

**NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
LICENSING (SYSTEM OPERATOR) REGULATIONS, 2022**

NOTIFICATION

Islamabad, the 21st day of Nov, 2022

S.R.O. 2051 (I)/2022. In exercise of the powers conferred by section 47 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (Act No. XL of 1997) read with all other enabling provisions thereof, the National Electric Power Regulatory Authority is pleased to make the following regulations.—

1. Short title and commencement.— (1) These regulations shall be called the National Electric Power Regulatory Authority Licensing (System Operator) Regulations, 2022.

(2) These regulations shall come into force and effect upon lifting or expiration of the moratorium on sections 23G and 23H, whichever is earlier, pursuant to sub-section 3 of section 1 of the Act.

2. Definitions.— (1) In these regulations, unless there is anything repugnant in the subject or context,

- (a) "Act" means the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (Act No. XL of 1997), as amended from time to time;
- (b) "ancillary services" means the different services, other than the production of electricity, that are required to operate and maintain power quality and a stable and reliable power system that includes reactive power support, operating reserve, frequency control and black start capability in accordance with Grid Code;
- (c) "applicable documents" means the rules, regulations, terms and conditions of any licence, registration, authorisation, determination, any codes, manuals, directions, guidelines, orders, notifications, agreements and documents issued or approved under the Act;
- (d) "associated company" or "associated undertakings" shall have the same meanings as assigned to them in the Companies Act, 2017 (Act No. XIX of 2017);
- (e) "Commercial Code" or "Market Commercial Code" means the commercial code prepared and maintained by the market operator pursuant to sections 23A and 23B of the Act and approved by the Authority from time to time;

"dispatch" means issuance of instructions, preferably automatic, by the system operator to generation facilities and other users of the Grid Code, connected directly or indirectly with the national grid, to

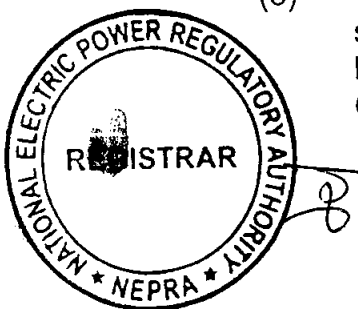


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schedule and control the operation of the generation facilities in order to make available or commence, increase, decrease or cease the delivery of electric power to achieve the operational requirements of balancing demand with generation and ancillary services that will ensure the security of the Transmission System, in accordance with the applicable documents including the Grid Code;

- (g) "Grid Code" means the code prepared by the system operator licensee under section 23H of the Act and approved by the Authority;
- (h) "inter-connection service" means the connection of generation facilities with the transmission and distribution facilities, as the case may be;
- (i) "market participant" means any person who has signed a market participation agreement with the market operator;
- (j) "power system planning" means the short-term, medium-term, and long-term system planning conducted by system operator for economic operations, least cost generation and optimal transmission expansion, augmentation and reinforcement to satisfy the objectives of system security, adequacy, reliability and performance, using well recognized and globally accepted tools/models and submit to the Authority, wherever applicable, for approval in accordance with the Grid Code and other applicable documents;
- (k) "prudent electrical supply industry practices" means the use of equipment, practices or methods, as required, to protect the grid system, employees, agents and consumers from malfunctions occurring at the power plant, and to protect the power plant and the employees and agents at the power plant from malfunctions occurring on the grid system;
- (l) "public information" means any information other than confidential information;
- (m) "Security Constrained Economic Dispatch" or "SCED" means the allocation of system demand to individual generation facilities to effect the most economical production of electricity for optimum system economy, security and reliability with due consideration to variable generation and operation costs, incremental network losses, load flow and other operational considerations as may be determined by the system operator at the time of performing system operations, subject to subsequent review and due diligence, if any required, by the Authority or any other party as the Authority may appoint for the said purpose;
- (n) "service provider" means any distribution or transmission licensee and shall include any licensee or registered person who has signed a service provider agreement with the market operator;
- (o) "system operations" means the functions, system operations, power system planning and responsibilities to be performed and discharged by the system operator in accordance with these regulations, the Grid Code, the Act, and other applicable documents;



- (p) "system operator" means a person licensed under the section 23G of the Act to administer system operations, dispatch and power system planning;
- (q) "tie-line" means interconnection facility which connects two different transmission zones in the power system, including cross border transmission lines; and
- (r) "total system" means the interconnected generation, transmission and distribution facilities of the power system of Pakistan, including tie-lines or interconnections with territories where the Act does not extend.

