Part G – Trading arrangements

I Introductory rules

1 Contents of part G

The rules contained in part G concern the processes by which:

1.1 Section II - Bids and offers

Purchasers and **generators** submit and revise **bids** and **offers** for **electricity**, **grid owners** submit and revise information, **ancillary services agents** and the **system operator** submit reserve offers, and the **system operator** collects information.

1.2 Section III – Scheduling & dispatch

The **system operator** prepares the **pre-dispatch schedules,** prepares and implements the **dispatch schedules**, and prepares and publishes **forecast prices**, **forecast reserve prices** and **dispatch prices**.

1.3 Section IV – Pricing

The **pricing manager** collects data and produces **provisional prices** and **final prices**.

1.4 Section V – Reconciliation

Members provide reconciliation information, and the **reconciliation manager** carries out the reconciliation process.

2 Compliance with part G

Purchasers and **generators** are **members** of part G.

3 Exemptions from full compliance

3.1 Application to the Board

Any **purchaser** or **generator** may apply to the **Board** for an exemption from full compliance with some or all of the rules in section II and section III of part G. Before granting any such exemption the **Board** must satisfy itself that that the exemption would result in such a **benefit to the public** that it should be allowed.

3.2 Conditions applying to exemptions

No exemption granted by the **Board** under rule 3.1 will extend to rule 3.6.2 of section II. No exemption will take effect until the applicant and the **system operator** have reached agreement on a mechanism for providing information about embedded generation to be used in the preparation of forecast prices, and the **Board** has confirmed that the mechanism agreed would result in such a **benefit to the public** that it should be allowed.

4 Changing the rules in part G

Subject to rule 5, the rules in part G can be changed only by a **resolution** of **purchasers** and **generators** voting in accordance with the process set out in rule 2 of section IV of part A and the voting entitlements set out in schedule A6, or by the **Board** under rule 1.9 of section IV of part A.

5 Fees in part G

Each **member** of part G will be attributed fees in accordance with:

5.1 Grid exit point fees

For each **purchaser**, a fee of $100.00 (excluding **GST**) for each **grid exit point** at which the **purchaser** has notified the **reconciliation manager** pursuant to rule 2.1 of section V of part G of an intention to submit **bids**. The **clearing manager** will allocate this fee towards the fee payable to the **reconciliation manager**;

5.2 Grid injection point fee

For each **generator**, a fee of $100.00 (excluding **GST**) for each grid injection point at which the **generator** has notified the **reconciliation manager** of an intention to submit **offers**. The **clearing manager** will allocate this fee towards the fee payable to the **reconciliation manager**;

5.3 Auction fee

For each **generator**, the **auction fee** calculated in accordance with section VI of part I. The **clearing manager** will allocate this fee towards the **auction fee** payable to the **clearing manager**;

5.4 Other costs

Any cost or fee allocated by the **Board** to part G that is not covered by rules 5.1 – 5.3 will be allocated under this rule 5.4. The proportion allocated to each **member** of part G will be equal to the **member's** share of votes allocated under rule 1.6.2 of schedule A6 as at dates specified under rule 5 of schedule A7.

6 Changing the rules in section 1

The rules in this section can be changed only in accordance with the process set out in rule 4 of section I of part A.

II Bids and offers

1 Contents of section II

The rules in section II concern the processes by which:

- **Bids** and **offers** for **electricity** are submitted and revised by **generators** and **purchasers**;
- Information from the **grid owners** is submitted and revised;
- **Reserve offers** are submitted and revised by **ancillary services agents**; and
- The **system operator** collects the information referred to in this rule.

2 Bids and offers will be lawful

It will be a breach of the **rules** for any **purchaser** or **generator** or **ancillary services agent** to make any **bid** or **offer** if that **purchaser** or **generator** or **ancillary services agent** knows or ought reasonably to know at the time of making the **bid** or **offer** that the performance of any contract that would arise from the acceptance of that **bid** or **offer** would contravene any law. No **purchaser** or **generator** or **ancillary services agent** will maintain any such **bid** or **offer** if that **purchaser** or **generator** or **ancillary services agent** becomes aware or ought reasonably to have become aware that the performance of any contract that would arise from the acceptance of that **bid** or **offer** would contravene any law. For the purposes of this rule, a **bid** or **offer** includes a **reserve offer**.

3 Bids and offer preparation

3.1 Generators will submit offers

Each **trading day**, each **generator** will submit to the **system operator** the **offers** pursuant to which the **generator** is prepared to sell **electricity** to the **clearing manager** for each **trading period** of the following **trading day**. **Offers** will be submitted at any time so that the **system operator** receives them by 1300 hours.

3.2 Generators' notice of initial offer

Notwithstanding rule 3.1, a **generator** must give not less than five **business days'** notice in writing to the **system operator** prior to that **generator** making an **offer** for the first time in respect of a generation plant. The **generator** will comply with any request the **system operator** may make for information concerning the generation plant which the **system operator** may require for the purposes of scheduling and dispatch in accordance with the **rules** as reasonably specified by the **system operator** from time to time.

3.3 Purchasers will submit bids

Each **trading day**, each **purchaser** will submit to the **system operator** the **bids** pursuant to which the **purchaser** is prepared to purchase **electricity** from the **clearing manager** for each **trading period** of the following **trading day**. **Bids** will be submitted at any time so that they are received by the **system operator** by 1300 hours.

3.4 Purchasers' notice of initial offer

Notwithstanding rule 3.3, a **purchaser** must give not less than five **business days'** notice in writing to the **system operator** prior to that **purchaser** making a **bid** for the first time. The **purchaser** will comply with any request the **system operator** may make for information concerning the **purchaser** that the **system operator** may require for the purposes scheduling and dispatch in accordance with the **rules** as reasonably specified by the **system operator** from time to time.

3.5 Bids and offers are valid until cancelled

Any **purchaser** or **generator** that fails to make a **bid** or **offer** pursuant to rules 3.1 or 3.3 by 1300 hours of any **trading day**, will be deemed to have made the same **bid** or **offer** for the next **trading day** as that made in respect of the same **trading period** in the current **trading day** until that **bid** or **offer** is cancelled or revised by the **purchaser** or **generator**.

3.6 Offers will contain certain information

Each **offer** submitted by a **generator** will:

3.6.1 Form 1

Contain all the information required by Form 1 in schedule G1; and

3.6.2 Reasonable estimate of ability to generate

In relation to the generation plant that is the subject of the **offer**, not exceed, for each price band, the **generator's** reasonable estimate of the quantity of **electricity** capable of being supplied at that **grid injection point** by that generation plant given the price in that band.

3.7 Generators may specify units in offers

Each **offer** submitted by a **generator** will:

3.7.1 By unit for certain plant

Be specific to individual **generating units** for generation plant offered by that **generator** that cannot synchronise and come up to minimum load within the duration of a **trading period**; or

3.7.2 Otherwise by station

Be specific to individual stations for other generation plant offered by that **generator**.

3.8 Offers may be made by unit or plant

3.8.1 Generators have the option to offer by unit

Notwithstanding rule 3.7, a **generator** may choose to offer any generation plant on a unit basis. Any **generator** may exercise this option by giving the **system operator** not less than five **business days'** notice in writing of the exercise of the option. The **system operator** will, during that five **business day** period, make any necessary changes to the scheduling **software**.

3.8.2 Generators may change from unit to plant

Where a **generator** has exercised its option to offer any generation plant on a unit basis in accordance with rule 3.8.1, it may elect to change to submitting **offers** in accordance with rule 3.7. Such a change may be effected by giving the **system operator** not less than five **business days'** notice in writing of the change. The **system operator** will, during that five **business day** period, make any necessary changes to the scheduling **software**.

3.9 Offers may contain up to five price bands

An **offer** submitted by a **generator** may have a maximum of five price bands for each **trading period**. The price offered in each band will increase progressively from band to band as the aggregate quantity increases.

3.10 Bids will contain certain information and specify grid exit points

Each **bid** submitted by a **purchaser** will:

3.10.1 Form 2

Contain all the information required by Form 2 in schedule G1;

3.10.2 Reasonable endeavours to predict demand

For each price band, represent that **purchaser's** reasonable endeavours to predict the quantity of **electricity** which will be demanded at that **grid exit point** by that **purchaser** given the price in that band.

3.11 Bids may contain up to ten price bands

A **bid** submitted by a **purchaser** may have a maximum of 10 price bands for each **trading period**. The price **bid** in each band will decrease progressively from band to band as the aggregate quantity increases. The highest price band in each **bid** will be deemed to start at a quantity of zero.

3.12 How price is to be specified in bids or offers

Price in **bids** or **offers** will be expressed in dollars and whole cents per **MWh** excluding any **GST**. There will be no upper or lower limit on the prices that may be specified.

3.13 How quantity is to be specified in bids or offers

For each price band, a **bid** or **offer** will specify a quantity expressed in **MW**. The minimum quantity which may be bid or offered in a price band for a **trading period** is 0. **MW**.

3.14 Bids or offers may be revised or cancelled

Subject to rule 3.18, and to rule 5 of section III, each **purchaser** or **generator** may:

3.14.1 Revise bids or offers

Revise either, any of its bid or offer prices, or, any of its bid or offer quantities, as the case may be, for any **trading period** by submitting a new **bid** or **offer**, as the case may be, to the **system operator**. Any revised **bid** or **offer** may be made up to two hours prior to the beginning of the **trading period** in respect of which the **bid** or **offer** is made;

3.14.2 Cancel bids or offers

Cancel any of its **bids** or **offers** by notice in writing to the **system operator**. Any such cancellation of a **bid** or **offer** may be made up to two hours prior to the beginning of the **trading period** in respect of which the **bid** or **offer** was made.

3.15 Circumstances when revised bids or offers will be submitted

Whether before or within two hours prior to the beginning of the **trading period** to which the **bid** or **offer** applies and notwithstanding the provisions of rule 3.16, a **purchaser** or **generator** will immediately submit revised **bid** or **offer** quantities to the **system operator** whenever in relation to the quantities specified in the last **pre-dispatch schedule** published by the **system operator**:

3.15.1 Scheduled quantities expected to change by more than 20 MW or 10%

The quantity scheduled for a **trading period** at a **grid exit point** as being purchased by a **purchaser** is expected by that **purchaser** to change by more than 20 **MW** or 10% of the scheduled quantity (whichever is smaller);

3.15.2 Scheduled quantities expected to change by 10 MW or 10%

The ability of a **generator's** generation plant to generate the quantity scheduled for a **trading period** at a **grid injection point** is expected by that **generator** to change by more than 10 **MW** or 10% of the scheduled quantity (whichever is smaller),

provided that, notwithstanding rules 3.15.1 and 3.15.2, no **purchaser** or **generator** will be obliged to submit a revised **bid** or **offer** quantity if the expected change in the quantity is less than 5 **MW**.

3.16 No price changes two hours prior to the trading period

No **purchaser** or **generator** may revise the price in its **bid** or **offer** later than two hours prior to the relevant **trading period** in which that price has been bid or offered.

3.17 Quantity changes may be made within two hours prior to the trading period

Notwithstanding the provisions of rule 3.14 and 3.16, and only in accordance with rule 5 of section III, a **purchaser** or **generator** may cancel or revise a **bid** or **offer** or submit a new **bid** or **offer** to the **system operator** later than two hours prior to the relevant **trading period** only in circumstances where:

3.17.1 Bona fide physical reason

A **bona fide physical reason** necessitated the cancellation or revision; or

3.17.2 Grid emergency

The **system operator** issues a formal notice pursuant to rule 5 or 6 of Technical Code B in schedule C3;

Whether the cancellation or revision was in accordance with this rule will be determined in accordance with rule 3.20.

3.18 System operator notified of revised bids or offers in certain circumstances

Where a **purchaser** or **generator** submits a revised **bid** or **offer** or a cancellation of a **bid** or **offer** is made later than 15 minutes prior to the relevant **trading period**, before

sending that revision or cancellation the **purchaser** or **generator** will immediately notify the **system operator** of the revision or cancellation by telephone or electronic means (where such electronic means have been agreed between the **system operator** and the **purchaser** or **generator** before the **purchaser** or **generator** notified the revision or cancellation).

3.19 Board notified of revised bid or offer inside the two hour period

Any **purchaser** or **generator** which cancels a **bid** or **offer** or submits a revised bid or offer quantity to the **system operator** later than two hours prior to the relevant **trading period** will report each such cancellation or revision to the **Board** in writing together with an explanation of the reasons for such cancellation or revision. Any cancellation or revision made in the period up to 1200 hours on a **trading day** will be reported to the **Board** by 1700 hours of that **trading day**. Any cancellation or revision made after 1200 hours on a **trading day** will be reported to the **Board** by 0900 hours of the following **trading day**.

3.20 Board decides whether revised bid or offer in accordance with rule 3.17

The **Board** will consider every report made to it under rule 3.19 and determine whether the cancellation, revised **bid** or **offer**, or new **bid** or **offer**, made by the **purchaser** or **generator** was in compliance with rule 3.17.

3.21 Transmission of information through the information system

All information to be submitted by a **purchaser** or **generator** pursuant to this rule 3 will be transmitted to the **system operator** through the electronic facility contained in the **information system** for this purpose.

3.22 Confirmation of bids and offers through the information system

The **system operator** will immediately confirm receipt of any information received by it from any **purchaser** or **generator** under this section II, through the electronic facility contained in the **information system** for this purpose. Such confirmation will also contain a copy of the information received by the **system operator** together with the time of receipt.

3.23 Purchasers and generators to check if no confirmation received

If a **purchaser** or **generator** has not received a confirmation that its information has been received by the **system operator** within 10 minutes after that information has been sent, that **purchaser** or **generator** will telephone the **system operator** to check whether the information has been received. If it has not, the **purchaser** or **generator** will resend the information. The process set out in rules 3.21 and 3.22 and in this rule will then be repeated until such time as the **system operator** has confirmed receipt of the information from the **purchaser** or **generator**.

3.24 Backup procedures if the information system is unavailable

In circumstances where the **information system** is unavailable to either receive **bids** or **offers** or to confirm the receipt of **bids** or **offers**, then **purchasers** and **generators** or the **system operator**, as the case may be, will follow the backup procedures that will be specified by the **market administrator** from time to time.

3.25 Backup procedures to be in place and the subject of consultation

The backup procedures referred to in rule 3.24 will be put in place by the **Board** in consultation with **purchasers, generators** and the **system operator**. The **market administrator** will ensure that there is always some form of backup procedure notified to the **purchasers, generators** and the **system operator**.

3.26 Plant with special circumstances

Notwithstanding rules 3.6.2 and 3.15, no **generator** will be obliged to submit a revised offer quantity in respect of an **automatic control plant** where:

3.26.1 Offer must be based on pre-programmed levels

The **offer** submitted in respect of that **automatic control plant** is based on a profile of the pre-programmed levels of the **automatic control plant**; and

3.26.2 Offer must be submitted at a negative price

Such **offer** is made at a negative price and rule 1.15 of section VI of part I applies to the **generator**; and

3.26.3 Offer must otherwise comply with rule 3

Such **offer** is otherwise made in accordance with this rule 3; and

3.26.4 Quality and Security rules must be complied with

The **system operator** has confirmed in writing to the **generator** that it is satisfied that any such **offer** will meet the requirements of the **dispatch objective**; and

3.26.5 Scheduled quantity must not change more than 10MW

The **generator** expects that the ability of the **automatic control plant** to generate the quantity scheduled for a **trading period** at a **grid injection point** will not change by more than 10 **MW** of the scheduled quantity.

3.27 Exception for small generation

Notwithstanding rule 3.1, no **generator** will be required to submit an **offer** for any station that is 5 **MW** or smaller, and any **electricity** sold to the **clearing manager** from such a station will be regarded as **un-offered generation**.

4 Special treatment of some grid exit points

4.1 Two or more grid exit points may be treated as one in some cases

For the purpose of sections II, III and V any **purchaser**, **generator** or **service provider** may apply to the **Board** to have two or more **grid exit points** treated as one **grid exit point** for the purposes of metering, switching, dispatch, pricing, scheduling, clearing, settlement, and reconciliation where there are two or more **local networks** supplied from the **grid** at the same physical location.

4.2 Applications for reconciliation purposes limited

Any application made pursuant to rule 4.1 for the purposes of reconciliation will be limited to the **service provider** fees payable to the **reconciliation manager** under the terms of the relevant **service provider** contract.

4.3 Factors to be considered by the Board

In determining an application under rule 4.1, the **Board** will consider the following factors:

4.3.1 Efficiency of creating separate price for grid exit points

The efficiency or otherwise, of creating a separate price for **grid exit points** that are at the same, or at a very similar physical location;

4.3.2 The geographical similarity of the grid exit point

The geographical similarity of the **grid exit points** that are subject of the application;

4.3.3 The effect on any service provider

The effect on any **service provider** in terms of added processing time and complexity in treating as separate two or more **grid exit points** which are in the same or in a geographically similar location;

4.3.4 Any submission received

Any submissions received from **participants** pursuant to rule 4.4;

4.3.5 Any other matter as the Board may think fit

Any other matter as the **Board** may think fit.

4.4 Interested parties will be notified

Participants will be notified in writing of any application under rule 4.1 within two **business days** of such an application being received by the **Board**. **Participants** then have 5 **business days** to make submissions to the **Board** on the application. The **Board** will not consider any application until after the period for making submissions has expired.

4.5 Time will be allowed to implement the decision of the Board

Once an application under rule 4.1 has been approved the **Board** will consult with all the **service providers** about the time it may take to implement any changes that may be needed to accommodate the decision. The **Board** will then notify each **participant** of the date from which its decision will come into effect.

5 Information from grid owners

5.1 Standing data on grid capability to be provided to the system operator

Each **grid owner** will provide standing data on the capability of the transmission system to the **system operator** consistent with the configuration of the transmission system in the algorithms described in schedule G6. This transmission data will contain all the information required by Form 3 in schedule G1 and will include details of:

5.1.1 AC system configuration

The transmission lines which are to be represented in the algorithms described in schedule G6;

5.1.2 AC system capacity

AC system capacity including the capacity limit of each transmission line of the transmission system represented in the algorithms described in schedule G6; and

5.1.3 AC system loss characteristics

AC system loss characteristics including transmission loss functions for each transmission line of the transmission system represented in the algorithms described in schedule G6.

5.2 Standing data on HVDC capability to be provided to the system operator

The **HVDC owner** will provide standing data on the capability of the **HVDC link** to the **system operator** consistent with the configuration of the **HVDC link** in the algorithms described in schedule G6. This data will contain all the information required by Form 4 in schedule G1 and will include details of:

5.2.1 HVDC configuration

The HVDC transmission lines which are to be represented in the algorithms described in schedule G6;

5.2.2 HVDC system capacity

HVDC link capacity including the capacity limit of each transmission line of the transmission system represented in the algorithms described in schedule G6; and

5.2.3 HVDC system loss characteristics

HVDC system loss characteristics including transmission loss functions for each transmission line of the transmission system represented in the algorithms described in schedule G6.

5.3 Standing data on transformer capability to be provided to the system operator

Each **grid owner** will provide standing data on the capability of transformers to the **system operator** consistent with the configuration of those transformers in the algorithms described in schedule G6. This data will contain all the information required by Form 5 in schedule G1 and will include details of:

5.3.1 Transformer capacity

Transformer capacity of each transformer represented in the algorithms described in schedule G6; and

5.3.2 Transformer loss characteristics

Transformer loss characteristics including transformer loss functions for each transformer represented in the algorithms described in schedule G6.

5.4 Transmission grid capability information to be updated

By 1300 hours of each **trading day**, the **grid owners** will submit to the **system operator** any update of the information described in rules 5.1, 5.2 or 5.3 as set out in Forms 3, 4, 5, or 8 in schedule G1 as the case may be.

5.5 Grid owners will submit revised information to the system operator

At any time up to the relevant **trading period**, each **grid owner** will immediately submit revised information to the **system operator** whenever there has been or is likely to be:

5.5.1 Any changes in configuration

Any change to the information described in rule 5.1 or 5.2; or

5.5.2 Changes of 5% in capacity limit

Any change of 5% or more in the capacity limit of any transmission line of the transmission system, of the **HVDC link**, or of any transformer, represented in the algorithms described in schedule G6; or

5.5.3 Changes of 5% in losses

Any change to loss characteristics, including loss functions, for any transmission line of the transmission system or of the **HVDC link**, or for any transformer, represented in the algorithms described in schedule G6 which causes any losses or marginal losses to change by 5% or more; or

5.6 System operator notified of revised information in certain circumstances

Where any **grid owner** has sent revised information to the **system operator** pursuant to rule 5.5 later than 15 minutes prior to the relevant **trading period**, the **grid owner** will also immediately notify the **system operator** of the revised information by telephone or by such other mechanism as may be agreed from time to time in writing between **grid owners** and the **system operator**.

5.7 Transmission of grid owner information through the information system

All information required to be submitted by a **grid owner** pursuant to this rule 5 will be transmitted to the **system operator** through the electronic facility contained in the **information system** for this purpose.

5.8 Confirmation of grid owner information through the information system

The **system operator** will immediately confirm to each **grid owner** receipt of all information received from that **grid owner** through the electronic facility contained in

the **information system** for this purpose. Such confirmation will also contain a record of the time of receipt.

5.9 Grid owner to check if no confirmation received

If any **grid owner** has not received a confirmation that its information has been received by the **system operator** within 10 minutes after that information has been sent, the **grid owner** will telephone the **system operator** to check whether the information has been received. If it has not, the **grid owner** will resend the information. The process set out in rules 5.7, 5.8 and this rule will then be repeated until such time as the **system operator** has confirmed receipt of the information from the **grid owner**.

5.10 Backup procedures if the information system is unavailable

In circumstances where the **information system** is unavailable to either receive information or to confirm the receipt of information, then the **grid owner** or the **system operator**, as the case may be, will follow the backup procedures that may be specified by the **market administrator** from time to time.

