

**NAGALAND ELECTRICITY REGULATORY  
COMMISSION**

**TARIFF ORDER  
FY 2015-16**



**ORDER**  
**Dated : 27<sup>th</sup> Feb., 2015**

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**Before the Nagaland Electricity Regulatory Commission  
for the State of Nagaland Kohima**

Present

**Er. Donray A. Shishak,**  
Chairman-cum-Member  
NERC, Kohima.

Case No. 01/2014-15

In the matter of

**Aggregate Revenue Requirement (ARR) and Retail Tariff for the Department of  
Power, Nagaland (DPN) for the FY 2015-16**

**ORDER**

Date: **27<sup>th</sup> Feb., 2015**

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## LIST OF ABBREVIATIONS

ABT	Availability Based Tariff
A&G	Administration & General
ARR	Aggregate Revenue Requirement
ATPEL	Appellate Tribunal For Electricity
CAGR	Compound Annual Growth Rate
CD	Contract Demand
CERC	Central Electricity Regulatory Commission
CGS	Central Generating Stations
CoS	Cost of Supply
CPSU	Central Power Sector Undertakings
Cr	Crore
CWIP	Capital Work In Progress
DE	Debt Equity
DPN	Department of Power, Govt. of Nagaland
EHT	Extra High Tension
NER	North Eastern Region
FAC	Fuel Adjustment Costs
FDR	Fixed Deposits Receipts
FY	Financial Year
GFA	Gross Fixed Assets
HP	Horse Power
HT	High Tension
KV	Kilo Volt
KVA	Kilo Volt Amps
KW	Kilo Watt
kWh	kilo Watt hour
LNG	Liquefied Natural Gas
LT	Low Tension
MVA	Million Volt Amps
MW	Mega Watt
NERC	Nagaland Electricity Regulatory Commission
PLR	Prime Lending Rate
RIMS	Regulatory Information and Management System
YoY	Year on Year



# **NAGALAND ELECTRICITY REGULATORY COMMISSION**

Old MLA Hostel Complex, Nagaland, KOHIMA – 797001

Case No: **01/2014-15**

In the matter of

Determination of Aggregate Revenue Requirement (ARR) and Retail Tariff for sale of electricity by the Department of Power Government of Nagaland for the FY 2015-16 in the State of Nagaland.

**AND**

Department of Power  
Government of Nagaland  
(herein referred to as DPN)

Petitioner

**Present**

Chairman cum Member \_\_\_\_\_

**ORDER**

(passed on 27th Feb., 2015)

2. The Department of Power, Government of Nagaland (herein after referred to as DPN) is a deemed licensee in terms of section 14 of the Electricity Act 2003 (herein after referred to as ACT), engaged in the business of generation, transmission and distribution of electricity in the state of Nagaland.

3. As per the directive of the Commission, the DPN has filed the Petition for review of expenses and revenues for FY 2014-15 and determination of Aggregate Revenue Requirement (ARR) for FY 2015-16 and Retail Tariff for FY 2015-16.
4. In exercise of the powers vested under section 62(1) read with section 62(3) and section 64 3(a) of the Electricity Act 2003 and NERC (terms and conditions for determination of Tariff) Regulations, 2010 (herein after referred to as Tariff Regulations, 2010) and other enabling provisions in this behalf the Commission issues this order for reviewing of ARR and Revenues for FY 2014-15 and approval of the ARR for the FY 2015-16 and determination of retail Tariff for FY 2015-16 for supply of electricity in the state of Nagaland.
5. Tariff Regulations, 2010 specify that the distribution licensee shall file ARR and Tariff Petition in all aspects along with requisite fee as specified in Commission's fees, fines and charges regulations on or before 30<sup>th</sup> November of the preceding year. Accordingly the DPN has filed the ARR and Tariff Petition for the FY 2015-16 along with the Petition for review of ARR for FY 2014-15.
6. Regulation 21 of the Tariff Regulations, 2010 provides that the Commission shall undertake a review along with next Tariff Order of the expenses and revenue approved by the Commission in the current year's Tariff Order. After audited accounts of the year are made available the Commission shall undertake a similar exercise based on the final actual figures as per the audited accounts.
7. Regulation 5 of the Tariff Regulations, 2010 provides for giving adequate opportunities to all stake holders and general public for making suggestions/objections on the Tariff Petition as mandated under section 64(3) of the Electricity Act 2003. Accordingly the Commission directed DPN vide letter no. NERC/TARIFF/CONV/2014/123 dated 17<sup>th</sup> Dec., 2014 to publish the ARR and Tariff Petition for the FY 2015-16 in an abridged form as public notice in news papers having wide circulation in the state inviting suggestions/objections as the Tariff Petition.

8. Accordingly DPN has published the Tariff Petition in the abridged form as public notice in various news papers and the Tariff petition was also placed on the website of DPN. The last date of submission of suggestions/objections was fixed on 30<sup>th</sup> Jan., 2015
9. The Commission, to ensure transparency in the process of Tariff determination and for providing proper opportunity to all stake holders and general public for making suggestions/objections on the Tariff petition and for convenience of the consumers and general public across the state, decided to hold the public hearing at the headquarters of the state accordingly the Commission held public hearing at Kohima on 03<sup>rd</sup> Feb., 2015
10. The proposal of DPN was also placed before the state advisory committee in its meeting held on 11<sup>th</sup> Feb., 2015 and various aspects of the Petition were discussed by the committee. The Commission took the advice of the State Advisory Committee on the ARR and Tariff Petition of DPN for the year FY 2015-16 during the meeting of the committee.
11. The Commission took into consideration the facts presented by the DPN in its Petition and subsequent various filings, the suggestions/objections received from stakeholders, consumer organizations, general public and State Advisory Committee and response of the DPN to those suggestions/objections.
12. The Commission taking into consideration all the facts which came up during the public hearing and meeting of the State Advisory Committee, has reviewed the ARR and Revenues for FY 2014-15 and approved the ARR for the year FY 2015-16.
13. The Commission has reviewed the directives issued earlier in the Tariff orders for FY 2010-11 to FY 2014-15 and noted that some of the directives are compiled and some are partially attended. The Commission has dropped the directives compiled with and the remaining directives are consolidated and fresh directives are added.
14. This order is in eight chapters which include Review for FY 2014-15 and detailed analysis of ARR for FY 2015-16.

As directed by the Commission the DPN has submitted the business plan for the period from FY 2015-16 along with the ARR and Tariff Petition which has been approved with certain modifications as indicated in the relevant chapters of this order.

The DPN should ensure implementation of the order from the effective date after issuance of a public notice, in such a font size which is clearly visible in two daily newspapers having wide circulation in the state within a week and compliance of the same shall be submitted to the Commission by the DPN.

This order shall be effective from 1<sup>st</sup> April, 2015 and shall remain in force till 31<sup>st</sup> March, 2016 or till the next Tariff Order of the Commission.

**( Er. D. A. SHISHAK )**  
Chairman,  
Nagaland Electricity Regulatory  
Commission (NERC), Kohima.

# 1. Introduction

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1.1 In exercise of the powers conferred by the Electricity Act, 2003, the State Government of Nagaland constituted an Electricity Regulatory Commission to be known as “Nagaland Electricity Regulatory Commission” for the State of Nagaland, as notified on 21<sup>st</sup> February 2008.

The Commission is a One-Member Body designated to function as an autonomous authority responsible for regulation of the power sector in the State of Nagaland. The powers and the functions of the Commission are as prescribed in the Electricity Act, 2003. The head office of the Commission is presently located at Kohima, capital city of the Nagaland State.

The Nagaland Electricity Regulatory Commission for the State of Nagaland started to function with effect from 4<sup>th</sup> March, 2008 with the objectives and purposes for which the Commission has been established.

The Department of Power, Nagaland herein called DPN, a deemed licensee under section 14 of the Electricity Act, 2003, is carrying on the business of distribution and retail supply of electricity in the State of Nagaland

## 1.2 Department of Power, Nagaland – ARR and Tariff Petition

DPN had filed its petition for approval of Aggregate Revenue Requirement (ARR) and determination of retail supply tariff for FY 2015-16 according to the Conduct of Business Regulations and Determination of Tariff Regulations of NERC. In the petition DPN has estimated ARR of Rs. 477.83 crore and worked out a revenue gap of Rs.242.26 crore.

### 1.3 Admission of Petition

DPN has filed ARR and Tariff Petition on 10<sup>th</sup> Nov., 2014 for the FY 2015-16. The petition was admitted on 13<sup>th</sup> Nov., 2014 and marked as Case No. 01/2014-15. On preliminary analysis of the petition it was observed that certain data / information was lacking in the petition. The Commission, in its letter dated 08<sup>th</sup> Dec., 2014 directed DPN to furnish the data/additional data.

In response to the Commission's communication, the petitioner has submitted the additional data/information on 9<sup>th</sup> Jan., 2015.

### 1.4 Public Notice of the DPN

The Commission directed the DPN to publish the summary of the ARR and Tariff proposal in the abridged form and manner as approved by the Commission in accordance with section 64 of the Electricity Act, 2003 to ensure public participation.

The public notice was published by the DPN in the following newspapers:

Sl. No.	Name of the newspaper	Language	Date of publication
1	Nagaland Post, Dimapur	English	16 <sup>th</sup> & 17 <sup>th</sup> Jan., 2015
2	The Morung Express	English	16 <sup>th</sup> & 17 <sup>th</sup> Jan., 2015
3	Eastern Mirror	English	16 <sup>th</sup> & 17 <sup>th</sup> Jan., 2015

Through the public notice issued in the news papers as above the public were invited to forward their objections / suggestions on the petition on or before 30<sup>th</sup> Jan., 2015.

### 1.5 Notice for Public Hearing

The Commission fixed the date for Public hearing to be held on 03<sup>rd</sup> Feb., 2015 and a public notice was published by the Commission in the following leading newspapers in 3 (three) issues giving due intimation to general public, interested parties, objectors and the consumers about the public hearing to be held by the Commission on 03<sup>rd</sup> Feb., 2015 on the petition filed by DPN.

Sl. No.	Name of the newspaper	Language	Date of publication
1	Nagaland Post, Dimapur	English	24 <sup>th</sup> Jan., 2015
2	The Morung Express	English	24 <sup>th</sup> Jan., 2015
3	Eastern Mirror	English	24 <sup>th</sup> Jan., 2015

## 1.6 Public Hearing

Public hearing was held as scheduled on 03<sup>rd</sup> Feb., 2015 at Commission's office from 10:00 hrs onwards as under:

Date	Venue for Public Hearing	Time and Category
03 <sup>rd</sup> Feb., 2015	Office premises of the Chairman-cum-Member, NERC, Kohima.	10.00 AM to 1.00 PM -For all consumers – focus on domestic, commercial, agricultural consumers.  2.00 PM to 4.00 PM -For all consumers – focus on Industrial consumers.

During the public hearing each participant was provided a time slot for presenting views on the petition of DPN before the Commission. The main issues raised by the objectors in the public hearing along with the response of DPN are briefly described in the Chapter-4.

## 1.7 Meeting of State advisory Committee

The State Advisory Committee met on 11<sup>th</sup> Feb., 2015 and discussed the ARR & Tariff proposal for the FY 2015-16 of DPN. All the members were also requested to participate in the public hearing and express their views and suggestions on the proposal. Minutes of the State Advisory Committee meeting is given in Annexure-1.

## 1.8 Contents of this Order

The Order is divided into Nine Chapters:

1. The First Chapter Introduction of the Petitioner (DPN), the Petition and details of public hearing process.
2. The Second Chapter contains a summary of DPN Petition.
3. The Third Chapter provides brief overview of DPN.

4. The Fourth Chapter provides brief account of Public Hearing process including the Objections raised by the Stakeholders, DPN response and Commission View's on the same.
5. The Fifth Chapter deals with Annual Performance Review for FY 2013-14.
6. The Sixth Chapter deals with the Aggregate Revenue Requirement (ARR) of DPN.
7. The Seventh Chapter deals with Tariff Philosophy/design for retail Tariff approved by the Commission.
8. The Eighth Chapter contains compliance of earlier Directives and Issues of Fresh Directives.
9. The Ninth Chapter contains the provisions for Fuel and Power Purchase Cost Adjustment (FPPCA).



**MINUTES OF THE 9<sup>TH</sup> MEETING OF THE SAC HELD AT NERC'S  
COURTROOM, KOHIMA ON 11<sup>TH</sup> Feb, 2015.**

The State Advisory Committee Meeting of the Nagaland Electricity Regulatory Commission (NERC) was held at NERC's Court room, Kohima on 11<sup>th</sup> Feb, 2015. The Meeting was chaired by Er. D. A. Shishak, Chairman-cum-Member and Ex-officio Chairman (SAC).

The following SAC Members attended the meeting:-

1. Mr. C.R.Lotha, Member.
2. Mr. Bendangnukshi Longkumer, Member.
3. Mr. Medoselhou Keretsu, Member.
4. Mr. Khosapa Venuh, Member.
5. Mr. Bishnu Bhattacharjee, Member.
6. Mr. Keyileuhingbe Elu, Member.
7. Mr. Kekhriengulie Thenuo, Member.
8. Mr. Abhinandan Goswami, Member.

The following officers also attended the meeting:-

9. Er. Imli Ao, Addl. Chief Engineer (D&R), Department of Power, Nagaland.
10. Er. Keviletou Yiese, S.E (T&G) Department of Power, Nagaland.

In his introductory speech, the Hon'ble Chairman-cum-Member welcomed the members and expressed his thanks for coming to the meeting inspite of their tight schedule. The Chairman introduced the newly appointed Commission Secretary Shri. W.Y. Yanthan to the members and also gave a short account on the agenda to be discussed and invited the members to freely express their views/suggestions etc.

**Items discussed during the Meeting were as follows:**

1. Review of the last SAC meeting (i.e. 8<sup>th</sup> SAC meeting).
2. Petition pertaining to approval of Aggregate Revenue Requirement (ARR) and determination of Tariff for the FY 2015-16 filed by the DPN as per Electricity Act, 2003.

3. Implementation of Consumer Grievance Redressal Forum (CGRF) in 2 Circles by the Department of Power, Nagaland.
4. Response from Department of Power (Licensee).

**The issues listed in agenda were discussed and the Members present resolved as follows:**

1. The members present reviewed and discussed thoroughly on the resolutions adopted in the last SAC meeting i.e. 8<sup>th</sup> SAC meeting and further resolved that though the “Power Sector Reform and Restructuring in Nagaland” prepared and submitted by the International Management Institute (IMI), New Delhi has been partially accepted, it was once again emphasized that the Power Department has to be vertically bifurcated from top to bottom and it should be different entities i.e. separate control from Circle level/field level to establishment level and not only of the directorate level for proper growth in the Power Sector in the State of Nagaland. The Members also resolved to advise the Commission to pursue for upgradation for the post of the Addl. Chief Engineer (D&R) to the rank of Chief Engineer (D&R) since, workload has increased and responsibilities of the HoD for Distribution & Revenue is looked after by the Addl. Chief Engineer (D&R). The Members present also felt that the Power Department has to be Corporatised as per the report submitted by the International Management Institute (IMI), New Delhi. The Committee further, advised the DPN to come out with the detailed action taken in the next SAC meeting.
2. The Committee members felt and were convinced that the topmost priority on Power Development is to be given on “Generation of Electricity” for which the Committee resolved to pursue for Political will among the policy makers. Mr. Nuklu Phom and Mr. Manlip Konyak, both SAC members be requested to update the latest position for land negotiation problem on 150 MW Tizu-Zungki Hydro Electric Project and 180 MW Dikhu Hydro Electric Project as entrusted in the 8<sup>th</sup> SAC meeting latest by Feb., 2015. The Committee also advised the DPN to include member from the transmission & distribution section in the next SAC meeting so as to get the specific inputs in regard to transmission & distribution sector in the State. The Committee further advised the Commission to invite officers from New & Renewable Energy Department and Inspectorate Department, Nagaland, Kohima in future.

3. The Committee reiterated to its earlier resolution adopted in the 8<sup>th</sup> SAC meeting to approach the State Govt. for proper implementation of Standards of Performance Regulations, 2012 and Consumer Grievances Redressal Forum & Ombudsman in Mokokchung District which was initiated recently by the Superintendent Engineer, Mokokchung and early implementation of the same in Kohima & Dimapur Circle by the Department of Power, Nagaland (DPN).

4. The Members present perused the copy of the ARR & Tariff Petition for FY 2015-16 filed by the DPN and the following issues were raised:-

**i. Increasing of Power Tariff every year, why?**

**Reply by DPN**

Since 90% of Power is purchased from outside the State and Power Purchase cost is increasing every year, the Department is bound to hike by some nominal percentage every year. Also, Petroleum and coal price is decreasing drastically but since Nagaland is buying maximum power from the market, it does not affect the percentage hike in Tariff.

**ii. How much revenue is likely to be received? Whether the Deptt. has acted upon reducing T&D losses?**

**Reply by DPN**

Technical losses are inherent but Commercial losses are due to power theft, hooking, meter tempering etc. With prepaid metering at Dimapur and with the help of the Anti Power Theft Mobile Squad (APTMS) in Dimapur and Kohima, the Department has improved its revenue collection and reduced theft of electricity in the State.

**iii. The consumers do not receive electricity bill on time and meter readers do not go to spot for reading. Bill payment Booth is limited, why? The Street Light should be replaced by Renewable Energy based Street Light.**

**Reply by DPN**

The Department will look into the above mentioned issues and will do necessary and corrective measures. The government is neglecting for providing sufficient meter readers to the department. Presently, the department is functioning with 1:500 ratio of meter reader and no. of consumers to be metered in a day. And for

the Street Light, the department has received 20 lakhs for street light installment in some selected towns.

After hearing the DPN officials and extensive discussion on the AAR & Tariff petition filed by the DPN, the members present resolved and asked the Commission to go ahead with the present Tariff petition for finalization.

Apart from the main agenda, other important issues pertaining to various shortcomings confronting the DPN and the NERC towards implementation of the "Electricity Act", 2003 were discussed at length and the Committee was of the opinion that the Department should explore ways and means to address those issues in time bound manner.

The Committee also advised the Power Department officials to Segregate the Revenue collection of Domestic, Industrial, Bulk, Commercial Consumer and revenue from the Defaulters. The Power Department was reminded for improving and providing of street lights so that it could be justified for charging ` .10.00 per consumer every month.

While concluding the meeting, the Chairman once again expressed his gratitude and thanks to the members present for making the meeting a successful and fruitful one and requested for their continued support and co-operation in future also.

*Sd/-*  
**Er. D. A. SHISHAK**  
Chairman  
Nagaland Electricity Regulatory  
Commission (NERC), Kohima.

*Sd/-*  
**W. Y. YANTHAN**  
Secretary,  
Nagaland Electricity Regulatory  
Commission (NERC), Kohima.

## 2. Summary of Petition of Power Department Nagaland for Aggregate Revenue Requirement

### 2.1 Aggregate Revenue Requirement (ARR)

The DPN in its ARR and Tariff Petition for FY 2015-16 has projected the Aggregate Revenue Requirement (ARR) for the FY 2015-16 for meeting its expenses and the estimated Revenue with the existing tariffs and the revenue gap as shown in Table 2.1 below:

**Table 2.1: Aggregate Revenue Requirement and Revenue Gap projected by DPN for FY 2015-16**

Sl. No.	Particulars	(Rs. crore) FY 2015-16 (Projected)
1.	Cost of Fuel	0.08
2.	Cost of power purchase	253.24
3.	Employee costs	90.01
4.	R&M expenses	15.93
5.	Administrative and general expenses	3.06
6.	Depreciation	17.84
7.	Interest charges (including interest on working capital)	47.61
8.	Return on equity	55.96
9.	Provision for bad debts	2.30
<b>10.</b>	<b>Total revenue requirement</b>	<b>486.03</b>
11.	Less non-tariff income	8.20
<b>12.</b>	<b>Net revenue requirement (10-11)</b>	<b>477.83</b>
13.	Revenue from existing tariff	230.21
14.	Revenue from sale of surplus power	5.37
15.	Gap (12-13-14)	242.26

Source: - Table 3.18 of ARR

The petitioner has shown a revenue gap of Rs. 242.26 crore for the FY 2015-16.

