नेपाल विद्युत प्राधिकरण

(नेपाल सरकारको स्वामित्व)
वितरण तथा ग्राहक सेवा निर्देशनालय
पोखरा क्षेत्रीय कार्यालय

☎
कार्यालय ०६१ ४६
लेखा ०६१ ४६६
प्रशासन ०६१ ४६५
प्राविधिक ०६१ ४६५
फ्याक्स ०६१ ४६६४
Email:neadcspro@gmail.

पत्र सख्यां :०७३।७४ प्रा.
च.नं.: ९६०८

मिति: २०७४/०२/०१

श्री विद्युत व्यापार विभाग,
योजना, अनुगमन तथा सुचना प्रविधि निर्देशनालय,
ने.वि.प्रा. ।

विषय:- रुदिखोला "वी" जलविद्युत आयोजना(६.६मे.वा.) को ससोधित Connection Agreement/Connection Point पठाईएको वारे ।

उपरोक्त सम्वन्धमा विन्ध्यवासीनि हाईड्रोपावर डेभलपमेण्ट कं. प्रा.लि. द्वारा प्रवर्द्धित रुदिखोला "वी" जलविद्युत आयोजना (६.६ मे.वा.) को Connection Agreement/Connection Point संसोधन गर्न ने.वि.प्रा. व्यवस्थापन समक्ष स्विकृतिका लागी समन्वय समितीले मिती २०७३।०९।२१ मा सिफारिस गरिएकोमा श्री कार्यकारी निर्देशक ज्यु वाट मिती २०७३।१०।०७ मा स्विकृत भएकोले कनेक्सन एग्रिमेन्ट सम्वन्धी अन्य प्रावधानहरु यथावत रहने गरी रुदिखोला "वी" जलविद्युत आयोजना (६.६ मे.वा.) को प्रर्वद्धित कम्पनि श्री विन्ध्यवासीनि हाईड्रोपावर डेभलपमेण्ट कं. प्रा. लि. र यस कार्यालय विच मिती २०७३।११।२६ मा भएको निर्णय अनुसार रुदिखोला "वी" जलविद्युत आयोजना (६.६ मे.वा.) लाई प्रवर्द्धकको माग अनुसार प्रस्तावित मिजुरेडाडाँ सबस्टेशनमा कनेक्सन गर्न दिने गरी Connection Agreement/Connection Point संसोधन गरी सो को छायाँप्रति यसै साथ सलंग्न गरी पठाईएको व्यहोरा अनुरोध छ ।

(रामजी भण्डारी)
क्षेत्रीय निर्देशक

क्षेत्रीय निर्देशक

बोधार्थ :

श्री उपकार्यकारि निर्देशक ज्यू
प्रशारण निर्देशनालय, ने.वि. प्रा ।
श्री विन्ध्यवासीनि हाईड्रोपावर डेभलपमेण्ट कं. प्रा.लि.
काठमाडौ ।

MEMORANDUM OF UNDERSTANDING

ON

REVISED GRID CONDITION

BETWEEN

BINDABASINI HYDROPOWER DEVELOPMENT COMPANY PVT. LTD.

AND

NEPAL ELECTRICITY AUTHORITY

FOR

RUDHIKHOLA "B" SMALL HYDROPOWER PROJECT (6.6 MW)

Pokhara, Nepal

March, 2017

नेपाल बिद्युत प्राधिकरण, पोखरा क्षेत्रिय कार्यालय र रुदिखोला बी जलबिद्युत आयोजना (६.६ मे.वा.) बिच भएको बैठकको माईन्युट

आज मिती २०७३।११।२६ गते बिहिबार (March 9th, 2017) नेपाल बिद्युत प्राधिकरण, पोखरा क्षेत्रीय कार्यालय र बिन्ध्यबासीनि हाईड्रोपावर डेभलपमेण्ट कं. प्रा.लि. बिच ने.बि.प्रा., पोखरा क्षेत्रीय कार्यालयका निर्देशक ज्यु को कार्यकक्षमा बसी निम्न लिखित बिषयहरु उपर छलफल गरी निर्णय गरीयो ।

उपस्थिती :

ने.बि.प्रा. को तर्फबाट

१. श्री रामजी भण्डारी
निर्देशक, पोखरा क्षेत्रीय कार्यालय ।

२. श्री शिव नारायण गोशली,
ईन्जिनियर, पोखरा क्षेत्रीय कार्यालय ।

कम्पनिको तर्फबाट

१. श्री कृष्ण प्रसाद आचार्य
कार्यकारी अध्यक्ष, बिन्ध्यबासीनि हाईड्रोपावर डेभलपमेण्ट कं. प्रा.लि. ।

प्रस्ताव तथा छलफलका बिषयहरु :

१. बिन्ध्यबासीनि हाईड्रोपावर डेभलपमेण्ट कं. प्रा.लि. द्वारा प्रबद्धित रुदिखोला बी जलबिद्युत आयोजना (६.६ मे.वा.) जलबिद्युत आयोजनाको समन्वय समितीको मिती २०७३।०९।२१ गते बसेको बैठक सख्यां नं. ३ ले गरेको सिफारिस तथा श्रीमान् कार्यकारी निर्देशक ज्यु बाट मिती २०७३।१०।०७ मा स्विकृती अनुसार Connection Agreement/Connection Point ससोंधन गर्ने सम्बन्धमा ।

छलफल तथा निर्णयहरु :

१. विन्ध्यवासीनि हाईड्रोपावर डेभलपमेण्ट कं. प्रा.लि. द्वारा प्रर्वद्धित रुदिखोला बी जलबिद्युत आयोजना (६.६ मे.वा.) जलबिद्युत आयोजनाको समन्वय समितीको मिती २०७३।०९।२१ गते बसेको बैठक सख्यां नं. ३ ले निम्न बुदाँहरु उल्लेख गरी निर्णय गरेको थियो ।

(क) आयोजनाको साबिकको कनेक्सन एग्रिमेन्ट अनुसार कनेक्सन/डेलिभरी प्वाईन्ट (लेखनाथ सबस्टेशनको १३२ के.भि. बसबार) मा कनेक्सन गर्ने प्राबधान रहेकोमा कम्पनीको माग अनुसार आयोजनालाई प्रस्ताबित मिजुरेडाडाँ सबस्टेशनमा कनेक्सन गर्न दिन व्यबस्थापनबाट स्विकृतिका लागि सिफारीस गर्ने ।

(ख) मिजुरेडाडाँ सबस्टेशनदेखि लेखनाथ सास सम्म पोखरा क्षेत्रीय कार्यालय, ने.बि.प्रा. ले **Wolf Conductor Stringing** गरी ३३ के.भि. प्रशारण लाईन निर्माण कार्य अगाडी बढाईरहेको र सोहि ३३ के.भि. प्रशारण लाईनको क्षमता अनुसार नै रुदी ए सा.ज.बि.(८.८ मे.वा.) र रुदी बी सा.ज.बि. आ.(६.६ मे.वा.) बाट उत्पादीत हुने बिद्युतिय उर्जा मिजुरेडाडाँ सबस्टेशनमा आशिंक खपत भए पश्चात प्रबाह गर्न पर्याप्त हुने देखिएको हुदाँ मिजुरेडाँडा सबस्टेशनदेखि लेखनाथ सास सम्म कम्पनिले अलग्गै प्रशारण लाईन निर्माण गर्न नपर्ने ।

(ग) साबिकको ग्रीड कनेक्सन एग्रिमेन्ट अनुसार लेखनाथ सास मा गर्नुपर्ने सम्पुर्ण **Interconnection Facilities** कार्यहरु कम्पनिले आफ्नो खर्चमा गर्नुपर्ने । साथै मिजुरेडाडाँ सबस्टेशनमा आयोजनाको कनेक्सनका लागी आबश्यक **Interconnection Facilities** कार्यहरु कम्पनीले आफ्नै खर्चमा गर्नुपर्ने ।

(घ) मिजुरेडाडाँ सबस्टेशन देखि लेखनाथ सास सम्मको प्रशारण लाईन लस (**calculation Sheet** सलंग्न छ)कम्पनिले ब्यहोर्नुपर्ने ।

मथि उल्लेखित (क) देखि (घ) सम्मको प्राबधान उल्लेख गरि कनेक्सन एग्रिमेन्ट संसोधन गर्न ने.बि.प्रा. व्यवस्थापन समक्ष स्विकृतिका लागी समन्वय समितीले मिती २०७३।०९।२१ मा सिफारिस गरिएकोमा श्री कार्यकारी निर्देशक ज्यु बाट मिती २०७३।१०।०७ मा स्विकृत भएकोले कनेक्सन एग्रिमेन्ट सम्बन्धी अन्य प्राबधानहरु यथाबत रहने गरी रुदिखोला बी जलबिद्युत आयोजना (६.६ मे.वा.) को प्रर्वद्धित कम्पनि श्री विन्ध्यबासीनि हाईड्रोपावर डेभलपमेण्ट कं. प्रा. लि. लाई प्रबर्द्धकको माग अनुसार प्रस्ताबित मिजुरेडाडाँ सबस्टेशनमा कनेक्सन गर्न दिने गरी कनेक्सन एग्रिमेन्ट संसोधन गर्ने निर्णय गरियो ।

BINDHYABASINI HYDROPOWER DEVELOPMENT CO.(P)LTD. KATHMANDU, NEPAL

नेपाल विद्युत प्राधिकरण

(नेपाल सरकारको स्वामित्व)

(टिप्पणी र आदेश)

विषय:-

श्रीमान् उप-कार्यकारी निर्देशकज्यू
योजना अनुगमन तथा सूचना प्रविधि निर्देशनालय

विषय :- रुदी खोला ए (८.८ मे.वा.) जलविद्युत आयोजना र रुदी खोला बि (६.६ मे.वा.) जलविद्युत आयोजनाको Connection Agreement/ Connection Point संशोधन गर्ने सम्बन्धमा ।

१. विषयको संक्षिप्त व्यहोरा

नेपाल विद्युत प्राधिकरण र विन्ध्यवासिनी हाइड्रोपावर डेभलपमेन्ट कं. प्रा. लि. बीच २०७३।०२।१३ मा रुदी खोला ए (८.८ मे.वा.) जलविद्युत आयोजना र २०७१।०४।२० मा रुदी खोला बि (६.६ मे.वा.) जलविद्युत आयोजनाको विद्युत खरीद बिक्री सम्झौता सम्पन्न भएको थियो । हाल आयोजनाहरु निर्माणाधिन अवस्थामा रहेको छ ।
ने.वि.प्रा. ग्रिड संचालन विभाग र प्रवर्द्धक कम्पनी बिच सम्पन्न विद्युत खरीद बिक्री सम्झौता, कनेक्सन एग्रिमेन्ट/Minute of Meeting अनुसार निज आयोजनाहरुको कनेक्सन बिन्दु Lekhnath Substation 132 kV Busbar रहेको छ । यसै सन्दर्भमा मिति २०७३।०२।३१ मा कम्पनी द्वारा ने.वि.प्रा. विद्युत व्यापार विभागमा साविकको Connection/Delivery Point संशोधन गरी मिजुरेडांडा सवस्टेशन ३३ के.भी., (पोखरा क्षेत्रीय कार्यालय अन्तर्गत) मा कनेक्सन प्वाइन्ट कायम गरिदिने अनुरोध सहितको पत्र प्राप्त हुन आएको सम्दर्भमा प्रकृया अगाडि बढाइएको छ ।

२. टिप्पणी पेश गर्नु पर्ने कारण

निज आयोजनाको साविकको कनेक्सन प्वाइन्ट Lekhnath Substation 132 kV Busbar लाई परिवर्तन गरि निर्माणाधिन मिजुरेडांडा सवस्टेशन (३३ के.भी.) कायम गर्ने सन्दर्भमा समन्वय समितीको बैठकको सिफारिस अनुसार कार्यकारी निर्देशक समक्ष स्किृतिका लागि टिप्पणी पेश गरिइएको छ ।