5.11 Backup procedures to be in place and the subject of consultation

The backup procedures referred to in rule 5.10 will be put in place by the **market administrator** in consultation with the **grid owners** and the **system operator**. The **market administrator** will ensure that there is always some form of backup procedure notified to the **grid owners** and the **system operator**.

6 Offering instantaneous reserve

6.1 System operator to approve ancillary service agents wishing to make reserve offers

Before any **ancillary service agent** makes a **reserve offer** pursuant to this rule 6, that **ancillary service agent** must have a valid and enforceable contract with the **system operator** to provide **reserve offers** in accordance with the **rules**.

6.2 Ancillary service agents will submit reserve offers to the system operator

Each **trading day**, each **ancillary service agent** which has a contract as described in rule 4.11 of section III of part G may submit to the **system operator reserve offers** for the **trading periods** of the following **trading day**. **Reserve offers** will be submitted so that the **system operator** receives them by 1300 hours.

6.3 Reserve offers will contain certain information

Each **reserve offer** submitted by an **ancillary service agents** pursuant to rule 6.2 may be for **fast instantaneous reserve** or for **sustained instantaneous reserve** or both and must:

6.3.1 Form 6 for partly loaded or tail water depressed spinning reserves

Contain all the information required by Form 6 in schedule G1;

6.3.2 Form 7 for interruptible load

Contain all the information required by Form 7 in schedule G1;

6.3.3 Specify the grid injection point or grid exit point

Specify the **grid injection point** or the **grid exit point** for the **instantaneous reserve**; and

6.3.4 Reasonable endeavours to represent ability to provide instantaneous reserve

Be a reasonable estimate of the quantity of **instantaneous reserve** available from that **ancillary service agent** at that **grid injection point** or **grid exit point**.

6.4 Generators units to be specified in reserve offers

Each **reserve offer** submitted pursuant to rule 6.3.1 will be made by reference to the same unit or station which is the subject of an **offer** pursuant to rules 3.8 or 3.9.

6.5 Inter-relationship between reserve and energy offers

It is acknowledged that **reserve offers** and **offers** made pursuant to rule 6.3.1 , where they are in respect of the same individual **generating unit** or individual station (as required under rules 3.7 or 3.8), are inter-related in that it may be the greater the energy dispatched the lower the **instantaneous reserve** and vice versa. Accordingly, the **ancillary service agent** will not be in breach of rule 3.6.2 or rule 6.3.4 if the offer quantity under rule 3 and quantity of **instantaneous reserve** offered under this rule 6 are duplicated, and the **ancillary service agent** will not be scheduled by the **system operator** nor will a **dispatch instruction** from the **system operator** be given such that the combined dispatch quantity and **instantaneous reserve** exceeds the capacity of the individual **generating** unit or individual station, as the case may be.

6.6 Inter-relationship between reserve and energy bids

It is acknowledged that **bids** and **reserve offers** made pursuant to rule 6.3.1 may be inter-related in that the dispatch of the **reserve offer** will lower the quantity purchased at that **grid exit point** and vice versa. Accordingly, the **ancillary service agent** will not be in breach of rule 3.11.2 to the extent that that **ancillary service agent's reserve offer** is dispatched.

6.7 Reserve offers may contain up to three price bands

Each **reserve offer** submitted by an **ancillary service agent** may, for each type of **instantaneous reserve**, have a maximum of three price bands for each **trading period**. The price offered in each band will increase progressively from band to band as the aggregate quantity increases.

6.8 How price is to be specified in reserve offers in respect of generation

Price in each band of a **reserve offer** made by an **ancillary service agent** pursuant to rule 6.3.1or that is made on behalf of a **generator** will be expressed in dollars and whole cents per **MWh** excluding **GST**. There will be no upper or lower limit on the prices that may be specified.

6.9 How price is to be specified in reserve offers for interruptible load

Price in each band of a **reserve offer** made by an **ancillary service agent** pursuant to rule 6.3.2 will be expressed in dollars and whole cents per **MWh** excluding **GST**. There will be no upper or lower limit on the prices that may be specified.

6.10 How quantity is to be specified in reserve offers

For each price band, a **reserve offer** will specify the quantity of **instantaneous reserve offered** to respond in 6 seconds or 60 seconds as a proportion of **electricity** output or consumption up to a specified maximum quantity or as a quantity available to be interrupted and will be expressed in **MW** to not more than three decimal places. The minimum quantity which may be offered in a price band for a **trading period** is 0.001 **MW**.

6.11 Reserve offers revised if energy offers revised

An **ancillary service agent** that has made a **reserve offer** must revise or cancel that **reserve offer** if it has, in accordance with the provisions of rule 3, revised or cancelled the **offer** made in respect of the equivalent item of generation plant.

6.12 Reserve offers may be revised or cancelled

Notwithstanding rule 6.11, any **ancillary service agent** may:

6.12.1 Revise reserve offers

Revise either its **reserve offer** prices or its **reserve offer** quantities, as the case may be, for any **trading period** by submitting a new **reserve offer** to the **system operator**. Any revised **reserve offer** may be made not later than two hours prior to the beginning of the **trading period** to which the **reserve offer** applies; or

6.12.2 Cancel reserve offers

Cancel any **reserve offer** by notice in writing to the **system operator**. Any such cancellation may be made up to two hours prior to the beginning of the **trading period** in respect of which the **reserve offer** was made.

6.13 No price changes two hours prior to the trading period

No **ancillary service agent** may revise the price for its **reserve offer** later than two hours prior to the beginning of the **trading period** in which that price has been offered.

6.14 Quantity changes may be made within two hours prior to the trading period

Notwithstanding the provisions of rules 6.12 and 6.13, and only in accordance with rule 5 of section III, any **ancillary service agent** may cancel or revise a **reserve offer** or submit a new **reserve offer** to the **system operator** later than two hours prior to the relevant **trading period** only in circumstances where:

6.14.1 Bona fide physical reason

A **bona fide physical reason** necessitated the cancellation or revision; or

6.14.2 Grid emergency

The **system operator** issues a formal notice pursuant to rules 5 or 6 of Technical Code B in schedule C3;

but not otherwise. Whether or not the cancellation or revision was necessitated by a **bona fide physical reason** will be determined in accordance with rule 6.17.

6.15 System operator notified of revised reserve offers in certain circumstances

Where a cancellation of a **reserve offer** or a revision of a **reserve offer** is to be sent to the **system operator** pursuant to rule 6.14 and that cancellation or reserve is submitted later than 15 minutes prior to the relevant **trading period**, prior to sending that cancellation or revision the **ancillary service agent** will immediately notify the **system operator** of the cancellation revision by telephone, or electronic means (where such electronic means have been agreed between the **system operator** and that **ancillary service agent** prior to the **ancillary service agent** notifying the **system operator** of the cancellation or revision).

6.16 Board notified of revised reserve offer inside the two hour period

Any **ancillary service agent** which cancels a **reserve offer** or submits a revised **reserve offer** quantity to the **system operator** later than two hours prior to the

relevant **trading period** will report each such cancellation or revision to the **Board** in writing together with an explanation of the reasons for such a cancellation or revision.

The **system operator** will advise the **Board** of any cancellations or revisions of the availability of reserves which are provided under **ancillary service** contracts not covered by this rule 6. Any cancellation or revision made in the period up to 1200 hours on any day will be reported to the **Board** by 1700 hours of that day. Any cancellation or revision made after 1200 hours on any day will be reported to the **Board** by 0900 hours of the following day.

6.17 Board to decide on whether revised reserve offer in accordance with rule 6.14

The **Board** will consider every report made to it under rule 6.16 and determine whether the cancellation, or revised **reserve offer**, or new **reserve offer**, made by the **ancillary services agent** was in compliance with rule 6.14.

6.18 Transmission of reserve offers through the information system

All **reserve offers** or cancellations of **reserve offers** submitted by **ancillary service agents** pursuant to this rule 6 will be transmitted to the **system operator** through the electronic facility contained in the **information system** for this purpose.

6.19 Confirmation of reserve offer through the information system

The **system operator** will immediately confirm receipt to the **ancillary service agents** of all **reserve offers** or cancellations of **reserve offers** received from the **ancillary service agents** through the electronic facility contained in the **information system** for this purpose. Such confirmation will also contain a copy of the **reserve offer** or cancellations of **reserve offers** received by the **system operator** together with the time of receipt.

6.20 Ancillary service agents to check if no confirmation received

If any **ancillary service agent** has not received a confirmation that its **reserve offer** or cancellation of a reserve offer has been received by the **system operator** within 10 minutes after that **reserve offer** or cancellation of a **reserve offer** has been sent, that **ancillary service agent** will telephone the **system operator** to check whether the **reserve offer** or cancellation of a **reserve offer** has been received. If it has not, the **ancillary service agent** will resend the **reserve offer** or cancellation of a **reserve offer**. The process is set out in rules 6.18 and 6.19 and this rule will then be repeated until such time as the **system operator** has confirmed receipt of the **reserve offer** or cancellation of a reserve offer from the **ancillary service agent**.

6.21 Backup procedures if the information system is unavailable

In circumstances where the **information system** is unavailable to either receive **reserve offers** or cancellations of **reserve offers** or to confirm the receipt of **reserve offers** or such cancellations, then **ancillary service agents** or the **system operator**, as the case may be, will follow the backup procedures that will be specified by the **market administrator** from time to time.

6.22 Backup procedures to be in place and the subject of consultation

The backup procedures referred to in rule 6.21 will be put in place by the **market administrator** in consultation with **ancillary service agents** and the **system operator**. The **market administrator** will ensure that there is always some form of backup procedure notified to the **ancillary service agents** and the **system operator**.

III Scheduling & Dispatch

1 Contents of section III

The rules in section III outlines the processes by which the **system operator** prepares the **pre-dispatch schedules** and the **dispatch schedules** that meet the **dispatch objective.** Further, the rules in section III outline the process by which the **system operator** implements the **dispatch schedule**.

The **rules** also concern the processes for the preparation and publication of the **forecast prices**, **forecast reserve prices**, **dispatch prices** and **dispatch quantities**.

2 The dispatch objective

2.1 System operator's dispatch objective

The **system operator's dispatch objective** is to maximise for each half hour the gross economic benefits to all **purchasers** of **electricity** at the **grid exit points**, less the cost of supplying the **electricity** at the **grid injection points** and the costs of **ancillary services** purchased by the **system operator** pursuant to section III of part C, in accordance with the methodology set out in schedule G6, subject to:

2.1.1 Capability and availability

The capability of generation and **ancillary services** and the configuration and capacity of the **grid** and information made available by **asset owners**; and

2.1.2 The PPOs and bilateral quality issues

Achieving the **principal performance objectives** and any arrangements of the type described in rule 4 of section II of part C.

2.1.3 Restoration

Meeting the requirements of rule 3 of section II of part C in relation to restoration of the power system,

provided that in the case of any conflict between rule 2.1.2 and rule 2.1.3 the latter will take priority

3 Process for preparing a pre-dispatch schedule

3.1 Each pre-dispatch schedule will cover the rest of the schedule period

The **system operator** will prepare a **pre-dispatch schedule** for each **schedule period**.

3.2 Pre-dispatch schedule to accommodate certain things

In preparing each **pre-dispatch schedule**, the **system operator** will use the most recent information received pursuant to section II of part G and all other described in schedule G6.

3.3 Methodology used to prepare the pre-dispatch schedule is in schedule G6

In preparing each **pre-dispatch schedule** and set of **forecast prices**, the **system operator** will use the methodology set out in schedule G6.

3.4 System operator sends pre-dispatch schedule to clearing manager and pricing manager

Once the **system operator** has completed a **pre-dispatch schedule**, the **system operator** will send the **pre-dispatch schedule** to the **clearing manager** and to the **pricing manager** in accordance with rule 8.

3.5 Contents of each pre-dispatch schedule

Each **pre-dispatch schedule** prepared by the **system operator** will specify, for each **trading period** in the **schedule period**:

3.5.1 Expected level of dispatch

The expected average level of **electricity** output for each generation plant or unit;

3.5.2 Expected level of instantaneous reserve

The expected average level of **instantaneous reserve** for each generation plant or unit or **interruptible load**;

3.5.3 Generation plant status

Generation plant status, including requirements for **voltage support**, **frequency keeping**, over frequency tripping and synchronisation.

3.5.4 Expected level of demand at each grid exit point

The expected average level of demand at each **grid exit point**;

3.5.5 Forecast prices

Forecast prices for each **grid injection point**, each **grid exit point** and the **reference points**;

3.5.6 Forecast reserve prices

Forecast reserve prices for the North Island and the South Island;

3.5.7 Forecast marginal location factors

Forecast marginal location factors for each **grid injection point** and each **grid exit point**; and

3.5.8 Scheduled maximum reserve risk

The expected largest single reserve risk for the North Island and the South Island.

3.6 Block dispatch may occur

A **generator** may agree with the **system operator** to treat a group of stations as a **block dispatch group**. A **block dispatch group** may only be based on hydrological coupling and similarity in the **final marginal location factors** for the **grid injection points**. In circumstances where an agreement for block dispatch has been reached, the following procedures will apply:

3.6.1 The system operator to identify stations in block dispatch group

The **system operator** will identify in each **pre-dispatch schedule** those stations or units that are part of a **block dispatch group**.

3.6.2 The system operator to notify constraints

The **system operator** will notify the **generators** of the implications of any AC transmission system constraints that apply within the **block dispatch group**. The notification will include the duration of any such constraint and how the constraint divides the stations or units of a **block dispatch group** into sub-**block dispatch groups**.

3.7 Previous block dispatch agreements stand

Every agreement with the **system operator** made in relation to a **block dispatch group** under the **NZEM** rules shall be deemed to have been validly made under rule 3.6.

3.8 Frequency of pre-dispatch schedules

The **system operator** will release to the market a schedule of **pre-dispatch schedule** commencement times. Any changes to this schedule will be released to the market no less than 5 **business days** before such changes become effective.

The **system operator** will commence preparation of a **pre-dispatch schedule** at 1300 hours each day. Also, the **system operator** will ensure that no more than two hours elapse between the times of commencement of preparation of each consecutive **pre-dispatch schedule**. The **system operator** will complete each **pre-dispatch schedule** before the commencement of the preparation of the next. The

system operator will use reasonable endeavours to reduce the time between the commencement of the preparation of each consecutive **pre-dispatch schedule** with the aim of commencing preparation of a **pre-dispatch schedule** during each **trading period**.

3.9 New schedule to be prepared when certain information is received

Notwithstanding rule 3.8, the **system operator** will prepare a new **pre-dispatch schedule** whenever the **system operator** receives revised information pursuant to section II of part G or schedule G6 such that the revised information, if incorporated into the **pre-dispatch schedule**, would, in the opinion of the **system operator**, lead to a material change in the information described in rules 3.5.1 to 3.5.8 contained in the current **pre-dispatch schedule**.

3.10 Trading period information to be given to pricing manager and clearing manager

The **system operator** will send to the **pricing manager** and to the **clearing manager** the final information provided to the **system operator** pursuant to section II in relation to each **trading period** of the previous **trading day**. The **system operator** will provide this information to the **pricing manager** and to the **clearing manager** by 0730 hours of each **trading day**.

4 The dispatch process

4.1 Receipt of new pre-dispatch schedule supersedes the old schedule

Each new **pre-dispatch schedule** sent by the **system operator** pursuant to rule 3.4 will become the new **dispatch schedule**. In the **trading period** after a new **dispatch schedule** arises subject to any adjustments made by the **system operator** in accordance with rule 4.2, the **system operator** will formulate and issue **dispatch instructions** in accordance with that new **dispatch schedule**.

4.2 The system operator may adjust the dispatch schedule

The **system operator** will adjust the **dispatch schedule** for the current **trading period** when, in its reasonable opinion, conditions warrant that action in order to meet the **dispatch objective** set out in rule 2. In carrying out such adjustment within the current **trading period**, the **system operator** will use the methodology set out in schedule G6.

4.3 The system operator may depart from the dispatch schedule

The **system operator** may exercise discretion in departing from the **dispatch schedule** only where it is necessary to meet:

4.3.1 Dispatch objective

The **dispatch objective**; or

4.3.2 Restoration

The requirements of rule 3 of section II of part C in relation to restoration of the power system.

4.4 System operator will use certain things

In determining dispatch instructions, the **system operator** will use:

4.4.1 The current price order in the dispatch schedule

The price order embodied in the current **dispatch schedule**;

4.4.2 Revised offers

Any revised **offer** from a **generator** notified in accordance with rule 3.14 of section II of part G;

4.4.3 Ramp rates

Any ramp rates of **generators**;

4.4.4 Revised bids

Any revised **bid** from a **purchaser** notified in accordance with rule 3.14 of section II of part G;

4.4.5 Actual demand from the previous trading period

The actual profile of demand during the previous **trading period**;

4.4.6 Expected profile of demand

The expected profile of demand within the current **trading period** and the subsequent **trading periods**;

4.4.7 Current output of generators

The current output levels of each **generator**;

4.4.8 Revised reserve details

Any revised **reserve** offer from a **generator** or **ancillary services agent** notified in accordance with rule 6.15 of section II of part G;

4.4.9 Revised grid owner information

Any revised information received from any **grid owner** pursuant to rule 5.5 of section II of part G; and

4.4.10 Order of reserve specified by the system operator

The order in which reserves may be called as will be specified by the **system operator** from time to time.

4.5 The system operator will formulate and issue dispatch instructions

The **system operator**, in implementing each **dispatch schedule**, will formulate and issue dispatch instructions to **generators** and **ancillary service providers** in a reasonable and timely manner to initiate action in either the current **trading period** or the next **trading period** given the number of dispatch instructions required to be given in that **trading period**.

4.6 Content of dispatch instructions to generators

The **system operator** will issue dispatch instructions determined pursuant to rule 4.4 to each **generator**. Each dispatch instruction will instruct a **generator** to carry out one of the following in relation to a generation plant or unit or **block dispatch group**:

4.6.1 Increase or decrease active power

Provide, increase or decrease active power;

4.6.2 Increase or decrease instantaneous reserve

Provide, increase or decrease **instantaneous reserve**;

4.6.3 Provide frequency keeping reserve

Provide an amount and quality of reserve power to regulate continuously frequency;

4.6.4 Increase or decrease reactive support

Provide, increase or decrease reactive support;

4.6.5 Adjust transformer tap positions

Adjust transformer tap positions to maintain voltage levels;

4.6.6 Control voltage

Provide, increase or decrease or maintain voltage;

4.6.7 Synchronise or de-synchronise generation plant

Synchronise or de-synchronise generation plant within the current **trading period** or the next **trading period** either directly or in accordance with any process that may be agreed with the **generator**; or

4.6.8 Switch on or switch off over frequency schemes

Switch on or switch off schemes for over frequency tripping where such capability exists in generation plant that a **generator** has offered to provide to the **system operator**.

4.6.9 Manage maximum reserve risk within a block

Manage the generation plant within a **block dispatch group** so as to ensure the largest single reserve risk within that **block dispatch group** does not exceed the reserve risk notified by the **system operator** for the North Island and the South Island for each **trading period**. The **system operator** will advise the relevant maximum reserve risk as part of such a dispatch instruction; or

4.6.10 Manage AC transmission system constraints within a block

Manage the total aggregate generation for each **sub-block dispatch group** for that **generator** so as to not exceed the total sum of the dispatched quantities for each generation plant or unit comprising that **sub- block dispatch group**, for the duration of the notice. The **system operator** will advise any AC transmission system constraints that occur within a **block dispatch group** and how that constraint divides the stations or units of a **block dispatch group** into **sub-block dispatch groups** as part of such a dispatch instruction.

4.7 Content of dispatch instructions to reserve and interruptible load suppliers

The **system operator** may issue dispatch instructions to an **ancillary service agent** which has made a **reserve offer** to arm or disarm **interruptible load** or to disconnect or restore demand.

4.8 Form of dispatch instruction

When issuing a dispatch instruction pursuant to rules 4.6 or 4.7, the **system operator** will specify:

4.8.1 Plant or interruptible load to which the instruction applies

The generation plant, unit, **block dispatch group** or **interruptible load** to which the dispatch instruction applies;

4.8.2 The desired outcome of the instruction

The desired outcome of the dispatch instruction formulated in accordance with rule 4.6;

4.8.3 The start time for the instruction

If the start time for the dispatch instruction differs from the issue time, the start time within the current **trading period** or the next **trading period**;

4.8.4 Target time where ramp rates are involved

Where specific ramp rates are concerned, a specific target time to reach the desired outcome; and

4.8.5 The time the instruction was issued

The time the dispatch instruction was issued.

4.9 Dispatch instructions to be logged

Electronic communication will be used to pass dispatch instructions between the **system operator** and each **generator**. Voice communication, or electronic communication (where such facility exists), will be used to pass dispatch instructions between the **system operator** and each **ancillary services agent**. The **system operator will** log and record all dispatch instructions to **generators** and **ancillary services agent**. Each **generator** and **ancillary services agent** will also log all dispatch instructions that it receives from the **system operator**. Where the **system operator**:

4.9.1 Dispatch instruction to plant required by system operator

Has given a dispatch instruction to a **generator** to generate from a generation plant required by the **system operator** to be scheduled pursuant to rule 3.5, the **system operator** will inform the **clearing manager** of the quantity of **electricity** that was the subject of such instruction and the **trading periods** for which the instruction was given. The **system operator will** provide this information to the **clearing manager** by 1600 hours on the 7th **business day** of each **billing period** in respect of the previous **billing period**.

4.9.2 All dispatch instructions to clearing manager

Has given a dispatch instruction to a **generator** or **ancillary services agent** the **system operator will** provide the **clearing manager** with a copy of the log of dispatch instructions by 1600 hours on the 7th **business day** of each **billing period** in respect of the previous **billing period**.