### 2.2 Tariffs

The DPN in its ARR and Tariff Petition for FY 2015-16 has proposed revision of tariffs as indicated in Table 2.2 below:

**Table-2.2: Category Wise Tariffs existing and proposed by DPN for FY 2015-16**

Sl. No.	CATEGORY	Existing Rate Rs./kWh	Proposed Rate Rs./kWh	
1	2	3	4	
A	1	<b>CATEGORY 'A' DOMESTIC</b>		
		(a) 0 to 30 kWh	3.25	3.40
		(b) 31 to 100 kWh	4.35	4.75
		(c) 101 to 250 kWh	5.00	5.50
		(d) > 250 kWh	5.80	6.50
	2	<b>CATEGORY 'B' INDUSTRIAL</b>		
		(a) < 500 kWh	4.50	4.90
		(b) 501 to 5000 kWh	5.30	5.90
		(c) > 5000 kWh	6.00	6.70
	3	<b>CATEGORY 'C' BULK</b>		5.40
4	<b>CATEGORY 'D' COMMERCIAL</b>			
	(a) < 60 kWh	5.70	6.20	
	(b) 61 to 240 kWh	6.80	7.40	
	(c) > 240 kWh	7.90	8.60	
5	<b>CATEGORY 'E' P.W.W.</b>		5.30	5.60
6	CATEGORY 'F' Public Light	To be recovered from consumers *	To be recovered from consumers *	
7	<b>CATEGORY 'G' INTERSTATE</b>		5.40	5.90
8	<b>CATEGORY 'H' AGRICULTURE</b>		2.70	3.00
9	CATEGORY 'I' TEMPORARY CONNECTION	DLF Rs. 8.00 Others Rs. 11.00	DLF Rs. 9.00 Others Rs. 12.00	
10	Kutir Jyoti (point)	Same as DLF	Same as DLF	
11	<b>SINGLE POINT METERED RURAL</b>		3.25	3.40
12	<b>SINGLE POINT METERED URBAN</b>		4.00	4.40
*	Charges for public lighting have to be recovered from the Consumers of Domestic, Commercial, Industrial and Bulk categories at the rates shown below:			
	Domestic	Rs. 10 per connection / month	Rs. 10 per connection / month	
	Commercial	Rs. 15 per connection / month	Rs. 15 per connection / month	
	Industrial	Rs. 20 per connection / month	Rs. 20 per connection / month	
	Bulk Supply	Rs. 25 per connection / month	Rs. 25 per connection / month	

Source:- Table 4.1 of ARR

### **2.3 Approach of DPN in formulation of ARR & Tariff Petition for FY 2015-16**

1. The petition provides, *inter-alia*, DPN's approach for formulating the present petition, the broad basis for projections used, summary of the proposals being made to the Hon'ble Commission, performance of DPN in the recent past, and certain issues impacting the performance of DPN in the Licensed Area.
2. Broadly, in formulating the ARR and Tariff Petition for the FY 2015-16, the principles specified by the Nagaland Electricity Regulatory Commission in the notified (Terms and Conditions for determination of Tariff) Regulations, 2010 have been considered as the basis.
3. In order to align the thoughts and principles behind the ARR and Tariff Petition, DPN respectfully seeks an opportunity to present their case prior to the finalization of the Tariff Order. DPN believes that such an approach would go a long way towards providing a fair treatment to all the stakeholders and may eliminate the need for a review or clarification.

### **2.4 Prayer**

The DPN has requested the Commission to

- Accept the Annual Revenue Requirement and Tariff petition for the FY 2015-16.
- Approve the total recovery of ARR of FY 2015-16.
- Approve the category-wise tariff including fixed / demand charges submitted by DPN to meet revenue requirement for FY 2015-16.
- Approve the tariff philosophy suggestions requested by DPN;
- Condone any inadvertent delay/omissions/errors/rounding off differences/shortcoming and DPN may please be permitted to add/change/modify/alter the petition;
- Permit DPN to file additional data/information as may be necessary;

## 3. Power Sector in Nagaland – An Overview

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### 3.1 Introduction

The DPN is responsible for generation, transmission and distribution and supply of electricity in the State of Nagaland.

The DPN is a deemed licensee under the provisions of Electricity Act, 2003 for distribution of electricity in the state, which has an area of 16527 sq.km. The total population of the State is around 19.81 Lakhs as per 2011 census. DPN serves about 2.16 lakhs consumers as on 31.3.2014 with per capita consumption of 192 kWh.

### 3.2 Power Supply

#### 3.2.1 Actual energy requirement during 2013-14 is as follows:

1	Energy Sales within the State (MU)	421.27
2	T & D Losses (%)	31.04%
3	T & D Losses (MU)	189.58
4	Total energy requirement in the state (MU) (1+3)	610.85

#### 3.2.2 Own Generation:

DPN has its own hydel generation capacity of 24 MW at Likhimro Hydro Power Project and other MHEPs. Apart from this the power supply requirements of the DPN are met from its share from Central Generating Stations which is wheeled through the PGCIL network of NER and power purchases from electricity traders / other sources.

#### 3.2.3 Power Purchase:

Total firm and infirm share from Central Generating Stations is about 104 MW as detailed in Table 3.1 below:

The present power allocation of DPN is as follows



**Table 3.1: Power allocation from CGS:**

Sl. No.	Source	Capacity	Allocation	
		MW	%	MW
	Central Sector			
1	Loktak, NHPC	105	6.44	6.76
2	Khandong, NEEPCO	50	6.65	3.33
3	Kopili-I, NEEPCO	200	6.15	12.30
4	Kopili-II, NEEPCO	25	5.74	1.44
5	Ranganadi, NEEPCO	405	5.34	21.63
6	Doyang, NEEPCO	75	17.97	13.48
7	AGTPP (Tripura)	84	5.38	4.52
8	AGBPP	291	5.81	16.91
9	Farakka, NTPC	1600	0.70	11.16
10	Kahalgaoan, NTPC	840	0.69	5.81
11	Talcher, NTPC	1000	0.70	6.98
	<b>TOTAL</b>	<b>4675</b>		<b>104.30</b>

Source: Table 3.6 of ARR

The actual energy draws from various central-generating stations during 2013-14 are furnished in Table below:

**Table 3.2: Power Purchase from Central Generating Stations and other Sources for FY 2013-14**

Sl. No.	Source	Power Purchase (MU)
	<b>Central Sector</b>	
1.	Loktak, NHPC	39.48
2.	Khandong NEEPCO	11.82
3	Kopili – I, NEEPCO	43.34
4	Kopili – II, NEEPCO	4.43
5	Ranganadi, NEEPCO	51.66
6	Doyang, NEEPCO	13.88
7	AGTPP (Tripura)	33.85
8	AGBPP	98.33
9	NTPC	111.46
10	OTPC – Palatana	22.80
11	Free Power from Doyang	27.98
12	Short term GEFL Ltd	7.09
13	Short term NVVNL Ltd	12.99
14	Short term DTCLtd	33.43
15	UI	33.85
<b>16</b>	<b>Total</b>	<b>546.39</b>

Source: - Extracted from Format 7 of ARR

### 3.3 Transmission and Distribution Network

DPN owns and operates the transmission and distribution network as given in Table below:

**Table 3.3: Transmission and Distribution Network of DPN as on 31.03.2014**

Sl. No.	Voltage	Transmission lines (ck. km.)		Transformer Capacity (MVA)
<b>(A)</b>	<b>Lines</b>			
1	132 KV		260	
2	66 KV		410	
3	33 KV		1932.15	
4	11 KV		6739.38	
5	LT		11252.10	
<b>6</b>	<b>Total</b>		<b>20593.63</b>	
<b>(B)</b>	<b>Voltage Wise Sub-station</b>			
1	132/66 KV		6	
2	66/33 KV		9	
3	66/11 KV		2	
4	33/11 KV		74	
5	Total		91	
<b>(C)</b>	<b>Capacity Wise Power Transformers</b>	<b>No's</b>	<b>Capacity (MVA)</b>	<b>Total Capacity (MVA)</b>
1	132/66 KV	2	25.00	50.00
2	132/66 KV	3	20.00	60.00
3	132/66 KV	2	12.50	25.00
4	132/66 KV	4	10	40.00
5	132/66 KV	3	6.50	19.50
6	132/33 KV	3	8.00	24.00
7	132/33 KV	1	5.00	5.00
8	66/33 KV	3	20.00	60.00
9	66/33 KV	2	7.50	15.00
10	66/33 KV	6	5.00	30.00
11	33/11 KV	5	10.00	50.00
12	33/11 KV	7	5.00	35.00
13	33/11 KV	4	2.50	10.00
14	33/11 KV	22	1.60	35.22
15	33/11 KV	2	1.00	2.00
16	33/11 KV	26	0.50	13.00
17	33/11 KV	8	0.25	2.00
	Total	103		475.72
<b>(C)</b>	<b>Capacity of Distribution Transformers</b>			
	<b>Transf. Capacity</b>	<b>Nos.</b>	<b>Capacity (MVA)</b>	<b>Total Capacity (MVA)</b>
1	5 MVA, 33/0.4 KV	2	5	10
2	800 kVA, 33/0.4 kV	1	0.80	0.8
3	500 kVA, 33/0.4 kV	8	0.50	4
4	250 kVA, 33/0.4 kV	13	0.25	3.25
5	100 kVA, 33/0.4 kV	20	0.10	2.00
6	63 kVA, 33/0.4 kV	35	0.063	2.205

Sl. No.	Voltage	Transmission lines (ck. km.)		Transformer Capacity (MVA)
7	50 kVA, 33/0.4 kV	11	0.05	0.55
8	25 kVA, 33/0.4 kV	78	0.025	1.95
9	16 kVA, 33/0.4 kV	3	0.016	0.048
10	1 MVA 11/0.4 kV	1	5.00	5.00
11	800 kVA 11/0.4 kV	4	0.80	3.2
12	750 kVA, 11/0.4 kV	21	0.75	15.75
13	500 kVA, 11/0.4 kV	105	0.50	52.5
14	400 kVA 11/0.4 kV	71	0.40	28.40
15	315 kVA, 11/0.4 kV	3	0.315	0.945
16	250 kVA, 11/0.4 kV	300	0.25	75
17	200 kVA, 11/0.4 kV	5	0.20	1
18	100 kVA, 11/0.4 kV	418	0.10	41.80
19	75 kVA, 11/0.4 kV	1	0.075	0.075
20	63 kVA, 11/0.4 kV	513	0.063	32.319
21	50 kVA, 11/0.4 kV	27	0.005	1.35
22	25 kVA, 11/0.4 kV	1519	0.025	37.975
23	16 kVA, 11/0.4 kV	106	0.016	1.696
24	25 kVA, 11/0.2 kV	20	0.025	0.50
25	16 kVA, 11/0.2 kV	31	0.016	0.496
26	10 kVA, 11/0.2 kV	11	0.01	0.11
<b>27</b>	<b>Total</b>	<b>3327</b>		<b>322.92</b>
<b>Year wise distribution transformer failures</b>				
Year	Total DT's Existing	No. of failed DT's	% Failure	
2009-10	753	39	5.18%	
2010-11	886	199	22.46%	
2011-12	1800	208	11.56%	
2012-13	3327	338	10.16%	

### 3.4 Transmission and Distribution (T&D) Losses

The transmission and distribution (T&D) losses of DPN during 2013-14 is 27 %. The technical and commercial losses of the system have not been segregated.

### 3.5 Consumer Profile and Energy Sales

DPN serves about 2.16 Lakhs consumers as on 31.3.2014 with an annual consumption of about 490.00 MU. The category-wise number of consumers and the energy sales during FY 2013-14 are given in Table below:

**Table 3.4: Consumer Profile and Energy Sales for FY 2013-14**

<b>Sl. No.</b>	<b>Consumer Category</b>	<b>Number of Consumers</b>	<b>%</b>	<b>Energy Sales (MU)</b>	<b>%</b>
1	Domestic	180000	88.87	232.53	67
2	Commercial	18800	9.28	39.87	11
3	Industrial	2400	1.18	17.82	4
4	Public Lighting	600	0.03	5.27	2
5	Public Water Works	30	0.02	3.07	1
6	Agriculture	2		0.04	
7	Bulk Supply	700	0.35	51.48	15
<b>8</b>	<b>Total</b>	<b>202532</b>		<b>350.08</b>	
9	Out side state	1		2.40	
<b>10</b>	<b>Total Sales</b>	<b>202533</b>		<b>352.48</b>	
11	Sales to Traders			28.57	
<b>12</b>	<b>Grand Total</b>			<b>381.05</b>	

**Source: - Format-1**

## 4. Brief Summary of Objections raised, Response from Department and Commission's comments

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After admitting the ARR & Tariff Petition for the FY 2015-16, the Commission directed the Department of Power, Nagaland (DPN) to publish the Petition in newspapers in an abridged form duly inviting Comments/Objections from public / stake holders.

In order to ensure transparency in the process of determination of tariffs as envisaged in the Electricity Act 2003, the DPN arranged publication of petition in abridged form in 3 leading Local Newspapers calling for objections / comments on 16.01.2015 & 17.01.2015 for two consecutive days. The DPN or the Commission did not receive any objection / comments from the public.

The Commission arranged issuing of Public Notice by publishing in 2 leading Local Newspapers on 24th Jan., 2015 calling for public hearing to be conducted on 03<sup>rd</sup> Feb, 2015. Accordingly, the Public Hearing was conducted on 03rd Feb, 2015 in the office premises of the commission as scheduled.

The name of the officers of the DPN and others who attended the Public Hearing are also listed here below:

1. Er. Keviletuo Yiese, Superintendent Engineer (T&G).
2. Er. Wabangmeren Jamir, Executive Engineer (Revenue).
3. Mr. B. Malik, Consultant ACE Business Kolkata.
4. Mr. C.R. Lotha.
5. NERC officers & staffs.

Inspite of the Public Notice dated 16.01.2015 & 17.01.2015 published by the DPN as well as the Public Notice dated 24.01.2015 published by the Commission, no consumer came forward to present in the public hearing except Mr. C.R. Lotha, as a consumer as well as a SAC Member attended the said public hearing.

The Hon'ble Chairman conducted the said hearing and introduced the Secretary of the Commission Mr. W.Y. Yanthan, Retd. Joint Secretary to the Govt. of Nagaland, who was recently appointed after the earlier Secretary demitted office on completing his tenure. Some of those who had informed the Commission of their presence could not turn up as they had some engagement in the court, some suddenly had to attend certain training outside Nagaland etc. However, in the interest of public service, much discussion was held on reliability and efficiency of power supply to the consumers. Inspite of some bottlenecks and certain practical difficulties, a thorough deliberation was carried out on the complaints and grievances of the consumers which was encouraging.

Thereafter, 3 (three) resolutions were adopted which are as follows:

1. That apart from publication of Public Notices in the local newspapers, the DPN should broadcast about the Public Hearing to be held well in advance through the All India Radio (local dialect) so as to enable the consumers to come forward and participate from the next public hearing.
2. A specific provision should be incorporated in the public notice to be published by the DPN from next year, to the effect that, any consumers can send their views/objection/suggestion through mail or registered post addressed to the Secretary to this Commission, in case they are not in a position to attend physically in the public hearing fixed by the Commission with proper identification and address. Necessary action will be taken after proper scrutiny is done.
3. The District Co-ordination Committee of all districts should be informed well in advance by the Commission to let the consumers within its district be aware about the public hearing to be conducted by the Commission so as to enable the consumers come forward and participate in the said hearing.

The officials of the DPN who participated in the said public hearing expressed the grievances faced by the department which were taken into consideration. Therefore, the DPN officials were requested to come along with relevant documents so as to be taken up in the coming SAC Meetings.

Sd/-

Chairman,

NERC, Kohima

## 5. Review of Tariff Order for FY 2013-14

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### 5.1 Background

5.1.1 The Tariff Order of the Commission for FY 2013-14 contained its approval of costs and revenue to be earned during the year. The DPN in its ARR & Tariff petition for FY 2015-16 has furnished actuals for FY 2013-14.

5.1.2 There are differences in certain items of costs as well as revenue between the approvals granted by the Commission and the actuals now furnished by the DPN. Since DPN has not submitted audited accounts for FY 2013-14 true up of tariff order for FY 2013-14 is not done. However the Commission considers it appropriate and fair to revisit and review the approvals granted by it in the tariff order of FY 2013-14 with reference to the actuals now made available by the DPN but without altering the principles and norms adopted earlier. These are discussed in the succeeding paragraphs.

### 5.2 Energy Demand (Sales)

5.3.5 The energy sales projected by DPN in ARR for FY 2013-14, approved by the Commission in the Tariff Order and actual sales during the year are given in the Table below:

**Table-5.1: Energy Sales for FY 2013-14**

Sl. No.	Category	Approved by Commission in the T.O	Actuals for FY 2013-14	Now approved by Commission
1	Domestic	270	269.80	269.80
2	Commercial	53	52.99	52.99
3	Industries	25	25.15	25.15
4	Public Lighting	5	4.90	4.90
5	Irrigation & Agriculture	0.05	0.02	0.02
6	Public Water Works	3	3.10	3.10
7	Bulk Supply	65	64.90	64.90
8	Inter State *	0.80	0.41	0.41
9	<b>Total</b>	<b>421.85</b>	<b>421.27</b>	<b>421.27</b>

\* - Sales to DPN consumers in the neighboring state

The Commission approves energy sales within the State at 421.27 MU for the FY 2013-14 as per actuals.

### 5.3 Transmission and Distribution Losses (T&D Losses)

5.8.5 The Commission in its order for FY 2013-14 has fixed the T&D losses within the State at 27%. The DPN has now furnished the actual T&D loss during the FY 2013-14 as 29.70% as detailed in Table below:

**Table 5.2: T&D loss calculation furnished by DPN for FY 2013-14**

Sl. No.	Particulars	2013-14
<b>A</b>	<b>Energy Availability</b>	
1	Own generation	104.12
2	Net Power Purchase from CGS	500.47
3	Free power from Doyang	27.98
4	Energy available at state periphery (1+2+3)	632.57
5	Sales to traders	23.40
6	Sales within the state	421.27
7	Total sales (5+6)	444.67
8	T&D loss (MU) (4-7)	187.90
<b>9</b>	<b>T&amp;D loss (%)</b>	<b>29.70%</b>

Source extract from Format 5 of Petition

#### Commission's Analysis:

The DPN has actually purchased 111.46 MU from Eastern Region and 319.59 MU from North Eastern Region and 87.36 MU under short term/UI purchases totaling to 518.41 MU. But DPN has furnished net Power Purchase as 500.47 MU. The details are not furnished by the DPN. The inter-state transmission losses of Eastern Region are different from that of North Eastern Region which are as detailed below. Transmission losses in Eastern Region are around 2.34% in Eastern Region as per weekly losses from 01.04.2013 to 28.03.2014 and 2.99% in North Eastern Region as per weekly transmission loss in NER for the period from 01.04.2013 to 30.03.2014. Further the DPN has calculated T&D losses on sales to Traders which is also not correct for the reason that the sales to traders will be affected at State periphery and hence will not attract T&D losses within the state. As such considering the above



factors the actual T&D losses within the state works out to 31.04% detailed in Table below:

**Table 5.3: T&D loss calculation worked out and approved by the Commission for FY 2013-14**

Sl. No.	Particulars	Unit	As per Commission calculation
<b>A</b>	<b>Energy Availability</b>		
1	Own Generation	MU	104.12
2	Power Purchase from Eastern Region	MU	111.46
3	Less: Transmission loss in Eastern Region	%	2.34%
4	Less: Transmission loss in Eastern Region on (2)	MU	2.61
5	Add: Power Purchase from North Eastern Region	MU	319.59
6	Add: Free power from Doyang	MU	27.98
7	Less: Transmission losses in North Eastern Region	%	2.99%
8	Less: Transmission losses in North Eastern Region on (2-4+5+6)	MU	13.65
9	Add: Short term/UI purchase	MU	87.36
10	Less: Sales to Traders	MU	23.40
11	Net Power available at state periphery (1+2-4+5+6-8+9-10)	MU	610.85
12	Less: sales within the state	MU	421.27
13	T&D Loss (11-12)	MU	189.58
<b>14</b>	<b>T&amp;D Loss</b>	<b>%</b>	<b>31.04%</b>

The Commission does not see any reason for such a high T&D loss during FY 2013-14. As such the Commission retains its already approved T&D loss of 27% for the FY 2013-14. The DPN should analyse the reasons for such a high T&D loss.

**The Commission accordingly approves T&D loss within the state at 27% for FY 2013-14.**

#### **5.4 Energy requirement**

Energy requirement projected by DPN in tariff petition for FY 2013-14 and approved by the Commission and actuals furnished by the DPN and now approved by the Commission are furnished in Table below:

**Table-5.4: Energy Requirement for FY 2013-14**

Sl. No.	Station	Approved by Commission in the T.O. for FY 2013-14	Actuals furnished by DPN	Now approved by the Commission
<b>A</b>	<b>Energy Requirement</b>			
1	Energy sales within the state	421.85	421.27	421.27
2	Sales to traders	-	23.40	-
3	Total sales	421.85	444.67	421.27
4	T&D loss (MU)	156.03	187.90	155.81
5	T&D loss (%)	27%	29.70%	27%
6	Energy Requirement for sale within the state	577.88	632.57	577.08
7	Surplus/sales to traders	28.67	-	23.40
<b>5</b>	<b>Total Energy requirement</b>	<b>606.55</b>	<b>632.57</b>	<b>600.48</b>

### 5.5 Own generation

The DPN is having its own hydel generation with capacity 27.5 MW at Likhimro Hydro power project and other MHEPs. The Commission approved own generation at 90 MU. Now in the DPN in its petition for FY 2015-16 has furnished actual generation during 2013-14 as 104.12 MU.

