

GHANA GRID COMPANY LIMITED

APPLICATION FOR CONNECTION TO THE NATIONAL INTERCONNECTED TRANSMISSION SYSTEM (NITS)

TRANSMISSION ASSET OWNER

This Application is from:



FOR OFFICIAL USE ONLY

- EC License
- EPA Permit
- Application Fee
- Company Data
- Sub-Station Data
- Transformer Data
- Grid Feasibility Study
- Land Documentation
- Signatories
- Personal Data

The Connection Applicant has duly submitted all required information/data.

Application Form completely filled.

Endorsed by:

Name: _____

Department/Section: _____

Position: _____

Signature: _____

Date: _____



APPLICATION FOR CONNECTION TO THE NATIONAL INTERCONNECTED TRANSMISSION SYSTEM (NITS)

FOR TRANSMISSION ASSETS

Provide one copy of this completed Application form for each Point of Interconnection (POI) to the National Interconnection Transmission System (NITS).

- The undersigned Connection Application Customer submits this Application to connect its Facility to the NITS. This Connection Application is for (select one):
 - A proposed new Transmission Line.
 - A proposed new Sub-Station.
 - A modification to a proposed new Sub-Station Facility.
 - An increase in the capacity of an existing Sub-Station Facility.

2. Submission Address

Submit a completed application form by email to marketoperations@gridcogh.com and mail to the following address:

The Chief Executive
 Ghana Grid Company Limited
 P.O. Box CS 7979
 Tema, Ghana
Attn: Director, System Operations
 Connection Application Form

3. Application Submitter

This Connection Application is submitted by:

Name of the Connection Applicant:	_____
Name of the Application Submitter:	_____
Designation/Title:	_____
Cell Phone Number::	_____
Other Phone Number::	_____
Email	_____
Signature/Date	_____

4. Documentation

Do you possess the following documentation/licenses?

- | | | |
|--|------------------------------|-----------------------------|
| Licence from Energy Commission | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Grid Interconnection Feasibility Studies | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Environmental Protection Agency Licence | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Land Documentation | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Evidence of Payment of Application Fee | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Please attach a copy each of these documents to the completed Application Form

5. Land Documentation

- | | | |
|--|------------------------------|-----------------------------|
| a. Land Documents/Land Title Certificate | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b. Land Indenture | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c. Site Plan | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

6. Name, address, telephone number, e-mail address of the Connection Applicant

a. Organization Name and Address

Organisation/Company Name: _____

Mailing Address: _____

Location: _____

City/Country _____

Note: Where a specific contact is not identified, all communications will be directed to the Main Executive Contact.

b. Primary Contact (Main Executive Contact)

Name	_____
Designation/Title	_____
Cell Phone Number::	_____
Other Phone Number::	_____
Email	_____
Signature/Date	_____

c. Technical Contact

Name	_____
Designation/Title	_____
Cell Phone Number::	_____
Other Phone Number::	_____
Email	_____
Signature/Date	_____

d. Financial/Commercial Contact

Name	_____
Designation/Title	_____
Cell Phone Number::	_____
Other Phone Number::	_____
Email	_____
Signature/Date	_____

e. Legal Contact

Name	_____
Designation/Title	_____
Cell Phone Number::	_____
Other Phone Number::	_____
Email	_____
Signature/Date	_____

7. The Connection Applicant shall provide the following information:

a. Address or location, including the region and district, of the proposed new Sub-Station/Switching Facility site or, in the case of an existing Sub-Station/Switching Facility, the name and specific location;

Project Name: _____

Project Location: _____

Region/District: _____

GPS/Geographical Coordinates: _____

b. Maximum net megawatt electrical output (as defined under 2(c) of Schedule A to this application) at the proposed project site or the amount of net megawatt increase in the Sub-Station/Switching capacity of an existing Sub-Station/Switching Facility;

Maximum net megawatt electrical output (MW): _____

OR

Net Megawatt increase (MW): _____

- c. Type of project and general description of the equipment configuration (include nameplate data, MW);

<u>Technology</u>	<u>Nameplate</u>
___ Out-door	___ (MW)
___ Indoor	___ (MW)
___ Gas Insulated Substation	___ (MW)
___ Other (please describe as an attachment)	

Attach general description of the equipment configuration (e.g. number, size, type, etc.)