३. अन्य प्रासंगिक कुराहरु

- ने.वि.प्रा. ले मिजुरेडाँडा ३३ के.भी. सवस्टेशन निर्माण गरिरहेको जनाउँदै कम्पनीले प्रवर्द्धन गरिरहेको आयोजनाहरुको Connection/Delivery Point निर्माणाधिन मिजुरेडाँडा ३३ के.भी. सवस्टेशनमा संशोधन गरी पाउन अनुरोध गरेको छ ।
- विद्युत खरीद बिक्री सम्झौताको प्रावधान बमोजिम गठित समन्वय समितिको मिति २०७३।०९।२१ को बैठकमा निम्न अनुसार निर्णय भएको छ ।
  - मिति २०७३।०९।२० मा कम्पनी द्वारा कनेक्सन/डेलिभरी प्वाइन्ट स्थमनान्तरण गर्ने सम्बन्धमा ग्रिड संचालन विभाग, पोखरा क्षेत्रिय कार्यालय, विद्युत व्यापार विभाग तथा कम्पनीका प्रतिनिधिहरुको उपस्थितिमा बसेको समन्वय समितिको बैठकमा भएको बृहत छलफल पश्चात कम्पनीद्वारा निर्माणाधिन रुदी खोला ए/बी ज.वि.आ. बाट उत्पादित बिद्युत सोहि मिजुरेडाँडा ३३ के.भी. सवस्टेशन मार्फत नै Evacuation गर्दा दुवै पक्षबाट देहाय बमोजिम कार्य हुनुपर्ने निर्णय गरियो ।
    - क) आयोजनाको साविकको कनेक्सन एग्रिमेन्ट अनुसार कनेक्सन/डेलिभरी प्वाइन्ट (लेखनाथ सवस्टेशनको १३२ के.भी. बसबार) मा कनेक्सन गर्ने प्रावधान रहेकोमा कम्पनीको माग अनुसार आयोजनालाई निर्माणाधिन ने.वि.प्रा. को ३३।११ के.भी मिजुरेडाँडा सवस्टेशनको ३३ के.भी. बसबारमा कनेक्सन गर्न दिन व्यवस्थापनबाट स्वीकृतीका लागी सिफारिस गर्ने ।
    - ख) मिजुरेडाँडा सवस्टेशन देखि लेखनाथ सास सम्म पोखरा क्षेत्रिय कार्यालय, ने.वि.प्रा. ले Wolf Conductor Stringing सहित ३३ के.भी. प्रशारण लाइन निर्माणकार्य अगाडी बढाइरहेको र सोही ३३ के.भी. प्रशारण लाइनको क्षमता अनुसार नै रुदी खोला ए ज.वि.आ. (८.८ मे.वा.) र

नेपाल विद्युत प्राधिकरण

(नेपाल सरकारको स्वामित्व)

विषय:- २०६३।९०।६ (टिप्पणी र आदेश)

रुदी खोला बी ज.वि.आ. (६.६ मे.वा.) बाट उत्पादित हुने विद्युतिय उर्जा मिजुरेडाँडा सवस्टेशनमा आंशिक खपत भएपश्चात प्रवाह गर्न पर्याप्त हुने देखिएको हुँदा मिजुरेडाँडा देखि लेखनाथ सास सम्म कम्पनीले अलग्गै प्रशारण लाइन निर्माण गर्न नपर्ने ।

ग) साविकको ग्रिड कनेक्सन एग्रिमेन्ट अनुसार लेखनाथ सास मा गर्नुपर्ने सम्पुर्ण Interconnection Facilities कार्यहरु कम्पनीले आफ्नो खर्चमा गर्नुपर्ने । साथै मिजुरेडाँडा सवस्टेशनमा आयोजनाको कनेक्सनका लागि आवश्यक Interconnection Facilities कार्यहरु कम्पनीले आफ्नो खर्चमा गर्नुपर्ने ।

घ) मिजुरेडाँडा सवस्टेशनदेखि लेखनाथ सास सम्मको प्रशारण लाइन लस ((Calculation Sheet संलग्न छ) कम्पनीले व्यहोर्नुपर्ने ।

➢ माथि बुँदा नं (क) देखि (घ) सम्मका प्रावधान उल्लेख गरी कनेक्सन एग्रिमेन्ट संशोधन गर्न ने.वि.प्रा. व्यवस्थापन समक्ष स्विकृतिका लागि सिफारीश गर्ने र सो पश्चात वि.ग्रा.से., ने.वि.प्रा. पोखरा क्षेत्रिय कार्यालयबाट कनेक्सन एग्रिमेन्ट संशोधन गर्ने ।

४. निर्णय हुनुपर्ने विषय

बिन्ध्यवासीनी हाइड्रोपावर डेभलपमेन्ट कं. प्रा. लि. द्वारा निर्माणाधिन रुदी खोला ए (८.८ मे.वा.) जलविद्युत आयोजना ररुदी खोला वि (६.६ मे.वा.) जलविद्युत आयोजनाको साविकको कनेक्सन प्वाईन्ट (Lekhnath Substation 132 kV Busbar Bar) परिवर्तन गरि ने.वि.प्रा. द्वारा निर्माणाधिन मिजुरेडाँडा ३३ के.भी. बसबार कायम गर्न समन्वय समितिको बैठकले सिफारिस गरेबमोजिमका शर्तहरु (बुँदा नं (क) देखि (घ) सम्म) समावेश गरी ने.वि.प्रा. पोखरा क्षेत्रिय कार्यालय मार्फत कनेक्सन एग्रिमेन्ट संशोधनको प्रक्रिया अगाडि बढाउन समन्वय समितिको बैठकको सिफारिस बमोजिम स्विकृतिको लागि पेश गरेको छु ।

प्रबन्ध अधिकारी
प्रमुख, वि.व्यो.वि.
२०६३।९०।६

माननीय कार्यकारी निर्देशकज्यू

माथी उल्लेख भए अनुसार निर्णयार्थ राखा स्विकृतीको लागी पेश गरिएको छ ।

जगदिश्वर मान सिंह
का.मु.उ.का.नि.
मो.अं.तथा सु.उ.नि.
२०६३/९०/५

वि.व्यो.वि.
आ.का.

श्री .....
प्रा.प्र.
प.उ.का.
५८।३५

विन्ध्यबासीनि हाइड्रोपावर डेभेलपमेण्ट कं. प्रा.लि.
रुदी खोला बी जलविद्युत आयोजना (६.६ मे.वा.) को
समन्वय समितिको वैठकको माइन्युट
वैठक संख्या - ४

विन्ध्यवासीनि हाइड्रोपावर डेभेलपमेण्ट कं.प्रा.लि.द्वारा प्रवर्द्दन गर्न लागिएको रुदी खोला बी जलविद्युत आयोजना (६ मे.वा.) को नेपाल विद्युत प्राधिकरण संग सम्पन्न भएको विद्युत खरीद बिक्री सम्झौताको दफा १४ अनुसार गठित समन्वय समितिको वैठक निम्न मिति, स्थान र समयमा सम्पन्न भयो ।

मिति : २०७३।०९।२१

समय : ४:०० बजे ।

स्थान : विद्युत व्यापार विभाग, नेपाल विद्युन प्राधिकरण, दरवारमार्ग ।

उपस्थिति:

कम्पनीको तर्फबाट :

१. श्री कृष्ण प्रसाद आचार्य — अध्यक्ष, समन्वय समिति
विन्ध्यवासीनि हाइड्रोपावर डेभेलपमेण्ट कं. प्रा.लि.

२. श्री डा. लक्ष्मण पौडेल — सदस्य, समन्वय समिति
विन्ध्यवासीनि हाइड्रोपावर डेभेलपमेण्ट कं. प्रा.लि.

नेपाल विद्युत प्राधिकरणको तर्फबाट :

१. श्री काशेन्द्र प्र. यादव — सदस्य, समन्वय समिति
निर्देशक, ने.वि.प्रा., ग्रिड संचालन विभाग

२. श्री प्रवल अधिकारी — सदस्य, समन्वय समिति
प्रमुख, विद्युत व्यापार विभाग, ने.वि.प्रा.

आमन्त्रीत :

१. श्री रामजी भण्डारी — निर्देशक, पोखरा क्षेत्रीय कार्यालय ने.वि.प्रा.
२. श्री लुनार श्रेष्ठ — उप-प्रबन्धक, विद्युत व्यापार विभाग ने.वि.प्र
३. श्री सुवर्ण सापकोटा — सहायक प्रबन्धक,विद्युत व्यापार विभाग ने.वि
४. श्री तेजकृष्ण श्रेष्ठ — सहायक प्रबन्धक,विद्युत व्यापार विभाग ने.वि
५. श्री विक्रम पौडेल — इन्जिनियर, विद्युत व्यापार विभाग ने.वि.प्रा.

छलफलका विषयहरु:

१. Connection Agreement / Connection Point संशोधन गर्ने सम्वन्धमा ।

BINDHYABASINI HYDROPOWER DEVELOPMENT CO.(P) LTD. KATHMANDU,NEPAL

छलफल तथा निर्णयहरु

१.Connection Agreement / Connection Point संशोधन गर्ने सम्वन्धमा ।
प्रस्ताव नं १ उपर छलफल गर्दा

ने.वि.प्रा. ग्रिड संचालन विभाग र प्रवर्द्धक कम्पनी विच सम्पन्न ग्रिड कनेक्सन एग्रिमेन्ट को Minute of Meetir को बुँदा नं. १ मा निम्न अनुसारका व्यवस्थाहरु रहेको देखियो ।

The Delivery Point shall be 132 kV bus bar of **Lekhnath Substation** of NEA at Kaski district. The Ru Khola A SHPP and Rudi Khola B SHPP will jointly construct 33 kV double ckt transmission line up Lekhnath Substation each circuit of double circuit carrying individual power of Rudi Khola A SHPP ar Rudi Khola B SHPP .Grid User shall install 132/33 kV,20 MVA power transformer at Lekhna Substation to connect to 132 kV Voltage Level.

