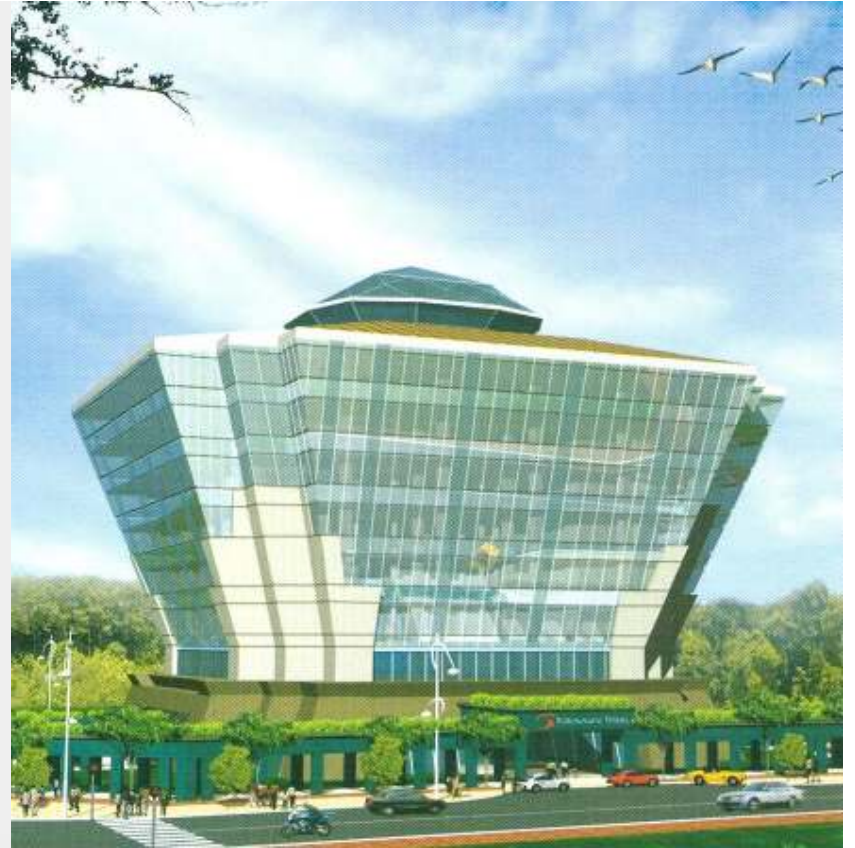


# THE MALAYSIAN GRID CODE



## PRE-LAUNCH BRIEFING

*21 December 2010  
Cyberview Lodge Resort & Spa*

# The GRID CODE

- A technical document
- A regulatory instrument to ensure the rules, guidelines and standards to be followed by various agencies and participants in the system
- To describe the rights and responsibilities of all relevant parties in the Grid System
- An inseparable, integral part of a set of legal and technical documents defining the governance of the Malaysian Electricity Supply Industry

# THE GOAL

- To plan, develop, maintain and operate the grid system in the most efficient, reliable, safe, and economic manner.

## GRID CODE OBJECTIVES

- To ensure that the power system will continue to be developed, operated efficiently and securely in the related industry environment
- To define the base line technical rule
- To lay down governing principles, duties, mechanism, obligations, requirements, procedures for compliance by all players
- To ensure safe, secure, efficient, and contractual least cost operation of power system
- To provide a set of principles governing the status and the development of the grid code

## THE SCOPE

- The Energy Commission shall oversee the implementation of the Grid Code
- Applicable to:
  - The Grid Owner and GSO, in planning and operating the Grid System
  - From a technical point of view, for all users in relation to the planning, operation and use of the Grid System

# CONTENTS OF THE GRID CODE

- Preface
- Glossary and Definitions
- Introduction and Purpose
- General Conditions
- Planning Code
- Connection Code
- Operating Codes
- Scheduling and Dispatch Codes
- Data Registration Code
- Metering Code
- Appendices

## COMPLIANCE TO THE GRID CODE

- Shall be complied by:
  - **GSO** (Grid System Operator)
  - **Grid Owner**
  - **All users of the Grid System**
  - **Single Buyer**
  - **Consumers**

# DEROGATIONS & EXEMPTIONS

- **Derogation**

- An order issued by the EC, after full consultation and agreement with the GSO and the GCC, permanently or temporarily for a strictly defined period

- **Exemption**

- An order issued by the EC, after full consultation and agreement with the GSO
- Exempting a specific Generating Unit or Generating Plant or Power Station or User from undertaking certain duties specified in the Grid Code



# PLANNING CODE

- **DEFINITION**

- Technical and design criteria and procedures in the planning and development of the grid system
- Specifies procedures to be applied by the Grid Owner in calculating the generation adequacy and capacity requirements for next 10 years

## OBJECTIVES of PLANNING CODE

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To specify the license standard

To promote interaction bet Grid Owner and users

To provide for the supply of info required by the Grid Owner from the users

To provide for the supply information by the Grid Owner required by the EC

To provide sufficient information to the EC



## SCOPE of PLANNING CODE

- Applies to:
  - Grid Owner
  - GSO
  - Single Buyer
  - And the following users:
    - ✓ Generators
    - ✓ Distributors
    - ✓ Network operators
    - ✓ Directly Connected Customers
    - ✓ Parties seeking connection to the Transmission System or on to a User System