(2) Words and expressions used but not defined in these regulations shall have the same meanings as assigned to them in the Act and the applicable documents.

3. Grant of licence.— (1) Any person who fulfils the eligibility criteria prescribed under section 23G of the Act, may make an application to the Authority in accordance with the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021, as amended from time to time, for grant of system operator licence.

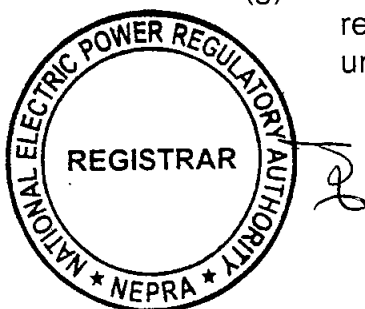
(2) The application for grant of system operator licence shall be accompanied with a draft Grid Code, in addition to other requirements as stipulated in the applicable documents.

(3) The Authority may after such enquiry as it may deem appropriate and subject to the conditions specified in the applicable documents grant the system operator licence to the applicant:

Provided that only one system operator licence shall be granted at any one time.

4. Functions of system operator.— (1) The system operator shall be responsible for performing following functions:

- (a) generation scheduling, commitment and dispatch;
- (b) transmission scheduling and generation outage coordination;
- (c) transmission congestion management;
- (d) cross border transmission coordination;
- (e) procurement and scheduling of ancillary services;
- (f) integrated power system planning with regard to availability of adequate transmission and generation capacity to meet the electric power demand of the country; and
- (g) such other activities as may be required for safe, secure, stable, reliable, and efficient system operations or any other function assigned under the Act, its licence, or other applicable documents.



(2) While performing its functions, the system operator shall ensure that it complies with the Act and the applicable documents including these regulations, the Grid Code, and the Market Commercial Code.

5. Fees.— The system operator shall timely pay to the Authority the annual fee as may become due under the applicable documents.

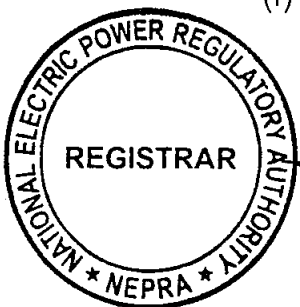
6. Term of the licence.— (1) The system operator licence shall be issued for a period of twenty years and shall be valid during this period subject to compliance with the Act, the applicable documents and payment of annual fee, as specified from time to time, unless suspended or revoked earlier by the Authority.

(2) The system operator licence may be renewed, after expiry of its term, upon the licensee's application, subject to satisfactory performance of the licensee, compliance with the Act, the applicable documents, payment of such fees as may be determined and, on such terms and conditions as the Authority may deem appropriate.

7. System operator fee.— The system operator shall charge for its services only such fee as determined, specified or approved by the Authority.

8. General obligations of system operator.— (1) The system operator shall, at all times during the term of the licence:

- (a) carry out its functions in accordance with the applicable documents including the terms and conditions of its licence, the Grid Code, orders, directions and determinations of the Authority, and other relevant laws;
- (b) administer, implement and enforce the Grid Code;
- (c) promptly inform the Authority in writing:
 - i. if it is unable to conduct any of the system operations;
 - ii. if the conduct of system operations may lead to breach of any of the terms and conditions in its licence, or materially affect delivery of system operation services; or
 - iii. any material change in circumstances that may adversely affect the performance of the licensed activities;
- (d) maintain technical, operational, planning and financial capability, material and human resources, and organizational structure to effectively perform its licensed activities;
- (e) exchange and maintain information in hard and electronic form about system operations including but not limited to, power system planning, SCED, maintenance outages coordination, system constraints, unplanned outages and emergencies, ancillary services, in accordance with the Grid Code and other applicable documents;
- (f) be responsible for balancing electric power supply and demand in operational plans as well as in real time to ensure secure system operations including maintenance of the system frequency within a predefined stability range and compliance with the amounts of



reserves needed to adhere to the required reliability and quality standards, in accordance with the Grid Code and other applicable documents;