मिति २०७३।०९।२० मा कम्पनी द्वारा कनेक्सन/डेलिभरी प्वाइन्ट स्थानान्तरण गर्ने सम्वन्धमा ग्रीड संचालन विभा पोखरा क्षेत्रीय कार्यालय, विद्युत व्यापार विभाग तथा कम्पनीका प्रतिनिधिहरुको उपस्थितिमा बसेको तेश्रो समन्व समितिको वैठकमा भएको वृहत छलफल पश्चात कम्पनिद्धारा निर्माणधीन रुदी बी सा.ज.वि. आ. (६.६ मे.वा.) व उत्पादित विद्युत सोहि मिजुरेडांडा सवस्टेशन (३३ के.भी.) मार्फत नै Evacuation गर्दा दुवै पक्षवाट देहाय वमोजि कार्य हुनुपर्ने निर्णय गरियो ।

क) आयोजनाको साविकको कनेक्सन एग्रिमेन्ट अनुसार कनेक्सन/डेलिभरी प्वाइन्ट (लेखनाथ सवस्टेशनको १३२ के.भि.वसवार) मा कनेक्सन गर्ने प्रावधान रहेकोमा कम्पनीको माग अनुसार आयोजनालाई प्रस्तावित मिजुरेडांडा सवस्टेशन मा कनेक्सन गर्न दिन व्यवस्थापनबाट स्वीकृतीका लागि सिफारीस गर्ने ।

ख) मिजुरेडांडा सवस्टेशनदेखि लेखनाथ सास सम्म पोखरा क्षेत्रीय कार्यालय,ने.वि.प्रा ले Wolf Conductor Stringing गरी ३३ के.भी. प्रशारण लाइन निर्माण कार्य अगाडी बढाइरहेको र सोही ३३ के.भी.प्रशारण लाइनको क्षमता अनुसार नै रुदी ए सा.ज.वि. आ. (६.६ मे.वा.) र रुदी बी सा.ज.वि. आ. (६.६ मे.वा.) बाट उत्पादित हुने विद्युतीय उर्जा मिजुरेडांडा सवस्टेशनमा खपत भएपश्चात प्रवाह गर्न पर्याप्त हुने देखिएको हुँदा मिजुरेडांडा सवस्टेशनदेखि लेखनाथ सास सम्म कम्पनीले अलग्गै प्रशारण लाइन निर्माण गर्न नपर्ने।

ग) साविकको ग्रीड कनेक्सन एग्रिमेन्ट अनुसार लेखनाथ सास मा गर्नुपर्ने सम्पूर्ण Interconnection Facilities कार्यहरु कम्पनीले आफ्नो खर्चमा गर्नुपर्ने । साथै मिजुरेडांडा सवस्टेशनमा आयोजनाको कनेक्सनका लागि आवश्यक Interconnection Facilities कार्यहरु कम्पनीले आफ्नो खर्चमा गर्नुपर्ने

घ) मिजुरेडांडा सवस्टेशनदेखि लेखनाथ सास सम्मको प्रसारण लाइन लस (Calculation Sheet संलग्न छ) कम्पनीले व्यहोर्नुपर्ने ।

माथि बुँदा नं. (क) देखि (घ) सम्मका प्रावधान उल्लेख गरी कनेक्सन एग्रिमेन्ट संशोधन गर्न ने.वि.प्रा. व्यवस्थापन समक्ष स्विकृतिका लागि सिफारीश गर्ने र सो पश्चात वि.ग्रा.से., ने.वि.प्रा. पोखरा क्षेत्रिय कार्यालयवाट कनेक्सन एग्रिमेन्ट संशोधन गर्ने ।

BINDHYABASINI HYDROPOWER DEVELOPMENT CO. PVT. LTD. KATHMANDU, NEPAL

Line Loss Calculation (Mijuredada 33 kV S/S to Lekhnath 133/32 kV S/S

Name of Company	Bindhyabasini Hydropower Development Company Pvt.Ltd.		
Name of Project	Rudi Khola A and Rudi Khola B		
Location	Lamjung/Kaski District		
Length of Line	20	km Upto Lekhnath S/S	
Power	15,400	kW	
Voltage	33	kV	
Power Factor	0.85	lag	
Conductor ACSR WOLF Resistance at 75 deg cent	0.2187		Ohm/km

1. AVERAGE POWER SCENARIO

Month	No of days (As per PPA)	Contract Energy(kWh) of Rudi Khola A (As Per PPA)	Contract Energy(kWh) of Rudi Khola B (As Per PPA)	Total Energy(kWh)	Average Power (kW)	Current (A)	Resistance Value (ohm/km)	Power Loss (KW)	Transmission Loss(Kwh)	Outage@5%	Net Transmission Loss (kWh)
	A			B	C	D	E	F	G	H	G-H
Baisakh	31	2,617,990	1,092,609	3,710,599	4,987	102.66	0.2187	138.29	102,885.4	5,144.27	97,741.10
Jestha	31	4,840,883	2,792,918	7,633,801	10,260	211.20	0.2187	585.29	435,459.0	21,772.95	413,686.04
Asadh	32	5,729,848	4,299,694	10,029,542	13,059	268.81	0.2187	948.15	728,181.3	36,409.06	691,772.22
Shrawan	31	5,914,681	4,438,393	10,353,074	13,915	286.43	0.2187	1076.54	800,947.8	40,047.39	760,900.44
Bhadra	31	5,729,848	4,299,694	10,029,542	13,481	277.48	0.2187	1010.31	751,671.0	37,583.55	714,087.45
Ashwin	31	5,729,848	4,299,694	10,029,542	13,481	277.48	0.2187	1010.31	751,671.0	37,583.55	714,087.45
Kartik	30	4,319,766	4,022,294	8,342,060	11,586	238.48	0.2187	746.31	537,344.3	26,867.22	510,477.09
Mangsir	29	3,310,342	2,892,022	6,202,364	8,911	183.43	0.2187	441.50	307,286.7	15,364.34	291,922.38
Poush	30	2,328,465	1,570,121	3,898,586	5,415	111.45	0.2187	163.00	117,360.0	5,868.00	111,492.04
Magh	29	1,937,697	1,265,385	3,203,082	4,602	94.73	0.2187	117.75	81,953.1	4,097.66	77,855.45
Falgun	30	2,159,457	1,235,286	3,394,743	4,715	97.05	0.2187	123.59	88,985.6	4,449.28	84,536.34
Chaitra	30	2,252,127	1,004,141	3,256,268	4,523	93.09	0.2187	113.71	81,874.1	4,093.70	77,780.35
Sum:	365	46,870,952	33,212,251	80,083,203							4,546,338.35
Percentage Line loss %											5.68

Loss Shared by Rudi A= (Monthly Energy of Rudi A)*Total Loss/(Monthly Energy of RudiA +Monthly Energy of RudiB)
Loss Shared by Rudi B= (Monthly Energy of Rudi B)*Total Loss/(Monthly Energy of RudiA +Monthly Energy of RudiB)

Percentage Loss	Energy Loss (kWh)
3.32	2,660,872.67
2.35	1,885,465.67

BINDHYABASINI HYDROPOWER DEVELOPMENT CO. (P.) LTD. KATHMANDU NEPAL

MEMORANDUM OF UNDERSTANDING

ON

GRID CONNECTION

BETWEEN

BINDHYABASINI HYDROPOWER DEVELOPMENT CO. (P.) LTD.

AND

NEPAL ELECTRICITY AUTHORITY

FOR

RUDI KHOLA "B" HYDROELECTRIC PROJECT (6.6 MW)

Kathmandu, Nepal
January, 2014

MEMORANDUM OF UNDERSTANDING

ON

GRID CONNECTION

BETWEEN

BINDHYABASINI HYDROPOWER DEVELOPMENT CO. (P.) LTD.

AND

NEPAL ELECTRICITY AUTHORITY

FOR

RUDI KHOLA "B" HYDROELECTRIC PROJECT (6.6 MW)

Kathmandu, Nepal
January, 2014

BINDHYABASINI HYDROPOWER DEVELOPMENT CO. (P.) LTD. KATHMANDU, NEPAL

Table of Content

BINDHYABASINI HYDROPOWER DEVELOPMENT CO.(P) LTD.

This Memorandum of Understanding is concluded here in Kathmandu, Nepal on Magh 09, 2070BS (Nepali calendar) accordingly January 23, 2014AD (Gregorian calendar)

Between

Bindhyabasini Hydropower Development Co. (P.) Ltd. (herein after referred as the "Grid User"), duly registered under the Company Act 2053 of Nepal having its head office at Srijanachowk, Pokhara, Nepal and represented by its authorized representative, Dr. Laxman Poudel,Director.

And

Nepal Electricity Authority (herein after referred as the "NEA"), constituted under the Nepal Electricity Authority Act 2041), having its registered office at Durbar Marg, Kathmandu, Nepal and represented by its authorized representative, Mr. H.R. Shrestha, Director of Grid Operation Department (herein after referred as the Grid Owner).

Whereas, the Grid User has applied for a Power Purchase Agreement with the NEA for purchase by NEA of electricity supplied by the Grid User from their 6.6 MW Rudi Khola "B" Hydroelectric Project located in Pasgaun VDC, Lamjung District and desires to interconnect this power station to the NEA Grid at the switchyard of proposed Lekhnath Substation located at Kaski District.

Whereas the Grid Owner agrees to connect the facilities of the Grid User at the location mentioned above.

Now therefore, in consideration of these premises and of the mutual covenants and understandings herein after set forth, the Grid Owner and the Grid User agree to the following:

1. Definitions

All terms appearing in this Memorandum of Understanding with their initial letters in capital shall have the respective meanings as given to them in the NEA Grid Code.

2. Interpretation:

Unless the context of this Memorandum of Understanding otherwise requires;

a) References to singular include the plural and vice versa;

b) If there is any contradiction or inconsistency between this Memorandum of Understanding and the Power Purchase Agreement, the latter shall prevail;

c) If there is any contradiction or inconsistency between the main text and the Exhibits/Annexes herein, the former shall prevail.

BINDHYABASINI HYDROPOWER DEVELOPMENT CO.(P) LTD. KATHMANDU, NEPAL

3. Term:

3.1 The term of this Memorandum of Understanding shall be 90 days from the date of this Memorandum of Understanding unless the term is extended in accordance with Articles 3.2.

3.2 Should the Parties sign a Power Purchase Agreement within the term specified in Article 3.1, this Memorandum of Understanding shall automatically become a part of the PPA and the term of this Memorandum of Understanding shall remain effective for the entire term of the PPA and any extension thereof.

3.3 Once the Connection is energized, the term of the Memorandum of Understanding shall remain in effect unless the Memorandum of Understanding is terminated pursuant to Article 6 of this Memorandum of Understanding.

3.4 Should the term of this Memorandum of Understanding expire pursuant to Article 3.1 or any extension thereof pursuant to Article 3.2, a new Memorandum of Understanding is required for which the prospective Grid User shall submit a fresh application for updating the Grid Impact Study. The Grid User shall bear the cost of this new Impact Study.

4. Force Majeure

4.1 Force Majeure denotes those events, which are beyond the reasonable control of a Party and which makes a Party's performance of its obligations under this Memorandum of Understanding impossible or so impractical as reasonably to be considered impossible in the circumstances. Such events include, but is not limited to, abnormal flood, earthquake, lightning strikes, fire, epidemic, war, invasion, riot, civil disturbance, sabotage, explosion, military or usurped power, strikes, lockouts or other industrial actions (except where such strikes, lockouts or other industrial actions are within the power of the Party invoking the Force Majeure).

4.2 Force Majeure shall not include (a) any event which a Party could have reasonably foreseen at the time of this Memorandum of Understanding, (b) any event which is the result of the negligence or intentional action of a Party, (c) any event which could have been avoided or overcome during the course of a Party's performance under this Memorandum of Understanding and (d) insufficiency of funds to undertake its performance under this Memorandum of Understanding.

4.3 A Party claiming Force Majeure may not be considered to be in default pursuant to Article 5 and the Memorandum of Understanding may not be terminated if the Force Majeure event is of a temporary nature (not exceeding six months) and the affected Party is making all reasonable efforts with due diligence to end or mitigate the consequences of the Force

Majeure event and to resume its performance under this Memorandum of Understanding as soon as possible.

4.4 A Party claiming Force Majeure shall notify in writing the other Party of such a Force Majeure event as soon as possible but in any event not later than seven (7) business days following the occurrence of the event along with the evidence of the nature and cause of the event and an estimate of time likely to be required for resumption of its performance. Similarly, the affected Party shall promptly provide the other Party a written notice of the cessation of the Force Majeure event.

4.5 The Memorandum of Understanding may be terminated if a Force Majeure event continues for more than six (6) months.

4.6 In case the Grid User is an IPP, the relevant provisions in the PPA shall also govern regarding article 4.

5. Default

5.1 A Grid User shall be in default under any one or more of the following conditions:

a) The Grid User fails to comply with the provisions in this Memorandum of Understanding;
b) The Grid User persistently fails to remedy situations, whenever called for;
c) The Grid User fails to provide reasonable assurance of its ability to perform its duties;
d) Representation or warranty made herein by the Grid User is not true or correct;
e) Permits, licenses and other governmental/regulatory authorizations required for construction, installation and operation of the Grid User's facilities expire or are cancelled by the concerned authorities;
f) In case the Grid User is a customer of the NEA, the Grid User fails to comply with the rules and regulations of the NEA;
g) In case of IPP's, the Grid User is in default under the relevant provisions of the PPA.