**The Commission therefore approves own generation at 104.12 MU during FY 2013-14 as per actuals.**

### 5.6 Power Purchase

The DPN in its tariff petition for FY 2015-16 has furnished that 546.39 MU was actually procured during the FY 2013-14 including free power of 27.98 MU from Doyang and UI/short term purchase of 87.36 MU.

Based on the requirement of power approved by the Commission vide para 5.4 supra, the quantity of power required to be purchased actually purchased excess over requirement is worked out as detailed in Table below:

**Table 5.5: Energy requirement, Available and excess over requirement for  
FY 2013-14**

<b>Sl. No</b>	<b>Particulars</b>	<b>MU</b>
1	Energy Requirement	600.48
2	Energy Availability	
3	Own Generation	104.12
4	UI/short term purchase	87.36
5	Eastern Region (NTPC)	111.46
6	Less: Transmission loss @ 2.34%	2.61
7	Net energy from Eastern Region	108.85
8	Energy from NEEPCO	257.31
9	Energy from NHPC	39.48
10	Energy from OTPC – Pallatana	22.80
11	Free power from Doyang	27.98
<b>12</b>	<b>Total Energy from North Eastern Region (8+9+10+11)</b>	<b>347.57</b>
<b>13</b>	<b>Total energy from Eastern and North Eastern Region</b>	<b>456.42</b>
14	Less: Transmission losses @ 2.99%	13.65
15	Net energy from North Eastern Region (13-14)	442.77
<b>16</b>	<b>Total Energy available (3+4+15)</b>	<b>634.25</b>
<b>17</b>	<b>Excess energy over requirement (16-1)</b>	<b>33.77</b>

The Commission while approving power purchase of 546.39 MU including free power of 27.98 MU from Doyang HEP and UI/short term purchases of 87.36 MU has disallowed 33.77 MU due to non achievement of targeted T&D loss of 27%.

## 5.7 Energy Balance

The details of energy requirement and availability approved by the Commission in Tariff Order for FY 2013-14 and actuals furnished by DPN in its Tariff Petition for FY 2015-16 are furnished in Table 5.6 below:

**Table 5.6: Energy balance furnished by DPN for FY 2013-14**

Sl. No.	Particulars	Approved by the Commission in Tariff Order for FY 2013-14	Previous year (Actuals) FY 2013-14
<b>A)</b>	<b>ENERGY REQUIREMENT</b>		
1	Energy sales to metered category within the State	421.85	421.27
2	Sales to electricity traders		23.40
3	Total Sales	421.85	444.67
4	T&D losses		
(i)	%	27.00%	29.70%
(ii)	MU	156.03	187.90
	Total energy requirement	577.88	632.57
<b>B</b>	<b>ENERGY AVAILABILITY</b>		
1	Net Own hydel generation	90	104.12
2	Power Purchase (Hydel + Thermal)	499.00	518.41
3	Free Power from DHEP	28	27.98
4	Transmission loss	3.5%	3.5%
5	Less: Transmission loss on (2+3)	18.45	17.94
6	Total energy availability	598.55	632.57
<b>7</b>	<b>Surplus</b>	<b>20.67</b>	<b>0.00</b>

**Commission's Analysis**

As verified from the quantity of power purchased during FY 2013-14 as furnished by DPN vide Table 3.3 of Petition for FY 2015-16 and energy balance furnished vide Format-5 of the Petition, the DPN has considered inter-state transmission losses at 3.28% on total 546.39 MU of power purchased as follows:

Sl. No.	Particulars	MU
1	Energy purchased from Eastern Region	111.46
2	Energy purchased from North Eastern Region	347.57
3	UI/short term purchases	87.36
<b>4</b>	<b>Total Energy Purchased</b>	<b>546.39</b>

As the transmission losses in respective regions varies they ought to have been deducted which are as follows:

The average weekly Transmission loss in Eastern Region during 01.04.2013 to 28.03.2014 is 2.34%, while in North Eastern Region the average transmission loss is 2.99% (01.04.2013 to 30.03.2014). No losses need to be considered for UI/short term energy purchases as they are effected at NERLDC.

Thus after considering the above transmission losses, the energy balance will be reflected as detailed in Table below:

**Table 5.7: Energy Balance Now approved by the Commission for FY 2013-14 for review**

Sl. No	Particulars	Approved by the Commission
<b>A</b>	<b>Energy Requirement</b>	
1	Energy Sales (MU)	421.27
2	T & D Loss (MU)	155.81
3	T & D Loss (%)	27%
4	Energy Requirement	577.08
5	Sales to traders	23.40
<b>6</b>	<b>Total Energy Requirement</b>	<b>600.48</b>
<b>B</b>	<b>Energy Availability</b>	
7	Own Generation	104.12
8	Energy purchased from Eastern Region	111.46
9	Less: Inter-state Transmission losses in Eastern Region @ 2.34% on (B)	2.61
10	Net Energy from Eastern Region (8-9)	108.85
11	Energy purchased from North Eastern Region	347.57
12	Total Energy passing through North Eastern Region (10+11)	456.42
13	Inter-state Transmission losses in North Eastern Region @ 2.99% on (12)	13.65
<b>14</b>	<b>Net Energy Available (12-13)</b>	<b>442.77</b>
15	Add: UI/short term purchase	87.36
16	Total Energy Available (7+14+15)	634.25
17	Less: Energy Requirement (6)	600.48
<b>18</b>	<b>Excess energy purchased due to increased T &amp; D loss (16-17)</b>	<b>33.77</b>

## **5.8 Power Purchase Cost**

- 5.8.1 The Commission in its tariff order for FY 2013-14 had approved power purchase cost of Rs. 186.56 crore for purchase of 527 MU from CGS including free power of 28 MU from Doyang with an average cost of Rs. 3.54/kWh.
- 5.8.2 The DPN in its tariff petition for FY 2015-16 has furnished actual power purchase cost during FY 2013-14 at Rs. 189.27 crore to purchase 546.39 MU including free power of 27.98 MU from Doyang with an average of Rs. 3.46/kWh.

### **Commission's Analysis**

The average cost of Power Purchase is reduced to Rs. 3.46/kWh as against Rs. 3.54/kWh approved in Tariff Order for FY 2013-14.

The Commission approves Power Purchase Cost as Rs. 189.27 crore for purchase of 546.39 MU including free power of 27.98 MU from Doyang during FY 2013-14 by DPN on review.

- 5.8.3 **Power Purchase Cost disallowed due to non achievement of targeted T & D Loss. The Commission has disallowed power purchased quantity of 33.77 MU due to non achievement of targeted T&D Loss vide para 5.6. The proportionate cost is Rs. 11.68 crore at the average cost of Power Purchase at Rs. 3.46/kWh.**

**The Commission accordingly disallowed proportionate Power Purchase Cost of Rs. 11.68 crore during FY 2013-14 after review.**

## **5.9 Employee cost**

The Commission in its Tariff Order for FY 2013-14 had approved employee cost at Rs. 66.22 crore. DPN in its ARR & Tariff petition for FY 2015-16 has furnished actual employee cost for FY 2013-14 at Rs. 79.58 crore.

**The Commission accordingly approves employee cost at Rs. 79.58 crore for the FY 2013-14 as per actuals, after review.**

### **5.10 Administrative & General expenses**

The Commission in its tariff order for FY 2013-14 had approved administrative and general expenses at Rs. 3.15 crore. DPN in its ARR & Tariff petition for FY 2015-16 has now furnished actual expenditure of Rs. 2.85 crore towards Administrative & General expenses during FY 2013-14.

**The Commission accordingly approves Rs. 2.85 crore towards administrative and general expenses for the FY 2013-14 as per actuals, after review.**

### **5.11 Repairs and Maintenance expenses**

The Commission in its tariff order for FY 2013-14 had approved Rs. 17.67 crore towards repairs and maintenance expenses.

DPN in its ARR & Tariff petition for FY 2015-16 has furnished actual expenditure at Rs. 15.56 crore towards repairs and maintenance expenses during the FY 2013-14.

**The Commission approves Rs. 15.56 crore towards repairs and maintenance expenses for the FY 2013-14 as per actuals, after review.**

### **5.12 Capital Investment**

The Commission in the Tariff Order for FY 2013-14 has approved Capital Investment of Rs. 136 crore and capitalization of Rs. 30 crore as projected by the DPN. Now the DPN in its ARR and Tariff Petition for FY 2015-16 has furnished actual expenditure during FY 2013-14 to a tune of Rs. 183.00 crore and capitalization of Rs. 27.00 crore as detailed in Tables 5.8 and 5.9 below:

**Table 5.8: Scheme Wise Capital Investment plan for FY 2013-14****(Rs. crore)**

Sl. No	Particulars	Actual Expenditure	
		now furnished by DPN	
		Plan	Non-Plan
1	Generation Schemes	7.50	
2	Transmission and Distribution Scheme	17.86	43.37
3	Renovation and Modernisation	26.20	5.94
4	Rural Electrification	2.00	
5	Miscellaneous Expenditure	3.55	
<b>6</b>	<b>Total</b>	<b>57.11</b>	<b>49.31</b>

**Table 5.9: Capital Expenditure and Capitalization during FY 2013-14**

Sl. No.	Particulars	Actuals furnished by DPN	Now approved by the Commission
1	Opening Balance	755.19	755.19
2	Add: New Investment	183.00	183.00
<b>3</b>	<b>Total</b>	<b>938.19</b>	<b>938.19</b>
4	Less: Investment Capitalized	27	27
<b>5</b>	<b>Closing Balance</b>	<b>911.19</b>	<b>911.19</b>

**Commission's Analysis**

As verified from the above as against CWIP of Rs. 938.19 crore to end of 31.03.2014 only Rs. 27.00 crore are capitalized which is about 3% of the total investment. It is reiterated that the progress on completion of works should be geared up to bring the assets into optimum use to achieve the expected objectives.

In the Tariff Order for FY 2013-14, the DPN was directed to submit scheme wise, work wise progress with dates of commencement of work and targeted dates of completion of works by 30.06.2013. But no such report was received. The DPN is directed to submit the report with above details by 30.06.2015.

**With the above observation the capital expenditure of Rs. 183.00 crore and capitalization of Rs. 27.00 crore during the year 2013-14 is approved, after review.**



### 5.13 Depreciation

The DPN has not maintained asset/depreciation registers. Audited proforma accounts are also not furnished. As such the value of opening GFA is not considered to allow depreciation. However the DPN has furnished that capital investment to the tune of Rs. 40.00 crore is capitalized during FY 2012-13 and Rs. 27.00 crore during FY 2013-14 on which depreciation is allowed on average rate of depreciation of 5.28% as detailed in Table 5.10 below:

**Table-5.10: Depreciation for FY 2013-14 approved by the Commission**

Sl. No.	Particulars	Amount (Rs. crore)
1	GFA as on 01.04.2013	40.00
2	Additions during 2013-14	27.00
3	GFA at the end of 2013-14	67.00
4	Average GFA	33.50
5	Depreciation rate	5.28%
6	Depreciation for the year	1.77

**The Commission approves depreciation amount of Rs. 1.77 crore for the FY 2013-14.**

### 5.14 Interest and Finance Charges

DPN has stated that it has not availed any direct loan during FY 2013-14. The DPN has stated that the entire capital employed has been funded through infusion of funds by Government of Nagaland through budgetary support without any external borrowings.

**In view of the above the Commission has not considered any interest and finance charges for FY 2013-14.**

### 5.15 Interest on Working capital

As per Regulation 98(b) of NERC (Terms and Conditions for determination of Tariff) Regulations, 2010, the working capital for an integrated utility shall be the sum of one-month requirement of;

- (i) Fuel Cost
- (ii) Power purchase cost
- (iii) Employee cost
- (iv) Administrative & General Expenses
- (v) R&M expenses

The rate of interest on working capital shall be equal to the short term prime lending rate of SBI on 1<sup>st</sup> April of the relevant year. The interest on working capital shall be payable on normative basis notwithstanding that the distribution licensee has not taken working capital loan from any outside agency or has exceeded the working capital amount worked out on the normative figures. SBI PLR as on 01.04.2013 is 14.45%. Accordingly interest on working capital works out to Rs. 3.46 crore as detailed in Table 5.11 below:

**Table 5.11: Interest on working capital for FY 2013-14 approved by the Commission (Rs. Crore)**

Sl. No.	Particulars	Amount	One Month value
1	Fuel Cost		
2	Power Purchase cost	189.27	15.77
3	Employee cost	79.58	6.63
4	Administrative & General Expenses	2.85	0.24
5	Repairs & Maintenance expenses	15.56	1.30
<b>6</b>	<b>Total</b>	<b>287.26</b>	<b>23.94</b>
7	SBI PLR as on 01.04.2013		14.45%
<b>8</b>	<b>Interest on Working Capital</b>		<b>3.46</b>

**The Commission accordingly approves interest on working capital at Rs. 3.46 crore for the FY 2013-14.**

#### **5.16 Provision for bad & doubtful debts**

The Commission in its tariff order for FY 2013-14 had approved a provision of Rs. 0.15 crore towards bad and doubtful debts. The DPN has not furnished the details of amounts written off or withdrawn during FY 2013-14. As such no amount is allowed under this head.

### 5.17 Non-Tariff Income

The Commission in its Tariff Order for FY 2013-14 had approved non-tariff income at Rs. 5.98 crore for the FY 2013-14. The DPN in its ARR and tariff petition for FY 2015-16 has now furnished actual non-Tariff income during FY 2013-14 at Rs. 7.36 crore.

**The Commission approves non-tariff income at Rs. 7.36 crore for the FY 2013-14 as per actuals, after review.**

### 5.18 Revenue from revised tariff

The DPN has furnished revenue with revised tariffs at Rs. 187.50 crore for the FY 2013-14 including sales outside the State to traders as detailed in Table below:

**Table 5.12: Energy Sales for FY 2013-14**

<b>Sl. No.</b>	<b>Category</b>	<b>Amount (Rs. crore)</b>
1	Domestic	107.57
2	Commercial	28.51
3	Public Lighting	2.74
4	Industrial	11.12
5	Public Water Works	1.55
6	Irrigation & Agriculture	0.01
7	Bulk Supply	31.80
8	Inter State	0.20
<b>9</b>	<b>Total</b>	<b>183.5</b>
10	Sale to Traders	3.99
<b>11</b>	<b>Grand Total</b>	<b>187.50</b>

**The Commission approves Rs. 187.50 crore towards revenue from revised tariff for the year 2013-14 as per actuals, after review.**

### 5.19 Aggregate Revenue Requirement for FY 2013-14

In view of the above review, the aggregate revised revenue requirement for FY 2013-14 is as detailed in Table below:

**Table 5.13: Aggregate Revenue Requirement for FY 2013-14 approved by the Commission**

<b>Sl. No.</b>	<b>Particulars</b>	<b>Approved by the Commission</b>	<b>Actuals furnished by DPN</b>	<b>Now approved by the Commission</b>
1	Fuel Cost	0.08	0.08	0.08
2	Power Purchase Cost	186.56	189.27	189.27
3	Employee Cost	66.22	79.58	79.58
4	Repairs & Maintenance cost	17.67	15.56	15.56
5	Adm. & General Expenses	3.15	2.85	2.85
6	Depreciation	0.79	16.09	1.77
7	Int. & Finance charges	-	-	-
8	Int. on Working Capital	3.36	-	3.46
9	Provision for bad debts	0.15	-	-
10	Return on Equity	-	-	-
<b>11</b>	<b>Total Expenditure</b>	<b>277.98</b>	<b>303.35</b>	<b>292.49</b>
12	Less: Power Purchase disallowed due to non achievement of targeted T&D loss			11.68
13	Less: Non-Tariff Income	5.98	7.36	7.36
<b>13</b>	<b>Aggregate Revenue Requirement</b>	<b>272</b>	<b>295.99</b>	<b>273.45</b>
14	Revenue from Revised Tariff		187.50	187.50
<b>15</b>	<b>Net Revenue Gap</b>		<b>108.49</b>	<b>85.95</b>

As the utility is a Government Department and the expenditure is already met the gap of Rs. 85.95 crore is considered fully covered by the budgetary support of the State Government and as such no pass through of the gap (loss) in the next Tariff Order is allowed.

## 6. Aggregate Revenue Requirement for FY 2015-16 Commission's Analysis & Decisions

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### 6.1 Introduction

The ARR and Tariff petition filed by the DPN for FY 2015-16 on 10<sup>th</sup> Nov., 2014 was incomplete as some of the information / data required under NERC (Terms and Conditions for Determination of Tariff) Regulations, 2010 was not furnished. The Commission directed the DPN through letter dated 17<sup>th</sup> Dec., 2014 to furnish additional information / data. The Department has submitted the additional information vide their letter dated 09<sup>th</sup> Jan., 2015.

The additional information / data submitted by the DPN is taken into consideration while analyzing the ARR & Tariff Petition in the order.

### 6.2 Consumer Categories

DPN serves about 2,16,285 consumers as on 31<sup>st</sup> March 2014 in its area of operation and the consumers are broadly categorized as under:

- Domestic including BPL
- Commercial
- Industrial
- Public Lighting
- Public Water Works & Sewage Pumping
- Irrigation and Agriculture
- Bulk Supply
- Outside the state

The DPN serves the consumers at different voltages at which the consumers avail supply.

### 6.2.1 Projected Consumer Growth and connected load

The DPN has furnished the details of category-wise consumers (actuals), over the last five years FY (2008-09 to 2012-13), estimated for FY 2013-14 and projected for FY 2014-15 and FY 2015-16.

**Table 6.1: Category-wise Consumers**

(Nos.)

Source: -- Table 3.1 of ARR

Sl. No	Category	FY 2008-09 (Actual)	FY 2009-10 (Actual)	FY 2010-11 (Actual)	FY 2011-12 (Actual)	FY 2012-13 (Actual)	FY 2013-14 (Actual)	FY 2014-15 (Estimated)	FY 2015-16 (Projected)
1.	Domestic	163975	164515	170679	172846	180000	193672	209000	220000
2.	Commercial	16928	17273	17050	17612	18800	18836	18860	18900
3.	Industrial	2021	2095	2040	2050	2400	2426	2470	2500
4.	Public Lighting	759	581	780	592	600	600	600	600
5.	Agriculture	4	2	2	2	2	2	1	1
6.	Public Water works	21	27	28	38	30	30	30	30
7.	Bulk supply	173	556	585	600	700	718	730	750
8.	Inter State			1	1	1	1	1	1
<b>Total</b>		<b>183881</b>	<b>185049</b>	<b>191165</b>	<b>193741</b>	<b>202533</b>	<b>216285</b>	<b>231692</b>	<b>242782</b>

Category-wise consumers and connected load at actuals for FY 2013-14, estimated for FY 2014-15 and projected for FY 2015-16 by DPN are indicated in Table below:

**Table 6.2: Consumers and connected load**

Sl. No	Consumer Category	2013-14 (Actual)		2014-15 (Estimated)		2015-16 (Projected)	
		No of Consumers	Connected Load KW	No of Consumers	Connected Load KW	No of Consumers	Connected Load KW
1	Domestic including BPL	193672	88000	209000	95000	220000	95000
2	Commercial	18836	12800	18860	16000	18900	16000
3	Industrial Consumers	2426	8500	2470	12500	2500	12500
4	Public Lighting	600	8000	600	8000	600	8000
5	Public Water works & Sewage	30	750	30	750	30	750
6	Irrigation & Agriculture	2	20	1	10	1	10
7	Bulk supply	718	22000	730	30000	750	30000
8	Outside state	1	500	1	500	1	500
	<b>Total</b>	<b>216285</b>	<b>140570</b>	<b>231692</b>	<b>162760</b>	<b>242782</b>	<b>162760</b>

Source: - Extract of Format 1 of ARR

### 6.3 Energy Sales

The DPN has furnished energy sales from FY 2008-09 to FY 2013-14 (actuals) and estimated for FY 2014-15 and projected for FY 2015-16 as indicated in Table below:

**Table 6.3: Energy Sales**

Sl. No.	Category	2008-09 (Actuals)	2009-10 (Actuals)	2010-11 (Actuals)	2011-12 (Actuals)	2012-13 (Actuals)	2013-14 (Actuals)	2014-15 (Estimated)	2015-16 (Projected)
1	Domestic	145.00	175.84	188.22	212.36	232.53	269.80	295.74	310
2	Commercial	8.95	22.71	32.26	34.72	39.87	52.99	56.94	64
3	Industrial	13.90	11.86	11.02	14.48	17.82	25.15	27.68	30
4	Public Lighting	4.86	1.83	4.80	4.96	5.27	4.90	6.00	5.25
5	Irrigation & Agriculture	0.04	0.04	0.04	0.03	0.04	0.02	0.05	0.05
6	Public Water Works & Sewage	2.02	1.27	1.70	2.44	3.07	3.10	3.29	3.30
7	Bulk supply	18.20	36.33	46.89	48.46	51.48	64.90	70.57	77.40
8	Outside State			0.60	0.70	2.40	0.41	0.45	0.45
	<b>Total</b>	<b>192.97</b>	<b>249.88</b>	<b>285.53</b>	<b>318.15</b>	<b>352.48</b>	<b>421.27</b>	<b>460.72</b>	<b>490.45</b>
9	Sales to Traders	170.00	75.67	91.83	62.99	28.57	23.40	30	30
	<b>Grand Total</b>	<b>362.97</b>	<b>325.55</b>	<b>377.36</b>	<b>381.14</b>	<b>381.05</b>	<b>444.67</b>	<b>490.72</b>	<b>520.45</b>

Source: - Table 3.1 of ARR & Format 1

The DPN has submitted that it has projected the category wise energy sales for FY 2015-16 based on the past sales over the five years period (FY 2008-09 to FY 2013-14), new developments on account of Government policies, socio economic changes, Industrial growth etc. that would affect consumption across various categories of consumers, have been taken as guiding factors in estimating the sales. DPN has further stated that the CAGR as the basis for sales projections is a tried and tested method and is used extensively across the States and accepted by the regulators. Considering the CAGR the sales for the last five years presented an abnormal trend and hence normalization has been undertaken for such categories for forecasting the sales for FY 2015-16.