4.9.3 Acknowledgement of dispatch instructions

Has given a dispatch instruction to a **generator** or an **ancillary services agent**, that person will acknowledge to the **system operator** the receipt of that dispatch instruction within four minutes of receiving that dispatch instruction, and will use its reasonable endeavours to acknowledge to the **system operator** the receipt of that dispatch instruction within three minutes of receiving that dispatch instruction.

4.10 Backup procedures if communication is not possible

The **system operator** will follow the back-up procedures that will be specified by it from time to time where:

4.10.1 None of the mechanisms is available

None of the mechanisms described in rule 4.9 is available to send dispatch instructions pursuant to that rule; and/or

4.10.2 System operator does not receive an acknowledgement

The **system operator** does not receive an acknowledgement from a **generator** of the receipt of a dispatch instruction under rule 4.9.3 within ten minutes of issuing that dispatch instruction;

4.11 Dispatch instructions will be complied with

Each **generator** or **ancillary services agent** which is affected by the **rules** will comply with all dispatch instructions properly given by the **system operator** in accordance with rule 4.6 except where, in the reasonable opinion of that **generator** or **ancillary services agent**, personnel or plant safety is at risk or following the dispatch instruction will contravene any law. Where any such circumstances exist, the affected **generator** or **ancillary services agent** will immediately notify the **system operator** of the circumstance. For the avoidance of doubt, an instruction of the type set out in rules 4.6.2 to 4.6.5 and rules 4.6.6 where outside the obligations in part C, section II, rule 3.1 to 3.5 will not be properly given if the **generator** or **ancillary services agent** to whom the instruction was given does not have a valid and enforceable contract with the **system operator** for the provision of those services.

4.12 Generators to make staff or facilities available to meet dispatch instructions

Each **generator** will ensure, with respect to each of its generation plants which is the subject of an **offer** that appropriate personnel or facilities are available to receive and comply with any dispatch instruction properly given by the **system operator** to that **generator**. Nothing in this rule 4.12 will be construed as limiting the ability of any **generator** to have a control centre that operates one or more items of generation plant by remote control.

4.13 Ancillary services agent to make staff or facilities available to meet dispatch instructions

Each **ancillary services agent** will ensure, with respect to any **instantaneous reserve** which is the subject of a **reserve offer** for the **trading period**, that appropriate personnel or facilities are available to receive and comply with any dispatch instruction properly given by the **system operator** to that **ancillary services agent**.

4.14 Generators and ancillary services agents may cease to follow dispatch instructions on certain grounds

Each **generator** or **ancillary services agent** may cease to comply with a dispatch instruction from the **system operator** only in circumstances where, in the reasonable opinion of that **generator** or **ancillary services agent**, personnel or plant safety are at risk or where continuing to follow the dispatch instruction will contravene any law. In such cases the **generator** or **ancillary services agent** will immediately notify the **system operator** that the dispatch instruction is no longer being complied with.

4.15 Generators have flexibility within a block dispatch group

Each **generator** may synchronise, de-synchronise, or alter the output of any generation plant within a **block dispatch group** provided that the **system operator** is consulted with regard to such action prior to that action being taken.

5 Rules governing the preparation of a schedule of dispatch prices and dispatch quantities

5.1 Purpose of the process is to produce a schedule of dispatch prices and dispatch quantities

The purpose of the process set out in this rule 5 is for the **system operator** to produce a **schedule of dispatch prices and dispatch quantities** which aid **generators** and **purchasers** to manage their resources.

5.2 Each schedule of dispatch prices and dispatch quantities will cover 8 trading periods

Each **schedule of dispatch prices and dispatch quantities** prepared by the **system operator** will cover the current **trading period** and at least the next seven **trading periods**.

5.3 Dispatch prices and dispatch quantities to accommodate certain things

In preparing each **schedule of dispatch prices and dispatch quantities**, the **system operator** will use the most recent information set out in rule 4.4.

5.4 Methodology used to prepare each schedule of dispatch prices and dispatch quantities as in schedule G6

In preparing each **schedule of dispatch prices and dispatch quantities**, the **system operator** will use the methodology set out in schedule G6.

5.5 Schedule of dispatch prices and dispatch quantities to be prepared every trading period

The **system operator** will use its reasonable endeavours to complete a new **schedule of dispatch prices and dispatch quantities** every **trading period**.

5.6 System operator publishes schedule of dispatch prices and dispatch quantities

The **system operator** will publish a **schedule of dispatch prices and dispatch quantities** in accordance with rule 8.

6 Grid emergency situations

6.1 System Operator may declare a grid emergency

At any time, the **system operator** may declare a **grid emergency** in accordance with the procedures contained in **Technical Code B** in schedule C3.

6.2 The effect of a grid emergency on total quantities offered

Notwithstanding anything in rule 3 of section II, where the **system operator** has declared a **grid emergency**:

6.2.1 Generators may not reduce offered quantities

No **generator** may reduce the aggregate quantity of **electricity** specified in all of the **offers**, made by that **generator** for the **trading periods** and **grid injection points** affected by the **grid emergency** except where the **generator** has a **bona fide physical reason** which necessitates such reduction.

6.2.2 Ancillary service agents may not reduce offered quantities

No **ancillary service agent** may reduce the aggregate quantity of **instantaneous reserve** specified in all of the **reserve offers** made by that **ancillary services agent** for the **trading periods** and **grid injection points** affected by the **grid emergency** except where the **ancillary services agent** has a **bona fide physical reason** which necessitates such reduction.

6.2.3 System operator will accept revisions

The **system operator** will accept, without question, any revision made under rule 6.21 or 6.22. The **Rulings Panel** will determine whether any revision made under rule 6.21 or 6.22 was necessitated by a **bona fide physical reason**, in accordance with rule 6.7.

6.3 Generators may change other parameters

Notwithstanding rule 6.2, during a **grid emergency**, a **generator** may:

6.3.1 Shuffle quantities between grid injection points

Reduce the quantities of **electricity** or **instantaneous reserve** offered in respect of certain generation plant provided that equivalent increased quantities are, in substitution, offered for other items of generation plant owned or operated by that **generator** or **ancillary services agent** at **grid injection points** in the electrical or geographical region affected as notified by the **system operator** pursuant to rule 4.1 of Technical Code B in schedule C3; and

6.3.2 Make additional offers

Submit additional offers and/or **reserve offers** in respect of any generation plant, including that plant not subject to **offers** and/or **reserve offers** prior to the **grid emergency**.

6.4 The effect of a grid emergency on total quantities bid

Notwithstanding anything in rules 2 or 3 of section I, where the **system operator** has declared a **grid emergency**;

6.4.1 Purchasers may not increase quantities bid

No **purchaser** may increase the aggregate quantity of **electricity** specified in all of the **bids**, or reduce the aggregate quantity of **instantaneous reserve** specified in all of the **reserve offers**, made by that **purchaser** for the **trading periods** and **grid exit points** affected by the **grid emergency** except where the **purchaser** has a **bona fide physical reason** which necessitates such increase or reduction, as the case may be.

6.4.2 Purchasers may not increaser quantities bid

No **ancillary service agent** may reduce the aggregate quantity of **interruptible load** specified in all of the **reserve offers** made by that **ancillary services agent** for the **trading periods** and **grid exit points** affected by the **grid emergency** except where the **ancillary services agent** has a **bona fide physical reason** which necessitates such increase or reduction, as the case may be.

6.4.3 System operator will accept revisions

The **system operator** will accept, without question, any revision made under rule 6.21 or 6.22. The **Rulings Panel** will determine whether or not the revision made under rule 6.21 or 6.22 was necessitated by a **bona fide physical reason** accordance with rule 6.7.

6.5 Purchasers and ancillary service agents may change other parameters

Notwithstanding rule 6.4, during a **grid emergency**, any **purchaser** may:

6.5.1 Shuffle quantities between grid exit points

Increase the quantities bid in respect of certain **grid exit points**, or submit **bids** at certain **grid exit points** that were not subject to **bids** prior to the **system security situation**, provided that equivalent decreased quantities are, in substitution, bid for **grid exit points** in the affected electrical or geographical region, as notified by the **system operator** pursuant to rule 4.1 of Technical Code B in schedule C3, which were the subject of **bids** made by that **purchaser**; and

6.5.2 Shuffle interruptible load quantities between grid exit points

Reduce the quantities of **interruptible load** offered in respect of certain **grid exit points** provided that equivalent quantities of **interruptible load** are, in substitution, offered for **grid exit points** in the affected electrical or geographical region as notified by the **system operator** pursuant to rule 4.1 of Technical Code B in Schedule C3; and

6.5.3 Decrease bid quantities or make additional reserve offers

Decrease the quantities bid and/or submit additional **interruptible load** in respect of any **grid exit** points, including any grid exit points that were not subject to reserve offers prior to the **grid emergency**.

6.6 Reporting requirements in respect of grid emergencies

Where the **system operator** has declared a **grid emergency**:

6.6.1 System operator to give reasons for declaration

The **system operator** will, within 12 hours of the conclusion of a **grid emergency**, provide a written report to the **Board** setting out the basis upon which the decision to declare a **grid emergency** was made. The **Board** will **publish** this report through the **information system**;

6.6.2 Rulings Panel notified of reduction in aggregate offer quantity

Any **generator** which reduced the aggregate quantity of **electricity** specified in offers or any **ancillary services agent** which reduced the **instantaneous reserve** specified in **reserve offers** made by that **person** in respect of the **grid injection points** and **trading periods** affected by the **grid emergency** will report this reduction to the **Board** in writing together with details of the **bona fide physical reason** for the reduction claimed by that **generator** or **ancillary services agent**. Any reduction made in the period up to 1200 hours on a **trading day** will be reported to the **Board** by 1700 hours of that **trading day**. Any reduction made after 1200 hours on a **trading day** will be reported to the **Board** by 0900 hours of the following **trading day**. The **Board** will, forthwith, refer all such reports to the **Rulings Panel**;

6.6.3 Rulings Panel notified of increase in aggregate bid quantity

Any **purchaser** which increased the aggregate quantity of **electricity** specified in bids or any **ancillary services agent** which decreased the aggregate quantity of **interruptible load** specified in **reserve offers**, made by that **person** in respect of the **grid exit points** and **trading periods** affected by the **grid emergency** will report this increase or decrease to the **Board** in writing together with details of the **bona fide physical reason** for the increase or decrease claimed by that **purchaser**. Any increase or decrease made in the period up to 1200 hours on a **trading day** will be reported to the **Board** by 1700 hours of that **trading day**. Any increase or decrease made after 1200 hours on a **trading day** will be reported to the **Board** by 0900 hours of the following **trading day**. The **Board** will, forthwith, refer all such reports to the **Rulings Panel**.

6.7 Rulings Panel to rule on whether reduction was bona fide

The **Rulings Panel** will consider every report made to it under rule 6.6.2 or rule 6.6.3 and will determine whether the reduced **offer** made by the **generator**, the reduced **reserve offer** made by the **ancillary services agent** or the increased **bid** made by the **purchaser**, as the case may be, was necessitated by a **bona fide physical reason** and whether the **purchaser or generator** or **ancillary services agent** has complied with rules 6.2 or 6.4 as the case may be.

7 Reporting obligations of the system operator

7.1 Divergence reports to be prepared by the system operator

By 0900 hours of each **trading day** the **system operator will** report to the **market administrator** in writing. This report will include:

7.1.1 Breach of rules

Information on any situations where the **system operator**, or, in the opinion of the **system operator**, any other person, has breached the **rules**,

7.1.2 Adjustments to the pre-dispatch schedule

Details of any adjustments to the **pre-dispatch schedule** made by the **system operator** during the 48 **trading periods** beginning at 0700 hours of the previous **trading day**; and

7.1.3 Discretionary action

Any situations where discretionary action pursuant to rule 4.3 required divergence from the **dispatch schedule** during any of the 48 **trading periods** beginning at 0700 hours of the previous **trading day**.

7.2 System operator to report each trading day

Unless exceptional circumstances exist (in which case the report is to be provided as soon as reasonably practicable) the report will be provided on each **trading day** even if the **system operator** has no adjustments or breaches of the **rules** to report and will include:

7.2.1 Time of breach

The time the breach or alleged breach took place;

7.2.2 Nature of breach

The nature of the breach or alleged breach and of the person alleged to be in breach; and

7.2.3 Reason for breach

The reason for the breach or alleged breach, if the **system operator** is aware of the reason;

7.3 The market administrator to publish divergence reports

By 0930 hours of each **trading day**, the **market administrator** will **publish** the sections of the report of the **system operator** received pursuant to rule 7.1 which relate to any breaches of the **rules** by the **system operator**. The **market administrator** will also refer the report to the **Board** and the **Rulings Panel**.

7.4 Generators and purchasers have a right to information concerning action

Any **purchaser** or **generator** may, by notice in writing to the **system operator**, request further information from the **system operator** related to any situation set out in a **system operator's** report **published** pursuant to rule 7.3 which has materially affected that **purchaser** or **generator**. In such cases, the **system operator** will provide the requested information to that **purchaser** or **generator** provided that such information will not include any information that is confidential in respect of any other person.

8 System operator to publish information

8.1 System operator responsible for co-ordinating publication

The **system operator** will publish **pre-dispatch schedules** together with **forecast prices** in accordance with the provisions of this rule 8.

8.2 Information given to generators and purchasers

Once the **system operator** has completed a **pre-dispatch schedule**, the **system operator** will **publish**, for each **trading period** in the **schedule period**;

8.2.1 The expected aggregate supply curve

The aggregate supply curve at each **reference point** incorporating all **offers** from **generators** with prices adjusted for **forecast marginal location factors**; and

8.2.2 The expected aggregate demand curve

The aggregate demand curve at each **reference point** incorporating all **bids** from **purchasers** with prices adjusted for **forecast marginal location factors**, and, at the same time, the **system operator** will:

8.2.3 Give sections of the pre-dispatch schedule to purchasers

Send to each **purchaser** information from the current **pre-dispatch schedule** relating only to that **purchaser's** demand for the **trading periods** covered by the **schedule period**; and

8.2.4 Give sections of the pre-dispatch schedule to generators

Send to each **generator** information from the current **pre-dispatch schedule** relating only to that **generator's** generation plants for the **trading periods** covered by the **schedule period**.

8.3 System operator responsible for co-ordinating publication of a schedule of dispatch prices and dispatch quantities

The **system operator** will publish a **schedule of dispatch prices and dispatch quantities** in accordance with the provisions of this rule 8.

8.4 Information given to purchasers and generators

Once the **system operator** has completed a **schedule of dispatch prices and dispatch quantities**:

8.4.1 Publish dispatch prices

The **system operator** will **publish** those **dispatch prices** to all **purchasers** and **generators**; and

8.4.2 Publish dispatch quantities

The **system operator** will **publish** to each **purchaser** and **generator** the **dispatch quantities** relating only to that **purchaser's** or that **generator's offers**.

8.5 Transmission of information through the information system

All information to be sent to **purchasers** and **generators** by the **system operator** pursuant to this rule will be transmitted through the electronic facility contained in the **information system** for this purpose.

8.6 Backup procedures if the information system is unavailable

If the **information system** is unavailable to send information, then the **system operator** will follow the backup procedures that the **market administrator** will specify from time to time.

8.7 Backup procedures to be in place and the subject of consultation

The backup procedures referred to in rule 8.6 will be put in place by the **market administrator** in consultation with the **system operator**, **purchasers** and **generators** and **ancillary services agent**. The **market administrator** will ensure that there is always some form of backup procedure notified to the **system operator**, **purchasers**, **generators** and other **ancillary services agents**.

IV Pricing

1 Contents of section IV

The rules in section IV concern the processes by which the **pricing manager** collects data and produces **provisional prices** and **final prices**.

1.1 Diagram of the pricing process in schedule G3

1.1.1 Pricing process shown in a diagram

A diagram in schedule G3 shows how the pricing process operates on **business days**.

1.1.2 Rules take precedence over the diagram

If there is any conflict between the process as shown in the diagram and the process as set out in the **rules**, the process set out in the **rules** prevails.

2 General rules covering production of provisional and final prices

2.1 Purpose of the pricing process

The purpose of the pricing process is to achieve certainty as to **final prices** and **final reserve prices** for each **trading period**. As part of the process:

2.1.1 Production of final prices for settlement

The **pricing manager** will produce **final prices**, which are then used by the **clearing manager** in the clearing and settlement processes; and

2.1.2 Production of final reserve prices

The **pricing manager** will produce **final reserve prices**.

3 Rules governing the preparation of provisional and final prices

3.1 Methodology used to prepare provisional and final prices

To calculate **provisional prices**, **provisional reserve prices**, **final prices** and **final reserve prices** the **pricing manager** will use:

3.1.1 Input information

The **input information** set out in rule 3.3; and

3.1.2 Methodology

The methodology set out in schedule G6.

3.2 Generators to give pricing manager adjusted embedded metering information

3.2.1 Generators to provide metering information

Each **generator** will give the **pricing manager metering information** in accordance with rule 3.2.2 in relation to generation plant that is subject to a dispatch offer:

3.2.1.1 Electricity injected directly into a local network

That injects **electricity** directly into a **local network**; or

3.2.1.2 Electricity injected without grid exit point or grid injection point

Where the meter configuration is such that the **electricity** flows into a **local network** without first passing through a **grid injection point** or **grid exit point metering installation**. For the avoidance of doubt this excludes any **un-offered generation**.

3.2.2 Metering information to be adjusted for losses

Each **generator** will provide the information in rule 3.2.1:

3.2.2.1 Adjusted for losses

Adjusted for losses relative to the **grid injection point** or, for **embedded generators** the **grid exit point**, at which it offered the **electricity.**

3.2.2.2 As stipulated by the pricing manager

In the manner and form that the **pricing manager** stipulates; and

3.2.2.3 By 0500 hours

By 0500 hours of a trading day for each **trading period** of the previous **trading day**.

3.2.3 Metering information is part of input information

The adjusted embedded **metering information** forms part of the formula contained in rule 3.3.2.1.

3.3 The pricing manager to use certain input information

The **pricing manager** will use the following **input information**:

3.3.1 Existing generation configuration

3.3.1.1 Instantaneous MW injection data

Data specifying the instantaneous **MW** injection at the **grid injection point** at the beginning of each **trading period** for all items of generation plant or units which were the subject of **offers** for that **trading period**; or

3.3.1.2 Estimate

If no such information is available a reasonable estimate of such data.

The **system operator** will give this information to the **pricing manager** by 0730 hours of a **trading day** in relation to each such item or unit for each **trading period** of the previous **trading day**.

3.3.2 Actual demand over the trading period

3.3.2.1 Demand metering information

The demand **metering information** described as L_{MA} below to be calculated as follows:

$L_{MA} = G_{EA} + L_{MX}$ (for a **grid exit point**)

Or

$L_{MA} = G_{EA} - L_{MI}$ (for a **grid injection point**)

where:

L_{MA} means the adjusted quantity of electricity measured in **MWh** by a metering installation at a grid exit point or grid injection point.

L_{MX} means the unadjusted **metering information** for the quantity of **electricity** measured in **MWh** at a **grid exit point**.

L_{MI} means the unadjusted **metering information** for the quantity of **electricity** measured in **MWh** at a **grid injection point**.

G_{EA} means the adjusted embedded **metering information** given to the **system operator** pursuant to rule 3.2; or

3.3.2.2 Estimate

Where any such **metering information** is not available an **initial estimate** for each **grid exit point** or **grid injection point**.

The **grid owners** will give this information to the **pricing manager** by 0730 hours of a **trading day** for each **trading period** of the previous **trading day**.

3.3.3 Expected supply based on offers

The final **offers** for each **trading period** submitted by the **generators** pursuant to rule 3.10 of section II; and

3.3.4 Reserve offers

The final **reserve offers** for each such **trading period** as given by **ancillary service agents** pursuant to rule 6 of section II.

3.4 Pricing manager to publish final prices unless a provisional price situation notified

If on a **trading day** no notice has been given of a **provisional price situation** under rules 3.5 or 3.6 or 3.7, the **pricing manager** will **publish final prices** and **final reserve prices** by 1200 hours of that day for the previous **trading day**.

3.5 System operator to notify SCADA situation

3.5.1 System operator notifies pricing manager

When the **system operator** gives any **input information** under rule 3.3 to the **pricing manager** it will also:

3.5.1.1 Notify the pricing manager

Notify the **pricing manager**, **generators** and **purchasers** that it has given the **pricing manager input information**; and

*3.5.1.2 Specify whether a **SCADA situation** exists*

Specify in the notice whether the **input information** yields a **SCADA situation**, and if so each **trading period** affected.

3.5.2 Notice to be given by 0730

The **system operator** will give the notice required under rule 3.5.1.1 by 0730 hours of the day on which it gives the relevant **input information**.

3.5.3 System operator may give further notices

Notwithstanding rule 3.35 the **system operator** may give further notices to the **pricing manager**, **generators** and **purchasers** advising them that the **system operator** has found that a **SCADA situation** does exist and which **trading periods** are affected by it.

3.5.4 No further notices after 0900

The **system operator** will give every notice under rule 3.5.3 by no later than 0900 hours of the same day that it gave notice under rule 3.5.1.1.

3.6 Grid owners to notify metering situation

3.6.1 Grid owners notify pricing manager

When any **grid owner** gives any **input information** to the **pricing manager** it will also:

3.6.1.1 Notify the pricing manager

Notify the **pricing manager**, **generators**, **purchasers** and **ancillary services agents** that it has given the **pricing manager input information**; and

*3.6.1.2 Specify whether a **metering situation** exists*

Specify in the notice whether the **input information** yields a **metering situation**, and if so each **trading period** affected.

3.6.2 Notice to be given by 0730

Grid owners will give the notice required under rule 3.6.1.1 by 0730 hours of the day on which they give the relevant **input information**.

3.6.3 Grid owner may give further notices

Notwithstanding rule 3.35 any **grid owner** may give further notices to the **pricing manager**, **generators** and **purchasers** advising them that the **grid owner** has found that a **metering situation** does exist and which **trading periods** are affected by it.