5.2 In case the Grid User is judged to be in default pursuant to Article 5.1, the Grid Owner shall serve a notice to the defaulting Party citing the reason(s) for the default and providing not less than six (6) business days following receipt of the notice to rectify the problem, if rectifiable. The Grid Owner shall terminate this Memorandum of Understanding if in its opinion the Grid User has failed to remedy the problem to the reasonable satisfaction of the Grid Owner. However, the Grid Owner may grant reasonable time extension, if in its opinion the Grid User has made diligent effort to remedy the default and the Grid User would be able to rectify the default within the given time extension.

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6. Termination:

6.1 This Memorandum of Understanding shall be terminated under any one of the following conditions:

a) Upon mutual agreement in writing to terminate this Memorandum of Understanding;
b) Upon the conditions stipulated in the NEA Grid Code;
c) Upon default of a Party pursuant to Article 5 (Default);
d) Upon a Force Majeure event pursuant to Article 4 (Force Majeure);
e) Upon the conditions of termination stipulated in the Power Purchase Agreement.

The Grid Owner shall terminate this Memorandum of Understanding pursuant to Article 6.1, by issuing a 30-day's notice to the Grid User terminating its use of the Grid under this Memorandum of Understanding and requiring the Grid User to disconnect its facilities at the Connection Point in accordance with the Grid Owner's instructions specified in the letter or as provided later.

The Grid Owner reserves the right, as an interim measure, to suspend its services, partially or completely, to the Grid User at the Connection Point instead of terminating the Memorandum of Understanding pursuant to Article 6.1. Notice of such suspension shall be served to the Grid User and this notice shall also include period of suspension and any other necessary information.

7. Dispute Resolution

Any dispute, claim, or differences arising under or in connection with this Memorandum of Understanding shall be settled through the dispute resolution procedures prescribed in the PPA.

8. Indemnity

The Parties shall indemnify, defend and hold harmless each other, including their respective employees, agents, contractors, subcontractors, against any claim, loss or liability or any indirect or consequential damages under or in connection with this Memorandum of Understanding, including loss or injury suffered by that Party or its employees, agents or subcontractors, loss of profit, loss of revenue, cost of capital, cost of purchased or replacement capacity or energy and loss of use of any property, facilities or equipment where such claim, damage or liability arises from the failure to operate the Grid or a Connected facility.

In case the Grid User is an IPP, the provisions in the PPA shall govern. If the PPA does not have these provisions then in such case this MOU shall be applicable.

9. Good Faith

The Parties shall act in good faith in relation to the performance and implementation of this Memorandum of Understanding and to take such other reasonable measures as may be necessary for the realization of their objectives.

10. Relationship between Parties

10.1 Nothing in this Memorandum of Understanding is intended, nor shall it be construed or interpreted as creating an association, joint venture or partnership between the Parties or to impose any partnership obligations or liabilities upon either Party.

10.2 Neither Party shall have any right, power or authority to enter into any agreement or undertaking for or on behalf of, to act as or be an agent or representative of, or to otherwise bind the other Party.

11. Regulatory Approvals

Each Party shall be responsible for obtaining any government/regulatory approvals necessary for performance under this Memorandum of Understanding. The Parties shall cooperate with and assist each other as reasonably necessary in seeking the necessary approvals.

12. Governing Law

This Memorandum of Understanding shall be governed by the laws of the Nepal Government.

13. NEA Grid Code Compliance

The Grid User shall comply with the NEA Grid Code except as stated otherwise in this Memorandum of Understanding.

14. Grid Connection Voltage

The facilities owned by the Grid User shall be connected to the NEA Grid at the Connection Point at 132 kV voltage level.

15. Equipment Specification

The Grid User shall provide, in addition to the standard ratings, data on operational technical limits of major equipment such as capability of generators, time versus frequency characteristics of turbines and their cavitation zones, maximum current rating, etc.

16. Equipment Compatibility

The Grid User shall provide equipment compatible with those in the NEA Grid, where such compatibility is necessary to ensure proper operation of

the facilities. Such equipment are generally related to, but not limited to, protection relays, communication, telemetry and control mechanism.

17. **Construction Schedule**

Grid User shall be responsible for having the connection facilities ready for energizing within the time specified in the PPA .

18. **Construction Cost**

Grid User shall bear the cost for design, procurement, construction, installation, commissioning and all other related works of the connection facilities.

19. **Amendments**

This Memorandum of Understanding may be amended or modified in writing agreed and duly signed by authorized representatives of the Parties. No breach of any covenant, agreement, representation or warranty made herein shall be deemed waived unless expressly stated in writing. The waiver or breach of any term or provision of this Memorandum of Understanding by any Party shall not be construed as a waiver of any subsequent breach.

20. **Other Provisions**

Additional provisions may be incorporated herein as deemed necessary at the time of concluding this Memorandum of Understanding.

21. **Exhibits And Annexes**

All Exhibits and Annexes attached herein form an integral part of this Memorandum of Understanding and the Memorandum of Understanding shall be construed in the light of such Annexes and Exhibits. This Memorandum of Understanding includes following attached Annexes and Exhibits:

EXHIBIT 1: Facility Location Map
EXHIBIT 2: User's System Single Line Diagram
EXHIBIT 3: Interconnection Facilities Single Line Diagram
EXHIBIT 4: Protection Scheme/Settings
EXHIBIT 5: Transformer Connection and Grounding
EXHIBIT 6: SCADA and Communication Scheme
EXHIBIT 7: Interconnection Implementation Schedule
EXHIBIT 8: Fixed Assets Boundary
EXHIBIT 9: Maintenance Program
EXHIBIT 10: Metering Scheme
ANNEX 1: Description of User's Facility
ANNEX 2: Committed Project Planning Data
ANNEX 3: Registered Equipment Data
ANNEX 4: Authorized Representatives
ANNEX 5: Exceptions to Grid Code Requirements
ANNEX 6: Survey License and Company Registration Certificate

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22. Notices

22.1 Any notice, demand, request, authorization, direction or communication related to this Memorandum of Understanding shall be given in writing. All communications by a Party shall be deemed delivered when received by the other Party.

22.2 The delivery of such communications may be by hand, registered mail, courier that provides evidence of delivery or facsimile.

22.3 All notices to the Grid Owner shall be addressed as follows:

Grid Operation Department
Nepal Electricity Authority
Min Bhawan, Baneswor, Kathmandu.
Tel 4482447
Fax 4465586

22.4 All notices to the Grid User shall be addressed to:

Bindhyabasini Hydropower Development Co. (P.) Ltd.
Srijanachowk, Pokhara
Tel: 061-61533224
Fax:

22.5 Either Party may change its address for notices specified above or the persons to whom it notices should be given, by notice to the other Party in the manner provided above.

22.6 The minutes of meeting dated January 23, 2014 (Magh 09, 2070) between Grid Owner and the Grid User is the part of this Memorandum of Understanding.

BINDHYABASINI HYDROPOWER DEVELOPMENT CO. (P.) LTD. KATHMANDU, NEPAL

23. Signatories

In witness whereof, each signatory having been appropriately authorized to enter into this Memorandum of Understanding on behalf of the Party for whom they sign, the Parties have caused this Memorandum of Understanding to be executed by their respective duly authorized representatives.

Signed on behalf of
Bindhyabasini Hydropower Development Co. (P.) Ltd.

Name: Dr. Laxman Poudel

Designation: Director

Signature:

Company Seal:

Signed on behalf of
Nepal Electricity Authority:

Name: Mr. H. R. Shrestha

Designation: Director

Signature:

Company Seal:

Witness on behalf of
Bindhyabasini Hydropower Development Co. (P.) Ltd.

Name:

Designation:

Signature:

Company Seal:

Witness on behalf of
Nepal Electricity Authority:

Name: Mr. S. Kr. K.C.

Designation: Asst. Manager

Signature:

Company Seal:

BINDHYABASINI HYDROPOWER DEVELOPMENT CO. (P) LTD. RATNANAGAR NEPAL

MINUTES OF MEETING

A meeting was held on January 23, 2014(Magh 09, 2070) between Grid Operation Department, NEA, hereinafter called the "Grid Owner", and M/S Bindhyabasini Hydropower Development Co. (P.) Ltd., Srijanachowk, Pokharaandu hereinafter called the "Grid User" regarding Power Evacuation Issues of the 6.6 MW Rudi Khola "B" Hydroelectric Project (hereinafter called the Project).

Grid User Representatives:

1. Dr. Laxman Poudel
   Director

Grid Owner Representatives:

1. Mr. H. R. Shrestha
   Director
2. Mr. Suman K. K.C.
   Asst. Manager

AGREED POINTS

The Grid Owner has reviewed the application for Connection Agreement proposal submitted by the Grid User.

The Grid Owner and the Grid User had a meeting for Power Evacuation Issues of the Project to be developed by the Grid User and agreed as follows:

1. The Grid User shall construct double circuit 33kV line from Rudi "A" and Rudi "B" HEPs (one circuit for each HEP) up to Lekhnath substation where it shall construct the 33kV line bays, install 132/33kV transformer and construct 132kV Bay to connect its facilities at 132kV busbar of Lekhnath substation. The Grid User shall install Main and Check energy Meters of accuracy class 0.1 at 33kV for each line.

2. The Delivery Point shall be 132kV bus bar of **Lekhnath Substation** of NEA at Kaski district. The Grid User shall install 132/33kV power transformer at Lekhnath substation.

3. The Grid User, itself, shall manage the land for the installation of transformer and construction of 33kV line bay and 132 kV bay at Lekhnath Substation. The land shall be adjacent to the Lekhnath Substation and shall be suitable for the extension of the 132kV bay. The Grid User shall purchase the required land in the name of NEA and shall take approval from the Grid Owner before purchasing the land. Grid User shall construct the new public road, drain, road inside the switchyard, lightning mast, fence and retaining wall etc. for the construction of new bay. If the Grid User fails to purchase the required land and fails to construct as mentioned above, Grid Owner shall not take any responsibilities for the connection of the project.

4. The Grid User's Connection Facilities shall be as shown in EXHIBIT-2 and EXHIBIT-3 of the Memorandum of Understanding.

5. The Grid User shall bear the cost of design, procurement, construction, installation, commissioning and all related works of the connection facilities.

6. The Grid User shall install equipments compatible (similar/matching the existing equipments, panels etc in clearance, appearance and function) with the Grid Owner's substation equipments.

7. Grid User shall install SCADA system as per the requirements of NEA Grid Code and System Operation Department, NEA.

8. The Grid User shall submit the drawings and specifications of the equipment to the Grid Owner for approval. The Grid user shall also submit the data of the equipments as per the NEA GRID CODE before commissioning of the Project.

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9. The Grid User shall also install Main and Check meters with accuracy class 0.1 at the Delivery Point. The accuracy class and the burden of the instrument transformers shall be as per the NEA Grid Code. The Check Meter shall be supplied from a secondary core of CT & PT separated from the one feeding supply to the Main Meter.

10. The transformation loss shall be borne by the Grid User. The total transformation loss shall be calculated by subtracting the received energy at the Delivery Point (132kV) from the sum of received energy from Rudi "A" and Rudi "B" HEPs at 33kV.

11. The necessary construction, operation and maintenance of the Grid User's Connection Facilities (including the 33kV Transmission Line from the Project up to the Lekhnath Substation and all the equipments up to the Delivery Point) shall be performed by the Grid User.

12. Operation of the control and relay panels associated with the Grid User's Connection Facilities (limited to switching, resetting of relays, auxiliaries and data recording) shall be taken care by the Grid Owner.