# PLANNING PROCESS

## USERS

submit standard planning data and detailed planning data

Notify any changes to their planned development

Provided full planning data when applying for a new connection/modifications to an existing connection



## GRID OWNER

notify each user of any material modification of their annual Trans Development Plan sub

submit to users the network data

annually prepare the system Development Plan



## ENERGY COMMISSION

# CONNECTION CODE

- **DEFINITION**

- Specifies the minimum technical, design and operational criteria
- To be complied with by users connected/seeking connection/seeking to modify their connection to the grid system

- **OBJECTIVE**

- To ensure that the design and operational criteria the basic rules for connection to the transmission system are similar for all users

## CONNECTION CODE SCOPE

- Applies to
  - Grid Owner
  - GSO
  - Single Buyer
  - And the following users:
    - ✓ Generators
    - ✓ Distributors
    - ✓ Network operators
    - ✓ Directly Connected Customers
    - ✓ Parties seeking connection to the Transmission System or on to a User System

# OPERATION CODE

- **DEFINITION**

- Deals with all processes associated with operational planning and control operation of the system in real time
- Obligations of the Users to provide and supply information to the Grid Owner and GSO to enable those processes

- **OBJECTIVES**

- Matching generation & demand in operation
- Ensure the provision of data to the GSO by Users for operation purposes
- Provide for the factors to be taken into account by the GSO

## SCOPE of OPERATION CODE

- Applies to
  - GSO
  - And the following users:
    - ✓ Generators
    - ✓ Distributors
    - ✓ Network Operators
    - ✓ Directly Connected Customers
    - ✓ Interconnected Parties



## CONSTITUENTS of the OPERATION CODE

- OC 1: Demand Forecast
- OC 2: Outage & Other Related Planning
- OC 3: Operating Reserves & Response
- OC 4: Demand Control

# CONSTITUENTS of the OPERATION CODE

(cont.)

- OC 5: Operational Liaison
- OC 6: Significant Incident Reporting
- OC 7: Emergency Operations
- OC 8: Safety Coordination

# CONSTITUENTS of the OPERATION CODE

(cont.)

- OC 9: Numbering & Nomenclature
- OC 10: Testing & Monitoring
- OC 11: System Tests

## SCHEDULING & DISPATCH CODE

- DEFINITION

- Sets out the procedure for the preparation of an indicative Least Cost Generation Schedule, scheduling & dispatch instruction to generating units and the procedures & requirements in relation to control of system frequency & interconnector power transfers.

- OBJECTIVE

- Ensures the security of supply
- Enables optimization of the use of generating and transmission capacities
- Enables the preparation and issue of a Generation Schedule

# SCOPE of SCHEDULLING & DISPATCH CODE

- Applies to
  - Grid Owner
  - GSO
  - Single Buyer
  - And the following users:
    - ✓ Generators
    - ✓ Distributors
    - ✓ Network operators
    - ✓ Directly Connected Customers
    - ✓ Parties seeking connection to the Transmission System or on to a User System

# CONSTITUENTS of the SCHEDULLING & DISPATCH CODE

- SDC 1: Generation Scheduling
- SDC 2: Control, Scheduling & Dispatch
- SDC 3: Frequency & Interconnector Transfer Control

# DATA REGISTRATION CODE

- DEFINITION

- Sets out a unified listings of all data required by Grid Owner and GSO from Users and by Users from the Grid Owner and GSO
- Identifies the section of the Grid Code under which each item of data is required

- OBJECTIVE

- List and collate all the data to be provided by each category of User to GSO under the Grid Code
- List all the data to be provided by GSO to each category of User under the Grid Code

## SCOPE of DATA REGISTRATION CODE

- Applies to
  - Grid Owner
  - GSO
  - Single Buyer
  - And the following users:
    - ✓ Generators
    - ✓ Distributors
    - ✓ Network operators
    - ✓ Directly Connected Customers
    - ✓ Parties seeking connection to the Transmission System or on to a User System



# METERING CODE

- DEFINITION

- Sets out the metering requirements relating to active power, reactive power and active energy and reactive energy for all users connected to/seeking connection to the transmission system

- OBJECTIVE

- To ensure that all the technical requirements to comply with statutory and license obligations

- To define the accuracy requirements and the parameters to be measured

- To set out the provisions for the measurement of electrical power and energy

- To set out the provision of data for the commercial operation of the Grid System

## SCOPE of METERING CODE

- Applies to
  - Grid Owner
  - GSO
  - Single Buyer
  - And the following users:
    - ✓ Generators
    - ✓ Distributors
    - ✓ Network operators
    - ✓ Directly Connected Customers
    - ✓ 5) Parties seeking connection to the Transmission System or on to a User System
    - ✓ 6) Externally Interconnected Parties
    - ✓ 7) TNB Transmission



TERIMA KASIH  
THANK YOU

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