3.7 Pricing manager to give notification of an infeasibility situation

3.7.1 Pricing manager gives notice to system operator

If the **pricing manager** receives **input information** from the **system operator** under rule 3.3 that yields an **infeasibility situation**, the **pricing manager** will:

3.7.1.1 Give notice

Give the **system operator**, **generators** and **purchasers** notice that an **infeasibility situation** exists; and

3.7.1.2 Specify the affected trading periods

Specify in every such notice each **trading period** affected by the **infeasibility situation**,

by 0900 of the day that the **pricing manager** receives the relevant **input information**.

3.8 System operator to give notice that estimated data given

If the **system operator** and/or **grid owner** gives the **pricing manager** estimated **input information** under rule 3.3.1.2 or a **grid owner** gives the **pricing manager** estimated input information under rule 3.3.2.2, the **system operator** and/or **grid owner** (as the case requires) will by 0730 hours on the day the relevant **input information** is required by rule 3.3.

3.8.1 Notify pricing manager, generators and purchasers

Give notice to the **pricing manager**, **generators**, **purchasers** and **ancillary services agents** that the **input information** is estimated; and

3.8.2 Specify whether metering or SCADA information

Specify in every such notice whether the estimated information relates to **SCADA** or **metering information**; and

3.8.3 Specify grid exit points and grid injection points

Give details in every such notice of the relevant **grid exit points** and **grid injection points**.

3.9 System operator to exercise reasonable endeavours to rectify provisional price situation

If notice is given:

3.9.1 SCADA situation

By the **system operator** to the **pricing manager** of a **SCADA situation** under rule 3.5; or

3.9.2 Metering situation

By any **grid owner** to the **pricing manager** of a **metering situation** under rule 3.6; or

3.9.3 Infeasibility situation

By the **pricing manager** to the **system operator** of an **infeasibility situation** under rule 3.7.

the **system operator** and/or **grid owner** (as the case requires) will exercise reasonable endeavours to correct the **provisional price situation** and the **grid**

owner will exercise reasonable endeavours to provide revised data to the **pricing manager**:

3.9.4 On a business day

If the **provisional price situation** arose on a **business day**, by 1000 hours on that day; and

3.9.5 On a non-business day

If the **provisional price situation** arose on a Saturday, Sunday or a **national holiday**, by 1200 hours of the second **business day** after the **provisional price situation** arose.

3.10 Revised data to be accompanied by notice

If any **grid owner** gives revised data to the **pricing manager** pursuant to rule 3.9, by the time provided for in that rule, the **grid owner** will:

3.10.1 Notify pricing manager, generators and purchasers

Give notice to the **pricing manager**, **generators**, **purchasers** and **ancillary services agents** that revised data has been given; and

3.10.2 Specify revisions

Specify in every such notice the revisions that have been made; and

3.10.3 State whether metering or SCADA situation still exists

State in every such notice whether a **metering situation** or a **SCADA situation** (as the case requires) continues to exist.

3.11 Failure to give revised data and notice not in breach

If the **system operator** and/or any **grid owner** (as the case requires) fails to give the revised data and notice pursuant to rules 3.9 and 3.10 by the time required in those **rules** the failure will not constitute a breach of those **rules** so long as the **system operator** and/or the **grid owner** has:

3.11.1 Endeavoured to remedy

Exercised reasonable endeavours to remedy the circumstance giving rise to the **provisional price situation**; and

3.11.2 Endeavoured to notify

If any notices were required, exercised reasonable endeavours to provide them.

3.12 Pricing manager to publish a provisional price if the system operator or grid owner is unable to rectify provisional price situation on a business day

If notice of a **provisional price situation** is given on a **business day**, and the **system operator** and/or **grid owner** (as the case requires) does not give the revised data and notices required by rules 3.9 and 3.10 within the time prescribed by those **rules**, the **pricing manager** will:

3.12.1 Notify generators and purchasers

By 1200 hours of that day notify **generators**, **purchasers** and **ancillary service agents** of the **provisional price situation** and each **trading period** affected;

3.12.2 Publish a provisional price

By 1200 hours of that day **publish** a **provisional price**; and

3.12.3 Inform the Board

By 0900 hours of the following day inform the **Board** of the **provisional price** situation in the daily report submitted pursuant to rule 4.1.

3.13 Pricing manager to publish a provisional price if provisional price situation arises on a Saturday, Sunday or national holiday

If notice of a **provisional price situation** is given pursuant to rules 3.5 or 3.6 or 3.7 on a Saturday, Sunday or **national holiday**, and the **system operator** and/or **grid owner** (as the case requires) has not given revised data and notices pursuant to rules 3.9 and 3.10 within the time prescribed by those **rules** the **pricing manager** will:

3.13.1 Notify generators and purchasers

By 1000 hours of that day notify **generators**, **purchasers** and **ancillary service agents** of the **provisional price situation** and each **trading period** affected;

3.13.2 Publish a provisional price

By 1000 hours of that day **publish** a **provisional price**; and

3.13.3 Inform the Board

By 0900 hours of the following day inform the **Board** of the **provisional price situation** in the daily report submitted pursuant to rule 4.1.

3.14 Data to be used by the pricing manager to determine a provisional price

The **pricing manager** will produce a provisional price:

3.14.1 On a business day

On a **business day** by using the latest data given to it by 1000 hours of that day.

3.14.2 Other than a business day

On a Saturday, Sunday or **national holiday** by using the data given to it by 0730 hours of that day.

3.15 Revised data rectifies a provisional price situation

If a **provisional price situation** arises on a **business day** and by 1000 hours of that day the **system operator** and/or **grid owner** (as the case requires) gives:

3.15.1 Revised data

Revised data (that does not itself give rise to a **provisional price situation**) pursuant to rule 3.9; and

3.15.2 Notice

A notice pursuant to rule 3.10,

the **pricing manager** will by 1200 hours of that day **publish final prices** and **final reserve prices** for each **trading period** of the previous **trading day**.

3.16 Revised data gives rise to a provisional price situation

If the revised data given pursuant to rule 3.9 itself gives rise to a **provisional price situation** the **pricing manager** will **publish provisional prices** in accordance with rules 3.12 and 3.13, as if no data had been received.

3.17 System operator or grid owner to exercise reasonable endeavours to give revised data when a provisional price has been published

If the **pricing manager** has published a provisional price in accordance with rules 3.12 or 3.13, the **system operator** and/or **grid owner** will exercise reasonable endeavours to correct the **provisional price situation** and exercise reasonable endeavours to give the **pricing manager**:

3.17.1 Infeasibility situation or SCADA situation

Revised data if the **provisional price situation** arose from an **infeasibility situation** or **SCADA situation** in the case of the **system operator**; and

3.17.2 Metering situation

Revised metering data in accordance with rule 3.27 if the **provisional price situation** arose from a **metering situation** in the case of a **grid owner**,

by 1200 hours of the second **business day** following the publication of a provisional price.

3.18 Revised data to be accompanied by notice

If the **system operator** and/or a **grid owner** gives revised data to the **pricing manager** pursuant to rule 3.17, by the time provided for in that rule it must also:

3.18.1 Notify pricing manager, generators and purchasers

Give notice to the **pricing manager**, **generators**, **purchasers** and **ancillary service agents** that revised data has been given; and

3.18.2 Specify revisions

Specify in every such notice the revisions that have been made; and

3.18.3 State whether metering or SCADA situation still exists

State in every such notice whether a **metering situation** or a **SCADA situation** continues to exist.

3.19 Pricing manager to publish final prices following publication of provisional prices

If the **pricing manager**:

3.19.1 Pricing manager receives no revised data

Receives no revised data and notice in accordance with rules 3.17 and 3.18 it will **publish final prices** and **final reserve prices** in accordance with rule 3.23 and rule 3.24.

3.19.2 Pricing manager receives revised data

Receives revised data in accordance with rule 3.17 that resolves the **provisional price situation** and notice in accordance with rule 3.18 it will **publish final prices** and **final reserve prices** for all **trading periods** of the relevant **trading day** by 1400 hours of the second **business day** after the **provisional price** was **published**.

3.19.3 Infeasibility situation arising from revised data

Receives revised data and notice in accordance with rules 3.17 and 3.18 and an **infeasibility situation** arises from that data it will give the **system operator**, **generators** and **purchasers** notice that an **infeasibility situation** exists, specifying in every such notice each **trading period** affected by the **infeasibility situation**, by 1400 hours of the second **business day** after the provisional price was published.

3.20 System operator and grid owner to exercise reasonable endeavours to rectify infeasibility situation

If the **pricing manager** gives notice of an **infeasibility situation** under rule 3.19.3 to the **system operator** and/or to a **grid owner**, then the **system operator** and/or the **grid owner** (as the case requires) will, by 1600 hours of the second **business day** following the **publication** of a **provisional price**, exercise reasonable endeavours to correct the **provisional price situation** and to provide revised data to the **pricing manager**.

3.21 Revised data to be accompanied by notice

The **system operator** and/or **grid owner** will, if it gives revised data to the **pricing manager** pursuant to rule 3.20 by the time provided for in that rule:

3.21.1 Notify pricing manager, generators, purchasers and ancillary service agents

Give notice to the **pricing manager**, **generators**, **purchasers** and **ancillary service agents** that revised data has been given; and

3.21.2 Specify revisions

Specify in every such notice the revisions that have been made.

3.22 Pricing manager to publish final prices following receipt of rectified data

If the **pricing manager**:

3.22.1 Pricing manager receives revised data

Receives revised data in accordance with rule 3.20 which resolves the **provisional price situation** and notice in accordance with rule 3.21 it will **publish final prices** and **final reserve prices** for all **trading periods** of the relevant **trading day** by 1800 hours of the second **business day** after the **provisional price** was **published**.

3.22.2 Infeasibility situation arising from revised data

Receives no revised data and notice in accordance with rules 3.20 and 3.21 or receives revised data and notice and an **infeasibility situation** arises from that data it will **publish final prices** and **final reserve prices** in accordance with rule 3.23.

3.23 Revised data cannot be given or revised data gives rise to a provisional price situation

If a **provisional price situation** is created or is not resolved by the **system operator** and/or **grid owner** giving revised data in accordance with rule 3.20 or if rule 3.19.1 applies, the **pricing manager** will **publish final prices** and **final reserve prices** and will give notice to **generators** and **purchasers**:

3.23.1 For each trading period

For each **trading period** not subject to a **provisional price situation**;

3.23.2 Information

On the basis of the information given to it pursuant to rule 3.17; and

3.23.3 By 1800 of the second business day

By 1800 hours of the second **business day** after it **publishes** a **provisional price**.

3.24 Where a provisional price situation continues

If a **provisional price situation** is created or is not resolved by the **system operator** and/or a **grid owner** giving revised data in accordance with rule 3.20 or if rule 3.19.1

applies, then for each **trading period** still subject to the **provisional price situation**, the **pricing manager** will:

3.24.1 Give notice

No later than the time it would be required to **publish final prices** under rule 3.23, give notice to **generators** and **purchasers**, and the **system operator** that it cannot calculate **final prices** and **final reserve prices**, specifying the **trading periods** affected; and

3.24.2 Calculate final prices

On the basis of the information given to it pursuant to rule 3.17, calculate and **publish final prices** for all **grid injection points** and all **net grid exit points** for each affected **trading period** by:

3.24.2.1 Assigning a price for grid injection points

Assigning a price to all **net grid injection points** for each affected trading **period** equal to the highest price at the point that the **loss adjusted demand** intersects with the **offer stack**; and

3.24.2.2 Assigning a price for grid exit points

Assigning a price to all **net grid exit points** equal to 1.05 times the price calculated for all **grid injection points** pursuant to rule 3.24.2.1 by 1800 of the second **business day** after it publishes a **provisional price**; and

3.24.3 Calculate final reserve prices

Calculate and **publish final reserve prices** by taking the mean of the relevant **final reserve prices** of the corresponding day in each of the four previous weeks, by 1800 of the second **business day** after it **publishes** a **provisional price**; and

3.24.4 Notify generators, purchasers and ancillary service agents

Notify **generators**, **purchasers** and **ancillary service agents** of all the **final prices** and **final reserve prices** by 1800 of the second **business day** after it publishes a **provisional price**.

3.25 Board notified if a provisional price situation not resolved

Whenever the **system operator** and/or a **grid owner** receives any notice of an unresolved **provisional price situation** under rule 3.24 it will immediately notify the **Board** of:

3.25.1 How the situation arose

How the unresolved **provisional price situation** arose;

3.25.2 Steps taken

The steps taken in attempting to resolve the **provisional price situation**; and

3.25.3 Reason for inability

The reasons for the inability of the **system operator** and/or **grid owner** to resolve the **provisional price situation**.

3.26 Board calls special meeting

As soon as it receives a notice given under rule 3.25 the **Board** will call a special meeting of the appropriate **working group** to consider the unresolved **provisional price situation** and to urgently address the matters raised in the notice. Notwithstanding the requirement of rule 10 of schedule A3 that the **working group** reach a conclusion in 60 days, the **Board** may require the **working group** to report back sooner.

3.27 Grid owner to give revised metering information following an initial estimate

Where a **metering situation** exists the **grid owner** that gave the **initial estimate** will give, by 1200 hours on the second **business day** following the day on which the **initial estimate** was given:

3.27.1 Metering information

Actual **metering information**;

3.27.2 Back-up metering information

If actual **metering information** is not reasonably available **back-up metering information**;

3.27.3 Check metering information

If **back-up metering information** is not reasonably available **check metering information** (adjusted by the **relevant registration factor** to achieve accuracy equivalent to actual **metering information**); or

3.27.4 Final estimate

If the **check metering information** is not reasonably available, a **final estimate**.

3.28 Final prices will not be republished

The **pricing manager** will not be obliged to **republish** the **final price** or **final reserve price** for any **trading period**. This will be the case notwithstanding any error subsequently discovered in the information provided under rule 3.3 or in the process carried out by the **pricing manager** in this rule 3. For the avoidance of doubt, the **Board** may not order the **republication** of any **final price** or **final reserve price** notwithstanding the fact that an **undesirable situation** may exist.

3.29 Board may order that publication of final prices be delayed

Notwithstanding anything else in this rule 3 the **Board** may order that the publication of **final prices** or **final reserve prices** be delayed.

3.30 Final prices for more than one trading day

If the **pricing manager** is required to **publish final** prices or **final reserve prices** for more than one **trading day** at a time, the **pricing manager's publishing** deadline will be extended by two hours for each such **trading day**.

3.31 Revised data for more than one trading day

If the **system operator** or a **grid owner** is required to give revised data for more than one **trading day** at a time, that **system operator's** or **grid owner's** deadline will be extended by two hours for each such **trading day**.

3.32 Daylight saving to be observed

Notwithstanding anything else in this section IV, when the **system operator** or a **grid owner** gives the **pricing manager** data for an **initial estimate** under rule 3.3.2.2 or a **final estimate** under rule 3.27.4 the following will apply:

3.32.1 Daylight saving begins on an equivalent day

Where a **grid owner** gives data for an **initial estimate** or a **final estimate** using an **equivalent day** and the **equivalent day** is the day that daylight saving begins, that **grid owner** will replicate the actual data from **trading periods** 5 and 6 of the **equivalent day** into **trading periods** 7 and 8 to produce synthetic data for 48 **trading periods**. This is shown below:

Used	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Recorded	1	2	3	4	5	6	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Used	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Recorded	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46

3.32.2 Daylight saving begins on a day being estimated

Where the **system operator** or a **grid owner** gives data for an **initial estimate** or a **final estimate** for the day that daylight saving begins that **system operator** or **grid owner** will discard the actual data for **trading periods** 5 and 6 to produce synthetic data for 46 **trading periods**. This is shown below:

Used	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Recorded	1	2	3	4	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Used	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46		
Recorded	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48		

3.32.3 Daylight saving ends on a day being estimated

Where the **system operator** or a **grid owner** gives data for an **initial estimate** or a **final estimate** for the day that daylight saving ends that **system operator** or **grid owner** will replicate the actual data from **trading periods** 5 and 6 into **trading periods** 7 and 8 to produce synthetic data for 50 trading periods. This is shown below:

Used	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Recorded	1	2	3	4	5	6	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Used	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Recorded	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

3.32.4 Daylight saving ends on an equivalent day

Where the **system operator** or a **grid owner** gives data for an **initial estimate** or a **final estimate** using an **equivalent day** and the **equivalent day** is the day that daylight saving ends that **system operator** or **grid owner** will discard the actual data from **trading periods** 5 and 6 of the **equivalent day** to produce synthetic data for 48 **trading periods**. This is shown below:

Used	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Record	1	2	3	4	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Used	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Record	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

3.33 Market administrator to publish annual consumption list

On 1 February 2002, and at least once every six months from that date, the **reconciliation manager** will give the **market administrator** an **annual consumption list**. The list will rank in descending order the annual consumption of all **grid exit points** and **grid injection points** with annual consumption greater than 300 GWh for the 12-month period ended 3 months prior to the date the list is due. The **market administrator** will **publish** the list within one **business day** of receiving it.

3.34 System operator to give pricing manager a list of model variable values

The **system operator** will give the **pricing manager** a list of model variables. The list will specify the model variables (whether positive or negative) calculated by the **software** used to produce **final prices** and **final reserve prices** as specified in schedule G2 of section V of part G. If the model variables specified on the list change, the **system operator** will immediately give the **pricing manager** an updated list. The **pricing manager** will acknowledge receipt of the updated list in writing. Changes specified in any updated list will become effective from the date specified by the **system operator** and accepted by the **pricing manager** in writing.

3.35 All notifications to be unconditional, final and transmitted by the information system

All information and every notice to be given pursuant to this rule 3 will be published through the **information system**. Unless expressly provided for elsewhere **generators**, **purchasers**, **grid owners, ancillary service agents** and **service providers** are entitled to treat any such information and notices as final.

3.36 Backup procedures if the information system is unavailable

If the **information system** is unavailable to send information pursuant to this rule 3, the **system operator**, the **grid owners** and the **pricing manager** will follow the backup procedures that the **market administrator** will specify from time to time.

3.37 Backup procedures to be in place and the subject of consultation

The backup procedures referred to in rule 3.36 will be put in place by the **market administrator** in consultation with **generators**, **purchasers**, **ancillary service agents**, the **system operator**, the **grid owners** and the **pricing manager**. The **market administrator** will ensure that there is always some form of backup procedure notified to the **generators**, **purchasers**, the **pricing manager**, the **grid owners** and the **system operator**.

4 Rules governing the calculation of constrained off amounts

4.1 Constrained off situations may occur

A constrained off situation occurs in any circumstance where a **generator** was not given a dispatch instruction or was not fully dispatched by the **system operator** for a

trading period despite having offered **electricity** at a price below the **final price** for that **trading period** at the relevant **grid injection point**.

4.2 Generators do not get paid constrained off compensation

No **generator** will be entitled to be paid compensation in respect of any constrained off situation. This rule will not affect any rights that any **generator** may have under the **rules** against the **system operator** for any failure by the **system operator** to comply with the **rules**.

4.3 Clearing manager to calculate constrained off amounts

4.3.1 Generators

Notwithstanding rule 4.2, if a constrained off situation occurs during any **trading period** in the previous **billing period**, the **clearing manager** will calculate the **constrained off amounts** for each **generator**, for each affected price band in accordance with the following formula:

$Q_{cof} * (P_f - P_o)$

Where:

Q_{cof}	means the dispatched quantity in **MWh** (calculated as set out below) from that price band in the **offer** that was constrained off during a **trading period**, or the positive difference between the metered quantity and the scheduled quantity whichever is less;
P_o	means the price **offered** for that price band by that **generator** for the quantity of **electricity** from the generation plant which was constrained off; and
P_f	means the final price for that trading period at the grid injection point.

For the purposes of this rule "dispatched quantity" will take into account:

(i) the quantity in **MW** recorded in the log kept by the system operator in accordance with rule 4.9 of section III of part G; and

(ii) the ramp rate applying to that constrained off situation that is specified in the **offer** submitted by that **generator** or for a b**lock dispatch group**, the fastest of the ramp rates applying to that constrained off situation that are specified in the offers submitted by the **generators** in that **block dispatch group**;

(iii) plus or minus the **MW** bandwidth applicable for each **generator** affected by a frequency keeping requirement as advised by the

system operator to the **clearing manager** pursuant to rule 4.9.2 of section III of part G.

4.3.2 Calculation of amounts attributable to the system operator

If a constrained off situation occurs during any **trading period** in the previous **billing period**, and that constrained off situation was notified to the **clearing manager** pursuant to rule 4.9.3 of section III of part G, the **clearing manager** will determine the portion of the **constrained off amounts** calculated pursuant to rule 4.3.1 that is attributable to the **system operator** for each **generator** as follows:

4.3.2.1 Voltage support situation

If the **system operator** has advised the **clearing manager** that a voltage support or other constrained off situation occurred (including, but not limited to, over frequency reserves and/or instantaneous reserve) the **system operator** will be allocated the total constrained off amount.

4.3.2.2 Non-security constrained off

If the **system operator** has advised the **clearing manager** that a non-security constrained off situation occurred the **system operator** will be allocated a **constrained off amount** calculated in accordance with the following formula:

$SOCOFNS_{so}$ = TCOFP * (SOQcoffns / TQcoff)

Where:

$SOCOFNS_{so}$	means the **constrained off amount** attributable to the **system operator** for that non-security constrained off situation;
TCOFP	means the total constrained off payment for that **trading period**;
SOQcoffns	means the non-security quantity that was constrained off and advised to the **clearing manager** by the **system operator** pursuant to rule 4.9.3 of section III of part G or the total quantity constrained off, whichever is less; and
TQcoff	means the total quantity constrained off.