13. In case of any line fault on the 33 kV Transmission Line (from the Project up to the Delivery Point), the Grid Owner shall inform and isolate the Grid Owner's Connection Facilities from the Grid User's faulty line until the fault clears.

14. The Grid User shall carry out any extension/modification works of the Grid Owner's control room for the installation of the Grid User's control equipments if the available space is inadequate or it is required for NEA's future extension.

15. The Grid Impact Study carried out by System Planning Department of NEA reveals that, for the evacuation of power from the Project, it is prerequisite to commission the **220kV New Marshyangdi Substation, 220kV New Marshyangdi- Kathmandu line and 220kV Matatirtha Substation** before commissioning of the project. The Grid Impact Study has recommended that the Project can be connected to Lekhnath Substation in FY 2017/018 AD provided that 400kV Dhalkebar-Muzaffarpur transmission line is commissioned before commissioning of the Project. If the above mentioned lines and related substations are delayed, the commissioning of the project shall be delayed accordingly and the Grid User shall not claim any financial compensation from NEA for such delays. **The Grid Impact Study has also recommended that the issue of surplus energy during FY 2016/17 to FY 2022/23 AD needs to be addressed before concluding PPA with the Grid User.**

16. The Grid Impact Study shows that the loading of one circuit of 400kV Dhalkebar-Muzaffarpur line is beyond 120% with the outage of other circuit. So, the Grid User agrees to reduce the generation/energy and shall follow the directives from Load Dispatch Center (LDC) of NEA up to the end of FY 2021/022 AD in such case. The Grid User agrees not to claim financial compensation from NEA for such reduced generation/energy.

17. The Grid User shall pay shutdown charge to NEA including compensation claimed by affected IPPs, for the non generated energy due to the shutdown at Lekhnath Substation during inter-connection of the Project. The Grid User shall apply to Grid Owner for the shutdown at least 15 days before the actual date of shutdown.

18. Both parties agreed on above clauses and the NEA GRID CODE 2005 governs this minute of meeting.

BINDHYABASINI HYDROPOWER DEVELOPMENT CO. (P) LTD. KATHMANDU, NEPAL

EXHIBIT – 1
FACILITY LOCATION MAP

(This Exhibit shall be a geographical map indicating the locations of the User System, the proposed Connection Point and the approximate alignment of the transmission/sub-transmission line between the User System and the Connection Point.)

Refer Exhibit -1, Attachment

EXHIBIT – 2
USER'S SYSTEM SINGLE LINE DIAGRAM

(This Exhibit shall provide a single line diagram showing circuit connections of all major equipment and related devices in the User System in accordance with Article 5.9 of the NEA Grid Code. Before energizing the Connection Point, this single line diagram shall be updated to reflect any changes. At the same time each equipment and device shall be numbered and labeled in accordance with the numbering and nomenclature protocol provided by the Gird Owner in accordance with Article 5.11 of the NEA Grid Code.)

Refer Exhibit -2, Attachment

EXHIBIT - 3
CONNECTION POINT DIAGRAM

(This Exhibit shall provide a composite single line diagram for the entire Connection Point showing circuit connections of all major equipment and related devices on Grid User's side as well as the Grid Owner's side of the Connection Point in accordance with Article 5.9 of the NEA Grid Code. Before energizing the Connection Point, this single line diagram shall be updated to reflect any changes. At the same time each equipment and device shall be numbered and labeled in accordance with the numbering and nomenclature protocol provided by the Gird Owner in accordance with Article 5.11 of the NEA Grid Code.)

Refer Exhibit-3, Attachment

BINDHYABASINI HYDROPOWER DEVELOPMENT CO.(P) LTD. KATHMANDU, NEPAL

EXHIBIT - 4
PROTECTION SCHEME

(The principal protection schemes in the User System as well as at the Connection Point shall be shown in this Exhibit in accordance with Article 5.7 of the NEA Grid. Exact fault clearance settings of various protection relays shall be provided prior to the actual connection pursuant to Article 5.4.6 of the NEA Grid Code.)

Protection Scheme at the Generator's System

a. Each generating unit shall be provided with protection against pole slipping, loss of excitation, over current, earth fault, out of step and frequency.

b. Generator Transformer shall be protected with differential relay and restricted earth fault relay and over current & earth fault relay as backup.

c. 33kV transmission line shall be protected by 36kV switchgear with over current/ earth fault and breaker failure relay as backup protection.

d. The Circuit breaker shall have facilities of single-pole tripping and three-pole tripping with single shot auto-reclosure.

Protection Scheme at the Connection Point/Delivery Point

a. 33kV transmission line shall be protected by 36kV switchgear with over current/ earth fault and breaker failure relay as backup protection.

b. The 132/33kV transformer shall have the differential protection with over current and earth fault protection as back up.

c. HV side of the transformer shall consist of 145kV Switchgear with over current/ earth fault and breaker failure relay as backup protection.

d. Inter tripping facilities shall be provided for functioning of breaker failure protection.

e. The Circuit breaker shall have facilities of single-pole tripping and three-pole tripping with single shot auto-reclosure.

Note: The basic scheme involves tripping faulty circuit first and preventing mal-operation of healthy circuit. Proper relay co-ordination with prior consultation of grid owner shall be done.

BINDHYABASINI HYDROPOWER DEVELOPMENT CO.(P) LTD. KATHMANDU NEPAL

EXHIBIT - 5
TRANSFORMER CONNECTIONS AND GROUNDING

(Connection and grounding of each power transformer in the User System and at the Connection Point shall be shown in this Exhibit. The value of the grounding resistance shall be provided prior to the energizing the Connection.)

Shall be provided during detail planning.

EXHIBIT - 6
SCADA AND COMMUNICATION SCHEME

(Communication scheme, telemetry and control mechanism in the User system an at the Connection Point shall be in indicated in this Exhibit in accordance with Articles 5.4.6 and 6.9 of the NEA Grid Code))

The communication and SCADA equipment at Connection Points on User's side and related development at LDC shall be the responsibility of Grid User. Other equipment such as transducers, cables, modems, etc shall also be provided along with the main equipment necessary for interconnection with the SCADA system of the NEA Load Dispatch Center.

The communication and SCADA equipment installed by Users at Connection Points shall be compatible with those installed by the Grid Owner at the remote end in the Grid, including the Load Dispatch Centre.

The Grid User shall install dedicated telephone lines for communication and facsimile.

EXHIBIT - 7
INTERCONNECTION IMPLEMENTATION SCHEDULE

(Scheduled completion and commissioning dates, including the Connection date, of various facilities in the User System and the Connection shall be indicated in this Exhibit in accordance with Article 5.4 of the NEA Grid Code. The assumptions on which the schedule is based shall be clearly spelt out.)

Refer Exhibit-7, attachment.

EXHIBIT - 8
FIXED ASSETS BOUNDARY

This Exhibit shall clearly show the demarcation of the ownership and the responsibility for control and operation of the equipment and devices (including metering, communications, SCADA and any lines or cables emanating from each of the owner's side) at the Connection Point in accordance with Article 5.8 of the NEA Grid Code. This Exhibit shall be provided two weeks prior to the Completion Date.

1. The necessary construction, operation and maintenance of the 33 kV transmission line up to Connection/Delivery Point and construction & maintenance of all the equipments up to the Connection/Delivery Point shall be carried out by the Grid User itself.

2. Operation of the control and relay panels (limited to switching, resetting of relays, auxiliaries and data recording) at the Connection/Delivery Point shall be taken care by Grid Owner. Necessary maintenance and replacement of equipments shall be in the scope of Grid User.

EXHIBIT – 9
MAINTENANCE PROGRAM

(This Exhibit shall show the maintenance schedule for the facilities at the Connection Point. This program shall be submitted prior to energizing the Connection in accordance with Article 5.8.1 of the NEA Grid Code.)

Maintenance and replacement of the Switchgear, Relay and Control Panels, equipments and all other relevant accessories supplied and installed by the Grid User shall be carried out by the Grid User itself. However operation of the control & relay panels (limited to Switching, resetting of relays and auxiliaries and data recording) shall be taken care by Grid Owner. In addition to this Grid Owner shall inform to Grid User having noticed of any abnormal condition, which does not come under the scope of Grid Owner.

EXHIBIT - 10
METERING SCHEME

(Metering arrangements in the User System and at the Connection shall be indicated in this Exhibit in accordance with Chapter 9 of the NEA Grid Code.)

Metering scheme is shown on the Connection Point Diagram Exhibit -3, Attachment.

a. The Grid User shall constructs double circuit 33kV line from Rudi "A" and Rudi "B" HEPs (one circuit for each HEP) up to Lekhnath substation where it shall construct the 33kV line bays, install 132/33kV transformer and construct 132kV Bay to connect its facilities at 132kV busbar of Lekhnath substation. The Grid User shall install Main and Check energy Meters of accuracy class 0.1 at 33kV for each line.

b. The Delivery Point shall be the 132kV bus bar of Lekhnath Substation at Kaski district. Grid User shall also install the Main and Check energy Meters of accuracy class 0.1 at the Delivery Point.

c. The Main and Check Meters shall be supplied from the different secondary cores of CT and PT of accuracy class 0.2.

d. Provisions for sealing of the meters including secondary terminals of instrument transformers shall be made by both parties for preventing unauthorized use.

e. The burden of instrument transformers shall comply with the Grid Code as described in Chapter 9.

f. The transformation loss shall be borne by the Grid User. The total transformation loss shall be calculated by subtracting the received energy at the Delivery Point (132kV) from the sum of received energy from Rudi "A" and Rudi "B" HEPs at 33kV.

g. The total transformation line loss thus calculated shall be divided into proportion of the received energy of Rudi "A" and Rudi "B" HEPs at 33kV and that shall be deducted from the received energy of respective powerhouses at 33kV Lekhnath substation to find out the billing energy. The total billing energy shall not be greater than the total energy received at 132kV.

BINDHYABASINI HYDROPOWER DEVELOPMENT PVT. LTD. KATHMANDU, NEPAL

ANNEX - 1
DESCRIPTION OF GRID USER'S FACILITIES

(The Grid User shall herein provide a brief description of User's facilities, the reasons for grid connection requirement, salient features, including current proposed capacity of plant and any expansion plan, financing scheme, construction schedule, etc.)

The Rudi Khola B Hydroelectric Project is a run-off-river project and uses the water of Karbu, Tago, Kaiyu and Ligur Khola. The intake site is located at Pasa Gaun VDC of Lamjung district and Mijure Danda VDC of Kaski district whereas power house site is situated at Pasa Gaun VDC of Lamjung district of Gandaki Zone, Western Development Region of Nepal. The geographical co-ordinates of project location are 28°16'20"N to 28°17'50"N and 84°11'00"E to 84°13'50"E.

Project is designed with Design discharge of 2.55 m^3/sec. Its catchment area is about 35.3 km^2 at intake site. The designed capacity of this project is 6.6kW with 2 units of synchronous brushless generators. The capacity of each generators to be provided is 3882kVA generating at 6.3 kV with 0.85 pf.

Power Evacuation Scheme

The company constructs 25km long 33kV transmission line to connect to the NEA facilities at Lekhnath substation at Kaski district. The Company constructs single circuit 33 kV line up to the switchyard of Rudi Khola A HEP, a cascade project of Rudi Khola B HEP and promoted by the company, and thereafter constructs double ciruit 33 kV line, one circuit for each HEP, up to Lekhnath substation. At Lekhnath substation, the company will install 132/33kV 20 MVA power transformer to connect its facilities at 132kV.