### 6.3.1 Analysis of energy sales projected and Commission's view

Reasonable projection of category wise sales is essential to determine the energy required to be purchased and the likely revenue by sale of electricity.

DPN has projected the category wise energy sales for FY 2015-16 based on past trends over a period of five years (FY 2008-09 to FY 2013-14). These sales with CAGR for 5 years, 4 years, 3 years, 2 years and year on year are shown in Table below:

**Table 6.4: CAGR**

Sl. No.	Category	FY 2008-09 (Actuals)	FY 2009-10 (Actuals)	FY 2010-11 (Actuals)	FY 2011-12 (Actuals)	FY 2012-13 (Actuals)	FY 2013-14 (Actuals)	CAGR for 5 years 2008-09 to 2013-14%	CAGR for 4 years 2009-10 to 2013-14%	CAGR for 3 Years 2010-11 to 2013-14%	CAGR for 2 years 2011-12 to 2013-14%	CAGR for 2012-13 to 2013-14%
1	Domestic Including BPL	145.00	175.84	188.22	212.36	232.53	269.80	13.22%	11.30%	12.75%	12.72%	16.03%
2	Commercial	8.95	22.71	32.26	34.72	39.87	52.99	42.72%	23.59%	17.99%	23.54%	32.91%
3	Industrial Consumers	13.90	11.86	11.02	14.48	17.82	25.15	12.59%	20.67%	31.66%	31.79%	41.13%
4	Public Lighting	4.86	1.83	4.80	4.96	5.27	4.90	0.16%	27.92%	0.69%	-0.61%	-7.02%
5	Public Water Works & Sewage	2.02	1.27	1.70	2.44	3.07	3.10	8.94%	24.99%	22.17%	12.72%	0.98%
6	Irrigation and Agriculture	0.04	0.04	0.04	0.03	0.04	0.02	-12.94%	-15.91%	-20.63%	-18.35%	-50.00%
7	Bulk Supply	18.20	36.33	46.89	48.46	51.48	64.90	28.95%	15.61%	11.44%	15.73%	26.07%
	<b>Total</b>	<b>192.97</b>	<b>249.88</b>	<b>284.93</b>	<b>317.45</b>	<b>350.08</b>	<b>420.86</b>					

Specific consumption based on number of consumers and total consumption is worked out and shown in Table below:

**Table 6.5: Specific consumption per consumer**

Consumer Category	2008-09 (kWh/month)	2009-10 (kWh/month)	2010-11 (kWh/month)	2011-12 (kWh/month)	2012-13 (kWh/month)	2013-14 (kWh/month)
Domestic	74	89	92	102	108	116
Commercial	44	110	158	164	178	234
Industrial	573	472	450	589	619	864
Public Lighting	534	262	513	698	732	680
Irrigation and Agriculture	833	1667	1667	1250	1667	833
Public Water Works and Sewage	8016	3920	5060	5351	8528	8611
Bulk supply	8767	5445	6079	6731	6129	7532



The consumption of each category of consumers is discussed below to arrive at reasonable estimation of energy sales for FY 2015-16. The actuals for FY 2013-14 are considered as base for projection of sales for FY 2015-16.

**(i) Domestic**

The DPN has projected the energy sales of 310 MU to this category for FY 2015-16. Actuals during FY 2013-14 are 269.80 MU. 5 years CAGR (FY 2008-09 to FY 2013-14) is 13.22% and 4 years CAGR (FY 2009-10 to FY 2013-14) is 11.30% and 3 years CAGR (FY 2010-11 to FY 2013-14) is 12.75%, 2 year CAGR (FY 2011-12 to FY 2013-14) is 12.72%, while YoY growth of FY 2013-14 over FY 2012-13 is about 16.03%. It is observed that the growth of domestic sale is steadily increasing for the last four years and there is sudden increase in FY 2013-14 over FY 2012-13. The DPN has not furnished reasons for the same. 3 year CAGR of 12.75% is considered reasonable. Considering growth of 12.75% P.A over actual sales for FY 2015-16 during FY 2013-14 the sales would be 343 MU.

**The Commission approves the energy sales at 343 MU for FY 2015-16 as against 310 MU proposed by DPN**

**(ii) Commercial**

DPN has projected the energy sales of 64 MU for FY 2015-16. Actuals during FY 2013-14 are 52.99 MU. 5 years CAGR (FY 2008-09 to FY 2013-14) is 42.72% and 4 years CAGR (FY 2009-10 to FY 2013-14) is 23.59% and 3 years CAGR (FY 2010-11 to FY 2013-14) is 17.99%, 2 year CAGR (FY 2011-12 to FY 2013-14) is 23.54%, while YoY growth of FY 2013-14 over FY 2012-13 is about 32.91%. There is sudden increase in FY 2009-10 over the previous years and the sales are steadily increasing since FY 2010-11. As such 3 year CAGR of 17.99% P.A is considered reasonable and the sale for FY 2015-16 works out to 74 MU.

**The Commission approves the energy sales of 74 MU for commercial category for FY 2015-16 as against 64 MU proposed by DPN.**

**(iii) Industrial**

DPN projected the energy sales of 30 MU to this category for the FY 2015-16. Actuals during FY 2013-14 are 25.15 MU. 5 years CAGR (FY 2008-09 to FY 2013-14) is 12.59% and 4 years CAGR (FY 2009-10 to FY 2013-14) is 20.67% and 3 years CAGR (FY 2010-11 to FY 2013-14) is 31.66%, 2 year CAGR (FY 2011-12 to FY 2013-14) is 31.79%, while YoY growth of FY 2013-14 over FY 2012-13 is about 41.13%. 3 year CAGR of 31.66% P.A is considered reasonable, the consumption for FY 2015-16 works out to 44 MU.

**The Commission approves the energy sales of 44 MU for industrial power supply for FY 2015-16 as against 30 MU proposed by DPN.**

**(iv) Public Lighting**

The DPN has projected the energy sales for this category at 5.25 MU for FY 2015-16. Actuals during FY 2013-14 are 4.90 MU. The consumption during FY 2009-10 is erratic. 5 years CAGR (FY 2008-09 to FY 2013-14) is 0.16% and 4 years CAGR (FY 2009-10 to FY 2013-14) is 27.92% and 3 years CAGR (FY 2010-11 to FY 2013-14) is 0.69%, 2 year CAGR (FY 2011-12 to FY 2013-14) is -0.61%, while YoY growth of FY 2013-14 over FY 2012-13 is about -7.02%. 3 year CAGR of 0.69% P.A is considered reasonable and with this growth the consumption for FY 2015-16 would be 5 MU.

**The Commission accordingly approves energy sales for public lighting at 5 MU for FY 2015-16 as against 5.25 MU projected by the DPN.**

**(v) Irrigation and Agriculture**

The DPN has projected energy sales of 0.05 MU for FY 2015-16. The sales to this category during FY 2011-12 and FY 2013-14 are at negative growth over the last three years. The Commission accepts the projection of DPN for agriculture at 0.05 MU for FY 2015-16.

**The Commission accordingly approves energy sales for agricultural category at 0.05 MU for FY 2015-16 as projected by DPN.**

**(vi) Public Water Supply and Sewage System**

The DPN has projected the energy sales for this category at 3.30 MU for the FY 2015-16. The actual sales during FY 2013-14 are 3.10 MU. Sales during FY 2009-10 and FY 2010-11 are shown a negative growth over FY 2008-09. The 5 years CAGR (FY 2008-09 to FY 2013-14) is 8.94% and 4 years CAGR (FY 2009-10 to FY 2013-14) is 24.99% and 3 years CAGR (FY 2010-11 to FY 2013-14) is 22.17%, 2 year CAGR (FY 2011-12 to FY 2013-14) is 12.72%, while YoY growth of FY 2013-14 over FY 2012-13 is about 0.98%. The sales during FY 2009-10 and FY 2010-11 are erratic 2 year CAGR of 12.72% is considered reasonable. With the growth of 12.72% P.A the consumption for FY 2015-16 would be 4 MU.

**The Commission approves energy sales for Public water supply and sewage system at 4 MU for FY 2015-16 against 3.30 MU as projected by DPN.**

**(vii) Bulk Supply**

DPN has projected the energy sales to this category at 77.40 MU for FY 2015-16. The actual sales during the FY 2013-14 are 64.90 MU. There is a sudden jump in sales during FY 2009-10 over previous year and since then the sales are steadily increasing. The 5 years CAGR (FY 2008-09 to FY 2013-14) is 28.95% and 4 years CAGR (FY 2009-10 to FY 2013-14) is 15.61% and 3 years CAGR (FY 2010-11 to FY 2013-14) is 11.44%, 2 year CAGR (FY 2011-12 to FY 2013-14) is 15.73%, while YoY growth of FY 2013-14 over FY 2012-13 is about 26.07%.. During the year 2009-10 there is sudden increase in consumption, which is not explained by DPN. 2 years CAGR of 15.73% P.A over the actual sales during FY 2013-14 is considered reasonable and with this growth rate consumption for FY 2015-16 would be 87 MU.

**The Commission accordingly approves energy sales for bulk supply at 82 MU for FY 2015-16 as against 77.4 MU projected by DPN.**

**(viii) Inter State**

DPN has projected the energy sales to this category at 0.45 MU for FY 2015-16 at the same quantum of sales during FY 2014-15.

**The Commission accordingly approves 0.45 MU for this category for FY 2015-16 as projected by DPN.**

**6.3.2 Category-wise Energy Sales**

The category-wise energy sales for FY 2015-16 projected by DPN and approved by the Commission are given in Table below:

**Table 6.6: Category wise energy sales for FY 2015-16**

(MU)			
Sl. No.	Consumer Category	Energy sales projected by DPN	Energy sales approved by the Commission
1.	Domestic	310.00	343.00
2.	Commercial	64.00	74.00
3.	Industrial	30.00	44.00
4.	Public Lighting	5.25	5.00
5.	Agriculture	0.05	0.05
6.	PWS	3.30	4.00
7.	Bulk supply	77.40	87.00
8.	Inter state	0.45	0.45
<b>9.</b>	<b>Total</b>	<b>490.45</b>	<b>557.50</b>

**6.4 Transmission and Distribution (T&D) losses**

It is submitted by DPN that it has achieved significant reduction in transmission and distribution losses during the recent years as a result of execution of system improvement works under the plan schemes. It is submitted by DPN that their efforts will be continued to reduce the losses further.

DPN has furnished for FY 2013-14 the T&D loss (Actuals) as 29.70%, estimated at 28% for FY 2014-15 and projected at 26.91% for FY 2015-16.

### **Commission's Analysis**

The T&D loss furnished by DPN are inclusive of interstate transmission loss. Further it is observed that the DPN has considered sales to traders also while calculating T&D losses which is not in order. Since energy purchased is passing through ERLDC and NERLDC, inter-state transmission losses of the respective RLDCs should be considered to arrive at actual power available at state periphery. Further the sales to traders should not be considered while calculating T&D losses as the sales to traders will be effected at RLDC.

The details of regional network losses in Eastern Region have been obtained according to which the average transmission loss is 2.12% as per weekly transmission losses from 31.03.2014 to 03.10.2014. Similarly the average transmission loss in North Eastern Region is 2.99% as per weekly transmission losses from 01.04.2013 to 30.03.2014.

In the tariff order for the FY 2013-14, T&D loss of 27% was approved by the Commission, and in loss reduction trajectory T&D Loss target of 26% is fixed for FY 2015-16.

### **The Commission accordingly approves the T & D loss at 26% for the FY 2015-16.**

The technical and commercial losses are not segregated. DPN should analyze the reasons for high T & D loss and effective measures be taken to reduce the losses by proper accounting of energy sales, conducting voltage wise energy audit by providing meters on feeders and arresting pilferage of energy and replacement of all defective meters and installation of meters to all unmetered connections.

With the above directions the Commission sets the trajectory for loss reduction during FY 2016-17 to FY 2018-19 as follows:

2016-17	25.50%
2017-18	25.00%
2018-19	24.50%

DPN shall make all efforts for reduction of losses in the system as above.

## 6.5 Energy Requirement & Availability

The DPN has projected energy requirement as per sales and T&D losses as detailed in Table below:

**Table 6.7: Energy Requirement for FY 2015-16**

Energy Balance	FY 2013-14 (Actual) MU's	FY 2014-15 (Estimated) MU's	FY 2015-16 (Projected) MU's
<b>ENERGY REQUIREMENT</b>			
Energy Sales within State	350.08	394.50	422.12
Sales to other distribution licensees	30.97	32.40	42.00
Total Energy Sales	381.05	426.90	464.12
Overall T & D Losses %	33.75	28.00	27.00
Overall T & D Losses (MUs)	194.09	166.02	171.57
Total Energy Requirement	575.14	592.92	635.69
<b>Energy Availability</b>			
Power Purchase from CGS/UI	455.86	458.92	493.69
Free Power from DHEP	23.52	27.00	27.00
Generation	95.76	107.00	115.00
Total Energy Availability	575.14	592.92	635.69
Energy Surplus/ (Gap)	0.00	0.00	0.00

Source: - Extract from Table 3.3 of ARR

### Commission's Analysis:

The DPN has shown the sales to other distribution licensees (through traders) under energy requirement and calculated T&D losses on this sale, which is not correct as the sales to traders will be effected at the State periphery which have no bearing on T&D losses within the state. Further, sales to traders will arise only if there is surplus power after meeting the requirement within the State. The DPN has also not considered regional pool losses, which are about 2.12% in Eastern Region and 2.99% in North Eastern Region discussed in para 6.4 above.

As such the Commission after considering T&D losses at 26.00% has computed energy requirement based on approved energy sales for FY 2015-16 as given in Table below:

**Table-6.8: Energy Requirement approved by Commission for FY 2015-16**

<b>Sl. No.</b>	<b>Particulars</b>	<b>Approved by the Commission</b>
1	Energy sales (MU)	557.50
2	Distribution losses (%)	26.00%
3	Distribution losses (MU)	195.88
4	Energy requirement at State periphery (MU)	753.38

**The Commission approves the energy requirement at 753.38 MU.**

## **6.6 Source of Power**

### **6.6.1 Own Generation**

DPN has its own generating station (Likhimro Hydro Electric Project) with installed capacity of 24 MW (3x8MW) together with other MHEPs, the State's total installed Hydel Power Capacity is 27.5 MW and the net generation during FY 2015-16 is projected at 105 MU.

**The Commission approves the own generation at 105 MU for the FY 2015-16 as projected by DPN.**

### **6.6.2 Power Purchase from Central Generating Stations**

The balance energy requirement of DPN is mainly met from allocation of power from Central Generation Stations of NEEPCO, NHPC and NTPC as per allocation from time to time as detailed in Table below. However, for meeting requirement at peak demand period it has to purchase power from other sources / open market / power exchange etc.

**Table 6.9: Power allocation**

Sl. No.	Source	Capacity (MW)	Allocation	
			(%)	(MW)
	<b>Central Sector</b>			
1	Loktak, NHPC	105	6.44	6.76
2	Khandong, NEEPCO	50	6.65	3.33
3	Kopili – I, NEEPCO	200	6.15	12.30
4	Kopili – II, NEEPCO	25	5.74	1.44
5	Ranganadi , NEEPCO	405	5.34	21.63
6	Doyang, NEEPCO	75	17.97	13.48
7	AGTPP (Tripura)	84	5.38	4.52
8	AGBPP	291	5.81	16.91
9	Palatana	363.3	3.72%	13.51
10	Farakka, NTPC	1600	0.43	6.88
11	Kahelgaon , NTPC	840	0.42	3.53
12	Talcher, NTPC	1000	0.42	4.20
	<b>TOTAL</b>	<b>5038.3</b>		<b>108.49</b>

Source: - Table 3.6 of ARR

Power procurement during FY 2013-14 (Actuals) and estimated for FY 2014-15 and projected for FY 2015-16 furnished by DPN are given in Table below:

**Table 6.10: Source wise Power Procurement projected by DPN for FY 2015-16 (MU)**

Sl.No.	Particulars	Previous year (Actuals) FY 2013-14	Current Year (Estimated) FY 2014-15	Ensuring Year (projected) FY 2015-16
	<b>Central Sector</b>			
1	Laktak, NHPC	39.48	32.00	32.00
2	Khandong, NEEPCO	11.82	11.00	11.00
3	Kopili-I, NEEPCO	43.34	40.00	40.00
4	Kopili-II, NEEPCO	4.43	3.03	3.03
5	Ranganadi, NEEPCO	51.66	51.66	60.00
6	Doyang, NEEPCO	41.86	45.00	45.00
7	AGTPP (Tripura)	33.85	30.00	30.00
8	AGBPP	98.33	95.00	95.00
9	NTPC	111.46	111.46	120.00
10	OTPC Ltd – Palatana	22.80	84.93	84.93
11	Short term – GEFL Ltd	7.09	7.09	7.09
12	Short term – NVVNL Ltd	12.99	12.99	12.99
13	Short term – PTC Ltd	33.43	33.43	33.43
14	Over drawn/other sources	33.85	31.93	52.64
<b>15</b>	<b>Total</b>	<b>546.39</b>	<b>589.52</b>	<b>627.11</b>

Source: Table 3.4 of ARR



### Assumption for Power Purchase Projection

The DPN has stated that the merit order dispatch principles are typically adopted when determining the power purchases from various generating stations. However, in a power deficit scenario, these principles do not play a significant role as the utilities will try and purchase all power that is available at its disposal. Accordingly, DPN has considered purchase of the entire power available from all the possible sources during FY 2015-16 to meet the demand to the extent possible.

### Commission's Analysis

DPN has stated that the quantum of power proposed to be purchased is based on declared allocation of power to DPN from CGS. As per ABT based Regional Energy Accounting (REA) of NERPC for November, 2014, actual power allocation to DPN from the above stations and other stations from 01/04/2014 to 31/10/2014 and estimated for FY 2014-15 are as follows:

(MU)

Sl. No.	Station	Scheduled energy from 01.04.2014 to 30/09/2014	Estimated for FY 2014-15
1	Khandong	4.38	8.00
2	Kopili-I	20.32	35.00
3	Kopili-II	3.92	7.00
	<b>Total</b>	<b>28.62</b>	<b>50.00</b>
4	Ranganadi	49.30	85.00
5	Doyang (including free power)	23.69	41.00
6	AGBPP	57.91	99.00
7	AGTPP	19.11	33.00
8	Loktak	18.74	32.00
9	Palatana	52.09	89.00

The same allocation is adopted for the year FY 2015-16 also. In respect of NTPC stations and short term/UI purchases, the quantity of Power Purchase as projected by DPN is considered.

The DPN shall draw the entire share from various central generating stations and sell the surplus power to traders to generate additional revenue after totally meeting the demand of the consumers within the State without any restrictions.

Thus the power purchase has been approved by the Commission for FY 2015-16 as detailed in Table below:

**Table 6.11: Power Purchase from CGS approved by Commission for FY 2015-16 (MU)**

Sl. No.	Station	Projected by DPN	Approved by Commission
<b>I</b>	<b>NEEPCO</b>	<b>257.03</b>	<b>281.00</b>
1	Khandong - HEP	11.00	8.00
2	Kopili-I - HEP	40.00	35.00
3	Kopili-II - HEP	3.03	7.00
4	Ranganad - HEP	60.00	85.00
5	AGTPP, Tripura	30.00	33.00
6	AGBPP	95.00	99.00
7	Doyang, Nagaland	18.00	14.00
<b>II</b>	<b>NHPC</b>	<b>32.00</b>	<b>32.00</b>
8	Loktak	32.00	32.00
<b>III</b>	<b>NTPC</b>	<b>120.00</b>	<b>120.00</b>
9	Farakka	120.00	120.00
10	Kahalgaon		
11	Talcher		
<b>12</b>	<b>Free Power from Doyang</b>	<b>27.00</b>	<b>27.00</b>
<b>13</b>	<b>OTPC Ltd – Palatana</b>	<b>84.93</b>	<b>89.00</b>
<b>14</b>	<b>Short term purchases</b>	<b>106.15</b>	<b>118.26</b>
(i)	GEFL Ltd	7.09	7.00
(ii)	NVVNL Ltd	12.99	14.00
(iii)	PTC Ltd	33.43	33.00
(iv)	UI	52.64	64.26
	<b>Total</b>	<b>627.11</b>	<b>667.26</b>

The Commission approves power purchase at 667.26 MU including free power of 27 MU for the FY 2015-16 as against 627.11 MU projected by DPN.

