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## Market Rule Amendment Proposal

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### PART 1 – MARKET RULE INFORMATION

<b>Identification No.:</b> MR- 00241-R00	
<b>Subject:</b> Data, Scheduling, Dispatch	
<b>Title:</b> Treatment of Enhanced Combined Cycle Facilities within the IMO-Administered Markets	
<b>Nature of proposal</b> (please indicate with X): <u> X </u> Alteration <u> </u> Deletion <u> </u> Addition	
<b>Chapter:</b> 11	<b>Appendix:</b>
<b>Sections:</b>	
<b>Sub-sections proposed for amending:</b>	

### PART 2 – PROPOSAL HISTORY

Version	Reason for Issuing	Version Date
1.0	Submitted for Technical Panel Review	October 10, 2003
2.0	Published for Stakeholder Review and Comment	October 15, 2003
<b>Approved Amendment <i>Publication</i> Date:</b>		
<b>Approved Amendment <i>Effective</i> Date:</b>		

### PART 3 – EXPLANATION FOR PROPOSED AMENDMENT

Provide a brief description of the following:

- The reason for the proposed amendment and the impact on the *IMO-administered markets* if the amendment is not made
- Alternative solutions considered
- The proposed amendment, how the amendment addresses the above reason and impact of the proposed amendment on the *IMO-administered markets*.

#### Summary

- The purpose of this rule amendment is to enable a suitable treatment for enhanced combined cycle facilities within the IMO-administered markets. It is proposed to treat them under the rules in the same manner as cogeneration facilities. Qualifying enhanced combined cycle facilities can register their facilities either as dispatchable, self-scheduling or intermittent.
- If they are registered as either self-scheduling or dispatchable, they would be subject to compliance bands that reflect their unique operational characteristics.
- The justification for this treatment is based on the unique operational and other characteristics of these facilities.

#### Background:

A market participant, TransCanada Energy in its amendment submission MR-00241-Q00 raised the need for these amendments. In that submission TransCanada Energy asserted that their enhanced combined cycle facilities should be afforded the same treatment within the market rules as were afforded cogeneration facilities under MR-00161. While the treatment of Enhanced combined cycle facilities was raised during Technical Panel discussions on MR-00161, it was not specifically addressed within that rule amendment.

A Combined Cycle facility is a generating facility that utilizes one or more combustion turbines and one or more steam turbines to generate electricity. Fuel is burned in the combustion turbines to produce electricity and hot exhaust gases. The exhaust gases pass through dedicated heat recovery steam generators (HRSG) which produce high-pressure, superheated steam that is used in the steam turbines to generate more electricity. An Enhanced Combined Cycle facility is *distinct* from a Combined Cycle facility in that in addition to acquiring the heat source from one or more of the combustion turbines utilized in one or more of the steam turbines, it also obtains the *heat source from an independent industrial process/processes*. Similar to cogeneration facilities (as per MR-00161), ‘electricity production is dependent on the operation of the independent process’.”

Enhanced combined cycle facilities that have power purchase agreements (PPA) with the Ontario Energy Financial Corporation (OEFC) are currently operating within the IMO-administered markets under a Transitional Scheduling Generator (TSG) classification. The TSG status has enabled these non-utility generators (NUGS) to meet the terms of their PPA and effectively function within the IMO-administered markets. Upon completion of possible negotiations with OEFC, PPA holders shall obtain a different facility classification other than the TSG.

The TransCanada Energy enhanced combined cycle facilities are each less than 50MW in size.

### Summary of Options:

The options afforded cogeneration facilities when they re-register their facilities after their TSG status expires are described below. These same options would also apply to enhanced combined cycle facilities under the proposed amendments.

**Option 1** – Re-register as a **dispatchable** generation facility, with dispatch instruction compliance bands reflective of the impact that the production of other forms of useful energy within the facility has on electricity production<sup>1</sup>.

**Option 2** – Re-register as a **self-scheduling** generation facility with an obligation to meet its current schedule and with compliance bands reflective of the impact that the production of other forms of useful energy within the facility has on electricity production<sup>1</sup>. This option would be available to a cogeneration facility provided that the IMO is satisfied that there are no adverse impacts on the reliability of the IMO-controlled grid of the facility being self-scheduling. It should be noted that it is proposed that all cogeneration facilities greater than 10 MW choosing to be self-scheduling generation facilities would have the new obligation to meet their current schedule within specified compliance bands.

**Option 3** – Re-register as an **intermittent** generation facility, provided the facility meets the eligibility criteria currently specified in the market rules.

These three options would also be available for new enhanced combined cycle facilities in Ontario under the same conditions.

The options noted above do not preclude the ability of a market participant to apply for an exemption from any market rule requirement. A market participant may also choose to seek exemptions when its TSG registration expires.