- (g) carry out system impact studies and power system planning on future security, reliability and adequacy of supply to ensure adequate reserves and sufficient transmission capacity in accordance with the Grid Code;
- (h) not engage in buying or selling of electric power;
- (i) carry out power system planning in accordance with the Grid Code and other applicable documents;
- (j) ensure efficient and economic operation of the power system under the principles of SCED, duly justifying, validating, recording and properly addressing any deviation in the system operations from these principles in subsequent power system planning;
- (k) determine the system marginal price on an hourly basis as per the criteria provided in the Market Commercial Code and publish the same on a real-time basis on its website with the flexibility to view historical marginal prices at different resolutions of time;
- (l) obtain and verify the variable costs of generation communicated daily by the generation companies or licensees or registered entities, as the case may be;
- (m) perform or cause to be performed necessary tests related to the verification of capacity and heat rates of generation companies to determine their dependable capacity and efficiency in accordance with the Grid Code:

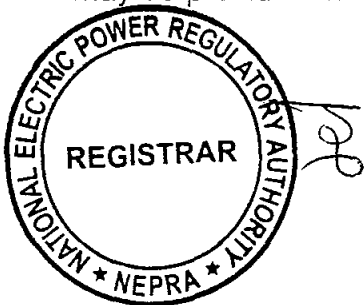
Provided that such tests for legacy contracts shall be dealt with as provided in their respective power purchase agreements;

- (n) ensure facilitation and support for open access; and
- (o) ensure the use of appropriate, well recognized, and globally accepted tools/models, for performing the functions of system operations:

Provided that open-source tools shall not be utilized for performing the system operations.

(2) All obligations of the system operator shall be performed within the time period specified in the Grid Code or other applicable documents, and where no time limit is provided for any activity, the respective activity shall be completed within a reasonable time.

(3) In addition to the duties and responsibilities specified in these regulations, the licensee shall also comply with such other terms and conditions as may be provided in its licence or other applicable documents.

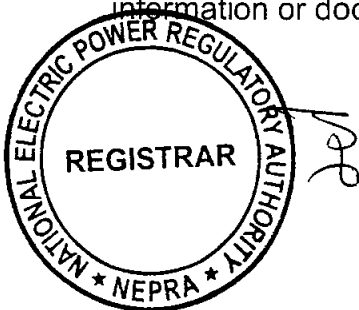


9. Preparation and submission of annual report.— (1) The system operator shall prepare and submit an annual report to the Authority within one month of the close of financial year along with the following information and documents:

- (a) details of its board of directors indicating change in the same, if any;
- (b) details of its senior management including their respective qualifications and experience;
- (c) details about system operations including but not limited to power system planning, SCED, clearly highlighting instances where economic despatch was not directed due to system constraints i.e., network congestion, fuel constraints, unplanned outages and emergencies, measures taken to minimize deviations from SCED, etc;
- (d) details about procurement of ancillary services, etc;
- (e) details about the marginal price including daily, weekly, monthly and annual patterns and comparisons with previous years, highlighting events that led to any abnormal deviations and any measures that can be taken to reduce the overall system marginal price;
- (f) details of network nodes, grids, etc. causing congestion in the system and measures required to address such congestions;
- (g) action taken against the generation companies for non-compliance with directions of the system operator issued under the Grid Code, if any, including details of tests performed for verification of dependable capacity and heat rate of generation companies;
- (h) actions taken to address any emergency in its operations;
- (i) recommendations, if any, to reduce system constraints in the future and ensure most economical SCED including any system impact studies or plans required for the same;
- (j) status of compliance with the directions of the Authority issued during the reporting period to the system operator, along with reasons for non-compliance, as may be necessary; and
- (k) any other activities performed for effective and efficient system operations.

(2) The system operator shall also furnish to the Authority such other documents, information or explanation relating to system operations as the Authority may, from time to time, require in writing.

10. Duty to maintain confidentiality.— (1) The system operator or any officer of the system operator, whether during the tenure of his office or thereafter, or any other person who has by any means knowledge of any confidential information in relation to the commercial affairs of any of the generation company, licensee or registered person, shall not give, divulge, reveal or otherwise disclose such information or document to any other person.