## 6.7 Energy Balance

The energy balance projected by DPN is furnished in Table below:

**Table 6.12: Energy Requirement projected by DPN for FY 2015-16**

(MU)				
Sl.No.	Particulars	Previous year (Actuals) FY 2013-14	Current Year (Estimated) FY 2014-15	Ensuing year (Projection) FY 2015-16
<b>A)</b>	<b>ENERGY REQUIREMENT</b>			
1	Energy sales to metered category within the State	420.86	460.29	490.00
2	Energy Sales to Agricultural Pumpsets	0.00	0.00	0.00
3	Total sales within the State	420.86	460.29	490.00
4	Sales to common pool consumers	0.00	0.00	0.00
5	Sales outside State	0.41	0.45	0.45
6	Sales to electricity traders	23.40	30.00	30.00
7	Sales to other distribution licensees	0.00	0.00	0.00
8	Total Sales	444.67	490.74	520.45
9	T&D losses			
(i)	%	29.70%	27.30%	26.91%
(ii)	MU	187.90	184.26	191.55
10	Total energy requirement	632.57	675.00	712.00
<b>B)</b>	<b>ENERGY AVAILABILITY</b>			
1	Net thermal generation	0.00	0.00	0.00
2	Net hydel generation	104.12	105.00	105.00
3	Net Power Purchase (Hydel + Thermal)	500.47	543.00	580.00
4	Free Power from DHEP	27.98	27.00	27.00
5	Total energy availability	632.57	675.00	712.00

Source: Format 5 of ARR

### Commission's Analysis:

Considering approved energy sales and T&D loss and regional pool losses the summary of energy balance approved by the Commission is furnished in Table below:

**Table 6.13: Energy Balance approved by the Commission for FY 2015-16**

(MU)			
Sl.No.	Particulars	Unit	FY 2015-16
<b>A</b>	<b>Energy Requirement</b>		
1	Energy sales	MU	557.50
2	T&D Loss	%	26%
3	T&D Loss	MU	195.88
4	Energy Requirement	MU	753.38
<b>B</b>	<b>Energy Availability</b>		
5	Own Generation	MU	105.00
6	Energy purchased from Eastern Region	MU	120.00
7	Less: Inter state Transmission loss @ 2.12% on (6)	MU	2.54
8	Net energy from Eastern Region (6-7)	MU	117.46
9	Energy purchased from North Eastern Region	MU	429.00
10	Less: Inter state Transmission loss @ 2.99% on (8+9)	MU	16.34
11	Add: Short term purchased	MU	118.26
12	Total energy available (5+8+9-10+11)	MU	753.38
<b>13</b>	<b>Surplus (12-4)</b>	<b>MU</b>	<b>-</b>

## 6.8 Revenue Requirement for FY 2015-16

DPN has projected a total ARR of Rs. 477.83 crore for the FY 2015-16 as given in Table below:

**Table-6.14: Expenses projected by DPN for 2015-16**

(Rs. crore)		
Sl. No.	Item of expenses	Ensuing Year 2015-16 (Projected)
1	2	3
1	Cost of Fuel	0.08
2	Cost of power Purchase	253.24
3	Employee costs	90.01
4	O & M expenses	15.93
5	Administration and general expenses	3.06
6	Depreciation	17.84
7	Interest charges (including interest on working capital)	47.61
8	Return on NFA / Equity	55.96
9	Provision for Bad debt	2.30
10	Total revenue Requirement	486.03
11	Less: non tariff income	8.20
<b>12</b>	<b>Net revenue requirement (10 – 11)</b>	<b>477.83</b>

Source: - Extract from Table 3.18 of ARR

### **Commission's Analysis**

The expenses projected by DPN under each head and the Commission's analysis are discussed below:

#### **6.8.1 Fuel Cost**

DPN has projected fuel cost of Rs. 0.08 crore for FY 2015-16.

**The Commission approves the fuel cost of Rs. 0.08 crore for the FY 2015-16 as projected by DPN.**

#### **6.8.2 Power Purchase cost**

The DPN has stated that the fixed and energy charges and other charges for CGS have been considered with an escalation of 10% over the previous year levels power purchase from other sources is considered at Rs. 4.88/kWh for FY 2015-16 on current market rates.

The power purchase cost projected by DPN for the FY 2015-16 is given in Table below:

**Table-6.15: Power Purchase cost projected by DPN for FY 2015-16**

Sl. No.	Source	2013-14 (Actual)			2014-15 (Estimated)			2015-16 (Projected)		
		Purchase (MU)	Rate (Rs./KWh)	Total Cost Rs. Crore	Purchase (MU)	Rate (Rs./KWh)	Total Cost (Rs. Crore)	Purchase (MU)	Rate (Rs./KWh)	Total Cost Rs. Crore
1	2	3	4	5	6	7	8	9	10	11
<b>I</b>	<b>NEEPCO</b>									
1	Khandong,	11.82	2.62	3.10	11.00	2.88	3.17	11.00	3.17	3.49
2	Kopili-I	43.34	0.97	4.19	40.00	1.06	4.25	40.00	1.17	4.68
3	Kopili-II,	4.43	1.78	0.79	3.03	1.96	0.59	3.03	2.16	0.65
4	Ranganadi,	51.66	3.28	16.95	51.66	3.61	18.65	60.00	3.97	23.82
5	AGTPP, Tripura	33.85	3.71	12.57	30.00	4.09	12.26	30.00	4.49	13.48
6	AGBPP, Kathalguri	98.33	3.44	33.84	95.00	3.79	35.96	95.00	4.16	39.56
7	Doyang, Nagaland	13.88	4.14	5.75	18.00	4.56	8.21	18.00	5.02	9.03
<b>II</b>	<b>NHPC</b>									
1	Loktak, Manipur	39.48	2.32	9.16	32.00	2.55	8.17	32.00	2.81	8.98
<b>III</b>	<b>NTPC</b>	111.46	3.34	37.23	111.46	3.67	40.95	120.00	4.04	48.50
IV	OTPC Ltd. - Palatana	22.80	2.53	5.76	84.93	2.78	23.60	84.93	3.06	25.96
V	Short Term - GEFL Ltd	7.09	3.08	2.19	7.09	3.39	2.41	7.09	3.73	2.65
VI	Short Term - NVVNL Ltd	12.99	3.19	4.14	12.99	3.51	4.55	12.99	3.86	5.01
VII	Short Term - PTC Ltd	33.43	3.35	11.20	33.43	3.69	12.33	33.43	4.06	13.56
VIII	Over drawn /other sources	33.85	3.22	10.90	31.93	3.54	11.31	52.64	3.90	20.51
IX	PGCIL (Trans.Chrges)	518.41	0.38	19.51	562.52	0.41	23.29	600.11	0.46	27.33
X	NERLDC/NERPC Charges			0.80			1.00			1.10
XI	<b>Total Energy Purchase</b>	518.41	3.44	178.08	562.52	3.75	210.69	600.11	4.14	248.31
XII	Free Power from Doyang	27.98	0	0	27.00	0	0	27.00	0	0
XIII	<b>(Total energy available)</b>	546.39	3.26	178.08	589.52	3.57	210.69	627.11	3.96	248.31
XIV	Arrear energy bill/IT/others			11.19			4.66			4.93
XV	<b>Total of the year</b>	546.39		189.27	589.52		215.35	627.11		253.24

Source: - Format 7 of ARR

### Commission's Analysis:

The above rates adopted by DPN to assess the power purchase cost during FY 2015-16 are considered reasonable. The arrears of Rs. 4.93 crore claimed by the DPN are not considered as they are projected on assumption basis. However the same will be considered while truing up. Accordingly the power purchase cost works out to Rs. 260.10 crore based on the quantum of purchase from each station in Table 6.11.

**Table 6.16: Power Purchase cost of DPN approved by the Commission for FY 2015-16**

Sl.No.	Generating Station	Energy Purchased (MU)	Average Rate (Rs./kWh)	Cost (Rs.Crore)
1	2	3	4	5
<b>I</b>	<b>NEEPCO</b>	<b>308.00</b>	<b>3.41</b>	<b>104.92</b>
1	Khandang	8.00	3.17	2.54
2	Koppili - I	35.00	1.17	4.10
3	Koppili - II	7.00	2.16	1.51
4	Ranganadi	85.00	3.97	33.75
5	Doyang	14.00	5.02	7.03
6	Free Power	27.00	-	-
7	AGBPP	99.00	4.16	41.18
8	AGTPP	33.00	4.49	14.82
<b>II</b>	<b>NHPC</b>	<b>32.00</b>	<b>2.81</b>	<b>8.99</b>
9	Loktak	32.00	2.81	8.99
<b>III</b>	<b>OTPC Ltd</b>	<b>89.00</b>		<b>27.23</b>
10	Pallatana	89.00	3.06	27.23
<b>IV</b>	<b>NTPC</b>	<b>120.00</b>	<b>4.04</b>	<b>48.48</b>
10	Farakka			
11	Kahalgaon	120.00	4.04	48.48
12	Talcher			
<b>V</b>	<b>Short term purchase</b>	<b>118.26</b>	<b>3.93</b>	<b>46.47</b>
14	GEFL Ltd	7.00	3.73	2.61
15	NVVNL Ltd	14.00	3.86	5.40
16	PTC Ltd	33.00	4.06	13.40
17	UI	64.26	3.90	25.06
<b>18</b>	<b>Total (I+II+III+IV+V)</b>	<b>667.26</b>	<b>3.54</b>	<b>236.10</b>
19	PGCIL Transmission charges			24.85
20	NERLDC charges			1.00
<b>21</b>	<b>Grand Total</b>	<b>667.26</b>	<b>3.93</b>	<b>261.95</b>

The Commission accordingly approves Rs. 261.95 crore towards power purchase cost for purchase of 667.26 MU including free power of 27 MU from Doyang for the FY 2015-16 as against Rs. 253.24 crore projected by DPN.

### 6.8.3 Operation and Maintenance Expenses

The O&M expenses comprises of employee expenses, Repairs and Maintenance expenses and administration and general expenses

The DPN has furnished the details of O&M expenses as shown below:

**Table 6.17: Operation & Maintenance Expenses for FY 2015-16**

(Rs. crore)				
Sl. No.	Particulars	FY 2013-14 (Actual)	FY 2014-15 (Estimated)	FY 2015-16 (Projected)
1	Employee Cost	79.57	83.24	90.01
2	Repair & Maintenance Expenses	15.56	15.65	15.93
3	Administration & General Expenses	2.85	2.95	3.06
<b>4</b>	<b>Total Operation &amp; Maintenance Expenses</b>	<b>97.98</b>	<b>101.84</b>	<b>109.00</b>

Source:- Table 3.8 of ARR

#### 6.8.3.1 Employee Cost

DPN has projected the employee cost at Rs. 90.01 crore for the FY 2015-16. The employee cost includes salaries, allowances, bonus, LTC and Honorarium, leave salary etc. The component wise details of employee cost (actuals) for the FY 2013-14, estimated for FY 2014-15 and projected for FY 2015-16 are shown in Table below:

**Table-6.18: Employee cost projected by DPN for FY 2015-16**

(Rs. lakh)				
Sl. No.	Particulars	Previous year (Actuals) FY 2013-14	Current Year (Estimated) FY 2014-15	Ensuing year (Projection) FY 2015-16
1	2	3	4	5
	SALARIES & ALLOWANCES			
1	Basic Pay	3829.04	3962.54	4096.04
2	Dearness Pay	0.00	0.00	0.00
3	Dearness Allowance	3350.41	3566.29	4096.04
4	House rent Allowance	382.90	396.25	409.60



Sl. No.	Particulars	Previous year (Actuals) FY 2013-14	Current Year (Estimated) FY 2014-15	Ensuing year (Projection) FY 2015-16
1	2	3	4	5
5	Fixed medical allowance	213.55	213.55	213.55
6	Medical reimbursement charges	45.90	50.00	50.00
7	Over time payment	0.00	0.00	0.00
8	Other allowances	32.39	33.00	33.00
9	Generation incentive	0.00	0.00	0.00
10	Bonus	0.00	0.00	0.00
11	Total	7854.20	8221.63	8898.24
12	Leave encashment	103.25	102.65	102.98
13	Gratuity	0.00	0.00	0.00
14	Commutation of Pension	0.00	0.00	0.00
15	Workman compensation	0.00	0.00	0.00
16	Ex- gratia	0.00	0.00	0.00
17	Total	103.25	102.65	102.98
	Pension Payment			
18	Basic Pension	0.00	0.00	0.00
19	Dearness Pension	0.00	0.00	0.00
20	Dearness allowance	0.00	0.00	0.00
21	Any other expenses	0.00	0.00	0.00
22	Total	0.00	0.00	0.00
23	Total (11+17+22)	7957.45	8324.28	9001.22
24	Amount capitalised	0.00	0.00	0.00
25	Net amount	0.00	0.00	0.00
26	Add prior period expenses	0.00	0.00	0.00
27	<b>Grand Total</b>	<b>7957.45</b>	<b>8324.28</b>	<b>9001.22</b>

Source: - Format 8 of ARR

The DPN has not considered pension and terminal benefits of the employees in the petition.

Total number of employees working is considered as furnished by DPN are as detailed in the Table below:

**Table 6.19: Number of Employees**

Sl. No.	Particulars	Previous year (Actuals) FY 2013-14	Current Year (Estimated) FY 2014-15	Ensuing year (Projection) FY 2015-16
1	2	3	4	5
1	Number of employees as on 1st April	4449	4449	4449
2	Number of employees on deputation / foreign service as on 1st April	0	0	0
3	Total Number of employees (1+2)	4449	4449	4449
4	Number of employees retired / retiring during the year	0	0	0
5	Number of employees at the end of the year (3-4)	4449	4449	4449

**Commission's Analysis**

As seen from the employee strength furnished by the DPN, no retirements are shown for the last three years, this may be verified. The employee expenses are abnormally increased since FY 2012-13 the reasons may be analysed. The DPN has furnished actual employee cost for FY 2013-14 at Rs. 79.57 crore and projected the expenses at Rs. 90.01 crore which gives an increase of 5.62% P.A over actual expenditure for FY 2012-13. This is considered as reasonable.

**The Commission accordingly approves Rs. 90.01 crore towards employee costs for FY 2015-16 as projected by DPN.**

**6.8.3.2 Repairs and Maintenance Expenses**

DPN has projected Rs. 14.57 crore towards R&M expenses for the FY 2015-16. The R&M expenses include expenses on R&M of electrical equipment, transmission and distribution system, vehicles, furniture and fixtures, office equipment and buildings etc.

The DPN has estimated the expenses for FY 2014-15 at Rs. 14.31 crore as against actual expenditure incurred during FY 2013-14 at Rs. 14.79 crore and projected Rs. 15.93 crore for the FY 2015-16 as detailed in Table below:

**Table 6.20: Repair & Maintenance Expenses projected by DPN for FY 2015-16**  
(Rs. lakh)

Sl. No.	Particulars	FY 2013-14 (Actual)	FY 2014-15 (Estimated)	FY 2015-16 (Projected)
1	Plant and Machinery	5.84	6.00	6.20
2	Buildings	12.74	13.50	14.00
3	Hydraulic works & civil works	88.98	90.00	95.00
4	Line cable & network	351.45	358.50	378.60
5	Vehicles	22.71	23.00	25.00
6	Furniture & fixtures	3.12	3.25	3.50
7	Operating expenses	1071.00	1071.00	1071.00
<b>8</b>	<b>Total Repair &amp; Maintenance Expenses</b>	<b>1555.85</b>	<b>1565.25</b>	<b>1593.30</b>

Source: - Copy 3.11 of ARR

The DPN requested the Commission to allow the R & M expenditure as proposed in full to ensure better and timely maintenance of distribution network and better consumer services and higher consumer satisfaction.

**The Commission approves Rs. 15.93 crore towards R&M for FY 2015-16 as projected by DPN.**

### 6.8.3.3 Administration and General Expenses

The DPN has projected Administration and General Expenses at Rs. 3.06 crore for the FY 2015-16. Administration and General Expenses comprise payment of rent, rates and taxes, telephone, postage expenses, conveyance and travel expenses, technical and consultancy fee etc. The actual expenditure during FY 2013-14 and estimation for FY 2014-15 and projection for FY 2015-16 as proposed by DPN are furnished in Table below:

**Table-6.21: Administrative & General Expenses projected by DPN for  
FY 2015-16**

(Rs. lakh)				
Sl. No.	Particulars	FY 2013-14 (Actual)	FY 2014-15 (Estimated)	FY 2015-16 (Projected)
1	Rent, rates & taxes	36.20	38.00	40.00
2	Telephone, postage & Telegram	41.54	43.50	45.00
3	Consultancy fees	18.46	20.00	22.00
4	Technical fees	27.20	28.00	30.00
5	Other professional charges	33.50	35.00	36.50
6	Conveyance & travel expenses	128.25	130.00	132.00
7	Others	0.00	0.00	0.00
<b>8</b>	<b>Total Administration &amp; General Expenses</b>	<b>285.15</b>	<b>294.50</b>	<b>305.50</b>

Source: - Table 3.10 of ARR

### **Commission's Analysis**

Actual expenditure during FY 2013-14 is Rs 2.85 crore. The proposed expenses of Rs. 3.06 crore works out to about 3.51% over actuals for FY 2013-14 and is considered reasonable.

**The Commission accordingly approves Rs. 3.06 crore towards Administration & General expenses for the FY 2015-16 as projected by DPN.**

### **6.8.4 Capital Investment**

The DPN has projected capital expenditure of Rs. 200 crore during FY 2015-16. Scheme wise details during FY 2013-14(Actuals) and FY 2014-15 (estimated) and FY 2015-16 (projected) are furnished in Tables below:

**Table-6.22: Investment Plan (Scheme wise)**

(Rs. in Crores)

Sl. No	Particulars	Twelfth Plan		Previous year			Current Year (Estimated) FY 2014-15			Ensuing year			Progressive Expenditure upto Ensuing Year	
				(Actual) FY 2013-14			(Projected) FY 2015-16							
		Plan	Outside Plan	Approved outlay	Actual Expenditure		Approved outlay (proposed)	Anticipated Expenditure		Approved outlay (proposed)	Anticipated Expenditure		Plan	Outside Plan
					Plan	Outside Plan		Plan	Outside Plan		Plan	Outside Plan		
1	Generation Schemes	100		1.50	1.50		5.00	5.00		5.00	5.00		11.50	
2	Transmission & Distribution Schemes	225	100	60.55	60.55	55.92	70.00	70.00	60.00	70.00	70.00	60.00	200.56	175.92
3	Renovation & Modernization	80	200	24.70	24.70	8.00	30.00	30.00	15.00	30.00	30.00	15.00	84.70	38.00
4	Rural Electrification	90		8.00	8.00		10.00	10.00		10.00	10.00		28.00	
5	Miscellaneous Expenditure	64.4		5.25	5.25		10.00	10.00		10.00	10.00		25.25	
6	<b>Total</b>	<b>559.4</b>		<b>100.00</b>	<b>100.00</b>	<b>63.92</b>	<b>125.00</b>	<b>125.00</b>	<b>75.00</b>	<b>125.00</b>	<b>125.00</b>	<b>75.00</b>	<b>350.00</b>	<b>213.92</b>

Source:- Format 21 of ARR

The DPN has submitted that the proposed capital expenditure of Rs 200 crore during FY 2015-16 is to upgrade and strengthen the distribution network to meet the desirable standards of performance and to provide better network reliability and sustainable performance to the consumers and to reduce system losses.

The DPN proposed to capitalize Rs.30 crore during FY 2015-16 as detailed in the Table below:

**Table 6.23: capital expenditure & capitalization FY 2015-16**

(Rs. crore)				
Sl. No.	Particulars	Previous year (Actuals) FY 2013-14	Current Year (Estimated) FY 2014-15	Ensuing year (Projection) FY 2015-16
1	2	3	4	5
1	Opening balance	755.19	911.19	1081.19
2	Add: New investments	183.00	200.00	200.00
3	Total (1+2)	938.19	1111.19	1281.19
4	Less investment capitalised	27.00	30.00	30.00
5	Closing balance	<b>911.19</b>	<b>1081.19</b>	<b>1251.19</b>

Source:- Table 3.5 of ARR

### Commission Analysis

As verified from the CWIP and capitalization furnished by DPN, Rs. 1281.19 crore are proposed to be invested to end of 31/03/2016 out of which only Rs. 30 crore are proposed for capitalization during FY 2015-16 which is about 2.34% of the total CWIP. The progress on completion of works should be geared up to bring the assets into optimum use to achieve the expected objectives. The DPN should submit scheme wise, work wise progress with dates of commencement of works and targeted dates of completion of works by 30/06/2015.