BINDHYABASINI HYDROPOWER DEVELOPMENT CO.(P)LTD. KATHMANDU,NEPAL

ANNEX-2, ATTACHMENT EQUIPMENT SPECIFICATIONS

Turbine

Number of unit	Two
Type	Horizontal Axis, Pelton
Rated output per unit	3.5 MW
Rated net head	305.36 m
Rated discharge for each unit	1.275 m^3/s
Efficiency	90.5%

Turbine Governor

Type	Electro-Hydraulic
Actuator System	Oil-hydraulic, self closing without electric power
Adjustment and Calibration	Mechanical adjustment with self-closing speed and limit switches. Electronic adjustment: All governor parameters shall be adjustable from the unit's control panel but critical parameters shall be locked (password, seal or similar).
Adjustment for Speed or Frequency Droop	Between 0 and 5% with an accuracy of 0.5 %
Monitoring	Digital output of speed, temperature and vibration

Generator

Type	Synchronous, 3 phase, salient pole
No. of units	2
Rated output	3882 kVA
Rated generator voltage	6.3kV
Rated power factor	0.85
Rated efficiency	96.5 %
Rated frequency	50Hz
Excitation	Brushless

6.3 /33kV Power Transformer

Number of unit	1, 3 Phase
Type	Three phase, oil-immersed
Installation	Out door
Rated Capacity	8.25MVA
Rated HV	33kV
Rated LV	6.3kV
Efficiency	0.99
Cooling	ONAN
Rated Frequency	50Hz
LV winding	Delta
HV winding	Star
Vector Group	YNd11
Tap Changer	Off load,±5% in steps of ±2.5%
Material of conductor	copper

132/33kV Power Transformer

Number of unit	1
Type	Three phase, oil-immersed
Installation	Out door
Rated Capacity	20MVA
Rated HV	132kV
Rated LV	33kV
Efficiency	0.99
Cooling	ONAN
Rated Frequency	50Hz
LV winding	Star
HV winding	Star
Vector Group	YNyn0
Tap Changer	Off load,±5% in steps of ±2.5%
Material of conductor	copper

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ANNEX-2, ATTACHMENT EQUIPMENT SPECIFICATIONS

33kV Current Transformer

Type	Outdoor
Voltage Rating	
Nominal system voltage	33kV
Rated maximum voltage	36kV
Impulse withstand voltage	170kV
Frequency	50Hz
Short time thermal ratings	10kA for 1sec
Current Ratio	200/5, 200/1
Burden	30VA for protection and general metering 15VA for Main and Check Meter
Accuracy	0.5 for general metering 0.2 for Main and Check Meter 5P20 for protection PS for differential protection

33kV Voltage Transformer

Type	Outdoor
Rated primary voltage	33kV/√3
Rated secondary voltage	110V/√3
Impulse withstand voltage	170kV
Frequency	50Hz
Burden	30VA for protection and general metering 15VA for Main and Check Meter
Accuracy	0.5 for general metering 0.2 for Main and Check Meter 5P for protection

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ANNEX-2, ATTACHMENT EQUIPMENT SPECIFICATIONS

33kV Circuit Breaker

Type	Vacuum, outdoor
No of poles	3
Voltage Rating	
Nominal system voltage	33kV
Rated maximum voltage	36kV
Current Rating	
Rated continuous current	630A
Rated short circuit breaking current	25kA
One minute power frequency withstand voltage rms	75kV
Impulse withstand voltage peak	170kV
Frequency	50Hz
Re-closing duty cycle	0-0.3sec-CO-3min-CO

33kV Disconnecting switch

Type	3-pole, Single throw, outdoor
Voltage Rating	
Nominal system voltage	33kV
Rated maximum voltage	36kV
Current Rating	
Rated continuous current	630A
Rated short circuit breaking current	25kA
Rated peak withstand current	63kA
One minute power frequency withstand voltage rms	75kV
Basic impulse level (BIL)	170kV
Frequency	50Hz
Operating mechanism	Manually gang operated

ANNEX-2, ATTACHMENT EQUIPMENT SPECIFICATIONS

132kV Current Transformer

Type	Outdoor
Voltage Rating	
Nominal system voltage	132kV
Rated maximum voltage	145kV
Impulse withstand voltage	650kV
Frequency	50Hz
Short time thermal ratings	10kA for 1sec
Current Ratio	100/1
Burden	30VA for protection and general metering 15VA for Main and check metering
Accuracy	0.5 for general metering 5P20 for protection PS for differential protection 0.2 for Main and Check meter

132kV Voltage Transformer

Type	Outdoor
Rated primary voltage	132kV/√3
Rated secondary voltage	110V/√3
Impulse withstand voltage	170kV
Frequency	50Hz
Burden	30VA for protection and general metering 15VA for Main and Check meter
Accuracy	0.5 for general metering 5P for protection 0.2 for Main and Check meter

ANNEX-2, ATTACHMENT EQUIPMENT SPECIFICATIONS

132kV Circuit Breaker

Type	SF6, outdoor
No of poles	3
Voltage Rating	
Nominal system voltage	132kV
Rated maximum voltage	145kV
Current Rating	
Rated continuous current	630A
Rated short circuit breaking current	40kA
One minute power frequency withstand voltage rms	275kV
Impulse withstand voltage peak	650kV
Frequency	50Hz
Re-closing duty cycle	0-0.3sec-CO-3min-CO

132kV Disconnecting switch

Type	3-pole, Single throw, outdoor
Voltage Rating	
Nominal system voltage	132kV
Rated maximum voltage	145kV
Current Rating	
Rated continuous current	630A
Rated short circuit breaking current	40kA
One minute power frequency withstand voltage rms	275kV
Basic impulse level (BIL)	650kV
Frequency	50Hz
Operating mechanism	Manually gang operated

Annex-6, Page 1

श्री ५ को सरकार

उद्योग, वाणिज्य तथा आपूर्ति मन्त्रालय

कम्पनी रजिष्ट्रारको कार्यालय

दर्ता नं. नम्बर ९४४८१/०६९

प्रमाण-पत्र

श्री [illegible] (प्राइभेट)

लिमिटेड कम्पनी ऐन २०५३ बमोजिम सम्वत २०७० साल पौष १८ गते रोज ३ मा रजिष्टर भएको हुनाले यो प्रमाण-पत्र दिइएको छ ।

मिति २०७०।९।३१२

रजिष्ट्रार

Annex-6, Attachment.

नेपाल सरकार

ऊर्जा मन्त्रालय

विद्युत उत्पादनको सर्वेक्षण अनुमतिपत्र

रुदी खोला-बी जलविद्युत आयोजना (७६०० किलोवाट)

अनुमतिपत्र संख्या : विवि वि ०६२/७८ वित्त स ०६४८

श्री विन्ध्यवासिनी हाइड्रोपावर डेभलपमेण्ट कम्पनी प्रा.लि.

पो.ब. १०२४२, तथा लाजिम्पाट १०, काठमाडौं

महाशय,

विद्युत उत्पादनको सर्वेक्षणका लागि अनुमतिपत्र पाउन मिति २०६९/०९/०९ मा दिनु भएको दरखास्त अनुसार रुदी खोला-बी विद्युत ऐन २०४९ को दफा ४ को उपदफा (२) र विद्युत नियमावली २०५० को नियम ३ बमोजिम यो अनुमतिपत्र प्रदान गरिएको छ ।

१. विद्युत उत्पादनको सर्वेक्षण गर्ने पाउने व्यक्ति वा संगठित संस्थाको पुरा नाम र ठेगाना :

श्री विन्ध्यवासिनी हाइड्रोपावर डेभलपमेण्ट कम्पनी प्रा.लि.

पो.ब. १०२४२, तथा लाजिम्पाट १०, काठमाडौं

फोन नं. ४७८२३०, ४७८२३१, ४७८२३२

फ्याक्स नं. ४७८२३१

२. उत्पादनको सर्वेक्षण गरिने विद्युतको किसिम : जलविद्युत ।

३. जलविद्युत उत्पादनको लागि सर्वेक्षण गरिने जलस्रोतको नाम : रुदी खोला ।

(गण्डकी अञ्चल कास्की तथा लमजुङ जिल्लाको मिजुरेडाडा तथा पसगाउँ गा.वि.स.हरूमा अवस्थित रुदी खोला-बी जलविद्युत आयोजना)

४. सर्वेक्षण गर्ने क्षेत्र :

(क) अञ्चल : गण्डकी अञ्चल ।

(ख) जिल्ला : कास्की तथा लमजुङ जिल्ला ।

(ग) गा.वि.स. नगरपालिका : मिजुरेडाडा तथा पसगाउँ गा.वि.स.हरू ।

(घ) पूर्व : ८४° १३' ००" E

पश्चिम : ८४° ११' ००" E

उत्तर : २८° १७' ५०" N

दक्षिण : २८° १६' २०" N

(माथि उल्लेखित क्षेत्र भित्र रुदी खोलाको पानी उपयोग गर्ने गरी)

Verification of True Copy of Original
Name: Pimala Adhikari Paudel
Signature: Pimala
Date: 2014-01-21
Certificate Number of the Notary Public: 2336
Date of Expiry of Certificate: 16th June 2014
Seal of the Notary Public

५. सर्वेक्षणको प्रकृति :

प्रकरण ७(१) मा उल्लेख भएको गणनात्मक सम्भाव्यता अध्ययन तथा प्रकरण ७(२) मा उल्लेख भए अनुसारको वातावरणीय अध्ययन ।

६. अनुमतिपत्र बहाल रहने अवधि :

मिति २०६९।०९।२६ देखि २०७१।०९।२५ सम्म ।

ANNEX - 4
AUTHORIZED REPRESENTATIVES

(The authorized representatives of the Grid Owner and the Grid User, who will act as their Accountable Managers, Safety Coordinators as well as those responsible for the operation and maintenance of the facilities, shall be listed herein prior to energizing the Connection in accordance with Articles 5.4.6 and 5.8.1 of the NEA Grid Code.)

On behalf of Grid Owner

Mr. H.R. Shrestha
Director
Grid Operation Department, NEA
Minbhawan, Kathmandu, Nepal

On behalf of Grid User
Dr. Laxman Poudel
Director
Bindhyabasini Hydropower Development Co. (P.) Ltd.
Srijanachowk, Pokhara, Nepal