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(2) Nothing in sub-regulation (1) shall entitle any person to refuse disclosure of any information or document, in cases, where:

- (a) prior written consent is given by the person to whom the information is related;
- (b) the information is public;
- (c) the system operator is required or allowed to disclose the information to fulfil the terms and conditions of its licence and other applicable documents;
- (d) it is in pursuance of any summons or notice issued by any court, tribunal or any other authority having competent jurisdiction to require the production of such information or document;
- (e) it is required in the course of an investigation into an offence or contravention of the Act;
- (f) disclosure is required under any other law for the time being in force; or
- (g) the information is required to be disclosed in the normal course of performing the licensed activity.

(3) The system operator shall undertake all necessary steps to prevent unauthorized access to the confidential information.

(4) Any information submitted to the Authority by the system operator shall be considered public information except in cases where upon specific or special request of the licensee, the Authority decides that such information shall be treated as confidential information.

11. Financial and organizational affairs.— The system operator shall not, except to the extent specified in the terms and condition of its licence, stand surety, give guarantees, acquire or offer to acquire any interest in any entity without prior written approval of the Authority.

12. System operation and central dispatch.— (1) The system operator shall carry out the dispatch of:

- (a) all generation facilities that shall make their generation facilities available to the system operator as required in the Grid Code; and
- (b) available transfers on tie lines, including imports.

(2) While carrying out the dispatch function the licensee shall pay due regard to information provided to it by the distribution and electric power supplier licensees.

(3) The system operator shall undertake operational planning:

- (a) to ensure optimum generation availability, including a reserve margin to meet the forecasted demand after, *inter alia*, taking into account:
 - (i) non-availability of generation facilities and/or tie-line transfers;



- (ii) constraints from time to time due to technical limitations on the total system or any part of it; and
- (b) in accordance with the Grid Code for the release of portions of the system for maintenance, repair, extension, or reinforcement.
- (4) The system operator shall carry out SCED for all generating units and cross border transmission in accordance with the Grid Code.
- (5) The licensee shall furnish to the Authority any information required with respect to the economic dispatch system or any aspect of its operation.

13. Communication system.— (1) The system operator shall ensure deployment of the supervisory control and data acquisition (SCADA) and other necessary tools, for ensuring effective and efficient system operations within such period as may be directed by the Authority or provided in its licence.

(2) The system operator shall deploy, operate, maintain, expand and upgrade from time to time, the SCADA and any other tools deployed, as necessary.

(3) The system operator shall provide all Grid Code users with specifications for communications system requirements and protocols to connect and functionally integrate Grid Code users' facilities into the system operator's SCADA.

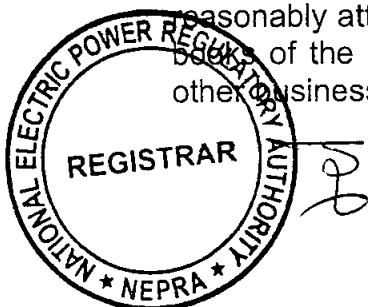
14. Security of supply.— The system operator shall take all necessary measures to ensure the security of supply in the short, medium and long-term. The system operator shall prepare and submit to the Authority every three years a report proposing any modifications or amendments in the regulatory framework that the system operator deems necessary to ensure security of supply in the power system.

15. Administration of ancillary services.— The system operator shall purchase or otherwise acquire ancillary services from the most economical sources available to it keeping in view the quantity and nature of the services required, to ensure system security in accordance with the Grid Code and other applicable documents.

16. Accounting practices.— (1) The system operator shall prepare its accounts in accordance with the applicable documents as may be revised from time to time:

Provided that the requirements with regard to maintenance of accounts specified in these regulations shall apply in addition to any other requirements as may be applicable in any other law for the time being in force.

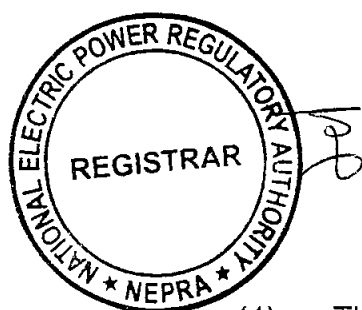
(2) The system operator and each of its associated undertakings shall ensure to maintain accounting and financial reporting arrangements which enable separate accounts to be prepared for each separate business, showing the financial affairs of each such separate business as if it were a separate company so that the revenues, costs, assets, liabilities, capital, reserves and provisions thereof, reasonably attributable to each separate business are separately identifiable in the books of the system operator and its associated undertakings from those of any other business, in sufficient detail for the purposes of determination of the revenue



requirements of the system operator and other purposes.