- d. Provide the following dates by day, month, and year for Sub-Station/Switching Facility (dates must be sequential);

Proposed In-Service Date (first date transmission is needed to the facility) _____

Proposed Trial Operation Date: _____

Proposed Commercial Operation Date: _____

Proposed Term of Service (years): _____

- e. Approximate location of the proposed Point of Connection (i.e., specify transmission facility connection point name, voltage level, and the location of connection);

Point of Connection: _____

Voltage Level: _____

Location: _____

- f. Connection Facility data

The Connection Applicant shall provide to GRIDCo two (2) copies of the technical data required in Schedule B to this Connection Application.

The Connection Applicant hereby confirms its understanding and acceptance of the terms and conditions herein and by signing and submitting this application agrees to comply with the guidelines issued by GRIDCo for connection to the NITS. The Connection Applicant further certifies that all data/information provided in this application, schedules and attachments are true and accurate.

Signatory: _____

Name: _____

Designation: _____

Place: _____

Date: _____

Schedule A

1 Guidelines for Open Access to NITS to the Grid Participant

1. An application for connection to the NITS shall be made to GRIDCo in accordance with the requirements in this application form.
2. All information provided in this Application shall be treated as Confidential.
3. The application shall be addressed to:

The Chief Executive Officer
Ghana Grid Company Limited
P.O Box CS 7979
Tema
Attn: Director, System Operations
Connection Application Form

Tel: +233 303 302369
Fax: +233 303 303322
E-mail: marketoperations@gridcogh.com

4. A total of Fifty thousand United States Dollars (US\$50,000) Application Fee excluding bank charges, through a Bank draft payable to Ghana Grid Company Ltd is required for this Connection Process as follows:
 - a. Payment of a non-refundable fee of US\$30,000 excluding bank charges, through a Bank draft payable to Ghana Grid Company Ltd at submission of a duly completed Connection Application Form.
 - b. A non-refundable fee of US\$20,000 to be settled before signing of Connection Agreement.

Bank Details

Bank:	Societe Generale Ghana
Swift Code:	SSEBGHAC
IBAN No.:	GH2880000990107
USD Account No.:	60000332352-7
Account Name:	GHANA GRID COMPANY LIMITED
Account branch:	Ring Road Central, Head Office

5. **The application form should be duly filled out. An incomplete application shall NOT be processed [Refer to Schedule C (2)].**

SCHEDULE B

SUB-STATION/SWITCHING FACILITY DATA

In accordance with Article 8.08 (e) of the National Electricity Grid Code, 2009 provide one set of original prints (no larger than 11" x 17" or A3 size) and electronic soft copy on cd/flash drive or by e-mail of the following:

1. Site Information

- A. Site drawing to scale, showing Sub-Station/Switching Facility location and Point of Connection with NITS.
- B. Single-line diagram showing applicable equipment such as main transformers, auxiliary transformers, switches/disconnects of the proposed connection, including the required protection devices and circuit breakers. The one line diagram should include the distribution lines connecting capacitor banks, the step up transformers, the distribution lines, and the substation transformers and capacitor banks at the Point of Connection with the NITS.

2. Sub-Station/Switching Facility Information

- A. Total Facility rated output (MW): _____
- B. Sub-Station/Switching Facility auxiliary Load (MW): _____
- C. Project net capacity at the project site (Item 2A-2B) (MW): _____
- D. Maximum Injection at the Point of Connection (MW): _____
- E. Transformer Manufacturer: _____
- F. Year of Manufacture: _____
- G. Nominal Terminal Voltage (kV): _____
- H. Rated Power Factor (%): _____
- I. Type: _____
- J. Phase (three phase or single phase): _____
- K. Transformer Efficiency (%): _____
- L. Transformer Tap-Changer Range: _____

3. Transformer Data

For each transformer, fill out the data form provided in Table 1.