**With the above observation, the capital investment of Rs. 200 crore and capitalization of Rs. 30 crore during the FY 2015-16 as projected by DPN are approved.**

### 6.8.5 Gross fixed Assets

The DPN has projected GFA at 713.28 crore as on 01.04.2015 based on available information in the absence of fixed asset registers, additions during the year have been considered to the extent of works capitalized. The DPN has furnished year wise GFA as detailed in Table below:

**Table 6.24: Gross Fixed Assets****(Rs. crore)**

Sl. No.	Financial Year	Opening Balance	Addition during the year	Closing Balance
1	FY 2013-14	656.28	27.00	683.28
	FY 2014-15	683.28	30.00	713.28
3	FY 2015-16	713.28	30.00	743.28

Source: - Table 3.12 of ARR

**Commission's Analysis**

The DPN being a Government department it has to maintain proforma accounts such as balance sheet, profit and loss account with relevant statements and schedules and get them audited. DPN has also not maintained the asset registers. In view of this, Commission cannot accept the GFA furnished by DPN for purpose of depreciation and return on equity / capital base.

**6.8.6 Depreciation**

The DPN has projected depreciation of Rs. 17.84 crore for the FY 2015-16. DPN has applied average rate of depreciation as 2.45% for the FY 2015-16. The details as projected by DPN are furnished in Table below:

**Table-6.25: Depreciation projected by DPN for FY 2015-16****(Rs. Crore)**

Sl. No.	Particulars	FY 2013-14 (Projected)
1	Gross Block in Beginning of the year	713.28
2	Additions during the year	30.00
3	Cumulative Depreciation at the Beginning of the year	197.03
4	Average Rate of Depreciation	2.45%
5	Depreciation for the year	17.84
6	Cumulative Depreciation at the END of the year	214.87
7	Net Block in the Beginning of the Year	516.25
8	Net Block in the End of the year	528.41

Source : - Table 3.13 of ARR

**Commission's Analysis**

DPN has not maintained asset / depreciation registers. Audited proforma accounts are also not furnished. This subject is discussed in Para 5.13 and DPN is directed to verify the assets and update the assets / depreciation registers and produce in the next filing along with audited proforma accounts. As such depreciation is not allowed on the opening GFA.

However, the DPN has projected capital expenditure of Rs. 200 crore during the FY 2015-16 vide para 6.8.4 supra. Out of the proposed capital expenditure, the DPN has proposed capitalization of Rs.30 crores during FY 2015-16. The capitalization of Rs. 30 crore is approved as it relates to ongoing normal development schemes. Thus the new addition of assets during the FY 2015-16 is to an extent of Rs. 30 crore for which depreciation has to be provided. During FY 2012-13 capitalization is done for Rs. 40 crore and during 2013-14 amount capitalized at Rs. 30 crore.

“Regulation 26 of NERC (Terms and conditions for determination of tariff) Regulations, 2010 specifies that depreciation for the assets shall be calculated annually at the rates specified by CERC from time to time. The effective rate of depreciation for distribution assets is 5.28% vide Appendix III (Depreciation Schedule) of CERC (Terms and conditions of Tariff) Regulations, 2009”.

The depreciation for the FY 2015-16 is detailed in Table below:

**Table 6.26: Depreciation approved by the Commission for FY 2015-16**

Sl. No.	Particulars	Rs. crore
1	Gross fixed assets as on 01/04/2015	67
2	Additions during FY 2015-16	30
3	Gross fixed assets at the end of the FY 2015-16	97
4	Average GFA	82
5	Depreciation rate	5.28%
6	Depreciation for the FY 2015-16	4.33

**The Commission approves depreciation amount of Rs. 4.33 crore for FY 2015-16.**

### **6.8.7 Interest and Finance Charges**

DPN has projected interest & finance charges at Rs. 41.23 crore for FY 2014-15. The DPN has treated 50% of GFA as on 31.03.2010 as notional debt. Thus the balance 50% of Gross Fixed Assets as on 01.04.2010 (i.e., 50% of 572.08 crore) has been taken as opening loan for FY 2010-11 and 70% of capital additions during FY 2010-11, FY 2011-12, FY 2012-13, FY 2013-14 and FY 2014-15 have been considered to be funded through normative loan. Further it is assumed that these normative loans will



be repaid in next 10 years. The rate of interest is assumed at 14.75%. The interest on loan computed on the above methodology is detailed in Table below:

**Table 6.27: Interest and Finance Charges for FY 2015-16**

(Rs. crore)				
Sl. No.	Particulars	FY 2013-14 (Actual)	FY 2014-15 (Estimated)	FY 2015-16 (Projected)
1	Opening Loan	328.14	314.23	300.52
2	Loan Additions (70% Capex for the FY)	18.90	21.00	21.00
3	Repayment	32.81	34.70	36.80
4	Closing Loan	314.23	300.52	284.72
5	Average Loan	321.18	307.37	292.62
6	Wt Avg Interest on Loan	14.75%	14.75%	14.75%
7	Interest on Loan	47.37	45.34	43.16
8	Total Interest and Finance Charges	47.37	45.34	43.16

Source:- Table 3.16 of ARR

### Commission's Analysis

The normative interest claimed by DPN is Rs. 43.16 crore. The DPN has stated that the entire capital expenditure has been funded by the State Government through 100% state funding as a budgetary support and does not involve any external borrowings.

**As such the Commission has not considered any interest charges for the FY 2015-16 as the funding is through budgetary support from the State Government.**

### 6.8.8 Interest on Working Capital

The DPN has projected interest on working capital for FY 2015-16 at Rs. 4.45 crore on normative basis as detailed in the Table below:

**Table-6.28: Interest on Working Capital projected by DPN for FY 2015-16**

(Rs. crore)			
Sl. No.	Particulars	Current Year 2013-14 (Estimated)	Ensuing year 2014-15 (projected)
1	2	3	4
1	Fuel Cost	0.01	0.01
2	Power Purchase Cost	17.95	21.10
3	One month's employee costs	6.94	7.50
4	One month's administration & general expenses	0.25	0.25
5	One month's R&M Cost	1.30	1.33
6	<b>Total</b>	<b>26.44</b>	<b>30.20</b>
7	Interest on working capital	3.90	4.45

Source: Table 3.17 of ARR

### Commission's Analysis

As per Regulation 98 (6) (b) of NERC (Terms and Conditions for determination of Tariff) Regulations, 2010, working capital shall be the sum of one-month requirement of the following

- Fuel Cost
- Power Purchase Cost
- Employee Cost
- Administration & General Expenses
- R & M Expenses

and the rate of interest on working capital shall be equal to the short-term prime lending rate of SBI on 1<sup>st</sup> April of the relevant year.

The rate of Interest claimed by the DPN is 14.75 % being the SBI prime-lending rate as on 1<sup>st</sup> April 2014. The details of interest on working capital with approved costs are furnished in Table below:

**Table-6.29: Interest on working capital**

Sl. No.	Particulars	Amount (Rs in crore)	
		Total cost	One month cost
1	2	3	4
1	Fuel Cost	0.08	0.01
2	Power Purchase Cost	261.95	21.83
3	One months employee costs	90.01	7.50
4	Administration & General expenses	3.06	0.25
5	One month R & M Cost	15.93	1.33
6	<b>Total</b>	<b>371.03</b>	<b>30.92</b>
7	SBI PLR as on the date		14.75%
8	Interest on working capital @ 14.75%		4.56

**The Commission approves interest on working capital at Rs. 4.56 crore for FY 2015-16.**

## 6.9 Return on equity

The DPN has projected return on equity at Rs. 55.96 crore at 16% as detailed in Table below:

**Table-6.30: Return on Equity projected by DPN for FY 2015-16**

<i>(Rs. crore)</i>				
Sl. No.	Particulars	FY 2013-14 (Actual)	FY 2014-15 (Estimated)	FY 2015-16 (Projected)
1	Opening Equity	328.14	336.24	345.24
2	Equity Addition (30% Capex for the FY)	8.10	9.00	9.00
3	Closing Equity	336.24	345.24	354.24
4	Average Equity	332.19	340.74	349.74
5	Rate of Return on Equity	16%	16%	16%
6	Return on Equity	53.15	54.52	55.96

Source: - Table 3.15 of ARR

The DPN has submitted that the distribution business has always been perceived to be a business having a greater inherent risk than the generation and transmission business due to various factors among which the direct interface with the retail consumers is the biggest risk. The same has been recognized by many Commissions across the country and they have proposed a higher rate of return on the equity invested in distribution business as compared to generation and transmission business. This has been demonstrated by various Commissions by offering rate of return at 16% for distribution as compared to 14% to other business areas. It may also be noted that CERC in its recent tariff regulations of 2009 for generation and transmission has fixed pre tax return on equity at 15.5% with an additional return of 0.5% for projects completing within specified time limits.

The DPN being a Government Department, the entire capital employed has been funded through equity infusion by government of Nagaland through budgetary support without any external borrowings. The DPN is now migrating to regulatory control of the Hon'ble Commission under Electricity Act, 2003. The DPN has therefore taken 01.04.2010 as the base date for the above change. In a similar case where the funding has been through budgetary support of the Government (Damodar Valley Corporation VSCERC) before Hon'ble Appellate Tribunal, Damodar

Valley Corporation has allowed normative debt: equity of 50:50 for the purpose of tariff determination. The relevant portion of said order is reproduced below:

“A-5. Further the tariff regulations provided that in case of generating stations or transmission projects where tariff for the period ending March 31, 2004 has not been determined by the Central Commission, debt: Equity ratio shall be as may be decided by the Commission (Para 52 of the impugned order). In the past, the Commission has also dealt with determination of applicable debt: equity ratio in the case of Central Power Sector undertaking (CPSVS) such as NTPC, NHPC, PGCIL etc where the actual equity deployed in the assets created prior to formation of Tariff Regulations was much higher than the equity calculated considering a normative DE ratio of 70:30. These CPUs were allowed a normative DE ratio of 50:50 for the purpose of determination of tariff, in respect of their old assets.”

Similar approach has been adopted in the case of number of Central Government Companies such as NTPC, PGCIL etc.

Accordingly, the entire capital expenditure till 31/03/2010 has been considered as funded by equity and based on above precedence, the DPN has considered a normative debt : equity ratio of 50:50 for the FY 2009-10. Hence Opening equity for FY 2010-11 is taken as Rs 286.04 crore (i.e. 50 % of GFA as on 01/04/2010 amounting to Rs 572.08 crore). The Capital additions in FY 2011-12, FY 2012-13, FY 2013-14 FY 2014-15 and FY 2015-16 have been assumed to be funded through debt: equity ratio of 70:30 which is in line with tariff regulations issued by various State Commissions across the country.

### **Commission’s Analysis**

The basic requirement either for return on capital base or return on equity is the audited accounts. DPN has not furnished the Audited Accounts viz., Profit and Loss Account, Balance Sheet etc.

**In the absence of audited accounts, the Commission cannot allow any return on equity or capital base till such time-audited accounts are submitted.**

## 6.10 Provision for Bad and doubtful debts

DPN has projected provision for bad debts at Rs. 2.30 crore for the FY 2015-16. DPN has considered the provision for bad debts at 1% of revenue from sale of power to consumers.

### Commission's Analysis:

As per Regulations 98(5) of NERC (Terms and conditions for determination of Tariff) Regulations, 2010, the Commission may, after distribution licensee gets the receivables audited, allow a provision for bad debts upto 1% of receivables of the distribution licensee. Here receivables mean arrears of current consumption charges due from the consumers, but not revenue from sale of power. The DPN failed to furnish arrears due from consumers.

**However, Commission allows a token amount of Rs. 0.15 crore towards provision for bad debts for FY 2015-16 as was done for FY 2014-15.**

## 6.11 Non Tariff Income

The DPN has projected non-tariff income at Rs. 8.20 crore for the FY 2015-16. Non-Tariff income is in the form of meter rent, late payment charges, interest on staff loans, miscellaneous charges from consumers etc.

The details of non-tariff income are furnished by the DPN are detailed in Table below:

**Table 6.31: Non-Tariff Income projected by DPN for FY 2015-16**

(Rs. Crore)				
Sl. No.	Source of Income	Previous year (Actuals) FY 2013-14	Current Year (Estimated) FY 2014-15	Ensuing year (Projection) FY 2015-16
1	2	3	4	5
1	Meter / Service rent	6.54	6.92	7.20
2	Late payment surcharge	0.00	0.00	0.00
3	Theft / pilferage of energy	0.00	0.00	0.00
4	Misc. receipts	0.82	0.90	1.00
5	Misc. charges (except PLEC)	0.00	0.00	0.00
6	Wheeling charges	0.00	0.00	0.00

Sl. No.	Source of Income	Previous year (Actuals) FY 2013-14	Current Year (Estimated) FY 2014-15	Ensuing year (Projection) FY 2015-16
1	2	3	4	5
7	Interest on staff loans & advance	0.00	0.00	0.00
8	Income from trading	0.00	0.00	0.00
9	Income from welfare activities	0.00	0.00	0.00
10	Excess on verification	0.00	0.00	0.00
11	Investments & bank balances	0.00	0.00	0.00
12	Total Income	7.36	7.82	8.20
13	Add Prior period income *	0.00	0.00	0.00
14	<b>Total Non tariff income</b>	<b>7.36</b>	<b>7.82</b>	<b>8.20</b>

Source: - Format 20 of ARR

**The Commission accepts non-tariff income at Rs 8.20 crore for the FY 2015-16 as projected by DPN.**

## 6.12 Aggregate Revenue Requirement

Having analyzed the aggregate revenue requirement projected by DPN for the FY 2015-16 as enumerated in preceding paragraphs the Commission approves the ARR for FY 2015-16 as indicated in Table below:

**Table-6.32: Aggregate Revenue Requirement approved by the Commission for FY 2015-16**

Sl. No.	Particulars	Projected by DPN	Approved by Commission
1	Fuel cost	0.08	0.08
2	Power Purchase cost	253.24	261.95
3	O&M Expenses		
3.1	Employee cost	90.01	90.01
3.2	Repairs & Maintenance expenses	15.93	15.93
3.3	Administration and General Expenses	3.06	3.06
4	Depreciation	17.94	4.33
5	Interest & Finance charges	43.16	-
6	Interest on working capital	4.45	4.56
7	Provision for bad debts	2.30	0.15
8	Return on equity	55.96	-
9	<b>Total expenditure</b>	<b>486.03</b>	<b>380.07</b>
10	Less Non tariff income	8.20	8.20
11	<b>Aggregate Requirement</b>	<b>477.83</b>	<b>371.87</b>

Source: For column 3 from Table 3.18 of ARR

### 6.13 Expected revenue from existing tariff

The DPN has furnished the revenue from existing tariff at Rs. 230.21 crore for FY 2014-15 as detailed in the Table below:

**Table-6.33: Revenue from existing tariff projected by DPN for FY 2015-16**  
(Rs. crore)

Sl. No.	Particulars	Previous year (Actual) FY 2013-14	Current Year (Estimated) FY 2014-15	Ensuing year (Projected) FY 2015-16
1	2	3	4	5
1	Domestic including BPL	107.57	124.54	130.54
2	Commercial	28.51	33.60	37.75
3	Industrial Consumers	11.12	14.12	15.30
4	Public Lighting	2.74	2.93	3.06
5	PWW & Sewage	1.55	1.74	1.75
6	Irrigation and Agriculture	0.01	0.01	0.01
7	Bulk Supply	31.80	38.52	41.80
8	<b>TOTAL</b>	<b>183.31</b>	<b>215.46</b>	<b>230.21</b>

Source: Table 3.19 of ARR

#### Commission's Analysis

The DPN has not considered revenue from inter-state sales and sale of surplus power in the total revenue. As the sale of surplus power is also revenue, the same is to be included. The average revenue realization from sale of surplus power is projected by DPN at Rs. 1.71/kWh and the same is accepted. Revenue from public lighting is furnished at Rs. 3.06 crore. But as per existing tariff for public lighting, revenue has to be realized from the consumers of Domestic, Commercial Industrial and Bulk category at the rates shown below.

Domestic Rs. 10 per connection per month

Commercial Rs. 15 Per Connection per month

Industrial Rs. 20 per Connection per month

Bulk Supply Rs. 25 per connection per month

Accordingly the revenue from public lighting shall work out to Rs. 3.00 crore as shown below:

Sl. No.	Category	Average No. of consumers	Rate Rs./month	Amount
1	Domestic	214500	10	2.57
2	Commercial	18880	15	0.34
3	Industrial	2485	20	0.06
4	Bulk Supply	740	25	0.02
	<b>Total</b>			<b>3.00</b>

With the above observations and with the category wise sales approved in paragraph 6.3.2, the revenue from existing tariff is assessed and furnished in the Table below:

**Table 6.34: Revenue from existing tariff approved by the Commission for FY 2015-16**

Sl. No.	Category	Energy Sales	Average rate (Rs./kWh)	Revenue (Rs/crore)
1	Domestic including BPL	343.00	4.04	138.69
2	Commercial	74.00	5.74	42.49
3	Industrial Consumers	44.00	4.56	20.05
4	Public lighting	5.00	*3.10	1.55
5	Public water works & sewage	4.00	5.30	2.12
6	Irrigation & Agriculture	0.05	2.70	0.01
7	Bulk supply	87.00	5.40	46.98
8	Inter State	0.45	5.40	0.24
9	<b>Grand Total</b>	<b>557.50</b>		<b>252.13</b>

The Commission accordingly approves the revenue from existing tariff at Rs. 252.13 crore for sale of energy of 557.50 MU for FY 2015-16.

#### 6.14 Revenue gap for FY 2015-16

**Table 6.35: Net revenue requirement and gap with revenue at existing Tariff (Rs. crore)**

Sl. No.	Particulars	Projected by DPN	Approved by the Commission
1	Net Revenue Requirement	420.10	371.87
2	Revenue from sale of power	202.91	252.13
3	Government subsidy proposed	-	-
4	Gap	217.19	119.74
5	Energy Sales (MU) Including Inter State sales and sale of surplus power	422.12	557.50
6	Average cost (Rs/kWh)	9.05	6.67

Source: for column 3 extract from Table 3.2 of ARR



## 6.15 Revenue from revised tariff

As seen from the above Table there is a gap of Rs. 119.74 crore between aggregate revenue requirement and revenue from sale of power at existing tariff which works out to 32% of ARR. To meet the gap the Commission has considered revision of Tariff keeping in view the paying capacity of consumers in Nagaland, concerns of State Government to improve revenue mobilization efforts and approved the revised tariff for different categories of consumers with an average increase of 5% only. Tariff designing and fixation of tariffs are discussed in Chapter-7 of this order. Revenue with the revised tariff rates is shown in Table below:

**Table 6.36: Revenue from revised tariff approved by the Commission for FY 2015-16**

Sl. No.	Category	Sales (MU)	Revenue from revised tariff	
			Average Revised Tariff (Rs./kWh)	Revenue (Rs/crore)
1	Domestic	343	4.28	146.66
2	Commercial	74	6.24	46.19
3	Industrial	44	4.96	21.84
4	Public lighting*	5	*3.10	1.55
5	Public water works & sewage	4	5.60	2.24
6	Irrigation & Agriculture	0.05	2.90	0.01
7	Bulk supply	87	5.90	51.33
8	Inter State	0.45	5.90	0.27
9	<b>Grand Total</b>	<b>557.5</b>	<b>4.92</b>	<b>270.09</b>

\*To be recovered from consumers.

\* Charges for public lighting have to be recovered from the consumers of domestic, commercial, industrial and bulk categories at the rates shown below:

\*Domestic Rs. 10 per connection / month

\*Commercial Rs. 15 per connection / month

\*Industrial Rs. 20 per connection / month

\*Bulk Supply Rs. 25 per connection / month

**The Commission accordingly approves revenue from revised tariffs at Rs. 270.09 crore with the sale of 557.50 MU. This compares with the revenue of**

**Rs. 252.13 crore at the existing tariff rates, the increase works out to Rs. 17.96 crore.**

**6.16 Revised gap for FY 2015-16**

Taking into consideration of revised tariff, expected revenue from sale of power during FY 2015-16 has been arrived at Rs. 270.09 crore. So the revised gap shall be Rs. 101.78 crore (119.74 – 17.96) which is about 27.37% of ARR.

**6.17 Regulatory Asset / Government subsidy**

Out of the revised revenue gap of Rs. 101.78 crore, the DPN shall recover an additional revenue of Rs. 1.78 crore by improving its performance such as reduction of T&D losses and improving revenue sales.

Therefore, the Commission has decided to retain the net revenue gap of Rs. 100 crore for the FY 2015-16 to avoid sudden tariff shock to consumers. The State Government, Nagaland has to mobilize financial resources to maintain its cash flow to provide more financial support for which DPN shall propose immediately.

## 7. Tariff Principles and Design

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### 7.1 Background

7.1.1 The Commission in determining the revenue requirement of DPN for the FY 2015-16 and the retail supply tariff has been guided by the provisions of the Electricity Act, 2003, the National Tariff Policy (NTP), Regulations on Terms and Conditions of Tariff issued by the Central Electricity Regulatory Commission (CERC) and Regulations on Terms and Conditions of Tariff notified by the NERC. Section 61 of the Act lays down the broad principles, which shall guide determination of retail tariff. As per these principles the tariff should “Progressively reflect cost of supply” and also reduce cross subsidies “in the manner specified by the Commission”. The Act lays special emphasis on safeguarding consumer interests and also requires that the costs should be recovered in a reasonable manner. The Act mandates that the tariff determination shall be guided by the factors, which encourage competition, efficiency, economical use of resources, good performance and optimum investment.

