



APPLICATION

FOR

ANNUAL REVENUE REQUIREMENT (ARR)

&

TARIFF PETITION FOR

FY 2020-21

**PART – A**

Submitted by:  
Department of Hydro Power Development-2020

**GENERAL HEADINGS OF PROCEEDINGS**

**BEFORE THE ARUNACHAL PRADESH STATE ELECTRICITY REGULATORY  
COMMISSION (APSERC), NAHARLAGUN**

Filing No.....

Case No.....

IN THE MATTER OF:

APPLICATION FOR APPROVAL OF ANNUAL  
REVENUE REQUIREMENT AND TARIFF PETITION OF  
HYDRO ELECTRIC STATIONS, DEPARTMENT OF  
HYDRO POWER DEVELOPMENT, ARUNACHAL  
PRADESH FOR THE FINANCIAL YEAR 2020-21 IN  
ACCORDANCE WITH THE APSERC (TERMS &  
CONDITIONS FOR TARIFF DETERMINATION FROM  
RENEWABLE ENERGY SOURCES) REGULATIONS,  
2018

**AND**

IN THE MATTER OF:

DEPARTMENT OF HYDRO POWER DEVELOPMENT,  
ARUNACHAL PRADESH (HEREINAFTER REFERRED TO  
AS DHPD), JAL VIDYUT BHAWAN, ITANAGAR (NEAR  
INDIRA GANDHI PARK, ARUNACHAL PRADESH).

**..... PETITIONER**

# AFFIDAVIT

**BEFORE HON'BLE ELECTRICITY REGULATORY COMMISSION**

**FOR THE STATE OF ARUNACHAL PRADESH**

**FILE No:** \_\_\_\_\_

**CASE No:** \_\_\_\_\_

**IN THE MATTER OF :**      **Petition for Approval of Annual Revenue Requirement (ARR) and Tariff Proposal for FY 2020-21 for The State of Arunachal Pradesh under Sections 61, 62 and 64 of The Electricity Act 2003**

AND

**IN THE MATTER OF :                      Department of Hydro Power Development, Jal Vidyut Bhawan,**  
**THE PETITIONER**

## Itanagar, Arunachal Pradesh

.....Petitioner

I \_\_\_\_\_, son of \_\_\_\_\_ (aged \_\_\_\_\_ years), (occupation) \_\_\_\_\_  
Government Service residing at ( \_\_\_\_\_), the deponent named above do  
hereby solemnly affirm and state on oath as under:-

1. That the deponent is the \_\_\_\_\_ of the Department of Hydro Power Development, Government of Arunachal Pradesh, and is acquainted with the facts deposed to below.

2. I, the deponent named above do hereby verify that the contents of the accompanying petition are based on the records of Department of Hydro Power Development, Government of Arunachal Pradesh maintained in the ordinary course of business and believed by them to be true and I believe that no part of it is false and no material has been concealed there from.

Details of enclosures:

- a) Proposal for Aggregate Revenue Requirement ("ARR") for the Financial Year 2020-21 for Determination of Tariff.
- b) Annexures-
- c) Petition Fee – Rs.5,00,000/- (Rupees Five Lacs only), vide DD No. \_\_\_\_\_ dated \_\_\_\_\_

**Department of Hydro Power Development,  
Govt. of Arunachal Pradesh.**

**Petitioner**

**Place: Itanagar**

**Dated: \_\_\_\_\_, 2020**

I, \_\_\_\_\_ Advocate, Itanagar, do hereby declare that the person making this affidavit is known to me through the perusal of records and I am satisfied that he is the same person alleging to be deponent himself.

**Advocate**

Solemnly affirmed before me on this ..... day of ....., 2020 at ..... a.m./p.m. by the deponent who has been identified by the aforesaid Advocate. I have satisfied myself by examining the deponent that he understood the contents of the affidavit which has been read over and explained to him. He has also been explained about section 193 of Indian Penal Code that whoever intentionally gives false evidence in any of the proceedings of the Commission or fabricates evidence for purpose of being used in any of the proceedings shall be liable for punishment as per law.