4. Connection Applicant's Facilities Line Data

Note: There is no need to provide data for new lines that are to be planned by GRIDCo

For transmission lines proposed by the substation developer (Connection Applicant), please provide the following information:

Nominal Voltage: _____ kV
Line Length: _____ Km
Line termination Points: _____
Conductor Type: _____ Size: _____
If bundled. Number per phase: _____, Bundle spacing: _____ cm.
Phase Configuration. Vertical: _____, Horizontal: _____
Phase Spacing: A-B: _____ m., B-C: _____ m., C-A: _____ m.
Distance of lowest conductor to Ground at full load and 40 C: _____ m
Ground Wire Type: _____ Size: _____ Distance to Ground: _____ m
Attach Tower Configuration Diagram
Highest Temperature line ratings in amperes (normal and emergency) _____
Positive Sequence Resistance (R): _____ p.u.** (for entire line length)
Positive Sequence Reactance: (X): _____ p.u.** (for entire line length)
Zero Sequence Resistance (R0): _____ p.u.** (for entire line length)
Zero Sequence Reactance: (X0): _____ p.u.** (for entire line length)
Line Charging (B/2): _____ p.u.**
** On 100-MVA and nominal line voltage (kV) Base

5. Load Flow and Dynamic Models:

Provide load flow model for the Substation and its Connection Facilities in Siemens PSS/E or DlgSILENT Powerfactory or any other format as requested by GRIDCo, including new buses, transformers and Connection Facilities. An equivalent model is required for the Facility. This data should reflect the technical data provided in this Schedule B.

Provide a complete dynamic file that contains the information specified in this section. One copy of this data should be provided on DVD, CD, or USB flash drive media.

Accurate models are important to obtain accurate study results. Generic Library Models are not accepted for GIS and FAS. Costs associated with any changes in facility requirements that are due to differences between model data provided by the developer and the actual facility test data, shall be the responsibility of the developer (Connection Applicant).

TABLE 1

TRANSFORMER DATA
 (Provide for each level of transformation)

UNIT _____

NUMBER OF TRANSFORMERS _____ PHASE _____

RATING	H Winding	X Winding	Y Winding
Rated MVA	_____	_____	_____
Connection (Delta, Wye, Gnd.)	_____	_____	_____
Cooling Type (OA,OA/FA, etc) :	_____	_____	_____
Temperature Rise Rating	_____	_____	_____
Rated Voltage	_____	_____	_____
BIL	_____	_____	_____
Available Taps (% of rating)	_____	_____	_____
Load Tap Changer? (Y or N)	_____	_____	_____
Tap Settings	_____	_____	_____
IMPEDANCE	H-X	H-Y	X-Y
Percent	_____	_____	_____
MVA Base	_____	_____	_____
Tested Taps	_____	_____	_____
WINDING RESISTANCE	H	X	Y
Ohms	_____	_____	_____

CURRENT TRANSFORMER RATIOS

H _____ X _____ Y _____ N _____

Percent exciting current at 100 % Voltage; _____ 110% Voltage _____

Supply copy of nameplate and manufacture's test report when available

Schedule C

Terms and Conditions

1. The Applicant shall abide by the Electricity Transmission (Technical, Operational and Standards of Performance) Rules, 2008 (LI 1934), the Electricity Regulations, 2008 (LI 1937), and the National Electricity Grid Code, 2009.
2. A complete application shall include:
 - a. The duly filled Connection Application Form (CAF)
 - b. All Documentation in Sections 4 and 5 of this CAF
 - c. All Applicable Data Required under Schedule B of this CAF
 - d. Payment of Application Fees in accordance with Schedule A, Section 4 of this CAF
3. GRIDCo shall perform Grid Studies as defined in Schedule C, Section 17, to evaluate the impact of the proposed development on the NITS.
4. The parties shall execute a Connection MOU after completion and acceptance of GIFAS Results.
5. Failure to satisfy any financial obligation relating to this Application including deposits, fees, etc., within 60 Days after the due date shall be grounds for withdrawal of this Application.
6. The parties shall negotiate and execute a Connection Agreement after payment of the Pre-Connection Agreement Fee.
7. Connection Agreement shall however only come into force on the Commercial Operation Date.
8. The Applicant shall make an advanced payment towards the cost of any system upgrades identified in the GIFAS, including Delivery Network Upgrades (DNU) and Reliability Network Upgrades (RNU) as indicated in Schedule C, Section 16 of this CAF. The cost of the DNU is refundable after three (3) years of commercial operation of the Sub-Station/Switching Facility at a rate proportionate to energy generated by the Applicant into the NITS.
9. GRIDCo shall commence work on the DNU after payment of approximate cost (as indicated under section 19(f)) for DNU and RNU (if Applicants requires GRIDCo to undertake construction of RNU). The Applicant may request GRIDCo to develop and construct the Sub-Station/Switching Facility's RNU for which GRIDCo shall indicate their consent and their terms and conditions within twenty (20) business days from receipt of request.