The NTP notified by Government of India in January, 2006 provides comprehensive guidelines for determination of tariff and also in working out the revenue requirement of power utilities. The Commission has endeavored to follow these guidelines as far as possible.

7.1.2 NTP mandates that the Multi-Year-Tariff (MYT) framework be adopted for determination of tariff from 1<sup>st</sup> April 2006. However, the Commission is not in a position to introduce MYT Regime in the State mainly because of lack of requisite and reliable data. The present MIS and regulatory reporting system of the DPN is very inadequate for any such exercise at this stage. There has been no study to assess voltage wise losses in the absence of metering of all feeders, and distribution transformers. Technical and commercial losses are yet to be segregated and quantified voltage wise. The Commission has issued a directive to the DPN in the Tariff Order for FY 2015-16 to chalk out an action plan for reduction of T&D losses.

7.1.3 The mandate of the NTP is that tariff should be within plus / minus 20% of the average cost of supply by FY 2015-16. It is not possible for the Commission to lay down the road map for reduction of cross subsidy, mainly because of lack of data regarding cost of supply at various voltage levels. In view of the prevailing situation the Commission has gone on the basis of average cost of supply for working out consumer category-wise cost of supply. However in this tariff order an element of performance target has been indicated by setting target for T&D loss reduction for the FY 2016-17 to FY 2018-19. This better performance by reduction of loss level will result in substantial reduction in average cost of supply.

**7.1.4 Section 8.3 of National Tariff Policy lays down the following principles for tariff design:**

- (1) In accordance with the National Electricity Policy, consumers below poverty line who consume below a specified level, say 30 units per month, may receive a special support through cross subsidy. Tariffs for such designated group of consumers will be at least 50% of the average cost of supply. This provision will be re-examined later.
- (2) For achieving the objective that the tariff progressively reflects the cost of supply of electricity, the SERC would notify the roadmap, within six months with a target that latest by the end of the FY 2015-16 tariffs are within  $\pm 20\%$  of the average cost of supply. The road map would have intermediate milestones, based on the approach of a gradual reduction in cross subsidy.

For example, if the average cost of supply is Rs.3 per unit, at the end of FY 2011-12 the tariff for the cross subsidized categories excluding those referred to in para-1 above should not be lower than Rs 2.40 per unit and that for any of the cross subsidizing categories should not go beyond Rs 3.60 per unit.

- (3) While fixing tariff for agricultural use, the imperatives of the need of using ground water resources in a sustainable manner would also need to be kept in mind in addition to the average cost of supply. The tariff for agricultural use

may be set at different levels for different parts of the State depending on the condition of the ground water table to prevent excessive depletion of ground water.

- 7.1.5 The provisions of the Electricity Act, 2003, National Tariff Policy and the NERC Tariff Regulations require that there should be a gradual movement towards reduction of cross subsidy. The Tariff aims at bringing down cross subsidy to  $\pm 20\%$  of the average cost of supply by the FY 2015-16.

Regulation 16 of NERC (Terms and Conditions for Determination of Tariff) Regulations, 2010 specifies –

Cross subsidy as:

“(1) Cross subsidy for a consumer category in the first phase (as defined in sub regulation 2 below) means the difference between the average realization per unit from that category and the combined average cost of supply per unit expressed in percentage terms as a proportion of the combined average cost of supply. In the second phase (as defined in sub-regulation 2 below) means the difference between the average realization per unit from that category and the combined per unit cost of supply for that category expressed in percentage terms as a proportion of the combined cost of supply of that category.

(2) The Commission shall determine the tariff to progressively reflect the cost of supply of electricity and also reduce cross subsidies within a reasonable period. For this purpose, in the first phase the Commission shall determine tariff so that it progressively reflects combined average unit cost of supply in accordance with National Tariff Policy. In the second phase, the Commission shall consider moving towards the category-wise cost of supply as a basis for determination of tariff.”

## 7.2 Tariffs proposed by DPN and approved by the Commission

7.2.1 The DPN in its tariff petition for FY 2015-16 has proposed revision of existing retail tariffs to various categories of consumers to earn additional revenue to meet the expenses to some extent.

7.2.2 The category wise tariffs proposed by the DPN are indicated in Table below:

**Table 7.1: Category Wise Tariffs existing and proposed by DPN for FY 2015-16**

Sl. No.	CATEGORY	Existing Rate Rs./kWh	Proposed Rate Rs./kWh		
1	2	3	4		
A	1	<b>CATEGORY 'A' DOMESTIC</b>			
		(a) 0 to 30 kWh	3.25	3.40	
		(b) 31 to 100 kWh	4.35	4.75	
		(c) 101 to 250 kWh	5.00	5.50	
		(d) > 250 kWh	5.80	6.50	
	2	<b>CATEGORY 'B' INDUSTRIAL</b>			
		(a) upto 500 kWh	4.50	4.90	
		(b) 501 to 5000 kWh	5.30	5.90	
		(c) > 5000 kWh	6.00	6.70	
	3	<b>CATEGORY 'C' BULK</b>		5.40	5.90
	4	<b>CATEGORY 'D' COMMERCIAL</b>			
		(a) < 60 kWh	5.70	6.20	
	(b) 61 to 240 kWh	6.80	7.40		
	(c) > 240 kWh	7.90	8.60		
5	<b>CATEGORY 'E' P.W.W.</b>		5.30	5.60	
6	<b>CATEGORY 'F' Public Light</b>	To be recovered from consumers *	To be recovered from consumers *		
7	<b>CATEGORY 'G' INTERSTATE</b>		5.40	5.90	
8	<b>CATEGORY 'H' AGRICULTURE</b>		2.70	3.00	
9	<b>CATEGORY 'I' TEMPORARY CONNECTION</b>	DLF Rs.8.00 Others Rs. 11.00	DLF Rs.9.00 Others Rs. 12.00		
10	<b>Kutir Jyoti (point)</b>		Same as DLF	Same as DLF	
11	<b>SINGLE POINT METERED RURAL</b>		3.25	3.40	
12	<b>SINGLE POINT METERED URBAN</b>		4.00	4.40	
*	Charges for public lighting have to be recovered from the Consumers of Domestic, Commercial, Industrial and Bulk categories at the rates shown below:				
	Domestic	Rs. 10 per connection / month	Rs. 10 per connection / month		
	Commercial	Rs. 15 per connection / month	Rs. 15 per connection / month		
	Industrial	Rs. 20 per connection / month	Rs. 20 per connection / month		
	Bulk Supply	Rs. 25 per connection / month	Rs. 25 per connection / month		

Source:- Table 4.1 of ARR

7.2.3 Based on the approved Aggregate Revenue Requirement (ARR) the approved Tariffs for supply of Energy in respect of different categories of consumers for FY 2015-16 are as per Table below:

**Table 7.2: Category of Consumer wise tariffs approved by the Commission**

Sl. No.	Category	Approved Rate Rs./ kWh
1	<b>CATEGORY 'A' DOMESTIC</b>	
	(a) upto 30 kWh	3.40
	(b) 31 to 100 kWh	4.55
	(c) 101 to 250 kWh	5.50
	(d) > 250 kWh	6.30
2	<b>CATEGORY 'B' INDUSTRIAL</b>	
	(a) upto 500 kWh	4.90
	(b) 501 to 5000 kWh	5.80
	(c) > 5000 kWh	6.60
3	<b>CATEGORY 'C' BULK</b>	5.90
4	<b>CATEGORY 'D' COMMERCIAL</b>	
	(a) upto 60 kWh	6.20
	(b) 61 to 240 kWh	7.30
	(c) > 240 kWh	8.40
5	CATEGORY 'E' P.W.W.	5.60
6	CATEGORY 'F' Public Light	*To be recovered from the consumers
7	CATEGORY 'G' AGRICULTURE	2.90
8	CATEGORY 'H' TEMPORARY CONNECTION	DLF – Rs. 9.00 Others – Rs. 12.00
9	Category 'I' INTER-STATE	5.90
10	Kutir Jyoti(point)	Same as SPM
11	SINGLE POINT METERED RURAL	3.40
12	SINGLE POINT METERED URBAN	4.40

\* Charges for public lighting have to be recovered from the Consumers of Domestic, Commercial, Industrial and Bulk categories at the rates shown below.

Domestic Rs. 10 per connection / month

Commercial Rs. 15 per connection / month

Industrial Rs. 20 per connection / month

Bulk Supply Rs. 25 per connection / month

7.2.4 Tariffs for various categories of consumers are given in tariff schedule annexed.

## 8. Directives

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### 8.1 Commission's Observation

While examining the information and data contained in the proposed ARR and Tariff Petition for the FY 2015-16, it has been observed that the compilation and computation of data have been done based on certain assumptions in respect of certain vital information; and as a result there has been difficulties in finalization of ARR and determination of Tariffs also. Most of the areas of the operational and financial performance of DPN require substantial improvement.

Similar situation was noticed in the previous ARR and tariff petition. The Commission had observed that while there was ample scope for reducing costs and increasing efficiency in the operation of the department, serious efforts appear to be lacking. It is in the above context that 12 directives were issued in the tariff order for FY 2011-12. The Commission expected that DPN would take prompt action on the directives and monitor their implementation. Unfortunately action is yet to be taken on most of the important directives, which would make significant difference to operational efficiency and costs. In some cases action has no doubt been initiated but overall the seriousness with which the directives were issued by the Commission does not appear to have been realized by the DPN.

In the above background the Commission is constrained to reiterate most of the directives which were issued in the earlier tariff orders and which have not been fully complied with and also hereby issue specific new directives.

#### **Directive 1: Maintenance of Asset Registers and Audited Annual Accounts**

The DPN has stated that the complete data of fixed assets is not available. Unless the function wise, asset wise data is up-dated, correct asset value and depreciation thereon cannot be ascertained. The DPN is directed to get the asset registers built up, and submit updated assets & depreciation registers.



Accounts are to be maintained for construction and operation activities of the Power Department. Audited Annual Accounts should be submitted. In the event of delay in getting Accounts audited by the Accountant General, the DPN can get the same audited by CAG empanelled auditors and submit the same with the future filing.

**The DPN is directed to start the process immediately and complete before submission of next Tariff Petition and report compliance by 30<sup>th</sup> June 2013.**

**Compliance Status:**

The Department has started the compilation Asset & Depreciation register. Since the details has to be collected from all the divisions and depreciation to be calculated in accordance with the regulations of Nagaland Electricity Regularity Commission (NERC), it is requested that the Hon`ble Commission may kindly allow further time for compliance of the directive. however, it will be ensured that compliance report shall be submitted along with next petition.

he Department will initiate the process of getting the accounts audited by CAG empanelled auditors pending audit by the Accountants General and submit compliance report to the Hon`ble Commission

**Comments of the Commission:**

The DPN is directed to submit definite time schedule for preparation of Asset Register by June, 2015.

**Directive 2: Management Information System (MIS)**

The DPN has not maintained proper data in respect of sales (slab and sub slab wise), revenue and revenue expenses as also the category wise / slab wise number of consumers, connected load / demand etc. for proper analysis of the past data based on actuals and estimation of proper projections in consideration of the ARR and Tariff Petition.

The DPN is directed to take steps to build credible and accurate data base and management information system (MIS) to meet the requirements for filing ARR &

Tariff Petition as per regulatory requirement and also to suit the Multi Year Tariff principles which the Commission may consider at an appropriate time under Regulation 20 of NERC (Terms and Conditions for Determination of Tariff) Regulations, 2010. The formats, software and hardware may be synchronized with the Regulatory Information and Management System (RIMS) circulated by Central Electricity Regulatory Commission (CERC).

**Compliance Status:**

The department has initiated the process of maintaining the data to meet the regulatory requirement. Report on the same shall be submitted to the Hon'ble Commission after management information system is built up.

**Comments of the Commission:**

The progress on obtaining credible data may be reported every month, indicating level of progress achieved.

**Directive 3: Pilferage of Energy**

The DPN has furnished the T&D losses at 36.45% during FY 2011-12 and projected the losses at 32% for FY 2012-13 and 28% for FY 2013-14. The Department has not segregated the losses into technical losses, commercial losses. Voltage wise losses are not available. It is possible that the losses projected may include commercial losses on account of pilferage and malpractices.

Pilferage of energy may be by illegal tapings/hooks from electrical lines, tampering of meters etc. The Commission feels that there is need to launch an extensive drive to remove illegal connections, if any, check meter tampering, replace the defective meters, maintain proper account of un-metered services and keep constant vigil so that corrective measures could be taken to reduce the AT & C losses. Requisite action may be taken as per the provisions under sections 135 and 138 of Electricity Act, 2003.

The DPN is directed to chalk out an action plan in a month's time and submit to the Commission.

**Compliance Status:**

As submitted in the petition, Department has taken many steps in the direction of containing the T&D losses. This includes prepaid metering, drive to remove illegal connections and replacement of defective meters. These have resulted in reduction of T&D losses over the period of time.

Detailed action plan shall be submitted subsequently.

**Comments of the Commission:**

Details of steps taken by DPN and achievements made so far may be reported by June 30, 2015.

**Directive 4: Replacement of Non-Functional / Defective Meters**

It is reported that about 50% of total connections are with defective meters. Information on non-functional meters may be obtained from field officers and ensure that data is maintained correctly. Replacement is to be planned and pursued. Progress may be reported to the Commission once in a quarter.

**Compliance status:**

The information on defective meters as directed by the Hon`ble Commission is been compiled and status report shall be submitted subsequently.

**Comments of the Commission:**

As seen from the above 43% of connections are with defective meters. This is the status as on 31.03.2012 and existing as on the date also. This indicates that there is no progress in replacement of defective meters during 2012-13 and 2013-14 (To date) even in spite of clear directive given to plan the replacement of defective meters and report.

Replacement of defective meters shall be planned on priority wise i.e., meters of Bulk supply, commercial, industrial and high value domestic categories to be replaced first. In respect of defective meters billing may be done by adopting

standard method as envisaged in Supply Code. Quarterly report on replacement of defective meters may be submitted to Commission starting from 01.07.2015.

**Directive 5: Consumers' contribution for Capital Investment**

The fact of consumer contribution for capital investment is not brought out in the ARR and Tariff Petition.

The DPN is directed to furnish the details of contributions being collected from consumers for capital works. The amounts collected from the consumers towards capital investment shall be brought out in the accounts. The depreciation and Return on Equity / Capital Base should not be claimed on the amount contributed by the consumers towards capital investment.

**Compliance status:**

Consolidated/detailed status of consumer contribution is presently not available and it is submitted that Hon`ble Commission may give some more time for submission of the required information.

**Comments of the Commission:**

Quarterly progress report may be submitted to the Commission.

**Directive 6: Energy Audit**

In the tariff order for FY 2011-12, the T&D loss was fixed at 31.56% and for FY 2012-13 at 28%, for FY 2013-14 at 27%, FY 2014-15 at 26.5% and for FY 2015-16 at 26%.

The DPN is directed to chalk out a programme to provide meters on all the feeders (132 kV, 66 kV, 33 kV and 11 kV) and distribution transformers to identify the high loss areas and take appropriate measures to reduce both technical and commercial losses to the level fixed by the Commission. The DPN shall also comply with loss reduction trajectory for T&D losses for the next three years.

The investment required to reduce the losses shall be included in the investment plan for augmentation of T&D system to be submitted to the Commission. Effective technical and administrative measures shall be taken to reduce the commercial losses.

**Compliance status:**

The procedure and system for energy audit is being framed and periodical audit shall be conducted to identify/implement the measures required to reduce technical and commercial losses. Report on energy audit shall be submitted after completion of the audit process.

**Comments of the Commission:**

The actual T&D loss during FY 2011-12 works out to 36.45% as against 31.56% fixed by the Commission and for FY 2013-14 at 31.04%. This clearly indicates the inaction of the DPN in reducing the losses. To begin with, all defective meters be replaced with sound meters and unmetered connections be provided with meters and feeder wise energy audit be conducted and identify technical and commercial losses separately. Quarterly progress report be submitted to Commission starting from 01.07.2015.

**Directive 7: Approval of Commission for Investment Plan**

Annual Investment Plan shall be submitted to the Commission and approval of Commission for all major capital works costing Rs. 5.00 crore and above before execution of the works.

**Compliance status:**

DPN shall ensure to obtain approval of the Hon`ble Commission for execution of all major works costing Rs. 5 Core and above in future.

**Comments of the Commission:**

In this directive it is specifically mentioned to obtain the approval of the Commission for execution of all major works costing Rs.5 crore and above. During the year FY 2012-13, DPN has spent capital investment to the tune of Rs. 163.92 crore as against

approved amount of Rs.136 crore and during the year 2013-14 Rs. 183 crore and Rs. 200crore P.A contemplated during FY 2014-15 and FY 2015-16. **So far no DPR was submitted to Commission for approval. Even the proposal for approval of deviation is not submitted.**

#### **Directives 8: Interest on Security Deposit**

DPN did not indicate the amount of security deposit collected from the consumers. DPN is directed to maintain consumer-wise security deposit collected. **Such data shall be furnished with the next filing.**

#### **Compliance status:**

Consumer wise record of security deposit is presently not available. It is requested that Hon`ble Commission may kindly allow more time to comply with the directive.

#### **Comments of the Commission:**

As per regulation 6.10(8) of NERC (Electricity Supply Code) Regulations, 2012 read with Section 47 (4) of Electricity Act, 2003 the distribution licensee shall pay interest on security deposit to the consumers every year by crediting the amount in CC bills. Details of SD collected and interest paid to the consumers on such deposits shall be reported by 30<sup>th</sup> September, 2015.

#### **Directives 9: Revenue Realization**

As verified from the Annual Plan the percentage of collection of Revenue is 73% during FY 2009-10, which is increased to 78% during FY 2010-11. Thus an increase of 5% is achieved during FY 2010-11 over FY 2009-10. But during FY 2011-12 the percentage of collection is estimated at 76%, which is 2% less than the previous year collections. DPN is directed to sort out an action plan to improve collections by conducting special drive and disconnecting supply to all defaulting consumers effectively.

The DPN has neither submitted progress on collection of arrears due from consumers nor the arrears as on 31.03.2013.

**Compliance Status**

Department has initiated many constructive steps to improve revenue collection including prepaid metering. Apart from this steps has been taken to improve collection by conducting special drive and disconnecting supply to all defaulting consumers effectively. Progress on collection of arrears due from consumers shall be submitted subsequently.

**Comments of the Commission**

Revenue realization is foremost task of the DPN to sustain financially. Top priority may be given to realize the dues. Quarterly progress report on realization of dues may be submitted to the Commission.

**Directives 10: Transformer failures**

It is reported that the percentage of transformer failures which was at 5.18% during FY 2009-10 has been increased to 22.46% during FY 2010-11 and reduced to 11.56% during FY 2011-12. Even the 11.56% is also on high side. It should be brought down to below 5%.

To minimize transformer failures, the LT network and DTR structures shall be maintained properly by rectification of defects. Field officers in charged of O&M of distribution shall be pulled up and Progress is to be watched. Field units where DTR failures are more, shall pay more attention.

A detailed plan of action should be submitted to the Commission by 30.06.2013.

**Compliance Status**

It is submitted that the Department has already initiated steps in direction suggested by the Hon`ble Commission. However, detailed plan of action shall be submitted after taking status/progress report from field officers.

### **Comments of the Commission**

Detailed action plan due on 30.06.2013 is yet to be received. Unless a target is fixed expected progress cannot be achieved in time. The DPN is directed to submit action plan by 30.06.2015 positively.

### **Directives 11: Review petition**

The Commission has to undertake review, true up of earlier orders. True-up activity cannot be done in absence of audited accounts. DPN is directed to submit review/true-up petitions along with the audited accounts.

### **Compliance Status**

It is submitted that the accounts of the department have not been audited till date. Department shall get the accounts audited and file the true-up petitions.

### **Comments of the Commission**

The DPN has not understood the difference between “Review and True Up” which are separate functions. As per Regulation 21 of NERC (Terms and Conditions for determination of Tariff) Regulations 2010, the Commission shall consider variations between approvals and revised estimates/pre-actuals of sale of electricity, income and expenditure for the relevant year and permit necessary adjustment/ charges in case of such variations are for adequate and justifiable such an exercise shall be called “Review.”

21 (2) After audited accounts of the year are made available, the Commission shall undertake a similar exercise as above based on final actual figures as per the audited accounts, which shall be called “True up.” Review petition can be filed based on revised estimates even without audited accounts, such reviews may be included in the next tariff petitions.

### **Directives 12: Progress on Completion of Capital Works**

As verified from the capital investment and capitalization Rs. 163.92 crore invested during FY 2012-13, bringing CWIP as on 31.03.2013 at Rs. 795.19 crore out of which



only Rs. 40 crore are capitalized, which is about 5% of total CWIP as on 31.03.2013. Execution/completion of distribution works shall be completed in the same year. When works are completed and the asset is taken for operation, related costs can be capitalized. Based on capitalization, depreciation can be claimed by DPN.

