

# D+1 Allocation business rules

## Version control

Version	Date	Comments
0.9	10 November 2015	First draft for industry consultation
1.0	7 December 2015	First published version, incorporating industry feedback and comments from DAWG#9
1.1	11 March 2016	Included changes to models following NZIER review Added manual constraint of TOU ICPs to zero Added manual consumption forecasts for the first month for 'new' TOU ICPs with no historical data Added simple estimation of missing gas gate injections

## Introduction

This document outlines the process and lays out the business rules pertaining to Gas Industry Co's D+1 allocation trial. D+1 allocation is a process that, on the day following gas flow, allocates the gas that has flowed through gas gates allocated under the Gas (Downstream Reconciliation) Rules 2008. For the trial, Gas Industry Co and its contractor, Concept Consulting, have developed a D+1 model and intend to use reasonable endeavours to use it to produce allocations to Vector and its shippers on a daily basis.

The D+1 allocation model is based on multivariate regression modelling. There are three separate stages to the D+1 modelling:

1. Estimation of UFG at global one-month gas gates, based on:
  - Individual gate (each gate is modelled separately)
  - UFG the previous month (UFG is often correlated with the previous month's UFG)
2. Estimation of daily consumption for allocation group 1 and 2 consumers (these estimates are used for allocation group 2 consumers and for instances where daily metered consumption is not available for a group 1 consumer), based on:
  - Individual consumer (each ICP is modelled separately)
  - Previous month's consumption (ICP consumption is often highly correlated with previous month) (not used for ICPs less than one year old)
  - Month of year (ICP consumption is often seasonal)
  - Injection at the gate (ICPs can sometimes make up a large proportion of the total gas gate injection volume. If this is the case, then gate injection and ICP consumption will be highly correlated)
  - Business day or non-business day (many ICPs have lower consumption on non-business days)

- Currency of data (the model uses a weighting so that more recent values have more impact on the modelled fit)
  - Seasonal or non-seasonal demand (the model removes seasonal variables for ICPs that do not exhibit a seasonal profile)
3. Allocation of residual gas, based on the predicted share of residual gas volume attributable to each retailer within a pipeline pool. Residual gas volume in this case is the difference between the sum of consumption volumes allocated to groups 1 and 2 and the gas gate injection quantity. The share of residual gas allocated to each retailer is based on:
- Individual pool (each pipeline pool is modelled separately)
  - Individual retailer (each retailer has its own mix of customers with different consumption patterns)
  - Month of year (retailer share tends to be seasonal)
  - Previous proportional allocation for the pool for the most recent historical month, based on retailer submissions (retailer share tends to be relatively constant over a short period of time)
  - Proportion of non-TOU ICPs served by each retailer (customer market share influences volume share and can be updated daily)
  - Currency of data (the model uses a weighting so that more recent values have more impact on the modelled fit)

To enable the modelled results to be used in place of the initial allocation, the model also apportions the residual gas allocations to the gas gate level. This process uses retailers' gate-level volume market shares as an input but also ensures that allocated volumes for each gate add up to the residual gas volume at that gate and that allocated volumes for each retailer add up to that retailer's D+1 allocated residual gas volumes.

## D+1 Business rules

### General

1. The D+1 model uses allocation results as model inputs. After an initial allocation is performed by the allocation agent, the D+1 model is updated as soon as practicable with information from all the allocation runs that have been performed since the previous model update.
2. The D+1 model runs twice each day: once after 10AM with unvalidated gate injection volumes and once after 2PM with validated gate injection data (or the best data available at the time). (Note that the D+1 model runs every day, but data validation occurs only on Business Days.) The first run is for information only; the second run produces the set of numbers that Vector will use in calculating daily BPP positions on Business Days only.
3. Each day, the D+1 model receives gate injection and consumption data for the current month, and the model recalculates the month based on the latest data. At the end of the

month, Gas Industry Co will provide each shipper with a file that contains only the volumes as allocated in the afternoon run of the first Business Day following gas flow: these are the volumes used in the daily BPP calculations.

