrying out their normal electrical maintenance work, the cost of replacement of such damaged materials shall be borne by the BPC.
- b) Any damages to customer devices such as TV or other properties connected directly or indirectly to the ADSS shall be the responsibility of the respective CTOs.
- c) Any damages from the point the ADSS leaves the BPC poles shall be the responsibility of CTOs.

## **17. Investigation during accidents**

- a) In case of accidents (loss of lives of people, properties) due to ADSS facilities installed on the infrastructure of BPC, joint verification shall be carried out to ascertain the cause of accidents.
- b) The investigation team may comprise representatives of BICMA and BEA.
- c) The team shall investigate the cause of the accident and submits its recommendations to institute corrective measures.

## **Glossary**

ITU-T (Telecommunication Bureau of International Telecommunication Union)

IEC (International Electrotechnical Commission)

IEEE (Institute of Electrical and Electronics Engineers)

BIS (Bureau of Indian Standards)

ICT (Information and communications technology)

Tx (Transmit)

Rx (Receive)

UV (Ultra violet rays)