BINDHYABASINI HYDROPOWER DEVELOPMENT CO.(P) LTD. KATHMANDU, NEPAL

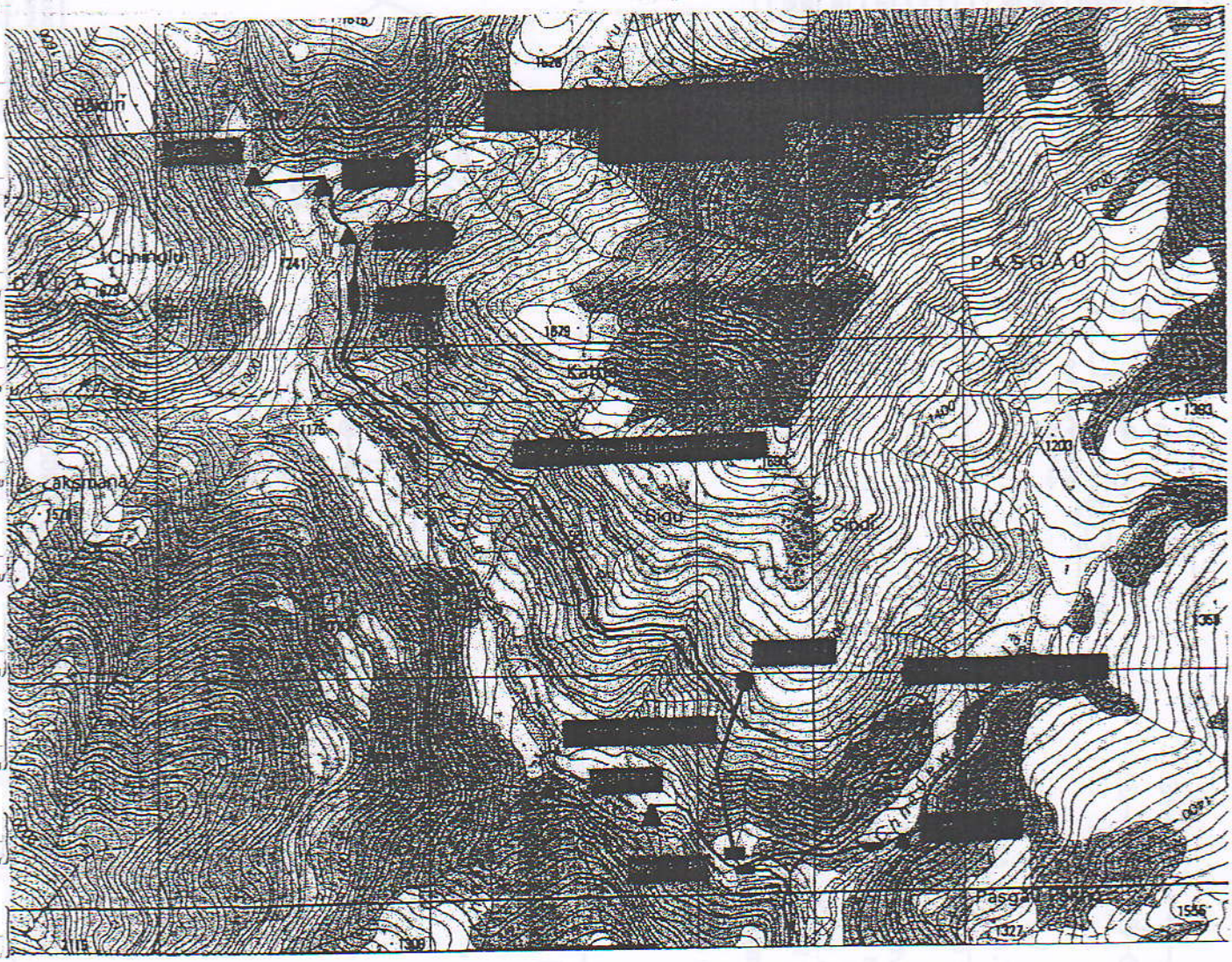
ANNEX - 5
EXCEPTIONS TO GRID CODE REQUIREMENTS

(All exceptions to the requirements of the Grid Code Shall be stated herein.)

ANNEX - 5
EXCEPTIONS TO GRID CODE REQUIREMENTS

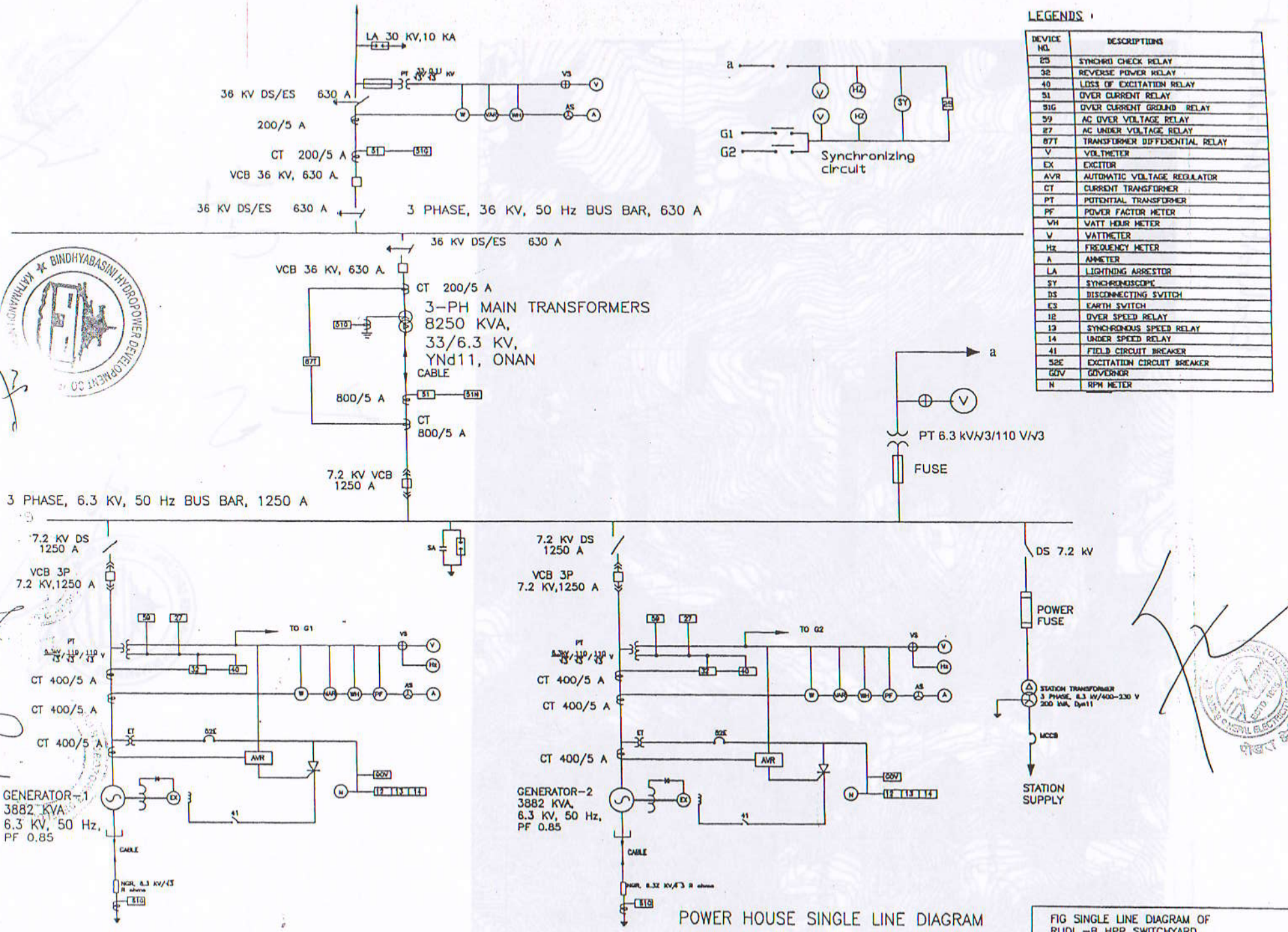
(All exceptions to the requirements of the Grid Code Shall be stated herein.)

