

ELECTRICITY REGULATIONS, 2008

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SCHEDULE

ELECTRICITY REGULATIONS, 2008

In exercise of the powers conferred on the Minister for Energy by section 56 (1) (a) (i) to (vi) and (c) of the Energy Commission Act, 1997 (Act 541), these Regulations are made this 5th day of June, 2008.

Purpose and application

Purpose

1. The purpose of these Regulations is to provide for
 - (a) the planning, expansion, safety criteria, reliability and cost effectiveness of the national interconnected transmission system;
 - (b) the regulation of a wholesale electricity market;
 - (c) the market operations of the electricity transmission utility;
 - (d) the technical operations of the electricity transmission utility;
 - (e) minimum standards and procedures for the construction and maintenance of facilities and installations;
 - (f) the protection of the mains and electrical installations and services;
 - (g) the protection of life and property and the general safety of the public in respect of electricity services;
 - (h) minimum reserve margins to satisfy demand; and
 - (i) the development and implementation of programmes for the conservation of electricity.

Application

2. (1) These Regulations shall apply to
 - (a) the Electricity Transmission Utility in respect of the provision of fair, transparent and non-discriminatory transmission services in the wholesale electricity market; and
 - (b) the following market participants-
 - i) wholesale electricity suppliers licensed by the Commission under section 25 of the Act;
 - ii) electricity distribution utilities licensed under section 26 of the Act; and,
 - iii) bulk customers of electricity duly authorised by the Commission.
- (2) The Utility shall not act as or be considered as a market participant.

National Electricity Grid Code

Provisions of the National Electricity Grid Code

3. (1) The Commission shall prepare the National Electricity Grid Code which shall
- (a) govern the technical operations of the Utility, and
 - (b) guide the operations of the national interconnected transmission system.
- (2) The Grid Code shall provide for matters specified in paragraphs (a) and (d) to (h) of regulation 1.

Wholesale Electricity Market

Establishment of wholesale electricity market

4. (1) There is established by these regulations a wholesale electricity market to facilitate wholesale electricity trading and the provision of ancillary services in the national interconnected transmission system.
- (2) The operator of the wholesale electricity market shall ensure the procurement and dispatch of electricity from any facility of a wholesale supplier to a bulk customer and distribution company in a fair, transparent and non-discriminatory manner.

Market structure

5. (1) The wholesale electricity market consist of
- (a) a spot market; and
 - (b) bilateral contracts.
- (2) Electricity generated from the Akosombo and Kpong hydro electric dams shall not be the subject for a bilateral contract.
- (3) Copies of the bilateral contracts shall be lodged by the respective market participants with the Utility, the Commission and the Public Utilities Regulatory Commission.

Electricity market rules

6. (1) The wholesale electricity market shall be governed by electricity market rules.
- (2) The Utility shall within six months of the commencement of these Regulations prepare electricity market rules to govern the following:
- (a) wholesale market procedures, including invoicing, payments, adjustment of payments with interest for late or over payments, and monetary penalties;
 - (b) the market manual; and

(c) procedures for settling complaints and disputes among market participants.

(3) The procedures and manuals under subregulation (1) shall be subject to the approval of the Commission.

(4) For the purpose of this regulation “over payment” means any payment made that exceeds the actual amount owing.

Pricing

7. (1) Transmission charges in the wholesale electricity market shall be uniform throughout the country.

(2) The spot market price for electricity shall be based on the system marginal cost of supply and merit-order dispatch.

Registration

8. (1) A person shall not participate in trading in the wholesale electricity market unless that person has

(a) an operating licence or permit issued by the Commission,

(b) registered with the Utility, and

(c) entered into a contractual arrangement with the Utility.

(2) The contractual arrangement with the Utility, the market rules, the National Electricity Grid Code and these Regulations shall define the rights and obligations of a market participant in the wholesale electricity market.

(3) The Utility shall maintain a register of market participants.