The DPN is directed to list out all the completed works giving scheme-wise, work wise dates of commencement and completion duly capitalizing the related expenditure. Progress on this may be reported by 30<sup>th</sup> June 2015.

**Compliance:**

It is submitted that the department is in the process of compiling the Asset & Depreciation Register and the details as required in the above directive shall be provided once the exercise is completed. The Hon`ble Commission is requested to kindly allow the time for compliance of the directive.

**Directives 13: Specific Tariff to Public Lighting.**

Charges towards Public Lighting are being collected from other categories of consumers. Now, the Commission is of the view to fix a specific tariff to public lighting as in the case of other categories to be paid by the concerned local bodies being custodians of public lighting. As such the DPN is directed to provide meters to all public lighting connections and take inventory of the connected load and measure the monthly consumption of each public lighting connection and propose specific tariff to public lighting as is prevailing in other electricity utilities in the country from the next tariff filing invariably.

**Compliance:**

It is submitted that the Department has not been able to provide meters to all the public lighting connections hence the details required for fixing specific tariff to public lighting is not presently available. It is requested that the Hon`ble Commission may kindly allow the collection of charges towards public lighting from other categories of consumers as per the last Tariff Order.

**Comments of the Commission:**

For raising bills for public lighting connections providing meters is not a prerequisite it is sufficient that the number of street light points and classification of street light points and their connected load is available. So this data may be made available, distribution wise (Village-wise) as already directed to fix tariff for public lighting from FY 2016-17 invariably.

**Directive 14: Details of Single Points Consumers**

Number of Single Point Connections released (Urban & Rural separately) and actual consumption and amount billed during the previous year and estimated for current year and projected for ensuring year shall be filed along with next tariff filing.

Further, point wise number of consumer existing as on the date should also be furnished as an annexure invariably without which the petition will not be admitted.

**Compliance:**

The details of single point connection is provided in the table below:

Sl.No	Details	FY 2013-14	FY 2014-15	FY 2015-16
1	No. of single point consumers	111000	119674	121900
2	Units Consumed (MUs)	116.80	180.00	200.00
3	Amount Billed (Rs. crores)	31.26	33.00	34.00

**Comments of Commission:**

As verified from the data furnished average revenue billed in Rs. 2.68/kWh which is very low when compared to tariff fixed. This has to be checked and furnish reasons. In future while furnishing category wise sales, specific sales from single point connections be furnished separately for rural and urban in addition to sales in domestic category.

**Directive 15: Details of own Generation**

Details of own generating stations such as nature of generating stations, installing capacity, energy generated (gross), auxiliary consumption and station wise fuel cost

incurred during the previous year and estimated year and projected for ensuring year shall be provided in the prescribe format from the next tariff petition onwards.

**Compliance:**

The details as required is provided in the table below.

Sl.No.	Details	FY 2013-14	FY 2014-15	FY 2015-16
1	Name of the Generating station	Likimro HEP		
2	Installed capacity	24 MW		
3	Gross Generation	106.20 MU	107.10 MU	107.10 MU
4	Net Generation	104.12 MU	105.00 MU	105.00 MU

The department has no regular Diesel Generating station. One generating facility currently operational is only to meet emergency requirement.

**Comments of the Commission:**

In the Petition Format 2 & 3 are furnished as not applicable. This is not correct the required data as per formats should be furnished duly furnishing generation from Hydel stations and Diesel stations separately from FY 2016-17 onwards invariably.

**Suggestion: Physical verification of Consumer connections.**

Physical verification of all consumer connections be done to verify the number of no meter connections, defective meters, wrong classification of categories, unauthorized connections, unauthorized additional load, tempered seal of the meter etc.

For this purposed an action plan should be chalked out making each sub-division as a unit and deploying all staff in the sub-division for one day in a week to check all connections in a nominated section on that day. Thus, in a month, four sections will be covered.

To execute this operation, the staff should be divided into batches making Junior Engineer as team leader who will record consumer wise data of all connections

checked. This will hardly take two to three months to complete 100% physical verification of connections.

A brief outcome of the operation may also be reported to the Commission along with action proposed on the reports.

**Compliance:**

The department has initiated steps to comply with the directives of the Hon`ble Commission. It is requested that Hon`ble Commission may kindly allow more time for compliance of the directive.

**Comments of the Commission:**

The plan of action suggested by the Commission will hardly take one to two months. So requesting more time has no justification; compliance should be reported by 30.9.2015 invariably.

## 9. Fuel and Power Purchase Cost Adjustment

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### 9.0 Background

9.1 Section 62 sub-section 4 of the Electricity Act, 2003 provides that no tariff or part of any tariff may ordinarily be amended, more frequently than once in every financial year, except in respect of any changes expressly permitted under the terms of any fuel surcharge formula as may be specified. This provision of the Act requires the Commission to specify the formula for fuel surcharge.

9.2 Accordingly, the Commission has specified the formula for working out the Fuel and Power Purchase Cost Adjustment (FPPCA) charges and other terms and conditions of FPPCA allowed the distribution licensee to recover the FPPCA charges from the consumers vide Regulation 98 (13) of NERC (Terms and Conditions for determination of Tariff) Regulations, 2010.

9.3 Accordingly, the amount of Fuel and Power Purchase Cost Adjustment (FPPCA) charges shall be computed as under:

$$\text{FAC (Rs./kWh)} = \frac{Q_c(RC_2 - RC_1) + Q_0(RO_2 - RO_1) + Q_{pp}(R_{pp2} - R_{pp1}) + V_z + A}{(QP_{g1} + Q_{pp1} + Q_{pp2})} \times \left[ 1 - \frac{L}{100} \right] \times 100$$

Where,

$Q_c$  = Quantity of coal consumed during the adjustment period in Metric Tons (MT).

=  $(SHR \times Q_{pg}) (1 + TSL) \times 1000 / GCV$ , or actual whichever is less.

$R_{c1}$  = Weighted average base rate of coal supplied ex-power station coal yard as approved by the Commission for the adjustment period in Rs./MT

- $R_{c2}$  = Weighted average base rate of coal supplied ex-power station coal yard for the adjustment period in Rs./MT
- $Q_o$  = Actual Quantity of oil (in KL) consumed during the adjustment period or normative oil consumption as per Tariff order whichever is less.
- $R_{o1}$  = Weighted average base rate of oil ex-power station (Rs./KL) approved by the Commission for the adjustment period.
- $R_{o2}$  = Weighted average actual rate of oil ex-power station supplied (Rs. / KL) during the adjustment period.
- $Q_{pp}$  = Total power purchased from different sources (kWh) =  $Q_{pp2} + Q_{pp3}$
- $Q_{pp1}$  =  $Q_{pp3} \left[ 1 - \frac{TL}{100} \right]$  in kWh
- TL = Transmission loss (CTU) (in percentage terms).
- $Q_{pp2}$  = Power Purchase from sources with delivery point within the state transmission or distribution system (in kWh)
- $Q_{pp3}$  = Power Purchase from sources on which CTU transmission loss is applicable (in kWh)
- $R_{pp1}$  = Average rate of Power Purchase as approved by the Commission (Rs./kWh)
- $R_{pp2}$  = Average rate of Power Purchase during the adjustment period (Rs./kWh)
- $Q_{pg}$  = Own power generation (kWh)
- $Q_{pg1}$  = Own Power generation (kWh) at generator terminal – approved auxiliary consumption
- L = Percentage T&D loss as approved by the Commission or actual, whichever is lower.
- SHR = Station Heat Rate as approved by the Commission (Kcal / kWh)

- TSL = Percentage Transit and Stacking Loss as approved by the Commission
- GCV = Weighted average gross calorific value of coal as fired basis during the adjustment period (Kcal / Kg)
- V<sub>z</sub> = Amount of variable charges on account of change of cost of unknown factors like water charges, taxes or any other unpredictable and unknown factors not envisaged at the time of Tariff fixation subject to prior approval of the Commission (Rs.)
- A = Adjustment, if any, to be made in the current period to account for any excess / shortfall in recovery of fuel of Power Purchase cost in the past adjustment period, subject to the approval of the Commission (Rs.)

If there are more than one power stations owned by the Licensee Qc, Rc1, Rc2, Qo, Ro1, Ro2, Qpg and Qpg1 will be computed separately for each power station and sum of the increase/decrease of cost of all power stations shall be taken into consideration.

- 9.4 The Generating Company can levy FPPCA charges with the prior approval of the Commission.

**Terms and conditions for application of the FPPCA formula**

- 1) The basic nature of FPPCA is 'adjustment' i.e. passing on the increase or decrease in the fuel costs and power purchase cost, as the case may be, compared to the approved fuel costs and power purchase costs in this Tariff Order.
- 2) The operational parameters / norms fixed by the Commission in the Tariff Regulations / Tariff Order shall be the basis of calculating FPPCA charges.

- 3) The FPPCA will be recovered every month in the form of an incremental energy charge (Rs/kwh) in proportion to the energy consumption and shall not exceed 10% of the approved avg. cost of supply in the Tariff order and balance amount, if any, in the FPPCA over and above this ceiling shall be carried forward to be billed in subsequent month.
- 4) Incremental cost of power purchase due to deviation in respect of generation mix or power purchase at higher rate shall be allowed only if it is justified to the satisfaction of the Commission.
- 5) Any cost increase by the licensee by way of penalty, interest due to delayed payments, etc. and due to operational inefficiencies shall not be allowed.
- 6) FPPCA charges shall be levied on all categories of consumers.
- 7) Distribution licensee shall file detailed computation of actual fuel cost in Rs./kWh for each month for each of power stations of the state generators as well as cost of power purchase (Fixed and Variable) from each source/station and a separate set of calculations with reference to permitted level of these costs.
- 8) The data in support of the FPPCA claims shall be duly authenticated by an officer of the licensee, not below the rank of Chief Engineer on an affidavit supported with the certified copy of energy bills of power purchase, transmission and RLDC charges, bill for coal purchase and its transportation cost, oil purchase bill and the quantity of coal and oil consumed during the month.
- 9) Levy of FPPCA charge will be allowed only when it is ten (10) paise or more per unit. If it is less than 10 (ten) paise/unit, the same may be carried forward for adjustment in the next month.
- 10) The incremental cost per kWh due to this FPPCA arrived for a month shall be recovered in the energy bill of the month subsequent to the order of the Commission approving FPPCA with full details of rate and unit(s) on which FPPCA charges have been billed. The Generating Company and the Distribution Companies shall provide along with the proposal of FPPCA (as applicable to them) for a month, a compliance report of the previous



order of the commission in respect of FPPCA.

## Nagaland – Revenue from existing Tariff for FY 2015-16

Sl.No.	Category	Energy sold (MU)	Energy Charges (Rs/kWh)	Total Amount (Rs. Crore)	Average (Rs. kWh)
<b>1</b>	<b>Domestic</b>	<b>343.00</b>	<b>4.04</b>	<b>138.69</b>	4.04
	0-30	144.00	3.25	46.80	3.25
	31-100	138.00	4.35	60.03	4.35
	101-250	44.00	5.00	22.00	5.00
	>250	17.00	5.80	9.86	5.80
<b>2</b>	<b>Commercial</b>	<b>74.00</b>	<b>5.74</b>	<b>42.49</b>	5.74
	0-60	72.00	5.70	41.04	5.70
	61-240	1.20	6.80	0.82	6.80
	>240	0.80	7.90	0.63	7.90
<b>3</b>	<b>Industrial</b>	<b>44.00</b>	<b>4.56</b>	<b>20.05</b>	4.56
	0-500	42.00	4.50	18.90	4.50
	501-5000	0.75	5.30	0.40	5.30
	>5000	1.25	6.00	0.75	6.00
4	Public Lighting	5.00	*	1.55	3.10
5	PWW	4.00	5.30	2.12	5.30
6	Agriculture	0.05	2.70	0.01	2.70
7	Bulk Supply	87.00	5.40	46.98	5.40
8	Inter State	0.45	5.40	0.24	5.40
<b>9</b>	<b>Sales within the State</b>	<b>557.50</b>	<b>4.52</b>	<b>252.13</b>	<b>4.52</b>

\* To be recovered from consumers

## Nagaland – Revenue from Revised Tariff for FY 2015-16

Sl.No.	Category	Energy sold (MU)	Energy Charges (Rs/kWh)	Total Amount (Rs. Crore)	Average (Rs. kWh)
<b>1</b>	<b>Domestic</b>	<b>343.00</b>	<b>4.28</b>	<b>146.66</b>	4.28
	0-30	144.00	3.40	48.96	3.40
	31-100	138.00	4.55	62.79	4.55
	101-250	44.00	5.50	24.20	5.50
	>250	17.00	6.30	10.71	6.30
<b>2</b>	<b>Commercial</b>	<b>74.00</b>	<b>6.24</b>	<b>46.19</b>	<b>6.24</b>
	0-60	72.00	6.20	44.64	6.20
	61-240	1.20	7.30	0.88	7.30
	>240	0.80	8.40	0.67	8.40
<b>3</b>	<b>Industrial</b>	<b>44.00</b>	<b>4.96</b>	<b>21.84</b>	<b>4.96</b>
	0-500	42.00	4.90	20.58	4.90
	501-5000	0.75	5.80	0.44	5.80
	>5000	1.25	6.60	0.83	6.60
4	Public Lighting	5.00	*	1.55	3.10
5	PWW	4.00	5.60	2.24	5.60
6	Agriculture	0.05	2.90	0.01	2.90
7	Bulk Supply	87.00	5.90	51.33	5.90
8	Inter State	0.45	5.90	0.27	5.90
<b>9</b>	<b>Sales within the State</b>	<b>557.50</b>	<b>4.84</b>	<b>270.09</b>	<b>4.84</b>

\* To be recovered from consumers

**ACTUAL METERED TRANSMISSION LOSS IN NER**

Week No.	Week		% loss
	From	To	
1	01-04-2013	08-04-2012	3.40
2	09-04-2012	15-04-2012	3.00
3	16-04-2012	22-04-2012	2.90
4	23-04-2012	29-04-2012	3.10
5	30-04-2012	06-05-2012	3.70
6	07-05-2012	13-05-2012	3.00
7	14-05-2012	20-05-2012	3.10
8	21-05-2012	27-05-2012	3.20
9	28-05-2012	03-06-2012	3.20
10	04-06-2012	10-06-2012	4.00
11	11-06-2012	17-06-2012	4.00
12	18-06-2012	24-06-2012	3.60
13	25-06-2012	01-07-2012	4.70
14	02-07-2012	08-07-2012	3.70
15	09-07-2012	15-07-2012	3.60
16	16-07-2012	22-07-2012	3.50
17	23-07-2012	29-07-2012	3.50
18	30-07-2012	05-08-2012	2.80
19	06-08-2012	12-08-2012	2.60
20	13-08-2012	19-08-2012	2.10
21	20-08-2012	26-08-2012	2.90
22	27-08-2012	02-09-2012	2.50
23	03-09-2012	09-09-2012	2.40
24	10-09-2012	16-09-2012	3.00
25	17-09-2012	23-09-2012	3.50
26	24-09-2012	30-09-2012	2.90
27	01-10-2012	07-10-2012	3.20
28	08-10-2012	14-10-2012	3.10
29	15-10-2012	21-10-2012	2.50
30	22-10-2012	28-10-2012	2.70
31	29-10-2012	04-11-2012	2.20
32	05-11-2012	11-11-2012	2.60
33	12-11-2012	18-11-2012	2.80
34	19-11-2012	25-11-2012	3.30
35	26-11-2012	02-12-2012	3.60
36	03-12-2012	09-12-2012	4.00
37	10-12-2012	16-12-2012	3.20
38	17-12-2012	23-12-2012	3.70
39	24-12-2012	30-12-2012	3.50

Week No.	Week		% loss
	From	To	
40	31-12-2012	06-01-2013	5.50
41	07-01-2013	13-01-2013	5.70
42	14-01-2013	20-01-2013	3.50
43	21-01-2013	27-01-2013	3.60
44	28-01-2013	03-02-2013	5.60
45	04-02-2013	10-02-2013	5.60
46	11-02-2013	17-02-2013	4.10
47	18-02-2013	24-02-2013	3.70
48	25-02-2013	03-03-2013	4.00
49	04-03-2013	10-03-2013	4.50
50	11-03-2013	17-03-2013	3.90
51	18-03-2013	24-03-2013	3.70
52	25-03-2013	31-03-2014	3.40

52 Week average Loss

2.99%

Total ISGS Generation:

5275 MU

Total Loss:

253 MU

## Appendix

### Tariff Schedule

Sl. No.	Category	Rs./kwh	
1	2	3	
<b>A.</b>	<b>1</b>	<b>CATEGORY 'A' DOMESTIC</b>	
		(a) upto 30 kwh	3.40
		(b) 31 to 100 kwh	4.55
		(c) 101 to 250 kwh	5.50
		(d) > 250 kwh	6.30
		Monthly minimum charges	100.00 pm/kw of contract demand or part thereof
	<b>2</b>	<b>CATEGORY 'B' INDUSTRIAL</b>	
		(a) upto 500 kwh	4.90
		(b) 501 to 5000 kwh	5.80
		(c) > 5000 kwh	6.60
		Monthly minimum charges	150.00 pm/kv of contract demand or part thereof
	<b>3</b>	<b>CATEGORY 'C' BULK</b>	5.90
		Monthly minimum charges	150.00 pm/kva of contract demand or part thereof
	<b>4</b>	<b>CATEGORY 'D' COMMERCIAL</b>	
		(a) upto 60 kwh	6.20
		(b) 61 to 240 kwh	7.30
		(c) > 240 kwh	8.40
	Monthly minimum charges	150.00 pm/kw of contract demand or part thereof	
<b>5</b>	<b>CATEGORY 'E' P.W.W.</b>	5.60	
	Monthly minimum charges	75.00 pm/kva or part thereof	
<b>6</b>	<b>CATEGORY 'F' Public Light</b>	To be recovered from consumers *	
<b>7</b>	<b>CATEGORY 'G' INTER-STATE</b>	5.40	
<b>8</b>	<b>CATEGORY 'H' AGRICULTURE</b>	2.90	
	Monthly minimum charges	50.00 pm/HP or part thereof	
<b>9</b>	<b>CATEGORY 'I' TEMPORARY CONNECTION</b>	DLF – 8.00 Others – 11.00	
<b>10</b>	<b>Kutir Jyoti(point)</b>	Same as DLF	
<b>11</b>	<b>SINGLE POINT METERED RURAL</b>	3.40	
<b>12</b>	<b>SINGLE POINT METERED URBAN</b>	4.40	

\* Charges for public lighting have to be recovered from the Consumes of Domestic, Commercial, Industrial and Bulk categories at the rates shown below.

Domestic Rs. 10 per connection / month

Commercial Rs. 15 per connection / month

Industrial Rs. 20 per connection / month

Bulk Supply Rs. 25 per connection / month

<b>B.</b>	<b>OTHER CHARGES:</b>		
	(a)	Disconnection Charges	Rs.
		i. Single phase L.T.	150.00/connection
		ii. Three phase L.T.	250.00/ connection
		iii. H.T. consumers (11 KV above)	1500.00/ connection
	(b)	Reconnection Charges	
		i. Single phase L.T.	150.00/ connection
ii. Three phase L.T.		250.00/ connection	
iii. H.T. consumers (11 KV above)		1500.00/ connection	
<b>C.</b>	<b>METER RENT</b>		<b>Rs. per meter/month</b>
	i.	Single phase L.T.	20.00
	ii.	Three phase L.T.(whole current)	50.00
	iii.	Three phase L.T.(CT operated)	100.00
	iv.	11 kv H.T.	500.00
	v.	33 kv H.T.	750.00
	vi.	66 kv EHV	900.00
	vii.	132 kv EHV	1000.00
<b>D.</b>	<b>METER TESTING CHARGES</b>		<b>Rupees per meter per test</b>
	i.	Single phase L.T.	100.00
	ii.	Three phase L.T.	300.00
	iii.	H.T. consumers (11 KV above)	1000.00
<b>E.</b>	<b>SECURITY DEPOSIT</b>		<b>Rs. per connection</b>
	i.	Single phase L.T.	250
	ii.	Three phase L.T.	750
	iii.	H.T. consumers (11 KV above)	3000
<b>F.</b>	<b>SURCHARGES (DELAYED PAYMENT)</b>		Rs. 0.10/kwh pm or part thereof
<b>G.</b>	<b>BILLING PERIODICITY</b>		Monthly

H.	CHARGES OF POLES USAGE FOR ADVERTISEMENT		Rupees
	1	Charges for application and agreement forms	100.00
	2	Charges towards dismantling of hoardings/banners	300.00
	3	The pole rental charges for advertisements: -	Rs./month
		a. Category I-Commercial area (Max size 3'X2')	100.00
		b. Category II - Residential area (Max size 3'X2')	60.00
		c. Category III-National Highway (Max size 3'X2') (outside the city/town limit)	40.00