MEMORANDUM

TO: GTAC Stakeholders

FROM: First Gas

DATE: 3 July 2018

RE: Workstream 2 – 2.3 GTAC Peaking Regime

This memo sets out the issues associated with peaking for the transmission system that need to be controlled by parameters and requirements in the Gas Transmission Access Code (GTAC). The memo then goes on to propose two possible designs for the peaking regime in the GTAC to address the findings of the Final Assessment Paper (FAP). These designs will be discussed with stakeholders at the GTAC workshop on 11 July 2018.

[In this memo peaking means situations where there is a significant difference between receipt and delivery quantities during the day. Generally, the GTAC is structured around a day (from midnight to midnight) being the relevant time for measuring the alignment between receipts and deliveries. This generally works because linepack is used to manage any differences, and incentive fees (ERM charges) encourage parties to minimise those differences. However, there are situations where linepack is not sufficient to insulate the transmission system from the effects of peaking]

Final Assessment Paper (FAP) Findings

The findings of the FAP were as follows:

- Agreed Hourly Profiles (AHPs) are uncertain and require further design work (13, 50, 55). Case for applying AHPs not well justified (55)
- The fact that AHPs are only available at Dedicated Delivery Points (DDPs) is unfair (50)
- Hourly overruns only apply at DDPs is unfair (13, 50, 61)
- HORs can be minimised through Specific HQ/DQ and AHPs, but there is no guidance on how these will be applied. This creates the potential for inefficient usage of the pipeline (55)
- OBA parties don't have access to AHPs which is unfair (18, 68)
- Operational flexibility important but should not be provided without discrimination (182)

From the findings it is apparent that the current regime for peaking in the GTAC could be improved. In particular, the findings suggest that the regime may not target the right users and may inadvertently impact other system users who are not peaking.

Expanding on the general points above, the GIC and stakeholders raised the following issues in the FAP (14):

- Peaking charges should reflect costs
- The approach in the MPOC, where peaking can be incurred by any welded point, could be more consistent (Methanex)

- Peaking charges in the MPOC are subject to linepack falling below the Low Line Pack Threshold for the day, so are only incurred when they are contributing to a problem (Vector).

On the first point, we agree that charges should reflect costs. However, as with other incentive charges in existing codes and the GTAC, it is difficult to foresee the actual costs that will arise from any particular behaviour. Since those costs can vary considerably depending on other users of the transmission system, this objective also potentially conflicts with the desire for consistency.

On the second point, we agree that in general consistency is a good thing. However, it is not correct to say that peaking can be incurred at any welded point on the Maui pipeline. Section 13.6 of the MPOC states:

> *13.6 Notwithstanding any other provision in this section 13, Peaking Limits shall not apply to any Small Station*

The reference to MPOC in the third point is correct, and we agree that peaking should be targeted to when there is a problem caused by the pipeline usage. However, issues of impact on the pipeline due to peaking may be localised, while linepack is a system-wide concept. We therefore think that low line pack thresholds are a blunt instrument in determining system impact from user behaviour. Concerns have also been raised that referencing other parameters that are outside of a transmission user's control can create uncertainty about whether the charges will apply.

Why do we need to a peaking regime?

In order for the TSO to ensure all system users receive their nominated quantities, the TSO needs to be aware of peaky loads and manage gas flows accordingly. By having information about peaking, the TSO can:

- Ensure other pipeline users are not impacted by the peaking load
- Ensure the transmission system is not impacted by the peaking flows (where there is a significant difference between receipt and delivery quantities at various times during the day). This could refer to variation in delivery quantities or receipt quantities.
- Minimise the potential for the breach of Critical Contingency Thresholds on the system, caused by rapid changes in receipt and/or delivery quantities by managing gas flows
- Avoid the need for balancing actions that are taken because the TSO is not informed that peaking is occurring (e.g. the TSO may see high line pack and sell gas when that line pack is about to be used).

For example, a power station might not run for several hours of the gas day and not take their scheduled volumes, therefore running with a positive mismatch. If First Gas does not know if the power station intends to take that mismatch later in the day we might start selling balancing gas to manage line-pack or other pipeline conditions (like TTP).

The opposite scenario can also apply: where the power station may overtake gas, and possibly intends to make up this negative mismatch as the day goes on by flowing below the hourly SQ, but the TSO needs information to understand what is happening.

On the receipt side, a receipt point could inject gas at a high rate for a short period of time, which could back out other users if not corrected. Without information on the injection profile, the TSO might take actions to curtail flows to ensure forecast pipeline pressures remains within limits. These actions might not be necessary as the high rate injection was a transitional phase for the pipeline.

What types of system use is of concern for peaking?

In considering peaking we are concerned about loads that can affect the ability of other users to take gas. We are therefore not concerned with residential load and we are not concerned with loads that do not have the ability to quickly change linepack conditions. We also need to consider whether users are in control of flows as targeting users that are not in control of all flow at a point would not achieve the objective of protecting the system and other users.