Exhibit-1, Attachment



BINDHYABASINI HYDROPOWER DEVELOPMENT CO. (P) LTD.
KATHMANDU, NEPAL

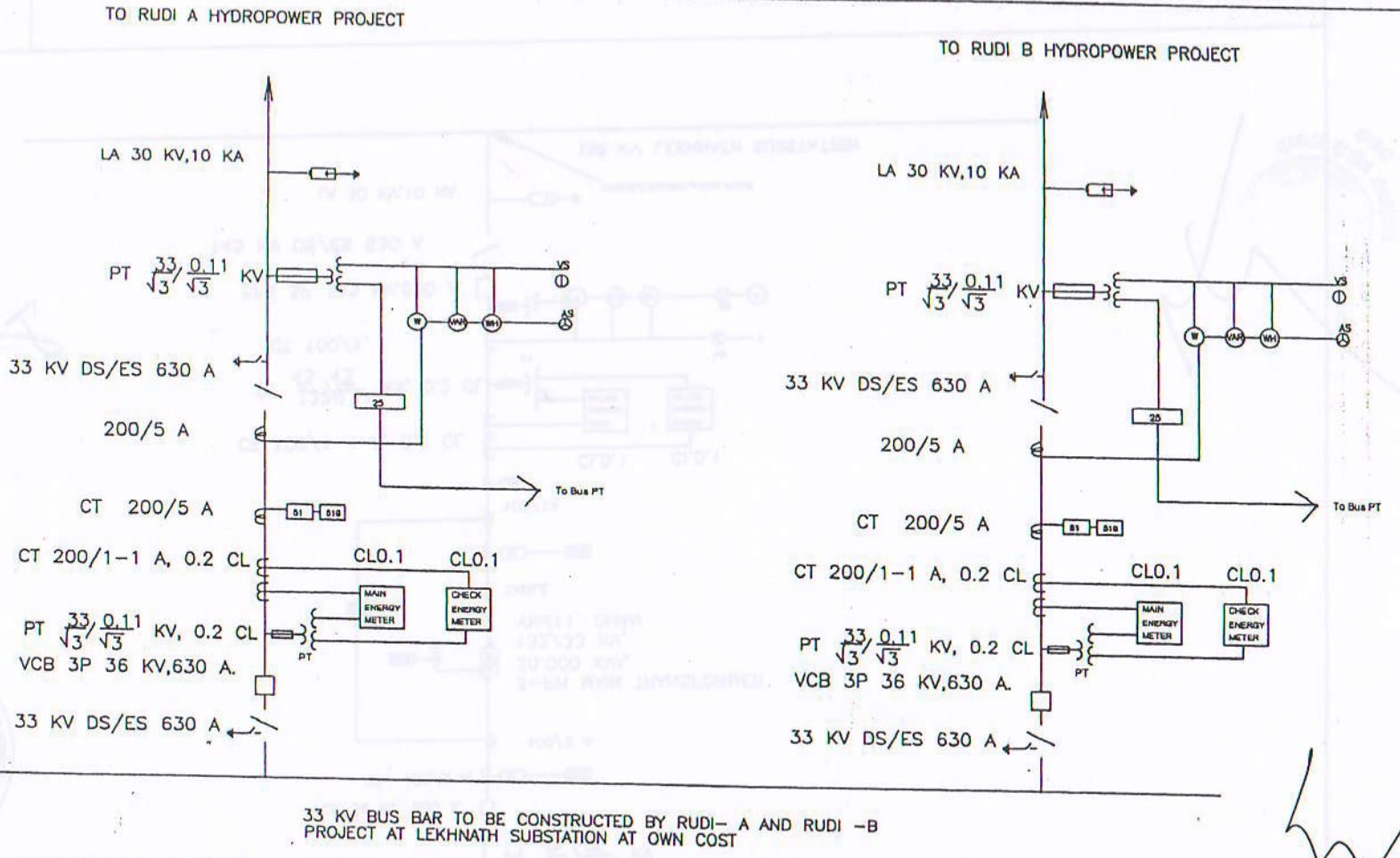
Schedule 2, Attachment



POWER HOUSE SINGLE LINE DIAGRAM

FIG SINGLE LINE DIAGRAM OF
RUDI -8 HPP SWITCHYARD

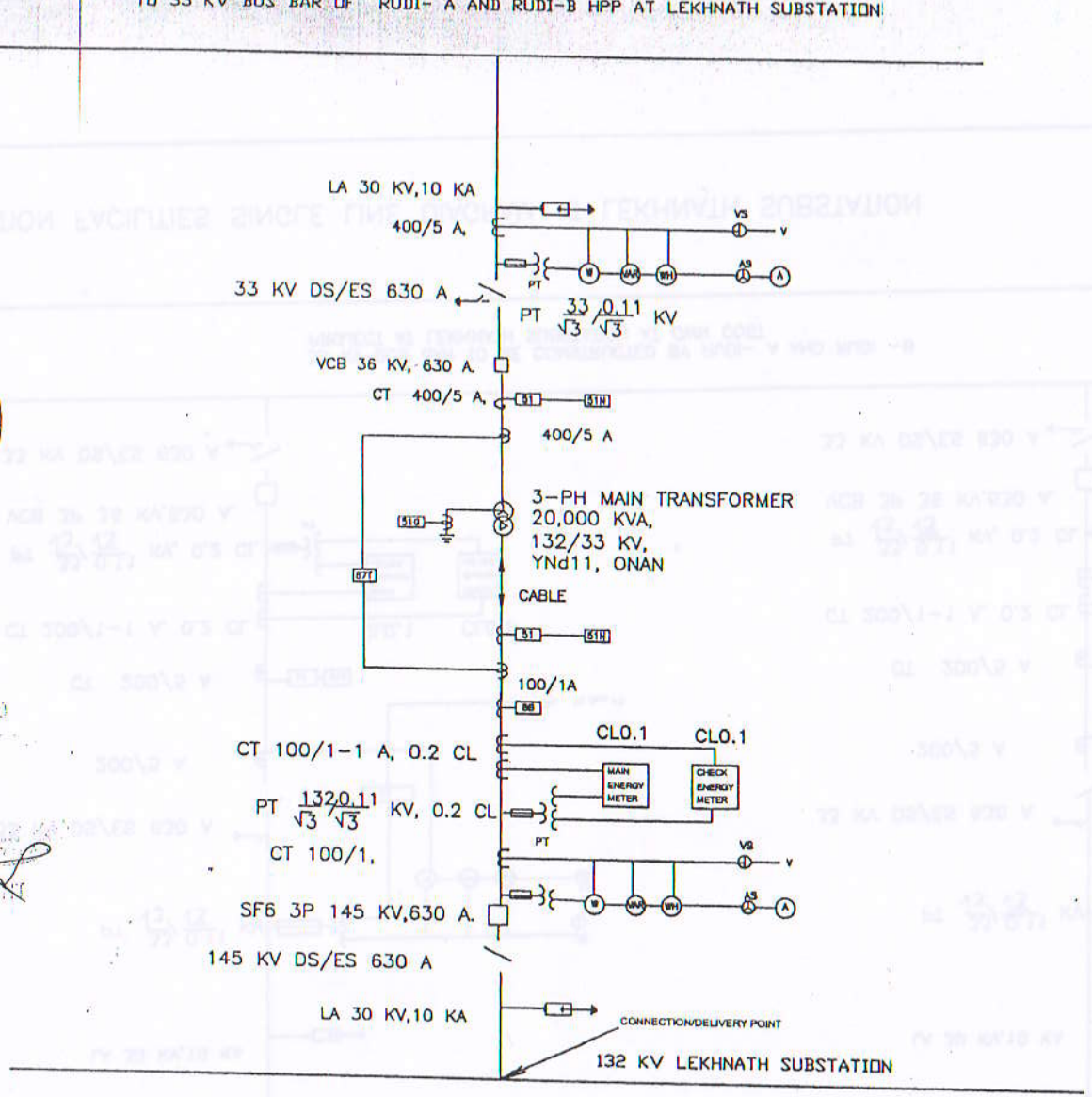
Exhibit-3a, Attachment



SURE

INTERCONNECTION FACILITIES SINGLE LINE DIAGRAM AT LEKHNATH SUBSTATION

Exhibit 36, Attachment



FIGURE

INTERCONNECTION FACILITIES SINGLE LINE DIAGRAM AT LEKHNATH SUBSTATION

struction Schedule

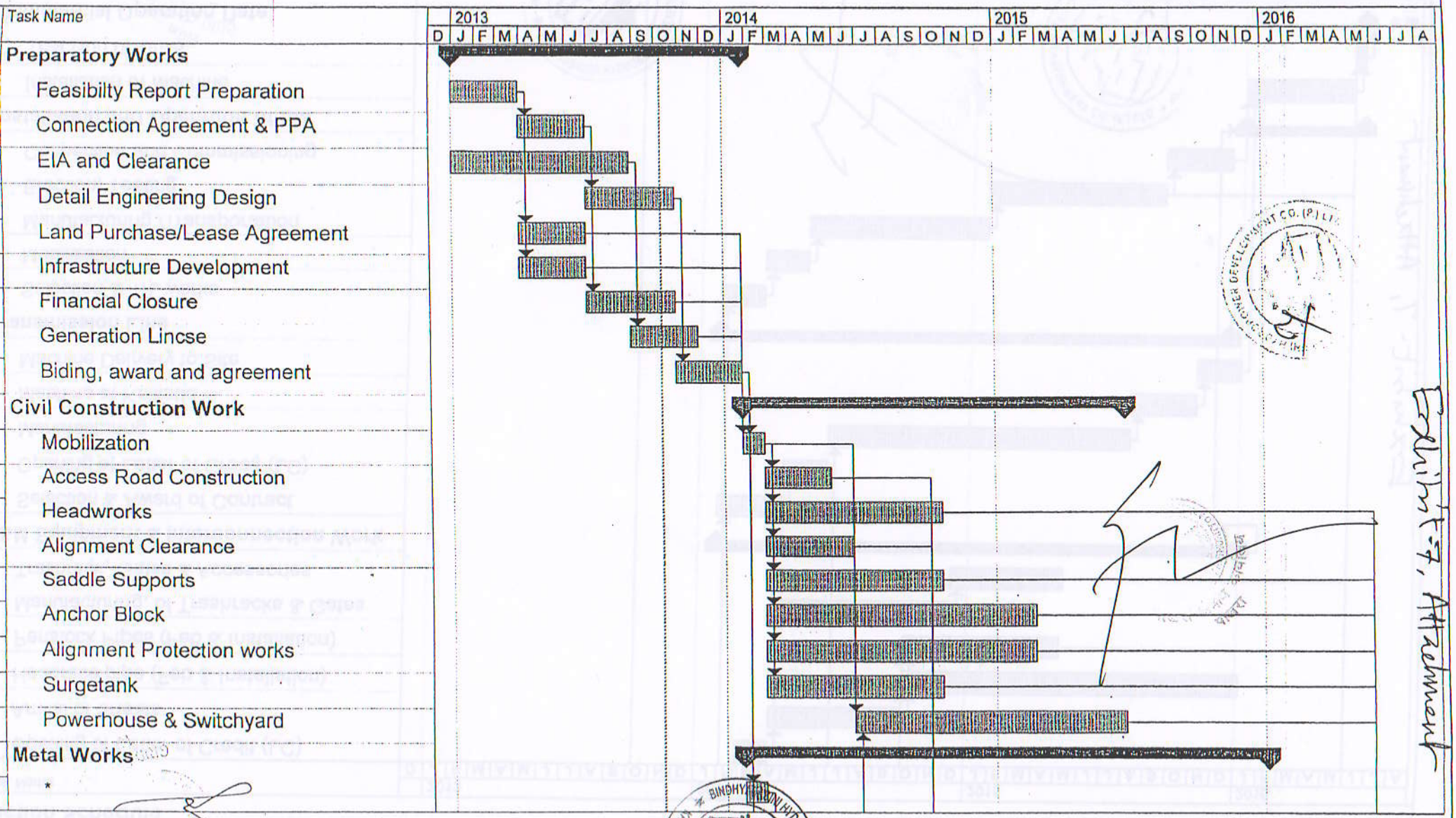


Exhibit-7, Attachment

uction Schedule

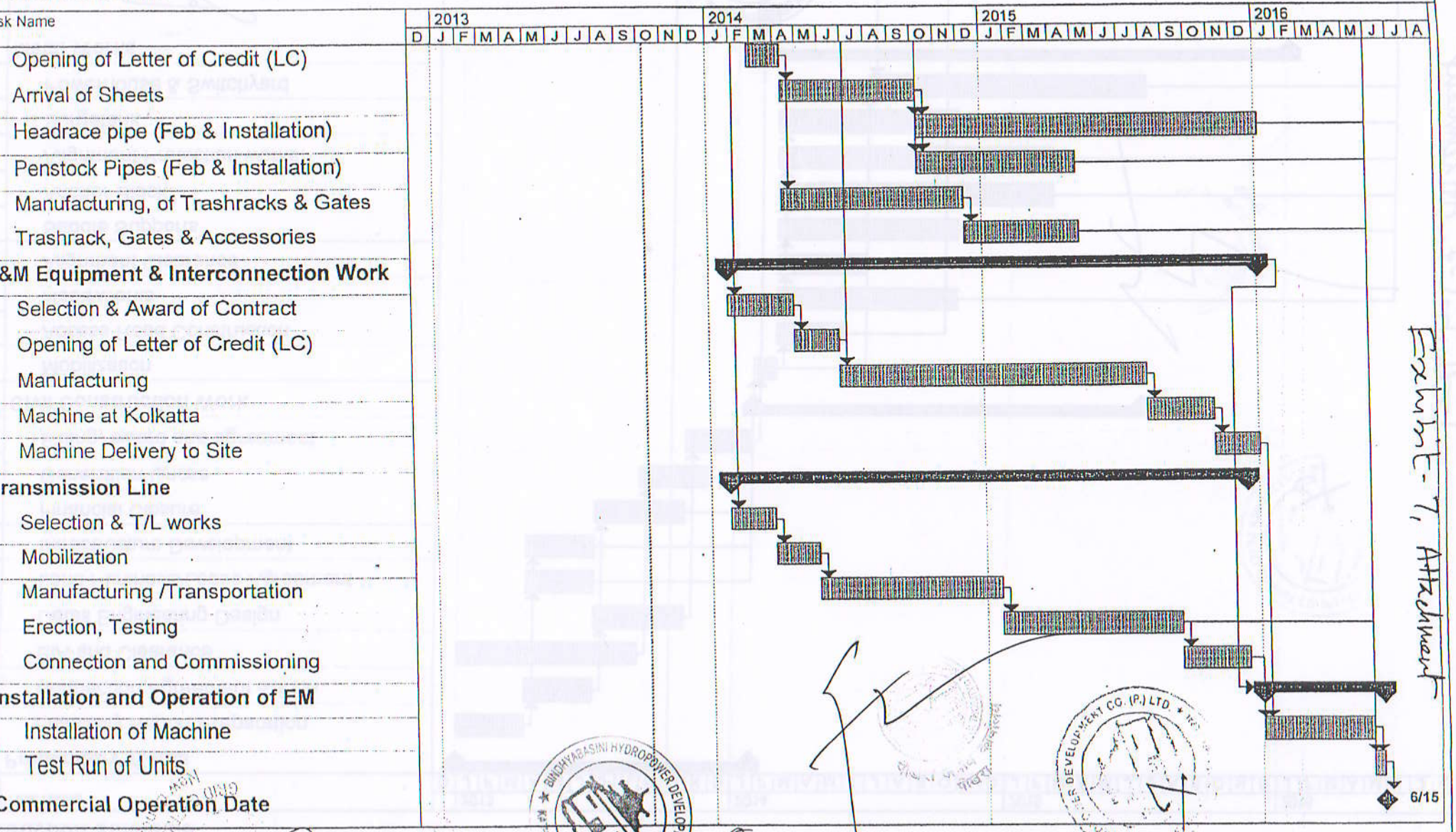


Exhibit-7, Attachment

BINDHYABASINI HYDROPOWER DEVELOPMENT CO. (P.) LTD.

ANNEX - 2
EQUIPMENT SPECIFICATIONS

(The Grid User shall herein provide specifications of major equipment in the User System and at the Connection. Such major equipment shall include, but not be limited to, turbine, governor, generator, excitation system, automatic generation control, automatic voltage regulator, black start capability, power system stabilizer, transformer, circuit breakers, switchgears, isolators, current and voltage transformers, communication, telemetry and control equipment, major relays, energy meters, etc. The specification shall incorporate manufacturer's standard ratings as well as technical limits of the equipment such as generator capability, turbine capitation zones, etc. in accordance with Article 5.4.6 of the NEA Grid Code)

Refer Annex-2, Attachment

BINDHYABASINI HYDROPOWER DEVELOPMENT CO.(P)LTD. KATHMANDU,NEPAL

ANNEX - 3
REGISTERED EQUIPMENT DATA

(Equipment data, including all Exhibits, used for planning shall be updated, confirmed and replaced with validated actual values of parameters and information about the major equipment at the time of Connection. These data shall be provided before energizing the Connection in accordance with Article 5.10 of the NEA Grid Code.)