

STATEMENT OF POLICY - ELECTRICITY ACT 1994

CHAPTER 5A - QUEENSLAND GAS SCHEME

Policy No. 13/01 - Queensland Usage Factors

PURPOSE

This document forms part of a series of documents prepared by the regulator under the *Electricity Act 1994* (the Act) to establish administrative policies and procedures underpinning the operation of the Queensland Gas Scheme (the Scheme).

This particular document establishes policies and procedures the regulator will adopt in exercising the powers to fix Queensland Usage Factors (QUFs) for accredited power stations under Part 3, Division 3 of Chapter 5A of the Act.

APPLICATION OF POLICY

The policies and procedures outlined herein will be applied by the regulator and other officials carrying out regulatory functions relating to the process of fixing QUFs for accredited generators.

In the event of any inconsistency between this policy and the relevant provisions of the Act and the *Electricity Regulation 2006* (the Regulation), the Act and the Regulation will prevail to the extent of the inconsistency.

BACKGROUND

Under the Scheme, accredited gas-fired power stations can earn tradeable Gas Electricity Certificates (GECs) and liable parties will have an obligation to surrender GECs to meet their annual GEC liability.

The Act provides a process for the accreditation of power stations producing eligible gas-fired electricity. Accredited generators will have the right to create GECs for each whole megawatt hour of eligible gas-fired electricity that is not an auxiliary load.

In general terms, the QUF estimates the proportion of an accredited power station's output that supports Queensland's electricity load, and not the electricity load of another State.

The QUF is a key input into the formulae for calculating eligible gas-fired electricity under the Act. QUFs for the 'baseline year' (as defined in the Act) are also applied in calculating a power station's baseline representing pre-existing gas-fired generation. Electricity below the baseline does not earn GECs.

Legislative Requirements

QUFs are addressed in Part 3, Division 3 of Chapter 5A of the Act.

Section 135CM of the Act provides that the regulator must, for each financial year, during which a power station is accredited, fix an estimated proportion of electricity sent out from the power station that will be used during that year for the State's electricity load and not the electricity load of any other State. This proportion is the power station's annual QUF.

A power station's baseline QUF is provided for in Section 135CN and is the proportion of electricity sent out from the power station that was, during the baseline year, used for the State's electricity load and not the electricity load of another State. The obligation to fix the baseline QUF does not apply if the power station's baseline for all of its baseline customers is zero.

Section 135CQ of the Act allows the regulator to fix different QUFs for different time periods.

Under Section 135CO of the Act, a regulation may prescribe transmission zones for the purposes of fixing QUFs. The transmission zones are areas based on electricity grid areas in which incoming and outgoing electricity is predominately transported by high voltage transmission lines that are heavily loaded compared with their capacity. (Note that the Scheme has always operated with prescribed transmission zones).

Section 134 of the Regulation prescribes transmission zones for the purposes of fixing QUFs. These are:

- (a) for Queensland, each area identified in the zone forecasts under the latest annual planning report from time to time of Powerlink Queensland; and
- (b) for Northern New South Wales - the area of the national electricity market north of the Hunter Valley at Liddell and Newcastle on the coast through to the border between New South Wales and Queensland.

In accordance with Section 135CP of the Act, the same annual QUF must be fixed for each power station which:

- is connected directly or indirectly to the national grid; and
- sends out electricity into the same transmission grid or supply network within the same transmission zone.

Section 135CP of the Act only applies to the portion of electricity sent out to the national grid.

In accordance with Sections 135CM(3) and 135CN(4) of the Act, QUFs are fixed for each accredited generator by gazette notice. Annual QUFs will be fixed for each financial year. Until the notice is gazetted, the last annual QUF fixed for the power station continues to apply.

POLICY AND PROCEDURES

The following establishes the process by which the regulator will calculate and fix QUFs in accordance with the legislative requirements.

Connection to national grid

For the purposes of Section 135CP(2) and 135CP(3)(b) of the Act, a power station is 'connected' directly or indirectly to the national grid when it has a connection of electricity lines that allows electricity to be directly or indirectly sent into or received from the national grid.

Sends out electricity

For the purposes of Sections 135CP(2) or 135CP(3)(b) of the Act, electricity is sent out or supplied into the national grid when the electricity is exported or delivered (as indicated on certified metering equipment) to a transmission grid or supply network by a connection of electricity lines as described above.

QUFs for different periods

QUFs will be fixed for both Peak and Off-peak hours where:

- Peak = 7 am to 10 pm on Queensland working weekdays; and
- Off-peak = all other hours.

Transmission Zones

The prescribed transmission zones for fixing annual QUFs are the zone forecasts identified in the annual planning report of Powerlink Queensland. The annual planning report is a yearly review of the capability of Queensland's high voltage transmission network to meet forecast electricity demand requirements.

The zone forecasts identified in the report are evaluated annually, and may change over time. For example, increased electricity generation or demand can lead to an existing zone being divided into two new zones, or network augmentation can lead to existing zones being combined into a single new zone. Therefore, the prescribed transmission zones for fixing annual QUFs may also change.

Lists and diagrams of the prescribed transmission zones that have been used for the purpose of fixing annual QUFs are available on the Queensland Gas Scheme website -

<http://www.queenslandgasscheme.qld.gov.au>

Annual QUFs

As per Section 135CP of the Act, all power stations connected to the national grid and sending out electricity into the same transmission zone, will have the same annual QUF. To accomplish this, the intent is to fix annual QUFs by transmission zone for each financial year. The peak and off-peak QUFs will apply to all accredited power stations in a transmission zone that send out electricity to the national grid.