### Proposed Treatment for Enhanced Combined Cycle Facilities

MR-00161 had two primary enabling amendments with respect to cogeneration facilities:

- it provided these facilities with the option of larger compliance bands, and
- it allowed them to be self-scheduling.

Prior to this rule amendment, the dispatch instruction compliance bands for a generation facility is the greater of:

- (i)  $\pm 10$  MW; or
- (ii)  $\pm 2\%$  of the dispatch instruction.

The rule amendment added a third permissible compliance band for cogeneration facilities; namely: “the impact that the production of other forms of useful energy within the facility has on electricity production”.

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<sup>1</sup> In the case of enhanced combined cycle facilities, the wider compliance bands would be based on the impact that the recovery of waste heat from an industrial process/processes within the *facility* has on *energy* production rather than the impact that the production of other forms of useful energy within the facility has on electricity.

Prior to the MR-00161 rule amendment only facilities smaller than 10MW could be self-scheduling. MR-00161 enabled cogeneration facilities the option to be self-scheduling regardless of size.

As outlined below, since they are similar to cogeneration facilities and the rationale for the unique treatment of cogeneration within the market rules similarly applies to enhanced combined cycle facilities, it is proposed that they be afforded the same treatment under the market rules as cogeneration facilities.

### **Their need for larger compliance bands:**

The primary determinant for granting larger compliance bands for cogeneration facilities is due to the following considerations:

- “Their driving operating force is typically production of the other form of energy, with electricity as a by-product”
- the production of the other form of energy has an impact on electricity production that is beyond the existing compliance bands and
- the production and impact of the other form of energy is not under the control of the generator.

In the case of enhanced combined cycle facilities the “other form of energy” is waste heat from gas turbine compressor station operations that are used to maintain pressure in natural gas pipelines. Distinct from cogeneration, this waste heat is an input to the steam recovery generator, rather than an output from the steam recovery generator. That is, waste heat is added in for enhanced combined cycle facilities; whereas, useful energy is taken away for cogeneration facilities. Regardless of this difference, the impact on electricity production is the same and, therefore, both facilities may require the option of larger compliance bands under the rules.

### **Their need to be self-scheduling:**

The primary determinant for allowing cogeneration facilities regardless of size to be self-scheduling is again due to the fact that: “Their driving operating force is typically production of the other form of energy, with electricity as a by-product”. In the case of the TransCanada Energy enhanced combined cycle facilities, the nature of the natural gas compressor station operations and their impact on electricity production is intermittent in nature. A review of the actual electricity production outputs confirms that a portion of their output is intermittent<sup>2</sup>. Nonetheless, since:

- the treatment under the rules is similar for intermittent generation facilities as for self-scheduling facilities<sup>3</sup>;
- they are also an environmentally preferred resource because they are efficient and also can qualify as a Class 43.1 facility under the Income Tax Act<sup>4</sup>;
- their facilities at less than 50MW are relatively small in size and, hence the costs of becoming dispatchable might be a material consideration to their operations (e.g. costs of installing and manning a dispatch work station); and

<sup>2</sup> Less than 25% of station output is intermittent.

<sup>3</sup> Both are price takers and may not be registered to provide any physical service other than energy, reactive support service, and voltage control service. Both would not be eligible for CMSC payments, and are settled at the hourly Ontario energy price (HOEP), etc.

<sup>4</sup> The same qualifying materiality limit is proposed for enhanced combined cycle facilities (see definition, MR-00241-R00) as is used for cogeneration facilities.

- the IMO-administered market needs to be progressive and facilitative in attracting new resources into the market (especially environmentally preferred resources),

it is proposed that these facilities also have the option of being self-scheduling.

Rule amendments are required to Chapter 7, section 2, Registration for Physical Operations, and section 3, Data Submissions for the Real-Time Market (see MR-00241-R01); and Chapter 11, Definitions (see MR-00241-R00).

#### **PART 4 – PROPOSED AMENDMENT**

enhanced combined cycle facility means a combined cycle facility in which the steam utilized to generate electricity in one or more of the steam turbines is supplemented by recovery of waste heat from an independent industrial process/processes such as waste heat from the gas turbine exhaust of a natural gas compressor station, and qualifies for treatment as a Class 43.1 facility or has qualified as a Class 34 facility under the Income Tax Act, R.S.C. 1985, c.1. Combined cycle facilities are generation facilities in which electricity is generated by one or more combustion turbines or engines, and by one or more steam turbines for which steam is supplied by recovery of waste heat from one or more of the combustion turbines or engines.