(3) In specifying the accounting requirements in the system operator licence, the Authority may require the licensee and any of its associated undertakings to:

- (a) maintain and preserve the books of accounts and accounting records in respect of each financial year for the time specified in the electric power supply licence;
- (b) prepare on a consistent basis from such accounting records in respect of each financial year, accounting statements comprising of a profit and loss account, a balance sheet and a statement of source and application of funds, together with notes thereto, showing separately in respect of each separate business and in appropriate detail the amounts of any revenue, costs, asset, liability, reserve, or provision which has been either
 - (i) charged from or to any other business, whether or not a separate business, together with a description of the basis of that charge; or
 - (ii) determined by apportionment or allocation between any separate business together with a description of the basis of the apportionment or allocation.



(4) The Authority may, for reasons to be recorded in writing, order a special financial audit of the system operator.

17. Performance standards and monitoring.— (1) The system operator shall comply with the relevant performance standards and public service obligations as provided in the Act and the applicable documents.

(2) The system operator shall submit to the Authority monthly, quarterly and yearly reports on its performance and compliance with these regulations, the Grid Code and other applicable documents including the relevant eligibility criteria rules, and the terms and conditions of its licence.

(3) The Authority may require the system operator to provide any special reports on such format as may be deemed appropriate by the Authority.

(4) The Authority may, if deemed necessary for reasons to be recorded in writing, order a technical and functional performance audit of the system operator.

18. Risk and administrative requirements.— (1) The system operator shall, subject to the provisions of its licence, promptly and diligently adhere to all reasonable risk-management and risk containment measures, and shall implement risk-mitigation measures.

(2) The functional and legal separation of the system operator shall be undertaken in accordance with the provisions of its licence, determination and directions of the Authority, as issued from time to time.

(3) The system operator shall submit to the Authority, for its prior approval, any changes to its management control, ownership, or nature of business.

(4) The system operator shall inform the Authority, in writing, at least thirty days prior to any change in its address and other contact details.

19. Maintenance of record and provision of information.— (1) The system operator shall keep complete and accurate record and other data in respect of all aspects of the system operations including any contractual arrangements, agreements, and any other information in the manner and form as may be required by the Authority.

(2) All records and data referred to in sub-regulation (1) shall be retained by the licensee for a minimum period of ten years from the date of expiry of the relevant agreement, arrangement, or transaction or for such further extended period as may be provided in the Grid Code or Commercial Code or specifically required by the Authority.

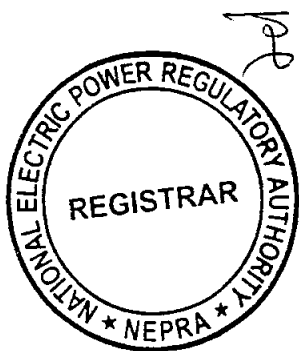
(3) All records shall be kept in good order, properly indexed, and shall ensure quick search by different criteria including with respect to the respective entity, calculation of marginal price of the system, dispatch history and other related aspects.

(4) The Authority may, upon forty-eight hours prior notice, in writing, to the system operator, enter any premises of the system operator where the record and data referred to in sub-regulation (1) are kept for the examination or taking of copies thereof during office hours.

(5) The records to be kept in compliance with these regulations shall specifically include:

- (a) a generation facility's availability and energy injected by the generation facility on hourly or such other intervals as may be provided in the Grid Code;
- (b) transfers across tie-lines available or declared as available;
- (c) marginal price and cost per unit of energy of every generation facility connected with the national grid;
- (d) generation facility and transfers across tie-lines facilities scheduled for dispatch or dispatched;
- (e) ancillary services called for by the system operator and provided; and
- (f) any other record required in the Grid Code and other applicable documents.

(6) The system operator shall establish appropriate mechanism for timely sharing of information including marginal price with the market operator.



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20. Prohibition against anti-competitive practices.— (1) The system operator shall not engage in any form of anti-competitive activities, or activities contrary to transparent, free and fair competition.