Detailed Method for Calculating Annual QUFs

In accordance with Section 135CP(4) of the Act, the annual QUFs are calculated for each transmission zone based on consideration of:

- a) the electricity generated within the transmission zone;
- b) the electricity imported into the transmission zone;
- c) the electricity exported out of the transmission zone and the relevant annual QUFs of the transmission zone to which it is initially exported; and
- d) the electricity load within the zone (electricity delivered to end-users within the zone), and electricity losses associated with delivering the electricity load.

All the matters listed above are included as variables in the standard formula for calculating the annual QUFs for the prescribed transmission zones:

$$QUF_1 = \frac{Local_1 + (X_{1-2} * QUF_2) + (X_{1-3} * QUF_3) + \dots + (X_{1-n} * QUF_n)}{Generation_1 + M_{2-1} + M_{3-1} + \dots + M_{n-1}}$$

where

QUF_k	=	Queensland Usage Factor for Zone k
$Generation_k$	=	local generation in Zone k
M_{i-k}	=	imports from Zone i into Zone k
X_{k-i}	=	exports from Zone k to Zone i
QUF_i	=	Queensland Usage Factor for Zone i
$Local_k$	=	local Queensland load (electricity use) in the zone

Note: losses are accounted for in the flow between Zones.

Assumptions

1. A QUF of greater than zero and less than one is applied to export flows which are considered to be potentially used to satisfy electricity demand in both Queensland and another State.
2. A QUF of one is applied to export flows that are considered to be entirely used to satisfy Queensland demand (for example, any export flows from NSW across the inter-connectors into Queensland, or export flows into a zone in Queensland that is further removed from a connection to NSW than the originating zone).
3. A QUF of zero is applied to export flows that are considered to be entirely used to satisfy demand in a State other than Queensland (for example, the export flows from Queensland across the inter-connectors into NSW).
4. There are no constraints in the system. Constraints are specific to one point in time and the calculations of QUFs for the Scheme are applied on an annual basis.
5. The export flows from a zone will not be used to satisfy demand within the originating zone.
6. Net electricity flows are not used. Total annual exports and imports of electricity flows into each zone are accounted for separately.

The specific QUF formulae used to calculate the annual QUFs are available on the Queensland Gas Scheme website (<http://www.queenslandgasscheme.qld.gov.au>). The formulae represent the calculation for each of the prescribed transmission zones used to fix the annual QUFs. These formulae, and the diagrams of the prescribed transmission zones, indicate which export flows have a QUF of one and which have a QUF of zero.

Section 135CP(5) of the Act provides that in fixing the annual QUF, the Regulator must use estimates or forecasts of relevant data for the next financial year. The input data for the QUF formulae is derived from the same underlying forecasts used by NEMMCO to determine Marginal Loss Factors for the next financial year.

The annual QUFs for each financial year, for the prescribed transmission zones which have been used for the purpose of fixing the annual QUFs, are available on the Queensland Gas Scheme website (<http://www.queenslandgasscheme.qld.gov.au>).

1999-2000 Baseline QUFs

The baseline QUFs for transmission zones within Queensland will have a value of one. The baseline QUFs for transmission zones within NSW will have a value of zero. These baseline QUFs were developed taking into account that the interconnectors linking Queensland to the rest of the National Electricity Market both commenced commercial operations after 30 June 2000.

Other QUFs

Power Stations that do not send out electricity to the national grid are not captured by 135CP of the Act and will be considered on a case by case basis. A QUF will be fixed for these power stations taking into account the extent to which the power station's electricity has the ability to be used for the electricity load of any State other than Queensland (as per the purpose of the QUF).

Power stations located on an 'isolated' network with no link to the national grid or any other grid servicing another State would typically be allocated a QUF of one, in recognition of the fact the power station's output has no physical ability to leave Queensland.

Similarly, electricity generated and used on site (i.e. not exported into a grid) will typically be awarded a QUF of one, to the extent the amount generated and used on site can be established. However, any exports will be considered in the context of any possible ability for the electricity to be used for the electricity load of any State other than Queensland. As such, if the electricity exported from an on-site generator is sent out into the national grid the exported proportion will be subject to the requirements of 135CP of the Act (i.e. to use the same Zone QUF as all other power station's in that zone).

RESPONSIBILITIES

The Director-General of the Department of Mines and Energy as the regulator under the Act is responsible for fixing QUFs. QUFs are to be fixed by gazette notice.

REVIEW AND APPEAL RIGHTS

The setting of an annual QUF is not a reviewable or appealable decision.

Relevant appealable decisions are outlined in Schedule 1 of the Act. The setting of an annual QUF is not listed in Schedule 1 of the Act.

REFERENCES

Electricity Act 1994

Electricity Regulation 2006

DOCUMENT MAINTENANCE

The regulator reserves the right to amend this policy.

Version History

Title	Pol. No.	Version No.	Approved	Date of Effect	Superseded Date
Queensland Usage Factors	13/01	Ver. 1	04/01/05	04/01/05	20/12/05
Queensland Usage Factors	13/01	Ver. 1.1	20/12/05	20/12/05	17/11/06
Queensland Usage Factors	13/01	Ver. 1.2	17/11/06	17/11/06	20/09/07
Queensland Usage Factors	13/01	Ver. 1.3	20/09/07	20/09/07	29/11/07
Queensland Usage Factors	13/01	Ver. 1.4	29/11/07	29/11/07	25/09/08
Queensland Usage Factors	13/01	Ver. 1.5	25/09/08	25/09/08	7/4/09
Queensland Usage Factors	13/01	Ver. 2.0	7/4/09	7/4/09	