## **Data provision**

4. Gas Industry Co receives gas gate injection data from Vector Transmission via the GIEP Exchange (a file exchange interface provided by the gas registry).
  - a. If validated data are missing, then unvalidated data will be used
  - b. If files are not received via the GIEP Exchange, data may be downloaded from Oatis
  - c. Zero values are accepted as true
  - d. If no data is available for a gas gate then the injection will be estimated by the D+1 model based on the same day in the previous week. If the day in the previous week is a public holiday, then the same day two weeks prior will be used.
5. Gas Industry Co receives telemetry TOU data from AMS, Contact, and Genesis via the GIEP Exchange.
  - a. Missing data are estimated by the D+1 model
  - b. Zero values are accepted as true
6. Gas Industry Co receives responsible retailer information for TOU ICPs and customer market share information for non-TOU ICPs from the gas registry.
  - a. If registry data are not available, the model uses the previous day's data
  - b. If retailers are aware of a TOU ICP switch that is not yet completed on the registry, they can notify Gas Industry Co of the switch no later than two Business Days before the switch is to take effect. The email must show the agreement of both the gaining and the losing retailer.
7. Gas Industry Co receives contract information directly from shippers/retailers.
  - a. Retailers have a shipper ID and a default contract ID which identifies their transmission services agreement with Vector. Gas volumes are allocated to the default contract ID unless an active supplementary contract ID exists
  - b. Supplementary contract IDs can exist for direct connect gas gates (out of scope of the D+1 model) or for individual TOU ICPs

- c. If a retailer has a supplementary contract ID for a TOU ICP, it must notify Gas Industry Co and supply the following information before the contract start date:
  - i. ICP number
  - ii. Shipper ID
  - iii. Contract ID
  - iv. Contract start date
  - v. Contract end date
- 8. For TOU ICPs that have no historical data in the D+1 model, Gas Industry Co requires forecast consumption information for the first month from retailers
  - a. For newly commissioned or recommissioned ICPs, or existing (non TOU) ICPs that have transitioned to AG1 or AG2, the model has no information to predict consumption in the first month of consumption, and limited information for the first 12 months of gas flow
  - b. Retailers may supply forecasted consumption to Gas Industry Co to improve modelling of the ICP:
    - i. An average daily quantity
    - ii. A weekly profile

### **Customer shutdowns**

- 9. Where a retailer knows that a TOU customer will be shut down for a period, consuming zero or very little (taken to be less than 10 GJ/day) gas, that ICP's daily allocations can be constrained in the D+1 model. For practical reasons, the D+1 model will be constrained to zero for the shutdown period, even though small amounts of gas may be consumed.
  - a. Retailers must notify Gas Industry Co of the period when an estimated AG1 or AG2 consumer will have a shutdown period, consuming zero or very limited (less than 10 GJ/day) gas. The notification should include some level of supporting evidence such as:
    - i. a reference to similar shutdowns in the past (that can be verified with GAS050 data); or
    - ii. dialogue between the retailer and customer confirming the shutdown period.

- b. Retailers must notify Gas Industry Co if the shutdown period changes and before consumption is to begin again.
- c. Gas Industry Co will review GAS050 submissions to check that constraint requests match actual meter reads.

### **D+1 allocation**

- 10. The D+1 model checks results to ensure allocated volumes sum to total gate injection volumes in each pool.
- 11. The D+1 model checks to ensure gas gate allocations sum to gate volumes.
- 12. If the D+1 model is unavailable, the D+1 allocation results from the previous week will be used, scaled to yesterday's gate injections. (Generally, the basis of the estimates will be the same day the previous week, as long as that day is the same type of day (Business Day or non-Business Day) as the day for which allocations need to be estimated.) If Gas Industry Co is unable to produce D+1 allocations at all, then the missing day or days will be calculated as soon as possible after the event.
- 13. Gas Industry Co will make reasonable endeavours to provide D+1 allocation results for all shippers via GIEP process to Vector by 3.00 PM on Business Days. Individual shippers will be provided with their own allocations via GIEP process. If the GIEP process is not available, allocation results can be emailed.

### **Change process**

Any person may propose a change to this document by writing to Gas Industry Co describing the proposed change and the reasons why the person believes it is worth making. Gas Industry Co will consult with allocation participants and determine whether or not to adopt the proposal. Changes to this document will be published on Gas Industry Co's website and take effect five Business Days after publication.

### **Communications**

All communications and notifications to Gas Industry Co regarding D+1 (with the exception of files sent via the GIEP Exchange) must be emailed to [allocations@gasindustry.co.nz](mailto:allocations@gasindustry.co.nz)