Compliance with electricity market rules

9. A market participant shall comply with the electricity market rules.

Functions and responsibilities of the Utility

General functions

10. The Utility shall operate and administer a wholesale electricity market and perform the functions assigned to it under

(a) the Act,

(b) these Regulations,

(c) the electricity market rules, and

(d) the National Electricity Grid Code.

Planning, expansion and safety criteria

11. (1) The Utility shall plan, and operate the national interconnected transmission system in a safe, reliable and transparent manner and in accordance with the provisions of the National Electricity Grid Code.

(2) The Utility shall coordinate with asset owners for the timely and consistent expansion of the transmission system infrastructure to ensure adequate and reliable operations of the national interconnected transmission system.

Operation and maintenance

12. (1) The Utility shall operate the facilities and installations constituting the national interconnected transmission system.

(2) The Utility shall coordinate with the asset owners for the timely and consistent maintenance of facilities and installations constituting the national interconnected transmission system.

Safety and protection of national interconnected transmission system

13. (1) The Utility shall take the necessary action to protect each facility and installation that constitutes the national interconnected transmission system.

(2) Despite subregulation (1), a person shall not tamper or interfere with any facility or installation that constitutes the national interconnected transmission system.

(3) A person shall not encroach on a right of way lawfully acquired or assigned for the purpose of the construction, installation and smooth operation of the national interconnected transmission system.

Utility's compliance with National Electricity Grid Code

14. In the performance of its functions, the Utility shall comply with the National Electricity Grid Code established by the Commission.

Electricity market administration functions

15. The functions of the Utility in respect of market administration shall include

- (a) the development of electricity market rules for approval by the Commission to govern the wholesale electricity market;
- (b) the provision of guidelines for scheduling the dispatch of electricity;
- (c) the dispatch of electricity generators;
- (d) monitoring electricity generators;
- (e) monitoring pricing; and
- (f) the facilitation of the settlement of accounts of market participants in respect of electricity market transactions.

Electricity Market Oversight Panel

Establishment of Electricity Market Oversight Panel

16. (1) The Commission shall establish an Electricity Market Oversight Panel to supervise the administration and operation of the wholesale electricity market.

(2) The Electricity Market Oversight Panel shall carry out its functions and operations independently of the Utility.

(3) The Electricity Market Oversight Panel shall advise the Commission regarding the operation and administration of the wholesale electricity market.

Composition of the Electricity Market Oversight Panel

17. (1) The Electricity Market Oversight Panel consists of:
- (a) a chairperson,
 - (b) the Executive Secretary of the Commission,
 - (c) the Executive Secretary of the Public Utilities Regulatory Commission,
 - (d) the Chief Executive Officer of the Utility,
 - (e) the head of Systems Operations and Control of the Utility,
 - (f) one representative nominated by each of the following
 - i) the distribution licensees, and
 - ii) the bulk customers,
 - (g) two representatives nominated by the wholesale suppliers,
 - (h) one person responsible for the administration of the Electricity Market Oversight Panel, and
 - (i) one other person with knowledge and experience in matters relevant to the wholesale electricity market.

(2) The members of the Electricity Market Oversight Panel shall be appointed by the Minister.

Functions of the Electricity Market Oversight Panel

18. (1) The functions of the Electricity Market Oversight Panel are
- (a) to monitor the general performance of the market administration functions of the Utility,
 - (b) to ensure the smooth operation of the wholesale electricity market,
 - (c) to review the operation of the wholesale electricity market and studies related to the development of the market,
 - (d) to review procedures, manuals and electricity market rules for the operation of the wholesale electricity market,
 - (e) to monitor pre-dispatch schedules,
 - (f) to resolve disputes referred to it by market participants in respect of transactions in the wholesale electricity market,
 - (g) to ensure the effective and consistent application by the Utility of the rules and standards of the wholesale electricity market,
 - (h) to ensure the long-term optimization of hydro-electricity supply sources in the country,
 - (i) make appropriate recommendations to the Commission in respect of the Panel's functions, and
 - (j) to perform any other function conferred on it by the Commission.