4.3.2.3 Frequency keeping

If the **system operator** has advised the **clearing manager** that a frequency keeping situation occurred in a **trading period** the **system operator** will be allocated a **constrained off amount** calculated in accordance with the following formula:

$SOCOFFK_{so}$ = TCOFP * (SOQcofffk / TQcoff)

Where:

$SOCOFFK_{so}$	means the **constrained off amount** attributable to the **system operator** for that frequency keeping constrained off situation;
TCOFP	means the total constrained off payment for that **trading period**

SOQcofffk	means the frequency keeping quantity that was advised to the **clearing manager** by the **system operator** pursuant to rule 4.9.3 of section III of part G or the total quantity constrained off, whichever is the less; and
TQcoff	means the total quantity constrained off.

4.4 Calculation of constrained off amounts

By 1600 hours of the 8th **business day** of each **billing period** the **clearing manager** will calculate **constrained off amounts** for the previous **billing period** in accordance with rule 4.3.

4.5 Clearing manager to publish details of constrained off amounts

The **clearing manager** will, at the time specified in rule 4.4, **publish** the details of **constrained off amounts** for each **generator** for the previous **billing period** as follows:

4.5.1 The constrained off amounts

The **constrained off amounts**;

4.5.2 The generator constrained off

The **generator** constrained off; and

4.5.3 The grid injection point

The applicable **grid injection point**.

4.6 The Board, generators and purchasers have rights to constrained off information

In addition to the information published by the **clearing manager** pursuant to rule 4.5, any **generator** or **purchaser** which reasonably believes it was adversely affected by a constrained off situation occurring, or the **Board**, may request information from the **system operator** about the cause of the constrained off situation. The **system operator** will comply with any reasonable request made for such information provided that the information will not include any information that is confidential in respect of any other **generator or purchaser**.

5 Rules governing the calculation of constrained on amounts

5.1 Constrained on situations may occur

A constrained on situation occurs in any circumstances where:

5.1.1 Dispatch pursuant to a dispatch instruction

A **generator** obeyed a dispatch instruction given by the **system operator** and the price offered by the **generator** for the dispatched quantity of **electricity** (as recorded in the log kept by the **system operator** in accordance with rule 4.9 of section III of part G) at the relevant **grid injection point** and **trading period** was higher than the **final price** at that **grid injection point** in the relevant **trading period**; or

5.1.2 Block Dispatch pursuant to a dispatch instruction

In relation to a **block dispatch group**, a **generator** obeyed a dispatch instruction from the **system operator** and the price offered by the **generator** for the aggregate dispatched quantity of **electricity** (as recorded in the log kept by the **system operator** in accordance with rule 4.9 of section III of part G) from that **block dispatch group** in the relevant **trading period** was higher than the **final price** in the relevant **trading period**.

5.2 Determining affected price bands for block dispatch groups

If a constrained on situation occurs for a **block dispatch group** during any **trading period** during the previous **billing period**, the **clearing manager** will determine the affected price bands for that **block dispatch group** by:

5.2.1 Ranking offers

Taking all the offers made by that **block dispatch group** in relation to that **trading period**, calculating the differences between each offer price and **final price** for each **grid injection point** and ranking the differences in ascending order;

5.2.2 Identifying prices associated with constrained on quantities

Identifying each price band ranked pursuant to rule 5.2.1 in which the aggregate quantity for that price band plus all the quantity in all previous price bands exceeds the aggregate quantity for all the generation plant in that **block dispatch group** calculated by the **clearing manager** using the methodology set out in schedule G6. The offer prices corresponding to the ranked price bands identified pursuant to this rule 5.2.2 will be the affected price bands for that **block dispatch group** for the purposes of rule 5.3.

5.3 Calculation of constrained on amounts

If a constrained on situation occurs during any **trading period** during the previous **billing period**, then:

5.3.1 Calculation by clearing manager

The **clearing manager** will calculate the **constrained on amounts** for each **generator** for each affected price band in accordance with the following formula:

$COC = Q_{con} * (P_o - P_f)$

Where:

COC means the **constrained on amount** for a **generator**;

Q_{con} means the dispatched quantity in **MWh** (calculated as set out below)) from that price band in the **offer** that was constrained on during a **trading period**, or the positive difference between the metered quantity and the scheduled quantity, whichever is less;

P_o means the price offered for that price band by that **generator** for the quantity of **electricity** from the generation plant which was constrained on; and

P_f means the final price for that **trading period** at the **grid injection point**.

For the purposes of this rule "dispatched quantity" will take into account:

i) The quantity in **MW** recorded in the log kept by the **system operator** in accordance with rule 4.9 of section III of part G; and

ii) The ramp rate applying to that constrained on situation that is specified in the offer submitted by that **generator** or for a **block dispatch group**, the fastest of the ramp rates applying to that constrained on situation that are specified in the offers submitted by the **generators** in that **block dispatch group**;

iii) Plus or minus the **MW** bandwidth applicable for each **generator** affected by a frequency keeping requirement as advised by the **system operator** to the **clearing manager** pursuant to rule 4.9.3 of section III of part G.

5.3.2 Constrained on amounts for block dispatch groups

The **constrained on amounts** for a **block dispatch group** will equal the sum of the amounts calculated in accordance with rule 5.3.1 for the generation plant in that **block dispatch group**.

5.3.3 Unoffered generation resulting from constrained on situation paid at final price

In relation to any two adjacent **trading periods**, every **generator** will be entitled to be paid for the second **trading period** at the **final price** for the **grid injection point** where the **generator**:

5.3.3.1 Constrained on

Was in a constrained on situation in the first **trading period**; and

5.3.3.2 Continues to generate

Continues to generate in the second **trading period** as a result of a dispatch instruction given for the first **trading period**; but

5.3.3.3 No offer made

Has not made an offer in the second **trading period**.

5.3.4 No dispatch instruction in relation to unoffered generation

For the avoidance of doubt, nothing in this rule 5.3 entitles the **system operator** to issue any instruction to a **generator** in relation to **unoffered generation**.

5.4 Calculation of constrained on amounts attributable to the system operator

If a constrained on situation occurs during any **trading period** during the previous **billing period**, and that constrained on situation was notified to the **clearing manager** pursuant to rule 4.9.1 of section III of part G, the **clearing manager** will determine that portion of the **constrained on amounts** calculated pursuant to rule 5.3 attributable to the **system operator** for each **generator** as follows:

5.4.1 Voltage support

If the **system operator** has advised the **clearing manager** that a voltage support or other **constrained on situation** occurred (including but not limited to over frequency reserves and/or instantaneous reserve) the **system**

operator will be allocated the total **constrained on amount** for that **trading period**.

5.4.2 Non-security constrained on

If the **system operator** has advised the **clearing manager** that a non-security **constrained on situation** occurred the **system operator** will be allocated a **constrained on amount** calculated in accordance with the following formula:

$SOCONNS_{go}$ = TCONP * (SOQconns / TQcon)

Where:

$SOCONNS_{go}$	means the **constrained on amount** attributable to the **system operator** for that non-security constrained on situation;
TCONP	means the total constrained on payment for that **trading period**;
SOQconns	means the non-security quantity that was constrained on and advised to the **clearing manager** by the **system operator** pursuant to rule 4.9.3 of section III of part G, or the total quantity constrained on, whichever is less; and
TQcon	means the total quantity constrained on.

5.4.3 Frequency-keeping

If the **system operator** has advised the **clearing manager** that a frequency keeping situation occurred the **system operator** will be allocated a constrained on amount calculated in accordance with the following formula:

$SOCONFK_{go}$ = TCONP * (SOQconfk / TQcon)

Where:

$SOCONFK_{go}$	means the **constrained on amount** attributable to the **system operator** for that frequency keeping constrained on situation;
TCOFP	means the total constrained on payment for that **trading period**;

SOQconfk	means the frequency keeping quantity that was advised to the **clearing manager** by the **system operator** pursuant to rule 4.9.3 of section III of part G, or the total quantity constrained on, whichever is less; and
TQcon	means the total quantity constrained on.

5.5 Calculation of constrained on amounts

By 1600 hours of the 8th **business day** of each **billing period** the **clearing manager** will calculate **constrained on amounts** for the previous **billing period** in accordance with rules 5.3 and 5.4.

5.6 Clearing manager to publish details of constrained on amounts

The **clearing manager** will, at the time specified in rule 5.5, **publish** the details of **constrained on amounts** in relation to each **generator** for the previous **billing period** calculated pursuant to rules 5.3 and 5.4 as follows:

5.6.1 The constrained on amounts

The aggregate **constrained on amounts** calculated pursuant to rule 5.3 and the aggregate **constrained on amounts** calculated pursuant to rule 5.4;

5.6.2 The generator constrained on

The **generator** constrained on; and

5.6.3 The grid injection point

The applicable **grid injection point**.

5.7 The Board, generators and purchasers have rights to constrained on information

In addition to the information **published** by the **clearing manager** pursuant to rule 5.6, the **Board**, or any **generator** or **purchaser** which reasonably believes it was adversely affected by a constrained on situation occurring, may request information from the **system operator** about the cause of the constrained on situation. The **system operator** will comply with any reasonable request made for such information provided that the information will not include any information that is confidential in respect of any other **generator** or **purchaser**.

5.8 Transmission of information through the information system

All information to be sent to **generators** and **purchasers** by the **clearing manager** pursuant to rules 4.6 and 5.7 will be transmitted through the electronic facility contained in the **information system** for this purpose.

5.9 Backup procedures if the information system is unavailable

In circumstances where the **information system** is unavailable to send information pursuant to rules 4.6 and 5.7 the **clearing manager** will follow the backup procedures that will be specified by the **Board** from time to time.

5.10 Backup procedures to be in place and the subject of consultation

The backup procedures referred to in rule 5.9 will be put in place by the **Board** in consultation with **generators**, **purchasers** and the **clearing manager**. The **Board** will ensure that there is always some form of backup procedure notified to the **generators**, **purchasers** and the **clearing manager**.

6 Rules governing payment of constrained on compensation[1]

6.1 Generators to be paid constrained on compensation

For any **trading period**, a **generator** will be entitled to be paid **constrained on compensation** for **constrained on amounts** determined pursuant to rules 5.3 and 5.4.

6.2 System operator to pay certain constrained on compensation

The **system operator** will pay to a **generator** any **constrained on amount** calculated pursuant to rule 5.4.

6.3 Clearing manager to collect and pay constrained on compensation

Any **constrained on compensation**, except that payable by the **system operator** pursuant to rule 6.2, owing to a **generator** in relation to a **billing period** will be included in any invoice issued to that **generator** by the **clearing manager** pursuant to rule 9.1.1 of part H. **Constrained on compensation** received by the **clearing manager** will be payable to that **generator** at the same time as any other amounts owing to that **generator** as set out in rule 9.3 of part H are payable.

6.4 Purchasers will pay for constrained on compensation

Each **purchaser** which purchases **electricity** at a **grid exit point** will pay **constrained on compensation** to **generators** which generate **electricity** at a **grid**

[1] Design issues in this area are the subject of ongoing work.

injection point in accordance with the formula set out in rule 6.5. This payment will be made in accordance with the provisions of rule 9 of part H.

6.5 Clearing manager will calculate amounts payable

The **clearing manager** will calculate and invoice **purchasers** for **constrained on compensation** for each **trading period** in accordance with the following formula:

$COC_p = (COC_g - COC_{so}) * (P_q / TP_q)$

Where:

COC_p	means the constrained on compensation payable by a **purchaser**;
COC_g	means the sum of **constrained on compensation** owing to **generators** injecting **electricity** for that **trading period** calculated in accordance with rule 5.3;
COC_{so}	means any **constrained on amount** for that **trading period** payable by the **system operator** to that **generator** pursuant to rule 6.2;
P_q	means the total **electricity** purchased by that **purchaser** during the **trading period** as shown by the **reconciliation information** calculated by the **reconciliation manager** pursuant to section V of part G; and
TP_q	means the total **electricity** purchased by all **purchasers** during the **trading period** as shown by **reconciliation information** calculated by the **reconciliation manager** pursuant to section V of part G.

6.6 Constrained on compensation to be included in invoices

Any **constrained on compensation** owing by a **purchaser** in relation to a **billing period** will be included in the invoice issued to that **purchaser** by the **clearing manager** pursuant to rule 8.1.1 of part H. **Constrained on compensation** will be payable by that **purchaser** at the same time as any other amounts owing by that **purchaser** are payable as set out in rules 8.2 or 8.3 of part H.

7 Reporting obligations of the pricing manager

7.1 Daily divergence Reports

7.1.1 Pricing manager to prepare daily divergence report

By 0900 hours of each day the **pricing manager** will provide the **market administrator** with a written report for the **trading periods** beginning at 0700 hours of the previous **trading day** and ending at 0630 of the day the report is due to be given, specifying:

7.1.1.1 Provisional prices

Any **provisional prices** published; and

*7.1.1.2 Breach of the **rules** by the **pricing manager***

Any situation where the **pricing manager**, or in the opinion of the **pricing manager** any other person, has breached the **rules**.

7.1.2 In relation to each breach

In relation to each alleged breach the report will give details of:

7.1.2.1 Prices published late

Occasions when prices were or will be published late and whether the delay was caused by the **pricing manager**; and

7.1.2.2 Time of breach

The time a breach or alleged breach took place; and

7.1.2.3 Nature of the breach

The nature of each breach or alleged breach including details of the person alleged to be in breach and any **generator** or **purchaser** believed to be affected by the breach or alleged breach; and

7.1.2.4 Reason for the breach

The reason for the breach or alleged breach occurring, if the **pricing manager** is aware of the reason.

7.2 The market administrator to publish pricing manager reports

By 0930 hours of each day, the **market administrator** will **publish** the sections of the report of the **pricing manager** given pursuant to rule 7.1 which relate to;

7.2.1 Breaches by the pricing manager

Any breaches of the **rules** by the **pricing manager**; or

7.2.2 Provisional prices

Publication of **provisional prices**; or

7.2.3 Other statements

Statements contained in the report given by the **pricing manager** pursuant to rule 7.4.

The **market administrator** will also refer the report to the **Board**.

7.3 Generators and purchasers have a right to information concerning pricing manager's action

Any **generator** or **purchaser** may, by notice in writing to the **pricing manager**, request further information related to any situation set out in a **pricing manager's** report published pursuant to rule 4.2 that has materially affected that **generator** or **purchaser**. In such cases, the **pricing manager** will provide the requested information to that **generator** or **purchaser** provided that such information will not include any information that is confidential in respect of any other person.

7.4 Daily situation report

By 0900 on the day following **publication** of **final prices** and **final reserve prices** in respect of the **trading day** to which the **published** prices relate the **pricing manager** will give to the **market administrator** a report containing;

7.4.1 Flows on branches at maximum capacity

A statement of whether flows on any branches were at their maximum capacity and each **trading period** affected; and

7.4.2 Circulating HVDC link and branch flows

A statement of whether the status of circulating **HVDC link** and branch flows was abnormal and each **trading period** affected.

V Reconciliation

1 Contents of section V

The rules in section V concern the processes by which **members** provide reconciliation information, and by which the **reconciliation manager** carries out the reconciliation process

2 Provision of information from purchasers

2.1 Notice of intention to purchase

Each **purchaser** will notify the **reconciliation manager**, in accordance with any procedures reasonably specified by the **reconciliation manager** from time to time, of the **grid exit points** at which that person intends to purchase **electricity**. Notification will occur at least five **business days** prior to the first time the **purchaser** purchases **electricity** at a **grid exit point**. The **reconciliation manager** will give a copy of any notice received by it pursuant to this rule to the **clearing manager** within one **business day** of receiving it.

2.2 Notice of ceasing to purchase

Each **purchaser** will notify the **reconciliation manager**, in accordance with any procedures reasonably specified by the them from time to time, when that **purchaser** intends to stop purchasing **electricity** at any **grid exit point(s)**. Notification will occur at least five **business days** prior to the day that the **purchaser** intends to do so. The **reconciliation manager** will give a copy of any notice received by it pursuant to this rule to the **clearing manager** and the **system operator** within one **business day** of receiving it.

2.3 Notice of profiling details

Each **direct consumer**, **independent retailer** and **incumbent retailer** will notify the **reconciliation manager** of the details of each **profile** and applicable **grid exit points** at which that **purchaser** intends to purchase **electricity** based wholly or partly on each **profile** at each **grid exit point**. Notification will occur at least five **business days** prior to the day that the **purchaser** intends to purchase **electricity** on that basis.

2.4 Arrangements for conveyance

Before notifying the reconciliation manager of any information under this rule 2, each **purchaser** must ensure that it has in place all necessary arrangements for the conveyance of **electricity**.

3 Provision of information from generators

3.1 Notice of intention to sell

Each **generator** will notify the **reconciliation manager** in accordance with any procedures reasonably specified by the **reconciliation manager** from time to time, of the **point of connection** with the **grid** at which that **generator** intends to sell **electricity**. Notification will occur at least five **business days** prior to the first time a **generator** sells **electricity** at a **point of connection** with the **grid**. The **reconciliation manager** will give a copy of any notice received by it pursuant to this rule to the **clearing manager** within one **business day** of receiving it.

3.2 Notice of ceasing to sell

Each **generator** will notify the **reconciliation manager**, in accordance with any procedures reasonably specified by them from time to time, when that **generator** intends to stop selling **electricity** at any **point of connection** with the **grid**. Notification will occur at least five **business days** prior to the day that the **generator** intends to do so. The **reconciliation manager** will give a copy of any notice received pursuant to this rule to the **clearing manager** and the **system operator** within one **business day** of receiving it.

3.3 Arrangements for conveyance

Before notifying the **reconciliation manager** of any information under this rule 3, each **generator** must ensure that it has in place all necessary arrangements for the conveyance of **electricity**.

4 Notification of changes to the grid

Each **grid owner** will notify the **reconciliation manager**, in accordance with any procedures reasonably specified by the **reconciliation manager** from time to time, of any changes that the **grid owner** intends to make to the **grid** that will affect the reconciliation of trading. In particular, the **grid owner** must give notice of any intended change to an existing **point of connection** with the **grid** and any new **point of connection** to be commissioned. The **grid owner** must give any such notice at least one calendar month before making the intended change. The **reconciliation manager** will give a copy of any notice received by it pursuant to this rule to the **clearing manager** and the **Board**.

5 Provision of metering information

5.1 Metering information to come from metering installations

5.1.1 Half hour metering information to be adjusted for losses

Half hour metering information provided pursuant to rule 5.2 will only be provided from a **metering installation** and will be adjusted, as appropriate, to provide for **losses** within the **local network**.

5.1.2 Non-half hour metering information not to be adjusted for losses

Non-half hour metering information provided pursuant to this rule 5.3 will only be provided from a **metering installation** and will not be adjusted to provide for **losses** within the **local network**.

5.2 Purchaser information

Each **purchaser** will, by 16:00 hours on the 4th **business day** of each **reconciliation period**, arrange for a **data administrator** to deliver to the **reconciliation manager**, **metering information** in respect of **half-hour metered ICPs** for each **grid exit point** at which it has purchased **electricity** during the prior **reconciliation period**.

5.3 Additional independent retailer information

Each **independent retailer** will, by 16:00 hours on the 4th **business day** of each **reconciliation period** arrange for the **data administrator** to deliver to the **reconciliation manager metering information** which has not been adjusted for losses in respect of **non-half hourly metered ICPs** for each **grid exit point** at which it has purchased **electricity** during the prior **reconciliation period**.

5.4 Generator information

Each **generator** will by 16:00 hours on the 4th **business day** of each **reconciliation period** arrange for a **data administrator to** deliver to the **reconciliation manager**, **metering information** separately for each of its **grid injection points** during the prior **reconciliation period**.

5.5 Grid owner information

Each **grid owner** will by 16:00 hours on the 4th **business day** of a **reconciliation period** arrange for a **data administrator** to deliver to the **reconciliation manager**, **metering information** for each of its **grid exit points** for the prior **reconciliation period**.

5.6 Accuracy of metering Information

5.6.1 Members to supply accurate information

Each member that has an obligation to deliver **metering information** to the **reconciliation manager** under any of rules 2, 3, 4 or 5 will use its reasonable endeavours to ensure that all **metering information** so delivered is complete and accurate.

5.6.2 Monthly meter reading

Without limiting the scope of the obligations contained in rule 5.6.1, each **member** will, at the beginning of each **reconciliation period**, **interrogate** each fully certified **half-hour metering installation** in categories 3, 4, 5 or 6 (as defined in rule 2 of schedule D1) for which it is responsible so as to record all the electricity that is purchased or sold (as the case may be) during the previous reconciliation period. Each **member** will make the resulting **metering information** available to the **reconciliation manager** by 16:00 hours of the 4th **business day** of the **reconciliation period** in which the **interrogation** is made.

5.6.3 Most accurate estimates

If, owing to exceptional circumstances, a **member** is unable to **interrogate** any fully certified **half-hour metering installation** within the time required by rule 5.6.2 then the **member** must, within the time required by that rule, submit to the **reconciliation manager** its best estimate of the quantity of **electricity**, and **local losses**, that is purchased or sold (as the case requires) in each **half hour** during the previous **reconciliation period**. For each file that contains estimated information, the level of accuracy of any such estimated file must be within a certain percentage, as specified from time to time by the **Board** of the actual consumption as calculated in accordance with rule 5.6.8.1. Any total deviation between the estimated file and the final file as submitted under rule 5.6.6 which is less than the quantity specified from time to time by the **Board**, will be deemed not to be a breach of this rule.

5.6.4 Metering installations with interim certification

The level of accuracy of any estimate provided under rule 5.6 for any **half-hour metering installation** that has been granted interim certification under rule 4.8 of **code of practice** 3 in schedule D1 shall:

5.6.4.1 Fully certified

Comply with rule 5.6 if the **metering installation** is being treated as fully certified; or

5.6.4.2 100% sampled profiled

Comply with the level set from time to time by the **Board** if the **metering installation** is being treated as 100% sampled profiled until the expiry of the interim certification.