<b>SL. NO.</b>	<b>TABLE OF CONTENT</b>	<b>Page No.</b>
<b>1</b>	<b>BACKGROUND</b>	<b>1</b>
<b>1. a)</b>	<b>Installed Capacity - Hydro Electric Power Stations</b>	<b>1</b>
<b>2</b>	<b>Energy Sales within the State to Power Department</b>	<b>6</b>
<b>2. A)</b>	<b>Determination of Tariff for the HEP</b>	<b>10</b>
<b>a)</b>	<b>Capital Cost</b>	<b>11</b>
<b>b)</b>	<b>Design Energy</b>	<b>14</b>
<b>c)</b>	<b>Interest on Loan Capital</b>	<b>18</b>
<b>d)</b>	<b>Depreciation</b>	<b>19</b>
<b>e)</b>	<b>Return on Equity (ROE)</b>	<b>20</b>
<b>f)</b>	<b>Operation &amp; Maintenance Expenses (O&amp;M)</b>	<b>21</b>
<b>g)</b>	<b>Interest on Working Capital</b>	<b>22</b>
<b>3</b>	<b>Annual Fixed Charges (AFC)</b>	<b>25</b>
<b>3. a)</b>	<b>Tariff</b>	<b>27</b>
<b>4.</b>	<b>Levellised Tariff for Namchik - II MHS</b>	<b>29</b>
<b>4. 1.</b>	<b>General</b>	<b>29</b>
<b>4. 2.</b>	<b>Capital Cost - Commission Analysis</b>	<b>29</b>
<b>4. 3.</b>	<b>Debt-equity Ratio</b>	<b>30</b>
<b>4. 4.</b>	<b>Return on Equity</b>	<b>30</b>
<b>4. 5.</b>	<b>Interest on Loan Capital</b>	<b>31</b>
<b>4. 6.</b>	<b>Depreciation</b>	<b>31</b>
<b>4. 7.</b>	<b>O&amp;M Expenses</b>	<b>31</b>
<b>4. 8.</b>	<b>Interest on Working Capital</b>	<b>32</b>
<b>4. 9.</b>	<b>Capacity Utilisation Factor</b>	<b>33</b>

4.10.	Auxiliary Power Consumption	33
4.11.	Levelised Tariff Proposed for the Namchik - II MHS	33
	Prayer	34
	Annexures	

SL. NO.	LIST OF TABLES	Page No.
1	Details of Hydro Electric Power Station	2 - 5
2	Performance during 2018-19	6 - 9
3	The assumptions considered for the HEPs given below	11 - 12
4	Capital Cost - Projects Commissioned upto 31.03.2017	13
4.1	Capital Cost : Projects Commissioned in FY 2018-19	14
4.2	Capital Cost : Projects Commissioned in FY 2019-20	14
5	Design Energy	14 - 18
6	Depreciation - Projects Commissioned upto 31.03.2017	19
6.1	Depreciation - Projects Commissioned in 2018-19	19
6.2	Depreciation - Projects Commissioned in 2019-20	20
7	Return on Equity (ROE) - Projects Commissioned upto 31.03.2017	20
7.1	Return on Equity (ROE) - Projects Commissioned in 2018-19	20
7.2	Return on Equity (ROE) - Projects Commissioned in 2019-20	21
8	O&M Expenses - Projects Commissioned upto 31.03.2017	21
8.1	O&M Expenses - Projects Commissioned in 2018-19	21
8.2	O&M Expenses - Projects Commissioned in 2019-20	22
9	Interest on Working Capital - Projects Commissioned upto 31.03.2017	22
9.1	Interest on Working Capital - Projects Commissioned in 2018-19 - Mukto	23
9.2	Interest on Working Capital - Projects Commissioned in 2018-19 - Payu MHS at Kolariang	23
9.3	Interest on Working Capital - Projects Commissioned in 2018-19 - Subbang	24

<b>9.4</b>	<b>Interest on Working Capital - Projects Commissioned in 2019-20 - Nuranang Ph - II</b>	<b>24</b>
<b>10</b>	<b>AFC - Projects Commissioned upto 31.03.2017</b>	<b>25</b>
<b>10.1</b>	<b>AFC - Projects Commissioned in 2018-19 - Mukto</b>	<b>25</b>
<b>10.2</b>	<b>AFC - Projects Commissioned in 2018-19 - Payu MHS at Kolariang</b>	<b>26</b>
<b>10.3</b>	<b>AFC - Projects Commissioned in 2018-19 - Subbang</b>	<b>26</b>
<b>10.4</b>	<b>AFC - Projects Commissioned in 2019-20 - Nuranang Ph - II</b>	<b>26</b>
<b>11</b>	<b>Tariff - Projects Commissioned upto 31.03.2017</b>	<b>27</b>
<b>11.1</b>	<b>Tariff - Projects Commissioned in 2018-19 - Mukto</b>	<b>27</b>
<b>11.2</b>	<b>Tariff - Projects Commissioned in 2018-19 - Payu MHS at Kolariang</b>	<b>28</b>
<b>11.3</b>	<b>Tariff - Projects Commissioned in 2018-19 - Subbang</b>	<b>28</b>
<b>11.4</b>	<b>Tariff - Projects Commissioned in 2019-20 - Nuranang Ph - II</b>	<b>29</b>
<b>12</b>	<b>Capital Cost : Project Commissioned in FY 2019-20</b>	<b>30</b>