(2) The Electricity Market Oversight Panel shall submit quarterly reports of its activities to the Commission and the Public Utilities Regulatory Commission on its assessment of the Utility's governance and the administration of the electricity market rules.

Tenure of office of the Electricity Market Oversight Panel

19. (1) A member of the Electricity Market Oversight Panel shall hold office for a period not exceeding three years and is eligible for reappointment but a member other than an ex-officio member, shall not be appointed for more than two terms.

(2) A member of the Electricity Market Oversight Panel who is absent from four consecutive meetings of the Electricity Market Oversight Panel without sufficient cause ceases to be a member of the Electricity Market Oversight Panel.

(3) A member of the Electricity Market Oversight Panel may at any time resign from office in writing addressed to the Minister through the chairperson.

(4) The Minister may by letter addressed to a member revoke the appointment of that member.

(5) Where a member of the Electricity Market Oversight Panel is, for a sufficient reason, unable to act as a member, the Minister shall determine whether the inability would result in the declaration of a vacancy.

(6) Where there is a vacancy under sub regulations (2), (3) and (4) or by reason of the death of a member, the chairperson of the Electricity Market Oversight Panel shall notify the Minister through the Commission of the vacancy within two months of the occurrence of the vacancy and the Minister shall appoint a person to fill the vacancy.

Meetings of Electricity Market Oversight Panel

20. (1) Except as otherwise provided in this regulation, the Electricity Market Oversight Panel shall regulate the procedure for its meetings.

(2) The Electricity Market Oversight Panel shall meet at least once every month for the dispatch of business at the times and in the places determined by the chairperson.

(3) The chairperson shall at the request of not less than one third of the membership of the Electricity Market Oversight Panel convene an extraordinary meeting of the Electricity Market Oversight Panel at the place and time determined by the chairperson.

(4) The quorum at a meeting of the Electricity Market Oversight Panel is six members of the Electricity Market Oversight Panel or a greater number determined by the Panel in respect of an important matter.

(5) The chairperson shall preside at meetings of the Electricity Market Oversight Panel and in the absence of the chairperson a member of the Electricity Market Oversight Panel elected by the members present from among their number shall preside.

(6) Matters before the Electricity Market Oversight Panel for determination shall be decided by a majority of members present and voting and in the event of an equality of votes, the person presiding shall have a casting vote.

(7) The Electricity Market Oversight Panel may co-opt a person to attend its meeting but a co-opted person is not entitled to vote at the meeting.

(8) The proceedings of the Electricity Market Oversight Panel shall not be invalidated by reason of a vacancy among the members or a defect in the appointment or qualification of a member.

Expenses of Electricity Market Oversight Panel

21. (1) The Utility shall recover the cost of any oversight activity for each fiscal year through the levy of fees on each market participant.

(2) The fees levied by the Utility in respect of the cost of an oversight activity shall be calculated based on a formula approved by the Commission.

(3) The Utility shall publish in the Gazette the approved formula and schedule of fees chargeable for the oversight activities of the Electricity Market Oversight Panel.

(4) The monies accruing from fees shall be lodged in a separate account opened by the Board of the Commission and with the approval of the Controller and Accountant General.

(5) The monies accruing from fees shall be applied exclusively for the purposes of the Electricity Market Oversight Panel.

(6) The annual programmes and budget of the Electricity Market Oversight Panel shall be approved by the Commission.

Disclosure of interest

22. (1) A member of the Electricity Market Oversight Panel who has an interest in a matter for consideration by the Electricity Market Oversight Panel shall disclose in writing the nature of that interest and unless the meeting otherwise directs, is disqualified from participating in the deliberations on and voting on that matter.

(2) A member who contravenes subregulation (1) ceases to be a member.

Appointment of committees of Electricity Market Oversight Panel

23. The Electricity Market Oversight Panel may appoint committees consisting of members of the Electricity Market Oversight Panel or non-members or both to perform a function.

Allowances to members

24. The chairperson and members of the Electricity Market Oversight Panel shall be paid the allowances approved by the Minister in consultation with the Minister responsible for Finance on the recommendation of the Commission.