5.6.5 Estimates to be flagged

Every **member** that delivers estimated information to the **reconciliation manager** under rule 5.6.3 shall ensure that the estimated information contains a notation to that effect, the form of the notation will be advised by the **reconciliation manager** from time to time;

5.6.6 Estimates to be corrected

Every **member** that delivers estimated information to the **reconciliation manager** under rule 5.6.3 shall interrogate each fully certified **half-hour metering installation** of categories 3, 4, 5 or 6 (as defined in rule 2 of schedule D1) for which any such estimate was provided, and provide the **metering information** to the **reconciliation manager**, or if the **half-hour metering installation** cannot be **interrogated,** then provide to the **reconciliation manager** the best possible estimate of the **metering information**.

5.6.7 When notation and corrected information is to be delivered

All information due to be provided under rule 5.6.6 will be provided within one month after the estimated information has been submitted under rule 5.6.3.

5.6.8 Reporting requirements

Every **member** that delivers estimated **metering information** to the **reconciliation manager** under rule 5.6.3 shall:

5.6.8.1 Report differences

Report to the **market administrator** by the 8th **business day** of each month any differences between any file submitted for a **point of connection** to the **grid** to the **reconciliation manager** that

contained estimated information provided under rule 5.6.3 and the final file containing actual consumption as measured by subsequent **interrogation** or final re-estimation under rule 5.6.6 of the **metering installation**, if the difference is more than the permitted difference, as specified from time to time by the **market administrator** after consultation with the **Board**, for each reconciliation period.

The difference reported to the **Board** shall be calculated according to the following methodology:

$((\Sigma Ed - \Sigma Fd) / \Sigma Fd) \times 100 = A\%$

Where

ΣEd = The sum of the daily total(s) contained within the estimated file submitted under rule 5.6.3 that contained estimated **half hour metering information**.

ΣFd = The sum of the daily total(s) contained within the final file submitted under rule 5.6.6 that initially contained estimated **half hour metering information**.

A% = The percentage difference between ΣED and ΣFd that is to be reported to the **Board**.

5.6.8.2 Report total grid exit points for files submitted

Report to the **Board** by the 8th **business day** of each month the total number of **points of connection** to the **grid** for which files have been submitted under rule 5.6.2 and rule 5.6.3, and the number and identity of the **points of connection** to the **grid** for which files have been submitted to the **reconciliation manager** under rule 5.6.3, for prior **reconciliation period**.

5.6.8.3 Report total points of connection to the grid for files not submitted

Report to the **Board** by the 8th **business day** of each month the total number and identity **points of connection** to the **grid** for which files have not been submitted under rule 5.6.6, and total number and identity **of connection** to the **grid points** for which files under rule 5.6.6 containing the best possible estimate have been submitted to the **reconciliation manager** during the prior six **reconciliation periods**.

5.7 Format of Information

The information to be supplied under this rule 5 will be in such format and will include such additional information as the **reconciliation manager** may reasonably require to enable it to calculate the **reconciliation information**.

6 Notification of constraints

6.1 System operator notifies reconciliation manager

If an **outage constraint** occurs at any **point of connection** on the **grid** the **system operator** must notify the **reconciliation manager** by noon on the 1st **business day** of the **reconciliation period** following the date of the **outage constraint** of:

6.1.1 The location of the outage constraint

Any **point of connection** that has been affected by the **outage constraint**; and

6.1.2 Time of the outage constraint

The **trading periods** during the prior **reconciliation period** during which the **outage constraint** applied.

6.2 Reconciliation manager to notify others of effect of outage constraints

Where the **system operator** has notified the **reconciliation manager** of any **outage constraint** on the **grid** in accordance with rule 6.1, the **reconciliation manager** must notify the **generators** and **purchasers** that have been affected by the **outage constraint** and the **trading periods** during the prior **reconciliation period** during which the **outage constraint** applied, by 1600 hours of the 1st **business day** of each **reconciliation period**.

6.3 Metering information to be amended in the case of an outage constraint

Where the **reconciliation manager** has issued any notice to any **generator** or **purchaser** pursuant to rule 6.2, those **generators** and/or **purchasers**, if they are responsible for supplying **metering information** to the **reconciliation manager** relating to the **point of connection** concerned, will:

6.3.1 Metering information for outage constraints to be zeros

Supply **metering information** for the affected **point of connection** with zeros during the period of the **outage constraint**; and

6.3.2 Reconciliation manager to be supplied metering information for alternative points of connection

If **electricity** was supplied by way of any other **point of connection**, ensure the supply to the **reconciliation manager** of **metering information** for that alternative **point of connection** during the period of the **outage constraint**.

7 Reconciliation manager may request additional information

7.1 From any member

For the purpose of carrying out its role under the **rules**, the **reconciliation manager** may, in respect of any **reconciliation period**, give notice to any **participant** that it requires such additional information from that **member** as the **reconciliation manager** believes it reasonably requires whereupon the **member** will provide such information to the **reconciliation manager**.

8 Distributors to establish losses criteria and advise reconciliation manager and data administrator

Subject to any contract and/or legal restrictions applying to it, each **distributor** will establish, and may from time to time amend, its **losses criteria**. In doing so, the **distributor** must act reasonably. Each **distributor** will advise the **reconciliation manager** and the relevant **data administrator** of its **losses criteria**.

9 Distributors to advise of grid exit points

Where there is, or may be, uncertainty as to the actual **grid exit point** at which supply will be made, the **distributor** will nominate one grid **exit point** in accordance with its reasonable assessment of the likely flow of **electricity** within its **local network** and supply will be deemed to be made from that **grid exit point**.

10 Incumbent retailers

10.1 Identification of incumbent retailers

The **market administrator** will maintain a register of **incumbent retailers** that includes any changes which may result from the process described in rule 10.3. Any **member** may obtain a copy of this register provided they pay the reasonable costs of the **market administrator**.

10.2 Incumbent retailer may also be an independent retailer

Where an **incumbent retailer** supplies **electricity** to **consumers** whose **ICPs** are connected to a network other than the **local network** or **local networks** for which it is the **incumbent retailer**, the **incumbent retailer** will, in respect of its supply of **electricity** to such **consumers**, be deemed to be an **independent retailer**. However, nothing in this rule 10 should be construed as preventing an **incumbent retailer** complying with rules 2 to 6 of part E in respect of a particular **consumer** and thus becoming an **independent retailer** in respect of that **consumer**.

10.3 Elimination of incumbent retailer status

Where an **incumbent retailer** wishes to no longer have that status in respect of a **local network**, it may ensure rule 10.4 has been complied with or comply with rule 2.3 of schedule E1, or it may become an **independent retailer** in respect of that **local network**:

10.3.1 With consent of the Board

By completing the procedure described in rule 2.3 of schedule E1 not less than three **business days** prior to the **global date**; and

10.3.2 Complying with rule 2 or rule 4 of part E

By complying with the provisions of rule 2 or rule 4 of part E in relation to all **ICPs** not less than three **business days** prior to the **global date**.

10.4 No incumbent retailer

If the **electricity** injected into a **local network** or part of a **local network** is measured every **half hour** separately for each **retailer** and **direct consumer**, there will be no **incumbent retailer** for that **local network** or part of a **local network**.

10.5 New incumbent retailers

Where an existing **incumbent retailer** wishes to assign or otherwise transfer its rights and obligations as **incumbent retailer** to another person then:

10.5.1 New incumbent retailers to obtain Board consent

Before such assignment or transfer can take place, the **retailer** must obtain the written consent of the **Board**. This consent will not be unreasonably withheld in the case of a proposed **incumbent retailer** which may reasonably be considered to be able to meet charges for **electricity** supplied by the **clearing manager**; and

10.5.2 New incumbent retailers to advise Board, distributor and reconciliation manager

Each new **incumbent retailer** for a **local network** or part of a **local network** will notify the **market administrator**, the relevant **distributor** and the **reconciliation manager** of its position as **incumbent retailer** along with the date upon which the new **incumbent retailer** will take up this position and copies of the consent given under rule 10.5.1.

10.6 Measurement of supply to incumbent retailer

The quantity of **electricity** supplied to an **incumbent retailer** and consumed by **consumers** supplied by it will be calculated as described in schedule G5.

11 Reconciliation process

11.1 Reconciliation Sequence

Each **generator**, **purchaser** and the **reconciliation manager** will carry out the checking and reconciliation procedure indicated in schedule G4 for the purpose of ensuring the timely and accurate calculation of **reconciliation information**. The **reconciliation manager** will reconcile the **metering information** and information as to the sale and purchase of **electricity** so as to allocate to **generators** all the **electricity** injected into the networks and to allocate to **purchasers** all th**e electricity** taken off the networks and thereby compile the **reconciliation information** in respect of the relevant **reconciliation period**.

11.2 Reconciliation information produced from reconciliation manager

The **reconciliation manager** will, by 1600 hours on the 7th **business day** of each **billing period**, provide the following information in respect of the prior **billing period**:

11.2.1 Generators and purchasers

To each **generator** or **purchaser** the reconciliation information applying to that **generator** or **purchaser**;

11.2.2 Grid owners and distributors

To each **grid owner** and **distributor**, such information as is required by that **grid owner** or **distributor** to calculate its charges;

11.2.3 Clearing manager

To the **clearing manager**, the **reconciliation information** applying to each **generator** or **purchaser** to enable the **clearing manager** to calculate the amounts payable by the **clearing manager** to each **generator** and by each **purchaser** to the **clearing manager**.

11.2.4 Data administrator

To each **data administrator** the calculated daily consumption data for each **profile** referred to an **ICP** for which the **data administrator** is responsible.

The **reconciliation manager** will also provide to the **clearing manager** and to the **Board** such information as either the **clearing manager** or the **Board** requires to calculate the charges payable pursuant to part H.

11.2.5 To each participant

To each **participant** the quantity of **electricity** supplied to all persons at a **grid exit point** for each **reconciliation period** (the information), provided that:

11.2.5.1 Participant requested information

The **participant** has requested the information;

11.2.5.2 Participant purchased electricity

The **participant** has purchased **electricity** at that particular **grid exit point** during the **reconciliation period**;

11.2.5.3 Participant meets costs

The **participant** meets the **reconciliation manager's** reasonable costs of providing the information;

11.2.5.4 Participant maintains confidentiality

The **participant** agrees to ensure that all information received under this rule 11.2.5 is kept and maintained confidential to those employees of the **participant** who are required to have access to the information to enable the **participant** to identify errors in the **reconciliation information** submitted for that **grid exit point**;

11.2.5.5 Participant restricts use

The **participant** agrees that all information received under this rule 11.2.5 will not be used for any purpose other than enabling the **participant** to identify errors in the **reconciliation information** submitted for that **grid exit point**; and

11.2.5.6 Participant implement procedures

The **participant** agrees to implement and maintain internal procedures to ensure that information supplied under this rule 11.2.5 is not used for a purpose other than the identification of errors in the **reconciliation information** submitted for that **grid exit point**, and is not made available to any person other than employees of the **participant** to identify errors in the **reconciliation information** submitted for that **grid exit point**.

11.3 Reconciliation information is not final

The **reconciliation information** provided under rule 11.2 is subject to revision by the **reconciliation manager** in accordance with the rules that follow.

11.4 Reconciliation information checked

Upon receipt from the **reconciliation manager** of the **reconciliation information** referred to in rule 11.2 **purchasers** and **generators** will check the **reconciliation information** and if they wish to dispute or query such information will forthwith communicate their dispute or query to the **reconciliation manager**.

11.5 Reconciliation manager may assess information not supplied

If any **member** fails to provide any **information** as required by rules 2 to 9 inclusive, the **reconciliation manager** may, at that **member's** expense, take all reasonable steps necessary to acquire such information and may make an assessment of the **relevant information**.

11.6 Assessment or non supply by reconciliation manager

If the **reconciliation manager** is not able, to its satisfaction, to resolve any differences with a **member** as to the **reconciliation information**, or has not been able to obtain **metering information** or any other information required by the **rules**, it will:

11.6.1 Reconciliation manager may assess reconciliation information

Reasonably endeavour to assess such information in such manner as it thinks fit and complete the distribution of **reconciliation information** accordingly but with a notation that the information has been assessed; or

11.6.2 Reconciliation manager may, with reason, not supply reconciliation information

If it cannot comply with rule 11.6.1, not issue the **reconciliation information** and provide a reason to the **member** entitled to such information.

11.7 Reconciliation manager to correct information

Where the **reconciliation manager** has under rule 11.5 or 11.6 assessed **reconciliation information** or is unable to provide **reconciliation information** it will, to the extent it is reasonably feasible to do so, attempt to subsequently establish the correct **reconciliation information**, and once it has done so, distribute that information to the **member** entitled to it under the **rules**.

11.8 Global reconciliation transition rule

The implementation of **global reconciliation** will necessitate further changes to the **rules**. Until such time as all necessary rule changes are voted in by the **Board**, at which time this rule will cease to apply, each **incumbent retailer** will continue to be reconciled in accordance with rule 10.6, notwithstanding that it may no longer have the status of an **incumbent retailer**.

12 Revisions

12.1 Reconciliation manager will reconcile revised information

Where the **reconciliation manager** receives revised **metering information** that has been supplied to it since the previous reconciliation calculation, it will then reconcile that information in accordance with the following procedure:

12.1.1 Reconcile to cover three previous months

If the information received relates to the three **billing periods** immediately prior to that previous reconciliation calculation, then a further reconciliation will be conducted for those **billing periods**; or

12.1.2 Reconcile to cover billing periods 6, 12 and 24 months ago

If the information received relates to the **billing periods** six, 12 and 24 months prior to that previous reconciliation calculation, then a further reconciliation will be conducted for those **billing periods**; or

12.1.3 Otherwise, to be stored up until they meet criteria

If the information relates to any other **billing period**, then the **reconciliation manager** will store the information and wait until the **billing period** meets any of the criteria described in rule 12.1.2 before conducting a further reconciliation pursuant to this rule 12.1.

12.2 Distribution of information

Once a further reconciliation has been carried out in accordance with rule 12.1, the **reconciliation manager** will provide that information to the relevant persons listed in rule 11.2.

12.3 No more reconciliation after two years

The **reconciliation manager** will not reconcile any revised **metering information** arising from disputes commenced more than two years after the issue of any invoice to which the revised information relates.

13 Metering disputes

13.1 Disputes about metering installations or metering information initially resolved amicably

Participants acknowledge their desire that all disputes pursuant to the **rules** in this section V be resolved amicably by bona fide discussion between them.

13.2 Board to resolve disputes

Subject to rule 13.1, if any dispute relating to the rules in this section V between any **generator** or **purchaser** and any **service provider** cannot be resolved by them, or any one of them, they or any one of them may refer the matter to the **Board** for its resolution.

13.3 Participants must continue to comply with rules during dispute

Notwithstanding the fact that any matter referred to in rule 13.2 has already been referred to the **Board**, all **generators, purchasers** and **service providers** will continue to comply with, observe and perform their respective obligations and duties, and may exercise their respective rights, under the **rules** as if the matter had not arisen.

13.4 Participant to inform reconciliation manager

Where the resolution of a dispute results in an adjustment to **metering information** any **participant** whose **metering information** has changed will provide revised **metering information** to the **reconciliation manager**, in order that the revised **metering information** can be reconciled in accordance with rule 12.

13.5 No dispute to be raised after two years

All disputes concerning **metering installations** or **metering information** must be commenced within two years of the date of issue of any invoice to which the disputed information relates. Accordingly, **metering information**, other than **metering information** which is the subject of a dispute under this rule 13, will be deemed to be final and conclusive two years after the date of issue of any invoice to which that **metering information** relates.

14 Reporting obligations of the reconciliation manager

14.1 Reports to be prepared by the reconciliation manager

By 0900 hours, on the 2nd **business day** after the **reconciliation manager** provided **reconciliation information** for a **billing period** pursuant to rule 11.2, the **reconciliation manager** will report to the **Board** in writing. This report will include information on any situations where the **reconciliation manager** breached the **rules**, or, in the opinion of the **reconciliation manager**, any other **trader** or **service**

provider breached the **rules** resulting in the **reconciliation manager** receiving any **metering information** late or in a form which compromised the **reconciliation manager's** ability to reconcile such information, during that **billing period**. Unless exceptional circumstances exist (in which case the report is to be provided as soon as reasonably practicable) the report will be provided even if the **reconciliation manager** has no breaches of the **rules** to report and will include:

14.1.1 Time of breach

The time a breach or alleged breach took place;

14.1.2 Nature of breach

The nature of the breach or alleged breach including, in the case of late **metering information** or information in a form which compromises the **reconciliation information**, the person allegedly responsible for the information that has been provided;

14.1.3 Reason for breach

The reason for the breach or alleged breach occurring including, in the case of late **metering information** or information in a form which compromises the **reconciliation information**, the reason for the delay or the inadequate form, if the **reconciliation manager** is aware of the reason.

14.2 The Board to publish reports

By 0930 hours on the day that the **Board** receives the report of the **reconciliation manager** pursuant to rule 14.1, the **Board** will **publish** the sections of that report which relate to any breaches of the **rules** by the **reconciliation manager**. The **Board** may also refer the report to the **Rulings Panel**.

14.3 Generators and purchasers have a right to information concerning reconciliation manager's action

Any **generator** or **purchaser** may, by notice in writing to the **reconciliation manager**, request further information related to any situation set out in the **reconciliation manager's** report published pursuant to rule 14.1 which has materially affected that **generator** or **purchaser**. In such cases, the **reconciliation manager** will provide the requested information to that **generator** or **purchaser** provided that such information will not include any information that is confidential in respect of any other person.

14.4 Seasonally adjusted profile shape reconciliation

The **reconciliation manager** will reconcile **metering information** from 1 April 1999 consistently with the **seasonally adjusted profile shape** in accordance with the

seasonally adjusted profile shape as if the **reconciliation manager** had received revised **reconciliation information** pursuant to rule 14.1.

15 Liability of reconciliation manager

15.1 The reconciliation manager is not liable except as contained within the rules

The **reconciliation manager** will not have any liability to any other party under or in relation to the **rules** except as expressly set out in rule 15.2.

15.2 The reconciliation manager is liable for financial loss

Subject to rule 15.3, the **reconciliation manager** will be liable to any **generator** or **purchaser** who suffers financial loss as a result of any failure on the **reconciliation manager's** part to comply with its obligations under the **rules**, but, subject to rule 15.5, no **generator** or **purchaser** will have any cause of action other than pursuant to the **rules** against the **reconciliation manager** for any failure on the **reconciliation manager's** part to comply with its obligations under the **rules**. The **reconciliation manager** will not be liable to any **generator** or **purchaser** who suffers financial loss as a result of the **reconciliation manager** reasonably assessing information pursuant to rule 11.5 or 11.6.

15.3 The reconciliation manager's liability is capped

The **reconciliation manager** will not be liable under rule 15.2 for a sum in excess of:

15.3.1 $5,000,000 cap for any one event

$5,000,000 in respect of any one event or series of closely related events arising from the same cause or circumstance; or

15.3.2 $10,000,000 annual cap

$10,000,000 in respect of all events occurring in any 12 month period.

15.3.3 Compensation divided between generators and purchasers

Where more than one **generator** or **purchaser** suffers financial loss for which the **reconciliation manager** is liable pursuant to rule 15.2, the amount payable will be divided amongst those **generators** and **purchasers** suffering any loss in the proportion that their individual losses bear to the total loss suffered by all **generators** and **purchasers** who suffered loss as a result of the particular event.

15.4 Reconciliation manager to maintain professional indemnity insurance

The **reconciliation manager** will maintain professional indemnity insurance cover sufficient to meet any liability that may arise pursuant to this rule 15.

15.5 Other agreements not affected

Nothing in this rule 15 shall affect the liability of any person that arises under any other contract.

