INFORMATION PAPER

NET TREATMENT OF EMBEDDED GENERATORS

21 AUGUST 2006

ENERGY MARKET AUTHORITY
111 Somerset Road #15-05
Singapore 238164
www.ema.gov.sg

Please direct any enquiries to: **wong_mui_quee@ema.gov.sg** or **soh_sai_bor@ema.gov.sg**

Disclaimer:

The information in this Information Paper is not to be treated by any person as any kind of advice. The Energy Market Authority shall not be liable for any damage or loss suffered as a result of the use of or reliance on the information given in this Information Paper.

NET TREATMENT OF EMBEDDED GENERATORS

Background

In the context of Singapore, an embedded generator is a power generation plant that generates electricity to its onsite load for self-consumption. It does not export power to the grid and so does not compete with other generation companies ("gencos") to sell electricity.

2 Currently, with the exception of 7 legacy embedded generators, all new embedded generators with a nameplate capacity of 1 MW or more and connected to the transmission system will need to be registered in the National Electricity Market of Singapore (NEMS) as market participants. These embedded generators pay two broad types of market charges:

(a) Reserve charges such as *Spinning Reserve (SR)* charges and *Regulation Reserve (RR)* charges;

(b) Non-reserve charges such as *Energy Market Company (EMC) fees*, *Power System Operator (PSO) fees*, *Monthly Energy Uplift Charges (MEUC)* and *Market Support Services (MSS) fees*.

3 The current policy is that these charges are administered on a "*gross*" basis i.e. on the total generation (both embedded and non-embedded gencos) and load (whether or not the load is served by an embedded genco) connected to the system. For example, a 30 MW embedded genco with a 50MW onsite load (and hence drawing only 20MW from the system i.e. "net load" is 20 MW) will need to pay charges based on its 50MW load and 30MW generation and not on 20 MW load only.

4 Companies that deploy embedded generators have asked for some form of "net treatment" on the market charges. The embedded generators view that such treatment can be justified because they do not compete to sell electricity and only draw backup power from the system occasionally during a planned or forced outage of their embedded generating units.

Policy Decision

5 After reviewing the current policy, the Government has decided the following:

(a) Reserve charges: Embedded generators should continue to pay reserve charges (SR & RR) as per current treatment.

(b) Non-reserve charges: Embedded generators will be granted net treatment on non-reserve charges (EMC, PSO, MEUC & MSS), provided that they will not export power to the grid.

Policy Rationale for Net Treatment of Non-Reserve Charges

6 Reserve charges are meant to offset system costs of providing instantaneous standby capacity (SR) and ensuring system frequency stability (RR). SR and RR need to be provided whether or not an embedded generator draws power from the system. Since embedded generators connected to the system for backup require SR and RR, they must pay for them in accordance with "user pays" principle i.e. no change to the current treatment.

7 For the non-reserve charges, the current approach is to apply the non-reserve charges to total generation and total load, termed "gross treatment." This treatment spreads the non-reserve charges across the entire base of gross generation and load.

8 Government has following its review, decided to apply a limited form of net treatment of non-reserve charges to embedded generators that do not export power to the grid. Government's policy decision is in view of its assessment that while the current arrangements for embedded generation in Singapore are broadly reasonable within the context of the NEMS, net treatment for embedded generators that do not export power and compete to sell electricity will not distort competition in the electricity market. In addition, it is noted that many advanced jurisdictions such as Australia, UK and the U.S. Pennsylvania-New Jersey-Maryland (PJM) market practice some form of net treatment for embedded generators.

9 Finally, to ensure that system security would not be adversely impacted, a system capacity limit on embedded generation capacity will be put in place. This limit will be set initially at 500MW[1] and will be reviewed periodically by EMA.

****

[1] This limit does not include the generation capacities of the legacy exempted embedded generators.