(2) The system operator shall not at any time, directly or indirectly, acquire or undertake any beneficial interest in or associate itself with any other licensee or person involved or intending to get involved in generation, transmission, distribution, supply, or trading business:

Provided that nothing in sub-regulation (1) shall prevent the national grid company from performing functions of system operator till such time as permitted under the applicable documents, or prevent the Federal Government being a shareholder of the system operator, to keep, acquire or undertake any beneficial interest in or associate itself with the generation, transmission, distribution, electric power supply or trading business.

21. Information technology and operational technology requirements.— All information systems, computer programs or other systems used by the system operator shall be adequately equipped and secured to meet relevant information technology and operational technology standards to enable it to perform system operations and power system planning efficiently and effectively.

22. Fair and equitable treatment.— The system operator shall, during conduct of system operations, provide non-discriminatory and fair treatment to all the market participants and service providers at all stages of their relationship and shall avoid practices that may have any adverse impact on free and fair competition, open access rights and transparent system operations and effective power system planning.

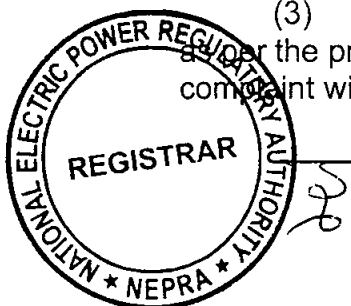
23. Disclosure and transparency.— (1) The system operator shall provide complete, accurate and not misleading public information regarding the system operations and power system planning including dispatch and marginal price discovery calculation along with monthly, quarterly and annual forecasting.

(2) The system operator shall calculate hourly marginal prices in a timely and efficient manner and shall publish the same on its website on real-time basis.

24. Complaints and dispute resolution.— (1) The system operator shall make available complaint-handling mechanism that provide market participants and service providers with expeditious, fair, transparent, inexpensive, accessible, speedy and effective dispute resolution without unnecessary cost or burden.

(2) Any dispute between the system operator and any market participant or service provider or between two or more market participants or service providers arising out of the Commercial Code, Grid Code or these regulations shall be, in the first instance settled in accordance with the mechanism provided in the respective codes.

(3) In the event the parties to a dispute are not able to resolve their dispute under the procedure provided in the respective code, any aggrieved party may file a complaint with the Authority for resolution of the dispute.



(4) The Authority shall give its decision in any matter referred to it under sub-regulation (3) within a period of two months after providing opportunity of hearing to the concerned parties.

25. Grid Code.— (1) The Grid Code developed by the system operator shall provide detailed procedures, mechanisms and arrangements with regard to the technical requirements, guidelines and procedures to be adopted by the system operator and Grid Code users for the purpose of:

- (a) effective power system planning;
- (b) seeking new connections or modification in the existing ones;
- (c) reliable and coordinated protection;
- (d) precise metering at the connection points; and
- (e) economic system operation purposes for normal and abnormal system conditions.

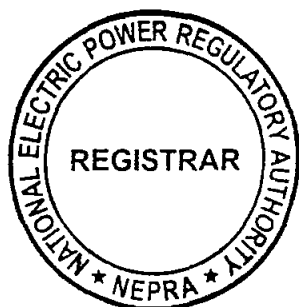
(2) The Authority may, if required in the public interest, direct the system operator to amend its existing Grid Code:

Provided that if the system operator does not comply with the direction of the Authority within a period of thirty days without providing just cause for such non-compliance to the Authority, the Grid Code of the system operator shall be deemed to have been made or amended, as the case may be, and shall take effect accordingly.

(3) The system operator, market participants and service providers shall comply with the Grid Code as approved by the Authority, from time to time.

26. Power to suspend or revoke licence.— (1) Without prejudice to the powers of the Authority under the Act, upon being satisfied that the system operator licensee is not discharging its functions in accordance with these regulations or terms and conditions of the licence, or otherwise fails to carry on its business in the interests of the market, the Authority may, after providing an opportunity to show cause, take such measures as it deems expedient including but not limited to suspension or cancellation of the licence under these regulations and take such other action as may be necessary to safeguard the interests of all stakeholders.

(2) Where the Authority revokes or suspends the licence of a system operator, it may appoint an administrator to take over its functions.




(Syed Safer Hussain)
Registrar

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