Dispatch process

Pre-dispatch scheduling

25. (1) The Utility shall define the pre-dispatch schedule and furnish each market participant with advance information necessary to plan the physical operation of the respective registered facility and to manage load.

(2) The Utility shall prior to each day, issue a dispatch schedule which shall be followed until it is reviewed or updated.

Real-time dispatch

26. (1) The Utility shall ensure that real-time dispatch corresponds with the respective pre-dispatch schedules.

(2) The Utility shall publish information in respect of each dispatch period, including the following:

- (a) total load;
- (b) total transmission losses;
- (c) total reserve requirements by reserve class;
- (d) total regulation requirements and regulation prices;
- (e) energy prices associated with each network node; and
- (f) security constraints and generation fixing constraints applied.

(3) The Utility shall issue the information published in sub- regulation (2) to every market participant, the Commission and the Public Utilities Regulatory Commission.

Compliance with dispatch instructions

27. A market participant shall comply with the dispatch instructions issued by the Utility.

Wholesale electricity market settlement

Requirement for billing in wholesale electricity market

28. (1) The Utility shall determine billing and payments arising from any transaction in the wholesale electricity market, in accordance with the provisions of these Regulations and other applicable laws.

(2) The Utility shall, in determining billing and payments, take into consideration the following:

- (a) capacity and energy;
- (b) bilateral contracts administered by the Utility;
- (c) ancillary services; and
- (d) Electricity Market Oversight Panel administrative expenses

(3) The Utility shall in accordance with the metering code determine and issue settlement invoices to each market participant relating to a transaction in the wholesale electricity market.

(4) For the purpose of this regulation, “metering code” means the code of practice that sets forth requirements relating to meters and metering in the wholesale electricity market and which is provided as part of the National Electricity Grid Code.

Settlement of account

29. (1) The Utility shall

- (a) establish procedures for the electricity market in respect of the settlement of accounts of each market participant; and
 - (b) open a settlement account in respect of each market participant.
- (2) A market participant and the Utility shall fulfil their respective financial obligations towards each other in accordance with their contractual agreement.

Balancing

30. The Utility shall undertake the balancing in respect of an invoiced transaction of a market participant at least once a month.

Audit of settlements

- 31. (1) The Utility shall institute the necessary control measures to ensure the effectiveness of a settlement process.
- (2) The settlement process of the Utility shall be subject to an annual audit by an external auditor.

Monitoring, compliance and enforcement

Market monitoring

- 32. (1) The Utility shall monitor and investigate the conduct of each market participant and the structure and performance of the wholesale electricity market including the conduct and activities that provide an indication of any of the following:
 - (a) a breach of the electricity market rules,
 - (b) non-compliance with the market manual or the system operation manual;
 - (c) the inefficient application of the market rules; and
 - (d) an observed design flaw in the structure of the wholesale electricity market.
- (2) The Utility shall evaluate market behaviour in the wholesale electricity market in a manner necessary for the fulfilment of the objectives under subregulation (1).

Investigations

- 33. (1) The Utility may initiate an investigation into any activity in the wholesale electricity market or the conduct of a market participant where
 - (a) an issue is referred to the Utility by way of a complaint, and
 - (b) the Utility determines that certain conduct or activity of a market participant warrants investigation
- (2) The Utility shall formally record findings of fact in respect of an investigation.

Enforcement

34. (1) The Utility shall enforce compliance with the market rules, market manual and the system operation manual.

(2) The Utility may impose a penalty, issue a compliance order, directive, suspension order, revocation order or any other order to ensure compliance with the market rules, market manual and system operation manual.

Reporting

35. The Utility shall provide information to the Electricity Market Oversight Panel, Public Utilities Regulatory Commission and the Commission on the performance of the wholesale electricity market.

Complaints and resolution of disputes

36. (1) The procedure for filing complaints and the resolution of disputes between the Utility and market participants shall be specified in the electricity market rules.

(2) Subject to these Regulations, a dispute that arises under the electricity market rules shall be settled at the first instance by negotiation between the parties.