Schedule G1 – Forms 1 to 8

Form 1: Generator Offer

GENERATOR OFFER

Date: _____

Generator:

_____

Generator Name: _____

Grid Injection Point: _____

Generator Category (rule 3.6 of section II of part G): ☐ Unit ☐ Station
☐ Generator Block (rule 3.6 of section III of part G)

Block Name (if applicable): _____

Generator Maximum Output (including overload):

_____**MW**

Trading Period: _____ Starting at _____ : _____ 0 hours

Maximum Generator Ramp Up Rate: _____**MW**/hr

Maximum Generator Ramp Down Rate: _____**MW**/hr

Offer to Sell electricity ☐ Good till cancelled

Band 1: **From 0 MW to _____ MW @ $ _____ per MWh**

Band 2: **plus _____ MW @ $ _____ per MWh**

Band 3: **plus _____ MW @ $ _____ per MWh**

Band 4: **plus _____ MW @ $ _____ per MWh**

Band 5: **plus _____ MW @ $ _____ per MWh**

Form 2: Purchaser Bid

PURCHASER BID

Date: _____

Purchaser: _____

Grid Exit Point: _____

Trading Period: ____ Starting at _____ : _____ 0 hours

Bid to Buy electricity ☐ Good till cancelled

Band 1: **From 0 MW to _____ MW @ $ _____ per MWh**

Band 2: **plus _____ MW @ $ _____ per MWh**

Band 3: **plus _____ MW @ $ _____ per MWh**

Band 4: **plus _____ MW @ $ _____ per MWh**

Band 5: **plus _____ MW @ $ _____ per MWh**

Band 6: **plus _____ MW @ $ _____ per MWh**

Band 7: **plus _____ MW @ $ _____ per MWh**

Band 8: **plus _____ MW @ $ _____ per MWh**

Band 9: **plus _____ MW @ $ _____ per MWh**

Band 10: **plus _____ MW @ $ _____ per MWh**

Form 3: AC Transmission Line Capacity & Loss Characteristics

AC TRANSMISSION LINE CAPACITY & LOSS CHARACTERISTICS

Date: _____

_

Trading Period: _____ **Starting at** _____ : _____ **0 hours**

Connection Node 1: _____

_

Connection Node 2: _____

_

Line Admittance: _____ Ω -1

Line Transfer _____

_

Losses Losses (**MW**) = _____* (Injection) ^{2} + _____* (Injection) + _____

Capacity Maximum Injection _____ **MW**

Form 4: HVDC Capacity & Loss Characteristics

HVDC CAPACITY & LOSS CHARACTERISTICS

Date: _____

Trading Period: _____ **Starting at** _____ : _____ **0 hours**

HVDC Link Transfer Ratio (Pole 1/Pole 2) _____

Pole 1: Transfer From Benmore to Haywards
Transfer From Node 1 to Node 2

Losses Losses (**MW**) =_____* (Injection at Benmore P1) ^{2} +_____* (Injection at Benmore P1) +_____

Capacity Maximum Injection at Benmore P1: _____ **MW**

Reserve Transfer Capacity _____ **MW**

Pole 1: Transfer From Haywards to Benmore

Losses Losses (**MW**) =_____* (Injection at Haywards P1) ^{2} +_____* (Injection at Haywards P1) +_____

Capacity Maximum Injection at Haywards P1: _____ **MW**

Reserve Transfer Capacity _____ **MW**

Pole 2: Transfer From Benmore to Haywards

Losses Losses (**MW**) =_____* (Injection at Benmore P2) ^{2} +_____* (Injection at Benmore P2) +_____

Capacity Maximum Injection at Benmore P2: _____ **MW**

Reserve Transfer Capacity _____ **MW**

Pole 2: Transfer From Haywards to Benmore

Losses Losses (**MW**) =_____* (Injection at Haywards P2) ^{2} +_____* (Injection at Haywards P2) +_____

Capacity Maximum Injection at Haywards P2: _____ **MW**

Reserve Transfer Capacity _____ **MW**

Form 5: Transformer Capacity & Loss Characteristics

TRANSFORMER CAPACITY & LOSS CHARACTERISTICS

Date: _____

Trading Period: _____ **Starting at** _____ : _____ **0 hours**

Connection Node 1: _____

Connection Node 2: _____

Transformer Admittance:_____ Ω^{-1}

Injection Losses Losses (**MW**) = _____* (Injection) ^{2} + _____* (Injection) + _____

Capacity Maximum Injection _____ **MW**

Form 6: Generation Reserve Offer

GENERATION RESERVE OFFER

Date: _____

Ancillary Services Agent:

_____

Generator Name: _____

Grid Injection Point: _____

Instantaneous Reserve Capability

Holds a Reserve Contract with the SystemOperator ☐ Yes

Maximum PLSR Reserve Response Fast _____ **MW** Sustained _____ **MW**

Maximum TWD Reserve Response Fast _____ **MW** Sustained _____ **MW**

Maximum Generator Effective Reserve Capacity Fast _____ **MW** Sustained _____ **MW**

Trading Period: _____ Starting at _____ : _____ 0 hours

Offer to Provide Reserve

1. Partly Loaded Spinning Reserve

Band 1: _____% of electricity (**MW**), up to a maximum of ____ **MW** as Fast Response @ $ _____ per **MW**h

_____ % of electricity (**MW**), up to a maximum of ____ **MW** as Sustained Response @ $ _____ per **MW**h

Band 2: _____ % of electricity (**MW**), up to a maximum of ____ **MW** as Fast Response @ $ _____ per **MW**h

_____ % of electricity (**MW**), up to a maximum of ____ **MW** as Sustained Response @ $ _____per **MW**h

Band 3: _____ % of electricity (**MW**), up to a maximum of ____ **MW** as Fast Response @ $ _____per **MW**h

_____ % of electricity (**MW**), up to a maximum of ____ **MW** as Sustained Response @ $ _____ per **MW**h

2. Tail Water Depressed Spinning Reserve

Band 1: Up to a maximum of _____ **MW** @ $ _____ per **MW**h as Fast Response

Up to a maximum of _____ **MW** @ $ _____ per **MW**h as Sustained Response

Band 2: Up to a maximum of _____ **MW** @ $ _____ per **MW**h as Fast Response

Up to a maximum of _____ **MW** @ $ _____ per **MW**h as Sustained Response

Band 3: Up to a maximum of _____ **MW** @ $ _____ per **MW**h as Fast Response

Up to a maximum of _____ **MW** @ $ _____ per **MW**h as Sustained Response

Form 7: Interruptible Load Offer

INTERRUPTIBLE LOAD OFFER

Date: _____

Ancillary Services Agent:_____

Grid Exit Point: _____

Instantaneous Reserve Capability

Holds a Reserve Contract with the system operator ☐ Yes

Fast Response Interruptible Load Available ☐ Yes

Sustained Interruptible Load Available ☐ Yes

Trading Period: _____ Starting at _____ : _____ 0 hours

Offer to Provide Reserve

1. Interruptible Load

Band 1: Up to a maximum of _____ **MW** @ $ _____ per **MW**h as Fast Response

Up to a maximum of _____ **MW** @ $ _____ per **MW**h as Sustained Response

Band 2: Up to a maximum of _____ **MW** @ $ _____ per **MW**h as Fast Response

Up to a maximum of _____ **MW** @ $ _____ per **MW**h as Sustained Response

Band 3: Up to a maximum of _____ **MW** @ $ _____ per **MW**h as Fast Response

Up to a maximum of _____ **MW** @ $ _____ per **MW**h as Sustained Response

Form 8: Instantaneous Reserve Parameters

INSTANTANEOUS RESERVE PARAMETERS

Date: _____

Trading Period: _____ Starting at _____ : _____ 0 hours

North Island Fast Response Reserve Adjustment Factor _____

North Island Sustained Response Reserve Adjustment Factor_____

South Island Fast Response Reserve Adjustment Factor _____

South Island Sustained Response Reserve Adjustment Factor_____

Minimum Risk

North Island Minimum Risk _____ **MW**

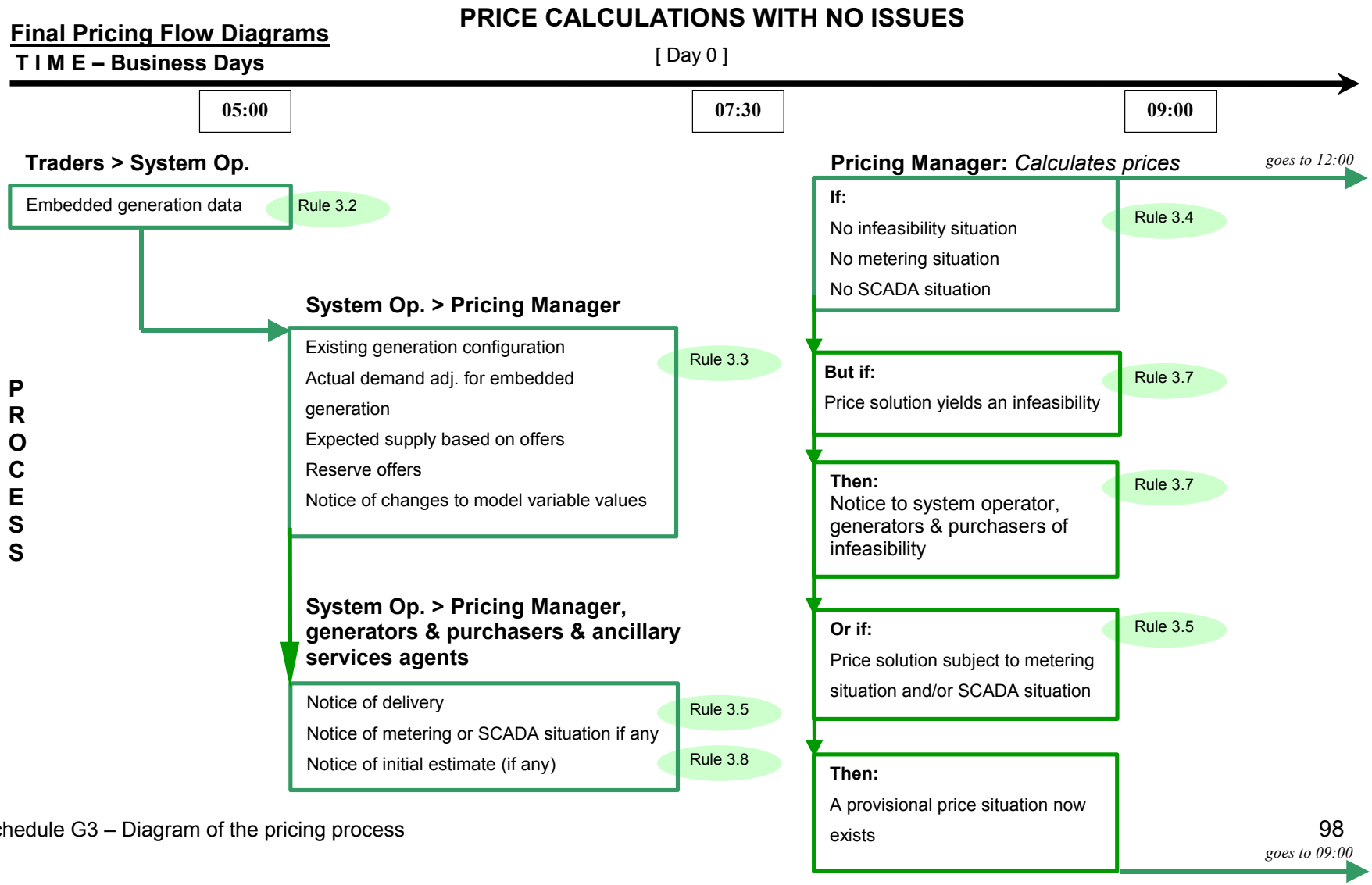
South Island Minimum Risk _____ **MW**

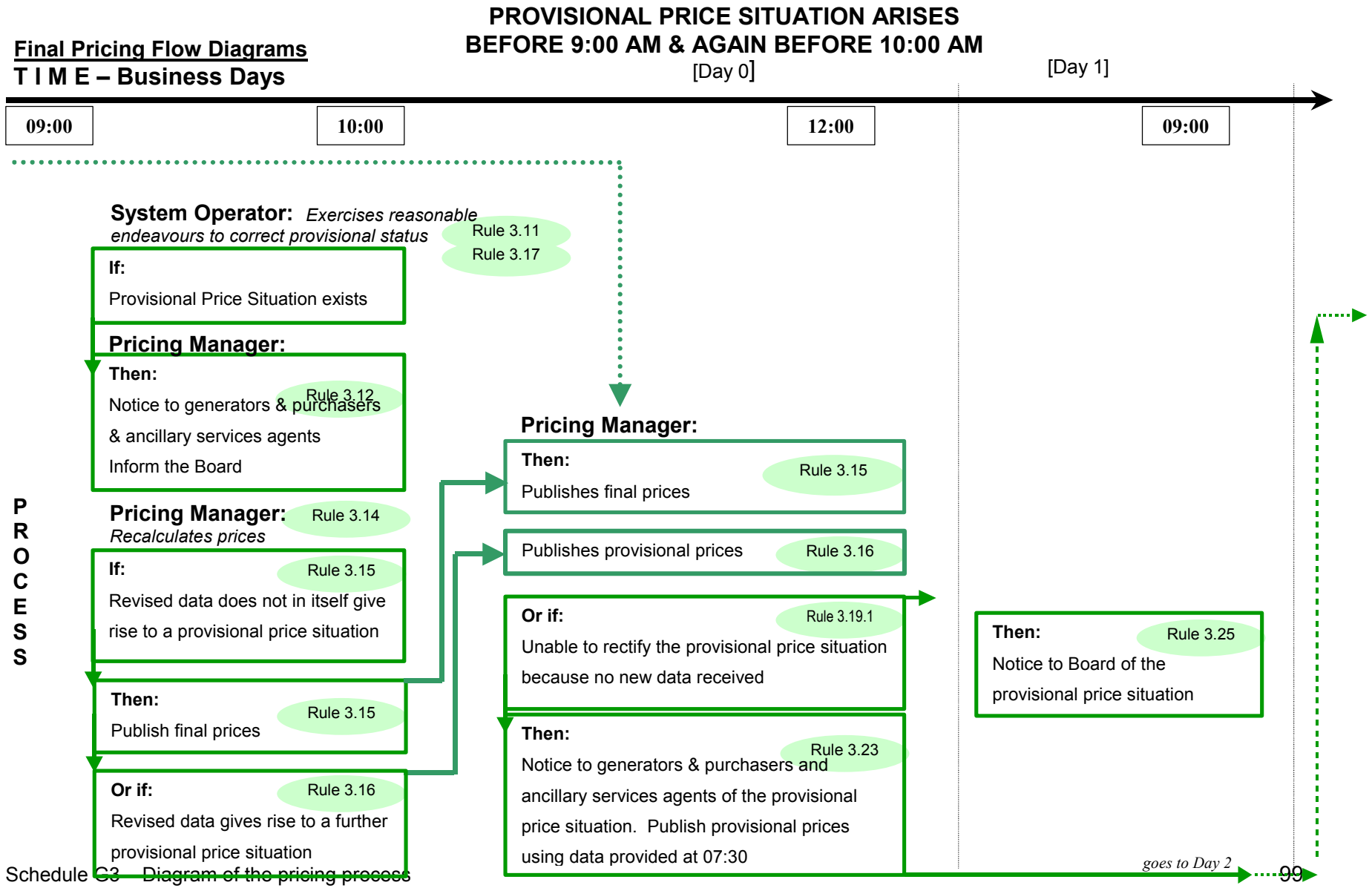
Schedule G2 – Model variables

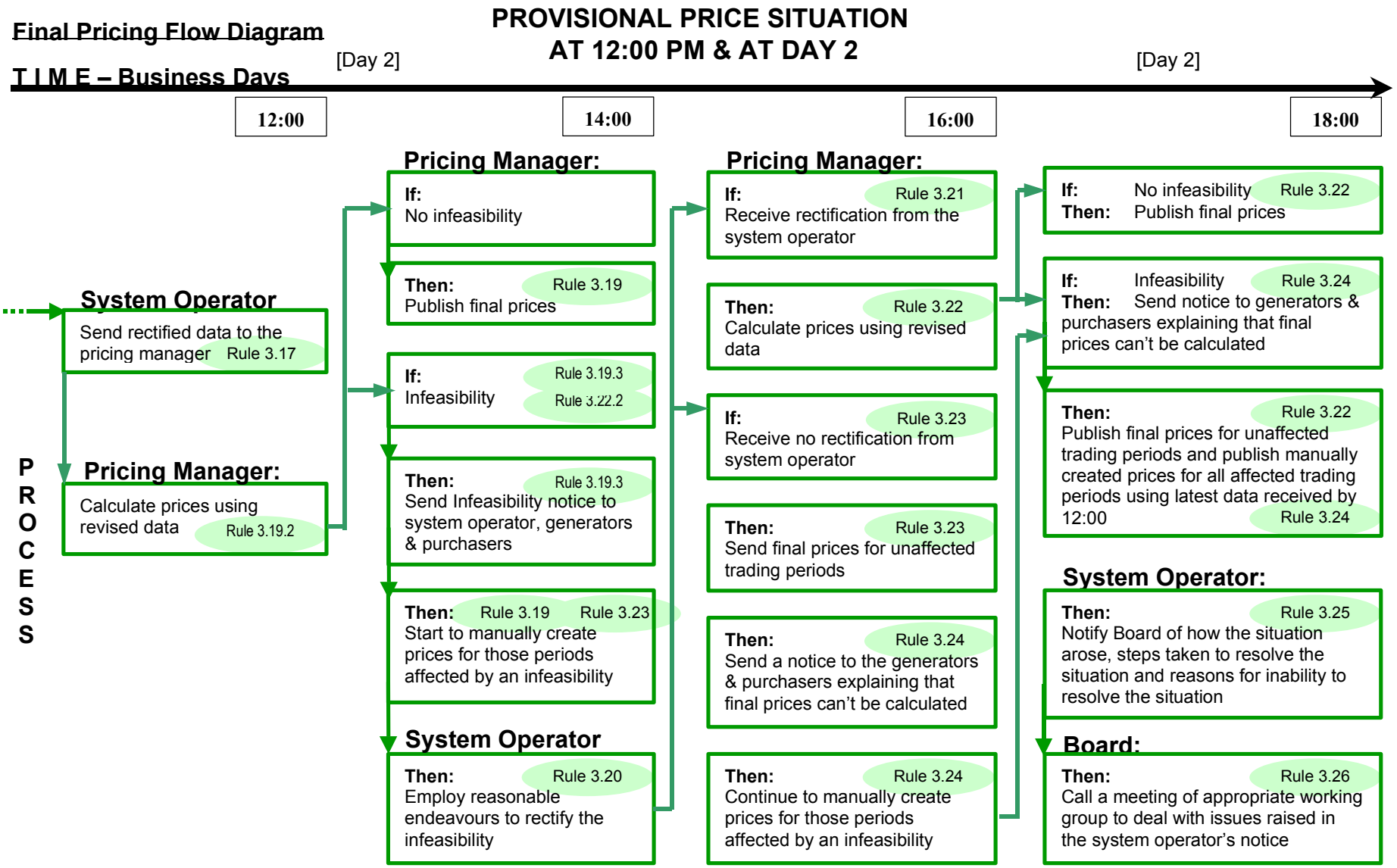
The **system operator** will give to the **pricing manager** a list specifying the values for the model variables (whether positive or negative) calculated by the **software** used to produce **final prices** and **final reserve prices**, for each of the following situations:

- deficit bus generation;
- surplus bus generation;
- deficit 6s reserve;
- deficit 60s reserve;
- deficit branch group constrained;
- surplus branch group constrained;
- deficit bus group constrained;
- surplus bus group constrained;
- deficit ramp rate;
- surplus ramp rate
- market node/trader capacity deficit;
- deficit branch flow;
- surplus branch flow;
- deficit M-node constrained; or
- surplus M-node constrained.

Schedule G3 – Diagram of the pricing process




Final Pricing Flow Diagrams
T I M E – Business Days
PROVISIONAL PRICE SITUATION ARISES
BEFORE 9:00 AM & AGAIN BEFORE 10:00 AM
[Day 0]
[Day 1]
09:00
10:00
12:00
09:00
PROCESS
System Operator: Exercises reasonable endeavours to correct provisional status
Rule 3.11
Rule 3.17
If:
Provisional Price Situation exists
Pricing Manager:
Then:
Notice to generators & purchasers & ancillary services agents
Inform the Board
Rule 3.12
Pricing Manager:
Rule 3.14
Recalculates prices
If:
Revised data does not in itself give rise to a provisional price situation
Rule 3.15
Then:
Publish final prices
Rule 3.15
Or if:
Revised data gives rise to a further provisional price situation
Rule 3.16
Pricing Manager:
Then:
Publishes final prices
Rule 3.15
Publishes provisional prices
Rule 3.16
Or if:
Unable to rectify the provisional price situation because no new data received
Rule 3.19.1
Then:
Notice to generators & purchasers and ancillary services agents of the provisional price situation. Publish provisional prices using data provided at 07:30
Rule 3.23
Then:
Notice to Board of the provisional price situation
Rule 3.25
goes to Day 2


Final Pricing Flow Diagram
PROVISIONAL PRICE SITUATION
AT 12:00 PM & AT DAY 2
TIME – Business Days
[Day 2]
[Day 2]
12:00
14:00
16:00
18:00
PROCESS
System Operator
Send rectified data to the pricing manager Rule 3.17
Pricing Manager:
Calculate prices using revised data Rule 3.19.2
Pricing Manager:
If: No infeasibility
Then: Rule 3.19 Publish final prices
If: Infeasibility Rule 3.19.3 Rule 3.22.2
Then: Rule 3.19.3 Send Infeasibility notice to system operator, generators & purchasers
Then: Rule 3.19 Rule 3.23 Start to manually create prices for those periods affected by an infeasibility
System Operator
Then: Rule 3.20 Employ reasonable endeavours to rectify the infeasibility
Pricing Manager:
If: Rule 3.21 Receive rectification from the system operator
Then: Rule 3.22 Calculate prices using revised data
If: Rule 3.23 Receive no rectification from system operator
Then: Rule 3.23 Send final prices for unaffected trading periods
Then: Rule 3.24 Send a notice to the generators & purchasers explaining that final prices can't be calculated
Then: Rule 3.24 Continue to manually create prices for those periods affected by an infeasibility
If: No infeasibility Rule 3.22
Then: Publish final prices
If: Infeasibility Rule 3.24
Then: Send notice to generators & purchasers explaining that final prices can't be calculated
Then: Rule 3.22 Publish final prices for unaffected trading periods and publish manually created prices for all affected trading periods using latest data received by 12:00 Rule 3.24
System Operator:
Then: Rule 3.25 Notify Board of how the situation arose, steps taken to resolve the situation and reasons for inability to resolve the situation
Board:
Then: Rule 3.26 Call a meeting of appropriate working group to deal with issues raised in the system operator's notice

Schedule G4 – Reconciliation sequence

Commencement of the first day of the calendar month	Beginning of **reconciliation period**.
16:00 hours: 4th **business day** of the calendar month	All **retailers, direct consumers, generators** and **grid owners** to make available to the **reconciliation manager metering information** in respect of the prior **reconciliation period**.
16:00 hours: 7th **business day** of the calendar month	**Reconciliation manager** to have completed a trial reconciliation of the data provided by **retailers, direct consumers, generators** and **grid owners** and to make available that trial reconciliation data to the entitled **members** for checking.
From the 8th to immediately before the last **business day** of the calendar month.	**Members** to seek to resolve all inaccuracies and disputes over data.
12:00 hours: Last **business day** of the calendar month.	**Reconciliation manager** to distribute revised data to entitled **members**.

The time referred to in this schedule is the time for general purposes under sections 3 and 4 of the Time Act 1974 and includes New Zealand daylight time under section 4 of that Act.