#### **PART 5 – IMO BOARD COMMENTS**





**Market Rule Amendment Proposal**

**PART 1 – MARKET RULE INFORMATION**

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<b>Nature of proposal</b> (please indicate with X): <input checked="" type="checkbox"/> <b>Alteration</b> <input type="checkbox"/> <b>Deletion</b> <input type="checkbox"/> <b>Addition</b>
<b>Chapter:</b> 7 <span style="float: right;"><b>Appendix:</b></span>
<b>Sections:</b> 2.2, 3.3 and 3.7
<b>Sub-sections proposed for amending:</b> 2.2.6.10, 2.2.9.3, 3.3.8 and 3.7.2

**PART 2 – PROPOSAL HISTORY – PLEASE REFER TO MR-00241-R00**

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Amendments are required in the following sections of Chapter 7:

Section 2, Registration for Physical Operations:

- Section 2.2.6.10 is amended to require *enhanced combined cycle facilities* when registering their facilities to submit information on the expected impact that the recovery of waste heat from an industrial process/processes within the *facility* has on *energy* production, so that the IMO may determine compliance bands.
- Section 2.2.9.3 is amended to enable enhanced combined cycle facilities with name-plate ratings of 10 or more MW to become self-scheduling provided that the *IMO* determines that there are no adverse impacts on the *reliable* operation of the *IMO-controlled grid* of the *facility* being registered as a *self-scheduling generation facility*.

Section 3, Data Submissions for the Real-Time Market:

- Section 3.7.2 is amended to require enhanced combined cycle facilities that are self-scheduling to operate their generation facility in accordance with their dispatch data within the tolerances for updating dispatch data outlined in section 3.3.8
- Section 3.3.8 is amended to include the impact on electricity production that the recovery of waste heat from an industrial process/processes within enhanced combined cycle facilities has on *energy* production as one of the compliance bands for dispatchable or self-scheduling generation facilities.

### PART 4 – PROPOSED AMENDMENT

## 2.2 Registered Facilities

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- 2.2.6 Where the *facility* sought to be registered is within the *IMO control area*, the information required for registration as a *registered facility* shall, subject to any lesser requirements that may be *published* by the *IMO* in respect of the information required for registration of a given class or size of *facility*, include, but not be limited to:



....

- 2.2.6.10 for a *cogeneration facility or enhanced combined cycle facility* choosing to be either dispatchable or self-scheduling generation facilities, and the registered market participant wishes the compliance bands used to determine whether or not the facility is in compliance with its dispatch instructions or its current schedule, information as outlined in the applicable market manual concerning the impact that the production *or supply* of the other forms of useful energy within the facility has on energy production. The IMO may audit this information, which is to be used to determine appropriate compliance bands as outlined in section 3.3.8, at any time.

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2.2.9 A market participant may apply to register as a *self-scheduling generation facility* any *generation facility*:

- 2.2.9.1 with a name-plate rating of 1 MW or more but less than 10 MW;
- 2.2.9.2 that is a *commissioning generation facility* of any name-plate rating and that is sought to be registered pursuant to section 2.2A.1; or
- 2.2.9.3 that is a *cogeneration facility or enhanced combined cycle facility* with a name plate rating of 10 MW or more provided that the IMO determines that there are no adverse impacts on the *reliable* operation of the *IMO-controlled grid* of the *facility* being registered as a *self-scheduling generation facility*.

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### 3.3 Dispatch Data Submissions

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3.3.8 Notwithstanding any other provision of this section 3.3, a *registered market participant* shall as soon as practical submit to the IMO revised *dispatch data* for any *registered facility* in respect of which it is the *registered market participant* if, for any *dispatch hour* in the current *pre-dispatch schedule*, the quantity of any *physical service* scheduled for that *registered facility* differs from the quantity the *registered market participant* reasonably expects to be delivered or withdrawn by more than the greater of (i) 2 percent (ii) such absolute amount as may be determined by the IMO based on considerations of *reliability* and *facility* specific characteristics, ~~and~~ (iii) in the case of a *cogeneration facility* that is either a *dispatchable* or *self-scheduling generation facility*, such amount based on the impact that the production of the other forms of useful energy within the *facility*

has on *energy* production based on the information outlined in section 2.2.6.910, and the *IMO*, and (iv) in the case of *enhanced combined cycle facilities* that is either a *dispatchable* or *self-scheduling generation facility*, such amount based on the impact that the recovery of waste heat from an industrial process/processes within the *facility* has on *energy* production based on the information outlined in section 2.2.6.10, and the *IMO*:

- 3.3.8.1 shall, unless the change in quantity poses risks in relation to the *reliability* or *security* of the *electricity system*, include such change as an input in respect of any subsequent *market schedules* determined following receipt of the change; and
- 3.3.8.2 may refer such changes or revision of *dispatch data* to the *market surveillance panel*.

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### 3.7 Self-Scheduling Generators

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- 3.7.2 A *registered market participant* for a *registered facility* that is a *self-scheduling self-scheduling cogeneration facility* or *self-scheduling enhanced combined cycle facility* shall ensure its *facility* operates in accordance with its *dispatch data* within the tolerances for updating *dispatch data* outlined in section 3.3.8.

## PART 5 – IMO BOARD COMMENTS