(3) Where the dispute cannot be resolved by negotiation, the parties shall refer the matter to the Electricity Market Oversight Panel for mediation.

(4) Where the mediation fails, the matter shall be referred to the Commission which shall set up an arbitration panel under the Arbitration Act, 1961 (Act 38) and settle the dispute.

Energy Conservation

Energy conservation programmes

37. (1) The Commission shall, in consultation with the Minister, develop energy efficiency and conservation programmes and annual targets, which shall be implemented by all market participants and the Utility.

(2) An energy conservation programme may include

- (a) the conduct of an energy conservation audit;
- (b) the installation of power factor correction equipment;
- (c) retrofitting of inefficient lamp systems;
- (d) rebate schemes for energy efficient appliances; and
- (e) any other energy efficiency measure required to reduce energy losses.

Funding of energy conservation programmes

38. (1) The sources of money for the energy conservation programmes are:

- (a) the power factor surcharge imposed under rule 10(3) of the Electricity Supply and Distribution (Technical and Operational) Rules, 2005 (LI 1816), and
- (b) monies approved by Parliament for the purpose.

(2) The monies provided under subregulation (1) shall be applied exclusively for energy conservation programmes.

Miscellaneous

Offences and penalties

39. (1) Where a market participant or the Utility contravenes any obligation imposed under these Regulations, the Commission may impose a penalty on the market participant or the Utility as specified in the Schedule.

(2) A person who contravenes a provision of these Regulations commits an offence and is liable on summary conviction to a fine of not more than two hundred and fifty penalty units or term of imprisonment of not more than one year or both.

(3) Where an offence under these Regulations is committed by a body corporate, a partnership or other firm, every director or officer of that body corporate or any member of the partnership or firm or other person concerned with the management of the market participant or the Utility shall be considered to have committed the offence and is on summary conviction, liable to pay a penalty not exceeding one thousand penalty units or to a term of imprisonment not exceeding five years or to both.

Transitional provisions

40. (1) The public entity registered under the Companies Act, 1963 (Act 179) as the Ghana Grid Company Limited shall apply for a transmission licence within six months of the coming into force of these Regulations.

(2) The Commission shall pursuant to section 23(2) of the Act grant the transmission licence subject to such conditions that the Commission determines.

(3) A market participant shall submit copies of every valid bilateral contract to the Utility, the Commission and Public Utilities Regulatory Commission within thirty days of the commencement of these Regulations.

Interpretation

41. In these Regulations, unless the context otherwise requires:

“Act” means the Energy Commission Act, 1997, (Act 541);

“ancillary service” means a service required to support the transmission of energy from a generation resource to a load while maintaining reliable operation of the transmission system;

“asset owner” means a person who owns in whole or in part the transmission system infrastructure or any facility connected to the national interconnected transmissions system.

“bilateral contract” means a contract of financial settlement between two parties for a transaction in the wholesale electricity market;

“bulk customer” means a customer that purchases or receives electric power of an amount or level that the Commission may specify;

“Commission” means the Energy Commission established under the Act;

“distribution utility” means a person licensed under the Act to distribute and sell electricity without discrimination to consumers in an area or zone designated by the Commission;

“electricity market rules” means the published document developed and adopted by the Utility and market participants and approved by the Commission to govern the operation of the market for the wholesale supply of electricity by the national interconnected transmission system;

“facility” includes a part of or the whole of the National Interconnected Transmission System, off-take equipment, or any infrastructure that is connected to the National Interconnected Transmission System;

“market clearing engine” means the computer-based mathematical model designed to determine the optimum level of scheduled energy, reserve and regulation required from each available registered facility to match the anticipated system demand requirements during a scheduled dispatch period;

“market manual” means a published document that is created and adopted by the Utility that contains requirements to be followed, met or performed by one or more of the market participants and the Utility in support of the obligations contained in the electricity market rules relating to the operation of the wholesale electricity market;

“market participant” includes a wholesale electricity supplier, a distribution utility and a bulk customer;

“market rules” means the electricity market rules;

“merit order” means the ranking in order of which a generation plant should be used, based on the ascending order of price in correlation with amount of electricity that will be generated;

“Minister” means the Minister responsible for Energy;

“National Electricity Grid Code” means the technical and operational rules of practice and standards of performance rules developed and approved **of** by the Commission.