10. The Applicant shall submit Land Documentation to GRIDCo and may proceed with construction in coordination with GRIDCo. The Applicant shall submit a valid Land Title Certificate to GRIDCo as soon as possible and in any event not later than the Commercial Operation Date.
11. The Applicant may indicate whether it wishes GRIDCo to undertake any additional technical studies and shall bear the cost of such studies.
12. The cost of any revisions and addendums to the final reports resulting from Applicant modifications shall be paid by the Applicant. Other revisions and addendums due to changes in NITS conditions shall be the responsibility of GRIDCo.
13. The Applicant shall execute the Connection Agreement and ensure that all required licenses and certificates issued by the Energy Commission (EC), regulatory agencies and GRIDCo are obtained prior to the proposed Project In-service Date.
14. The Applicant shall comply with rules governing the testing of equipment as an integral part of a Compliance Study as well as actual user defined model validation as a requirement to obtaining a construction permit from the Energy Commission (EC) in accordance with Article 8.47 – 8.52 and 8.53 – 8.54 of the National Electricity Grid Code.
15. Testing should be performed in the presence of GRIDCo representatives at a certified testing facility acceptable to GRIDCo.
16. Sixty (60) calendar days prior to the Sub-Station/Switching Facility connection to the NITS, GRIDCo will conduct Commercial Operation Date Assessment (CODA).
17. Definitions and Explanations
 - a) Comparability

GRIDCo shall receive, process, and analyze Sub-Station/Switching Connection Applications in a timely manner. GRIDCo will use same reasonable efforts in processing and analyzing Connection Applications from all Connection Applicants.
 - b) No Applicability to Transmission Service.

Nothing in this CAF for connection to the NITS shall constitute a request for transmission service or confer upon a Connection Applicant any right to receive transmission service.
 - c) The Product.

Connection Service allows the Connection Applicant to connect the Sub-Station/Switching Facility to the NITS and be eligible to deliver the Facility's output using the available capacity of the NITS. Connection Service does not

in and of itself convey any right to deliver electricity to any specific customer or point of delivery or rights to any specific MW of available capacity on the NITS.

d) Grid Studies.

For this Connection Application, the Grid Studies shall include, Grid Impact and Facilities Assessment Study (GIFAS), Compliance Study (“CS”) and Commercial Operation Date Assessment (“CODA”).

e) Grid Impact and Facilities Assessment Study

This study requires actual equipment data to be submitted by the Applicant (if actual data is not available GRIDCo will use generic data). The report of this study will be in two parts, consisting a Grid Impact Study (GIS) Report and Facility Assessment Study Report.

f) Commercial Operation Date Assessment

GRIDCo will conduct Commercial Operation Date Assessment (CODA) to account for later conditions since GRIDCo performed the GIS and Facilities Assessment Study in the prior Connection Application.

18. Grid Feasibility Studies

The feasibility study of the Connection Applicant (CA) should contain the following:

- a) Line loadings of the transmission line(s) they intend to connect to
- b) The Short Circuit level (MW/kA) at the CA’s Point of Connection
- c) If the connection requires a new line in order to connect to existing substation, the Connection Applicant must provide the specifications of the conductor.