## LIST OF ABBREVIATIONS

A&G	Administration & General
ARR	Annual Revenue Requirement
CAGR	Compound Annual Growth Rate
CD	Contract Demand
CERC	Central Electricity Regulatory Commission
CoS	Cost of Supply
Crs	Crore
D/E	Debt Equity
EHT	Extra High Tension
ER	Eastern Region
FY	Financial Year
GFA	Gross Fixed Assets
HP	Horse Power
APSERC	Arunachal Pradesh State Electricity Regulatory Commission
KV	Kilovolt
KVA	Kilo volt Amps
KWh	Kilo Watt hour
LT	Low Tension
MU	Million Units
MVA	Million volt Amps
MW	Mega Watt
O&M	Operation & Maintenance
PLF	Plant Load Factor
MCLR	Marginal cost of fund based Lending Rate
R&M	Repairs and Maintenance
RoR	Rate of Return
Rs.	Rupees
SBI	State Bank of India
SERC	State Electricity Regulatory Commission
T&D	Transmission & Distribution
DHPD	Department of Hydro Power Development



## 1. BACKGROUND

In order to oversee, co-ordinate and monitor the development of hydro power in the State of Arunachal Pradesh, the State Govt. created a separate department namely “Department of Hydro Power Development” on 12/11/2003. It is a full-fledged department headed by a Chief Engineer. The Department is entrusted with the development of micro / mini / small hydro project, improvement of existing hydro projects including renovation & modernization works, operation and maintenance of existing hydel stations, survey & investigation of new potential sites, and construction of residential and non-residential building for the Department. The Department is foremost concentrating on the urgent need of bridging the existing demand supply gap in order to make the State self-reliant, so far as power needs of the State are concerned and to help achieve the target of all villages electrification and all household electrification.

The Department at present has to its credit 75.33 MW installed capacity. Department is operating micro / mini / small Hydro Power Stations. Department is also under taking construction of various Hydel Stations in various districts of the State which are under different stages of development. Completion of these on-going schemes shall lead to a further capacity addition. In addition to above, Department is also carrying out Survey & Investigation of new schemes with the aim of identifying more potential sites for tapping the estimated 2000 MW small hydro power potential in the State developing hydro power.

The Department has a dedicated work force of 2831 Nos. staff comprising of experienced engineers, technical staff and other supporting staff. The Department of Hydro Power Development has also been assigned the very important responsibility of acting as nodal agency for coordinating and overseeing the allotment and development of Mega Hydro Electric Projects in the State by IPPs as State’s Mega & Small Hydro Power Policy. Department is looking forward to transforming the long awaited dream of the people of the State into reality that Arunachal Pradesh shall be the “FUTURE POWER HOUSE OF THE COUNTRY”.

### **INSTALLED CAPACITY**

#### **a) Hydro Electric Power Stations**

The Department has total installed capacity of 75.33 MW. Details of installed capacity of hydroelectric power stations of DHPD for the year 2018-19 are given here under:-

**1. Details of Hydro Electric Power Stations**

SL. No.	Name of the Stations	Units	Installed Capacity	Firm Capacity	Year of Commissioning
<b>Western Zone (WZ)</b>			<b>(KW)</b>	<b>(KW)</b>	
<b>Tawang District</b>					
1	Chellengkang Ph-I	30	30	30	2004-05
2	Chellengkang Ph-II	30	30	30	2008-09
3	Shakti Nallah	2 x 50	100	50	2008-09
4	Thimbu	2 x 50	100	100	2009-10
5	Khet	2 x 50	100	100	2009-10
6	Tsechu Nallah	2 x 50	100	100	2010-11
7	Mago MHS	2x50	100	100	2014-15
8	Nuranang	3 x 2000	6000	6000	1996-97
9	Kitpi Ph-I	3 x 500	1500	1500	1977-78
10	Kitpi MHS Ph-II	2 x 1500	3000	3000	2008-09
11	T. Gompa	50	50	50	2001-02
12	Bongleng	2 x 50	100	100	2009-10
13	Bramdhongchung	2 x 50	100	100	2008-09
14	Bramdhongchung Ph-II	2 x 50	100	100	2010-11
15	Mukto MHS	3 x 2000	6000	6000	2018-19
16	Nuranang Ph- II	2 x 500	1000	1000	2019-20
<b>West Kameng District</b>					
17	Rahung	3 x 250	750	500	1972-73
18	Dirang	4 x 500	2000	1500	1977-78
19	Saktangrong	3 x 100	300	300	2011-12
20	Zhongdongrong	2 x 500	1000	1000	2016-17
21	Sessa	3 x 500	1500	1500	1992-93
22	Rupa	2 x 100	200	100	1997-98
23	Dokumpani	30	30	30	2000-01
24	Domkhong	2 x 1000	2000	2000	2008-09
25	Sinchung	30	30	30	2008-09
26	Ankaling	30	30	30	2009-10
27	Dikshi	30	30	30	2010-11
28	Khadiyabey	2 x 100	200	200	2011-12
29	Jigaon	2 x 50	100	100	2016-17
<b>East Kameng District</b>					
30	Seppa	3 x 100	300	200	1980-81
31	Pakke Kessang	30	30	30	2001-02
32	Pacha MHS	2 x 1500	3000	3000	2008-09
33	Pakoti	2 x 50	100	100	2010-11