Schedule G5 – Calculation of electricity supplied to incumbent retailers

The quantity of **electricity** supplied to an **incumbent retailer** during any **half hour** (Q), excluding that notified to the **reconciliation manager** under rule 5.2 of section V of part G, is calculated in accordance with the formula:

$$Q = A - (B + C + D) + E$$

A = the total quantity of **electricity**, measured by **metering installation**s, injected into or flowing out of the relevant **local network** during the **half hour** at all the **points of connection** between the relevant **local network** and the **grid**;

B = the total quantity of **electricity** drawn from the **local network**, measured by **metering installations** at each **point of connection** between the **local network** and all **consumers** supplied **electricity** by **independent retailers** during the **half hour** together with the quantities notified to the **reconciliation manager** under rule 5.2 of section V of part G;

C = the total quantity of **electricity** drawn from the **local network**, measured by **metering installations** at each **point of connection** between the relevant **local network** and **direct consumers**, by such **consumers** during the **half hour**;

D = the **local losses** applied to all **electricity** supplied to **independent retailers** and **direct consumers** under **supply contracts** with **points of connection** with the **local network**. These may be purchased by the **distributor** and, if all **local losses** are purchased, D will equal 0;

E = the total quantity of **electricity**, measured by **metering installations**, injected into the relevant **local network** during the **half hour** at each **grid injection point** between a **generator** and the **local network**.

Where there is a net flow of **electricity** into the **local network**, “A” will be expressed as a positive number and where there is a net flow out of the **local network**, “A” will be expressed as a negative number.

Schedule G6 – Schedule of prices and quantities

1 Inputs into the modelling system

1.1 Purpose of the modelling system

The purpose of this modelling system is to provide a schedule of quantities and prices which:

Maximises the gross **purchaser** benefit from purchases of **electricity** from the **clearing manager** less the total cost of production of **electricity** and **instantaneous reserves** as specified later in this schedule.

This will be done for each **trading period** independently. Notwithstanding this, scheduled generation at the end of the previous **trading period** will be used in combination with generator ramp rates specified in a **generator offer** to constrain the output of that **generator**.

The modelling system will provide prices for **electricity** and **instantaneous reserve** which are consistent with the above objective and the scheduled quantities of **electricity** and **instantaneous reserve**.

The schedule prepared will be used as a **pre-dispatch schedule**, a **dispatch schedule**, or a schedule of prices, as the case may be.

1.2 Contents of the schedule

The schedule will contain the information specified in:

1.2.1 Pre-dispatch schedules

Rule 2.5 of section III of part G, where this schedule is to be used as a **pre-dispatch schedule**; and

1.2.2 Schedule of Dispatch Prices and Dispatch Quantities

Rule 5 of section II of part G, where this schedule is to be used as a **schedule of dispatch prices and dispatch quantities**; and

1.2.3 Dispatch schedules

Rule 3.5 of section III of part G, where this schedule is to be used as a **dispatch schedule**; and

1.2.4 Prices

Rule 4.4 of section IV of part G where this schedule is to be used as a schedule of prices.

1.3 Inputs used at each stage

The schedule will be provided using the following input information:

1.3.1 Pre-dispatch schedules

Where this schedule is to be used as a **pre-dispatch schedule**:

1.3.1.1 From generators

Generator offers (rule 3.1 of section II of part G) and **ancillary services agent reserve offers** (rule 6.1 of section II of part G;

1.3.1.2 From purchasers

Purchaser bids (rule 3.3 of section II of part G) **ancillary services agent reserve offers** (rule 6.2 of section II of part G;

1.3.1.3 From grid owners and the system operator

Information from the **system operator** (rule 5 of section II of part G) or any **grid owner** about:

(a) The AC transmission system configuration, capacity and losses;

(b) The **HVDC link** configuration, capacity and losses;

(c) Transformer configuration, capacity and losses;

1.3.1.4 Voltage support

Information about voltage support from contracts held by the **system operator** under the **procurement plan**; and

1.3.1.5 Instantaneous reserves

Information about instantaneous reserves from ancillary services procured under the procurement plan; and

1.3.1.6 Dispatch objective

Adjustments required to meet the objectives of the **dispatch objective** will be incorporated in each schedule prepared;

1.3.2 Schedule of dispatch prices and dispatch quantities

Where this schedule is to be used as a **schedule of dispatch prices and dispatch quantities**:

1.3.2.1 From generators

Generator offers (rule 3.1 of section II of part G) and **revised offers** (rule 3.14.1 of section II of part G) and **ancillary services agent reserve offers** (rule 4.4 of section B) and revised **reserve offers** (rule 6.11 of section II of part G);

1.3.2.2 From purchasers

Purchaser reserve offers (rule 6.2 of section II of part G) and revised **ancillary services agent reserve offers**;

1.3.2.3 Demand profile

The expected profile of demand produced by the **system operator**;

1.3.2.4 From grid owners and the system operator

Information from the **system operator** (rule 5 of section I of part G) or any **grid owner** about:

(a) The AC transmission system configuration, capacity and losses;

(b) The **HVDC link** configuration, capacity and losses;

(c) Transformer configuration, capacity and losses;

(d) Persons who are not **participants**;

(e) Voltage support;

(f) **Instantaneous reserves**;

1.3.2.5 Adjustments to the dispatch objective

System operator adjustments required to meet the **dispatch objective** will be incorporated in each schedule prepared;

1.3.3 Dispatch schedules

Where this schedule is to be used as a **dispatch schedule**:

1.3.3.1 From generators

Generator offers (rule 3.1 of section II of part G) and revised **offers** (rule 3.14.1 of section II of part G) and **ancillary services agent reserve offers** (rule 6.2 of section II of part G) and revised **ancillary services agent reserve offers** (rule 6.11 of section II of part G);

1.3.3.2 From purchasers

Purchaser reserve offers (rule 3.3 of section II of part G) and revised **ancillary services agent reserve offers**;

1.3.3.3 Demand profile

The expected profile of demand until the next **dispatch schedule** is produced by the **system operator**;

1.3.3.4 Generator output levels

The current output levels of each **generator**;

1.3.3.5 From grid owners

Information from the **grid owners** (rule 5 of section II of part G) and any revised information from the **grid owner** (rule 5.5 of section II of part G) about:

(a) The AC transmission system configuration, capacity and losses;

(b) The **HVDC link** configuration, capacity and losses;

(c) Transformer configuration, capacity and losses;

1.3.3.6 Voltage support

Information about voltage support from contracts held by the **system operator** under the procurement plan;

1.3.3.7 Instantaneous reserve

Information about instantaneous reserves from ancillary services procured under the procurement plan;and

1.3.3.8 Adjustments to dispatch objective

Adjustments required to meet the **dispatch objective** (rule 3.2 of section III of part G) will be incorporated in each schedule prepared and this method repeated until the **system operator** is satisfied that he schedule meets the requirements of the **dispatch objective**;

2 The objective function

The objective function of the modelling system may be described mathematically as:

$$\text{Maximise}\left\{\begin{array}{l}\overbrace{\Sigma_{ij} D_{i,j} \times BP_{i,j}}^{\text{Gross Consumer Benefit}} \\ \text{minus} \\ \overbrace{\Sigma_{ij} G_{i,j} \times OP_{i,j}}^{\text{Cost of Generation}} \\ \text{minus} \\ \overbrace{\Sigma_{ij} R_{i,j}^{PLSR,f} \times OP_{i,j}^{PLSR,f} + \Sigma_{ij} R_{i,j}^{TWD,f} \times OP_{i,j}^{TWD,f} + \Sigma_{ij} R_{i,j}^{IL,f} \times OP_{i,j}^{IL}}^{\text{Cost of Fast Instantaneous Reserves}} \\ \text{minus} \\ \overbrace{\Sigma_{ij} R_{i,j}^{PLSR,s} \times OP_{i,j}^{PLSR,s} + \Sigma_{ij} R_{i,j}^{TWD,s} \times OP_{i,j}^{TWD,s} + \Sigma_{ij} R_{i,j}^{IL,s} \times OP_{i,j}^{IL}}^{\text{Cost of Sustained Instantaneous Reserves}}\end{array}\right.$$

Where

i	=	A price band of a **bid** / **offer** or a **reserve offer**.
j	=	A generating unit / station, or a **purchaser**.
$D_{i,j}$	=	The scheduled demand corresponding to price band i of the **bid** for **purchaser** j or metered demand, whichever is relevant.
$BP_{i,j}$	=	The **bid** price corresponding to price band i of the **bid** for **purchaser** j.
$G_{i,j}$	=	The scheduled generation corresponding to price band i of the **offer** for unit / station j.
$OP_{i,j}$	=	The **offer** price corresponding to price band i of the **offer** for unit / station j.
$R_{i,j}^{PLSR,f}$	=	The scheduled fast PLSR corresponding to price band i of the **reserve offer** for unit / station j.
$R_{i,j}^{PLSR,s}$	=	The scheduled sustained PLSR corresponding to price band i of the **reserve offer** for unit / station j.

^{PLSR,f}

$OP_{i,j}$	=	The **reserve offer** price corresponding to price band *i* of the PLSR **reserve offer** for unit / station *j*.
$R_{i,j}^{TWD,f}$	=	The scheduled fast TWD corresponding to price band *i* of the **reserve offer** for unit / station *j*.
$R_{i,j}^{TWDs}$	=	The scheduled sustained TWD corresponding to price band *i* of the **reserve offer** for unit / station *j*.
$OP_{i,j}^{TWD}$	=	The **reserve offer** price corresponding to price band *i* of the TWD **reserve offer** for unit / station *j*.
$R_{i,j}^{IL,f}$	=	The scheduled fast IL corresponding to price band *i* of the **interruptible load** for **ancillary services agent** *j*.
$R_{i,j}^{IL,s}$	=	The scheduled sustained IL corresponding to price band *i* of the **interruptible load** for **ancillary services agent** *j*.
$OP_{i,j}^{IL}$	=	The **reserve offer** price corresponding to price band *i* of the IL **interruptible load** for **ancillary services agent** *j*.

Where:

PLSR	means	**partly loaded spinning reserve**
TWD	means	**tail water depressed reserve**
IL	means	**interruptable load**
Fast	means	**fast instantaneous reserve**
Sustained	means	**sustained instantaneous reserve**

This objective must be maximised to an accuracy to be specified in the **model formulation**.

3 The constraints

In maximising the objective function above, the following constraints must be met (to an accuracy to be specified in the **model formulation**):

3.1 Generator offers

Generators will submit **offers** to the **system operator** in the form outlined in Form 1 in schedule G1 of section I of part G. The **offers** will be used by the modelling system to form the constraint that, for each price band, the expected level of **electricity** to be generated will not be more than the quantity offered for that price band.

The maximum ramp up, and ramp down rates will be used by the modelling system to form the constraint that the expected level of **electricity** to be generated for a unit/station in a **trading period** will be within the ramping limits of that unit/station, given the expected (or actual) output at the start of that **trading period**;

3.2 Purchaser bids and metered demand

Purchasers will submit **bids** in the form outlined in Form 2 in schedule G1 of section I of part G. Where a **pre-dispatch schedule** is being prepared, the **bids** will be used by the modelling system to form the constraint that, for each price band, the expected level of demand will not be more than the quantity bid for that price band. Otherwise, for the purposes of preparing **provisional prices** and **final prices**, metered demand will be used by the modelling system.

3.3 The transmission system

The final schedule provided by the modelling system will have the following characteristics (all of which must be met to an accuracy to be specified in the **model formulation**):

3.3.1 The nodal energy balance

The total scheduled flow into and out of a **grid injection point** or **grid exit point** will be equal to zero, for all **grid injection points** and **grid exit points**;

3.3.2 Transmission system losses

The modelling system will calculate losses in transmission lines, the **HVDC link**, and in transformers. These losses will be approximated using the information provided by the **grid owners** in the form outlined in Forms 3, 4 and 5 in part G, section I, schedule G1, for transmission lines, the **HVDC link** and transformers respectively;

3.3.3 Transmission system power flow

The modelling system will calculate the **electricity** flows into individual transmission lines, and flows into the connection points of transformers connected at the same **grid injection point** or **grid exit point** using an established DC power flow technique within the limitations imposed by the technique that:

3.3.3.1 Adjusts for losses

Correctly adjusts flows for transmission system losses, and;

3.3.3.2 Apportions in loops

Correctly apportions flows in transmission system loops, whether or not those loops contain transmission constraints.

Provided that the capacity of transformers through which **electricity** is supplied to a **grid exit point** will not be included in the model except where the transformer may carry flows of **electricity** other than offtakes from that **grid exit point**.

3.4 Instantaneous reserves

The modelling system will simultaneously calculate the amount of **fast instantaneous reserve** and **sustained instantaneous reserve** to be provided by **ancillary services agents** in each island to meet the requirements of the **dispatch objective** in that island.

In doing this, the modelling system will identify the risk (in **MW**) associated with largest "Contingent Event" as this is defined in the **dispatch objective** to be covered as the largest of:

3.4.1 HVDC link

The transfer on a single pole of the **HVDC Link**;

3.4.2 Single generating unit

The generation from a single generating unit (whether or not this is **generator's** generator); or

3.4.3 Any other risk

Any other risk as specified in the **dispatch objective**.

The modelling system will calculate the total amount of **fast instantaneous reserve** and **sustained instantaneous reserve** required to meet the requirements of the **dispatch objective**. The amount of **fast instantaneous reserve** and **sustained instantaneous reserve** to be provided by **ancillary services agents** will be calculated as this amount less any such **instantaneous reserve** being provided by any other person who is not a **ancillary services agents** (as notified by the **system operator**).

The modelling system will not schedule **instantaneous reserve** at a generating unit/station that would result in the scheduled quantity of **electricity** to be generated plus the scheduled quantity of **instantaneous reserve** to be provided that is greater than the maximum generator effective reserve capacity of that unit/station as specified in the **reserve offer** for that unit/station.

4 Adjustments to pre-dispatch schedule, the schedule of dispatch prices and dispatch quantities and the dispatch schedule to meet the dispatch objective

4.1 System operator to suggest changes

After each schedule has been completed the **system operator** will notify any changes required to meet the **dispatch objective**, including adjustments for:

4.1.1 **Voltage Support**;

4.1.2 **Frequency keeping reserves**;

4.1.3 Over-frequency arming;

4.1.4 Additional transmission constraints;

4.1.5 **Instantaneous reserve.**

4.2 Adjustments made by setting parameters

The adjustments identified in rule 4.1 will be made by setting one, or a combination of the following parameters:

4.2.1 Minimum generation (in **MW**) required at a **grid injection point** or group of **grid exit points;**

4.2.2 Maximum generation (in **MW**) required at a **grid injection point** or group of **grid exit points;**

4.2.3 Minimum flow limits (in **MW**) on a transmission line or a transformer;

4.2.4 Maximum flow limits (in **MW**) on a transmission line or a transformer;

4.2.5 Minimum flow limits (in **MW**) on a group of transmission lines or transformers;

4.2.6 Maximum flow limits (in **MW**) on a group of transmission lines or transformers;

4.2.7 The reserve modelling parameters as contained in Form 8 in schedule G2 of section I of part G.

In the case where this schedule is to be used as a **pre-dispatch schedule**, a **schedule of dispatch prices and dispatch quantities** or a **dispatch schedule**, these adjustments will be made by the **system operator.** In the case of a **dispatch schedule**, this method will be repeated to produce a new schedule. This will continue until the **system operator** is satisfied that the requirements of the **dispatch objective** have been met.

Where this schedule is to be used as a schedule of prices the above adjustments will be made using the adjustments that were used in the **schedule** of **dispatch prices** and **dispatch quantities** that applied at the beginning of the **trading period**.

4.3 Principles to be followed by the system operator

In suggesting changes and making adjustments pursuant to rules 4.1 and 4.2, the **system operator** will have regard to the following principles:

4.3.1 Constraints on generation plant

Constraints will only be imposed on generation plant where the **system operator** has a specific requirement from the generation plant to meet the requirements of the **dispatch objective**;

4.3.2 Constraints on transmission line

Constraints will only be imposed on a transmission line or transformer where the **system operator** has a specific requirement from that line or transformer to meet the requirements of the **dispatch objective**;

4.3.3 Adjustments to instantaneous reserve

Adjustments will only be made to **instantaneous reserve** modelling parameters where the **system operator** has a specific requirement for **instantaneous reserve** to meet the requirements of the **dispatch objective**.

5 Schedule of prices

Where the schedule produced by the modelling system set out in rule 1.1 of schedule C4 is to be used as a schedule of prices, it will contain the information specified in:

5.1.1.1 ***Ancillary services agent offers*** *(rule 3.1 of section II of part G);*

5.1.1.2 ***Ancillary services agent offers*** *(rule 6.2 of section II of part G);*

5.1.1.3 *The metered demand within the current* ***trading period*** *(rule 3.3.2 of section IV of part G), including any adjustments made for a* ***generator*** *which is situated in a* ***local network;***

5.1.1.4 *The information from any* ***grid owner*** *(rule 5 of section II of part G) that was used in the first* ***dispatch schedule*** *prepared for that* ***trading period*** *about:*

(d) The AC transmission system configuration, capacity and losses;

(e) The **HVDC link** configuration, capacity and losses, weighted by time for any changes within the **trading period** (rule 5.2.2 of section II of part G);

(f) Transformer configuration, capacity and losses;

5.1.1.5 *Information about voltage support from contracts held by the* ***system operator*** *under the procurement plan;*

5.1.1.6 *information about* ***instantaneous reserves*** *from* ***ancillary services*** *procured under the* ***procurement plan****; and*

5.1.1.7 *Adjustments that were made to that* ***dispatch schedule*** *and the* ***pre-dispatch schedule*** *that became that* ***dispatch schedule*** *that were required to meet the objectives of the* ***dispatch objective*** *(rule 3.2 of section III of part G).*

6 Calculation of prices, marginal location factors and reserve prices

6.1 What the modelling system will calculate

The modelling system will calculate the following set of prices:

6.1.1 Prices at grid injection and exit points

Prices for **electricity** at each **grid injection point** and **grid exit point**, and at each reference point;

6.1.2 Reserve prices

Reserve prices for each island;

6.1.3 Marginal location factors

Marginal location factors for each **grid injection point** and each **grid exit point**. These factors will be determined by dividing the price at that **grid injection point** or **grid exit point** by the price at the reference point relevant to that **grid injection point** or **grid exit point**.

6.2 Details of prices produced

The prices described in rule 6.1 will be used as:

6.2.1 Pre-dispatch schedule

Where this schedule is used as a **pre-dispatch schedule**:

6.2.1.1 forecast prices;

forecast prices

6.2.1.2 forecast reserve prices;

forecast reserve prices

6.2.1.3 forecast marginal location factors.

forecast marginal location factors

6.2.2 Schedules of prices

Where this schedule is used as a schedule of prices:

6.2.2.1 Provisional or final prices

provisional prices or final prices, as the case may be;

6.2.2.2 Provisional or final reserve prices

provisional reserve prices or final reserve prices, as the case may be;

6.2.2.3 Marginal location factors

provisional marginal location factors or final marginal location factors, as the case may be.

6.2.3 Dispatch prices

Where this schedule is used as a **schedule of dispatch prices and dispatch quantities**, **dispatch prices**.

6.3 What the modelling system takes into account when calculating prices

The modelling system will calculate these prices consistent with the objective function, and consistent with the quantities of **electricity** and **instantaneous reserve** scheduled, while meeting all constraints, and in particular:

6.3.1 Prices consistent with losses and power flow

Prices for **electricity** at each **grid injection point** or **grid exit point** must be consistent with the treatment of transmission system losses and the transmission system power flow;

6.3.2 Generate if price greater than offer price

Subject to the rights of the **system operator** as described in rules 4.1 and 4.2, any **generator** at a **grid injection point** will only be scheduled to generate a quantity of **electricity** from a price band if the price determined by the modelling system at the reference point multiplied by the marginal location factor at that **grid injection point** is greater than or equal to the price offered in that price band;

6.3.3 Not generate if price lower than offer price

Subject to the rights of the **system operator** as described in rules 4.1 and 4.2, any **generator** at a **grid injection point** will not be scheduled to generate a quantity of **electricity** from a price band if the price determined by the modelling system at the reference point multiplied by the relevant marginal location factor at that **grid injection point** is less than the price offered in that price band;

6.3.4 Purchase if price lower than bid price

Subject to the rights of the **system operator** as described in rules 4.1 and 4.2, any **purchaser** at a **grid exit point** will only be scheduled to purchase a quantity of **electricity** from a price band if the price determined by the modelling system at the reference point multiplied by the relevant marginal location factor at that **grid exit point** is less than or equal to the price bid for that price band;

6.3.5 Not purchase if price higher than bid price

Subject to the rights of the **system operator** as described in rules 4.1 and 4.2, any **purchaser** at a **grid exit point** will not be scheduled to purchase a quantity of **electricity** from a price band if the price determined by the modelling system at the reference point multiplied by the relevant marginal location factor at that **grid exit point** is greater than or equal to the price bid for that price band;

6.3.6 Provide reserve if price greater than reserve offer price

Subject to the rights of the **system operator** as described in rules 4.1 and 4.2, any **ancillary services agent** that has made a **reserve offer** will only be scheduled to provide a quantity of **instantaneous reserve** from a reserve price band if the reserve price determined by the modelling system is greater than or equal to the total price offered for that reserve price band. Being, in the case of a **reserve offer** for a **generating unit**, the total price offered for a price band is equal to the amount required to ensure that that **ancillary services agent** is indifferent as to whether it generates **electricity** or provides **instantaneous reserve** plus the price offered in that reserve price band;

6.3.7 Not provide reserve if price greater than reserve offer price

Subject to the rights of the **system operator** as described in rules 4.1 and 4.2, any **ancillary services agent** that has made a **reserve offer** will not be scheduled to provide a quantity of **instantaneous reserve** from a price band if the reserve price determined by the modelling system is less than the total price offered for that price band. Being, in the case of a **reserve offer** for a **generating unit**, the total price offered for a price band is equal to the amount required to ensure that that **ancillary services agent** is indifferent as to whether it generates **electricity** or provides **instantaneous reserve** plus the price offered in that reserve price band.