19. Obligation for Study Costs

GRIDCo shall charge and the Connection Applicant(s) shall pay the actual costs of the Grid Studies. The cost of Grid Studies performed will be charged solely to the Connection Applicant that submitted the Connection Application.

20. Proposed Commercial Operation Date.

Commencement of construction of the Sub-Station/Switching Facility shall not exceed two (2) years after acceptance of results of Grid Studies. The proposed Commercial Operation Date of the new Sub-Station/Switching Facility or increase in capacity of the existing Sub-Station/Switching Facility shall not exceed five years from the date of acceptance of results of GIFAS Study.

Where the Connection Applicant demonstrates, and GRIDCo agrees, such agreement not to be unreasonably withheld, that engineering, permitting and construction of the new Facility or increase in capacity of the existing Facility will take longer than the five year period, this may be extended for an additional period as determined by GRIDCo.

GRIDCo's agreement to an extension of the proposed Commercial Operation Date does not relieve the Connection Applicant from compliance with the requirements of any of the criteria set forth in this CAF and applicable Codes.

The Applicant shall bear the cost of a new studies pertaining to the proposed extension period and comply with the recommendations of the new studies.

21. Withdrawal

The Connection Applicant may withdraw its Connection Application at any time by written notice of such withdrawal to GRIDCo. In addition, after confirmation by GRIDCo of a complete Connection Application, if the Connection Applicant fails to adhere to all requirements of this CAF and applicable Codes, GRIDCo shall deem the Connection Application to be withdrawn and shall provide written notice to the Connection Applicant within ten (10) business days of the deemed withdrawal and an explanation of the reasons for such deemed withdrawal. Upon receipt of such written notice, the Connection Applicant shall have ten (10) business days in which to respond with information or action that either cures the deficiency or supports its position that the deemed withdrawal was erroneous and notifies GRIDCo of its intent to pursue Dispute Resolution.

Withdrawal shall result in the termination of the Connection Application and grid study process. If a Connection Applicant disputes the withdrawal and has elected to pursue Dispute Resolution, the Connection Applicant's Connection Application will not be considered in any ongoing Connection Study during the Dispute Resolution process.

22. Results Meeting

Within twenty (20) business days of issuing the GIFAS report to the Connection Applicant, GRIDCo and the Connection Applicant shall hold a Results Meeting to discuss the results of the GIFAS, including assigned cost responsibility. GRIDCo shall prepare the minutes from the meetings, and provide the Connection Applicant and the other attendees an opportunity to confirm the accuracy thereof.

Connection Applicant may provide written comments, if any, on the GIFAS report no later than three (3) business days before the Results Meeting is conducted to discuss the report. GRIDCo will address the written comments in the GIFAS Results Meeting. Should the Connection Applicant provide comments at any later time (up to the time of the Results Meeting), then such comments shall be considered informal inquiries to which GRIDCo will provide informal, informational responses at the Results Meeting, to the extent possible.

The Connection Applicant may submit, in writing, additional comments on the final GIFAS report up to five (5) business days following the Results Meeting. Based on any discussion at the Results Meeting and any comments received, GRIDCo in consultation with any applicable party(s) will determine whether it is necessary to follow the GIFAS report with a revised study report or an addendum. GRIDCo will issue any such revised report or addendum to the Connection Applicant no later than twenty (20) business days following the Results Meeting.

23. Commercial Operation Date.

At the Results Meeting, the Connection Applicant shall provide a schedule outlining key milestones including expected procurement date of project equipment, power supply requirements for project construction, and expected project construction date. This will assist the parties in determining if Commercial Operation Dates are reasonable. If permitting and equipment procurement lead times may result in the need to alter the proposed Commercial Operation Date, the parties may agree to a new Commercial Operation Date. In addition, where a Connection Applicant intends to establish Commercial Operation separately for different project phases at its Facility, it may only do so in accordance with an implementation plan agreed to in advance by GRIDCo, which agreement shall not be unreasonably withheld.

Confirmation of Acceptance of Terms and Conditions

Signatory

Name

Designation

Place

Date