“national interconnected transmission system” means all electricity plant and equipment within the borders of the country that function or are operated at any voltage higher than 36 Kilovolts and any associated figure or supply equipment that is shared for common use;

“network node” means a point in the national interconnected transmission system where real or reactive power or energy can be injected or off-taken;

“oversight activity” means any act of overseeing or supervising the wholesale electricity market;

“person” includes a body corporate, whether corporation aggregate or corporation sole and an unincorporated body of persons as well as an individual;

“pre-dispatch schedule” means a pre-determined hourly schedule produced by the market clearing engine that contains the predicted quantities of energy, reserve and regulation schedule in respect of a registered facility;

“Public Utilities Regulatory Commission” means the Public Utilities Regulatory Commission established by Public Utilities Regulatory Commission Act, 1997 (Act 538);

“real-time dispatch” means a schedule determined by the market clearing engine that contains the actual quantities of energy, reserve and regulation schedule in respect of a registered facility;

“regulation” means the frequent adjustment to a generator’s output that facilitates the correction of any power system frequency variation or imbalance between a load and the output from a generation facility;

“reserve” means an ancillary service that consists of a generation capacity that is available, or a load that can be interrupted by the Utility in the event of an unexpected outage of a scheduled plant;

“reserve class” means a class of reserve differentiated on the basis of the response time required of reserve providers for that class;

“reserve margins” means the difference between an electric utility’s system capability and anticipated peak load during a specific period, measured in megawatts or as a percentage of peak load;

“reserve requirements” means the types and levels of reserve required by the National Interconnected Transmission System as determined for a given dispatch period;

“settlement” means the process of calculating settlement amounts and transferring payments from those required to make payment to those required to be paid under the electricity market rules;

“settlement account” means an accounting balance that the Utility maintains for each market participant for the purpose of accounting for the settlement of any amount determined in accordance with the market rules;

“settlement amount” means an amount of money to be credited to, debited from or paid by or to a market participant as determined by the Utility;

“settlement invoice” means the invoice periodically issued by the Utility that states the settlement account for each market participant in respect of a transaction in the wholesale electricity market.

“spot market” means the real-time market that comprises an hourly auction of electricity by a generator to meet the projected demand;

“spot market price” means the real-time price of electricity on the spot market as determined by the Utility;

“system marginal cost” means the additional cost of producing one more units of electricity in the national interconnected transmission system;

“system operation manual” means a manual setting out the policies, procedures, practices or system adjustments that may be automatically or manually implemented by the system operator within a specified time frame to maintain the operational integrity of the national interconnected transmission system;

“transmission service” means the safe and reliable operation of high voltage electrical circuits, transformers and substations to ensure the cost effective dispatch and movement of electricity from the facility of a wholesale supplier to a bulk customer or distribution company;

“Utility” means the public utility granted a licence under section 23(5) of the Energy Commission Act, 1997 (Act 541) for the transmission of electricity throughout the country;

“wholesale electricity market” means an electricity market established by market rules approved by the Commission for bulk trading of electricity, ancillary services or any other related electricity supply product or service;

“wholesale electricity trading” includes electricity sales, purchases and settlements in the wholesale electricity market between a wholesale supplier and a distribution utility or bulk customer; and

“wholesale supplier” means a person licensed under the Act to install and operate a facility to procure or produce electricity for sale to a bulk customer or to a distribution company for distribution and sale to consumers.

SCHEDULE

Regulation 39(1)

| <u>Category</u> | <u>Amount (GH¢)</u> |
|------------------------|----------------------------|
| Utility | 3,000 |
| Wholesale supplier | 2,500 |
| Distribution utility | 2,000 |
| Bulk customer | 2,000 |

MINISTER FOR ENERGY