System use that we are concerned about relates to delivery of gas to or receipt of gas from users that:

- can take or inject their daily flows in less than 16 hours of the day
- can rapidly ramp up and down their flow – within an hour
- have the capacity to take or inject the majority of flow in their particular part of the network - 50% or more of flow within their part of the network
- have an unpredictable flow profile.

On the receipt side, we understand that most producers prefer to inject gas in a uniform profile. However, large production stations can cause issues on start-up and shutdown, or when their flow takes a large step change in response to intra-day nominations from Shippers.

There are a small number of users that are large enough to affect other users and/or the Transmission System. These are:

- Large receipt points
- Large, peaky users – e.g. peaking power stations

What tools does the TSO need to manage peaking?

To manage the impacts of these peaking loads, the TSO requires the following information:

- Information on the load/injection parameters (hourly profile) that will allow an assessment to be made that the peaking, short-term usage of the pipeline is acceptable. These profiles can be overlaid with the DNC nominations to understand if there will be an issue.
- The ability to decline an hourly profile request, or to propose a modified hourly profile request.
- Incentive fees to ensure compliance with the profile.

GTAC Options

The following are two options for a Peaking Regime that would replace the following parts of the GTAC:

- Agreed Hourly Profiles
- Specific HDQ/DDQ
- Hourly Overrun Charges

Option 1

1. Provide for the TSO to require a dedicated delivery point or receipt point to be included in the Peaking Regime and that gas shipped to and from these points must submit hourly flow profile.
2. Specify the characteristics of the flows that will be included in the Peaking Regime, such as:
    a. Users that can inject or take their daily flow in less than 16 hours; and
    b. Users that can rapidly ramp up and down their load within an hour; and
    c. Users that have the capacity to take the more than 50% of the capacity of the network at their location; and
    d. Users that have loads that vary by time of day.

    More detail on this discretion could be provided through the Balancing SOP to determine the details.
3. Provide for receipt points to be subject to the Peaking Regime during start up and shutdown and create provisions in ICAs to enact this.
4. Require the dedicated delivery points/receipt points to submit an hourly usage profile each day for approval by the TSO
5. Define that the DNC for the day for the delivery point will be the sum of the hourly quantities (HQs)
6. Provide for Incentive fees (in GTAC and ICAs) to ensure compliance with the profile:
    - At delivery points: If max. flowed HQ > 1.25 x max. HQ of the profile, charge for the additional capacity used on an hourly basis, i.e. $\sum(HQ-NQ/24)_i$ for each HQ-NQ/24 >0
    - At receipt points: If max. flowed HQ > 1.25 x max. HQ of the profile, charge for the additional capacity used on an hourly basis, i.e. $\sum(HQ-NQ/24)_i$ for each HQ-NQ/24 >0

Option 2

1. Large dedicated delivery points and receipt points (capacity greater than 200 GJ/h) are allocated the following hard coded values in the GTAC:
    a. Hourly Peaking Limit (in GJ)
    b. Hourly Peaking Tolerance (%)
2. Require the identified dedicated delivery points/receipt points to submit an hourly usage profile each day for approval by the TSO based on compliance with the peaking limit at the point
3. Define that the DNC for the day for the delivery point will be the sum of the hourly quantities (HQs)
4. Provide for Incentive fees (in GTAC and ICAs) to ensure compliance with the profile, options:

- At dedicated delivery points: If max. flowed HQ > Peaking Tolerance x Peaking Limit of the delivery point, charge for the additional capacity used on an hourly basis, i.e. $\sum(HQ-NQ/24)_i$ for each HQ-NQ/24 >0
- At receipt points: If max. flowed HQ > Peaking Tolerance x Peaking Limit of the receipt point, charge for the additional capacity used on an hourly basis, i.e. $\sum(HQ-NQ/24)_i$ for each HQ-NQ/24 >0

The following table sets out the key characteristics of the two options proposed above.

Item	Option 1	Option 2
Targeted to those with the potential to affect other users	Yes. TSO has the ability to assess the load characteristics and include in the Peaking Regime.	Yes. Points that flow greater than 200 GJ/h are included in the scheme.
Targeted to those who can control their flow	Yes. Only dedicated delivery points and receipt points included.	Yes. Only dedicated delivery points and receipt points included.
Provides Information to TSO on pipeline usage	Yes. Hourly profile provided and injection profile to be included in ICA provisions.	Yes. Hourly profile provided and injection profile to be included in ICA provisions.
TSO approval	TSO approves profile based on system conditions.	TSO approves that profile is within tolerance for the point.
Incentivises usage in line with profile	Yes. Flows greater than 1.25 x max. hourly flow are subject to hourly charges.	Yes. Flows greater than a prescribed tolerance at that point are subject to hourly charges.

In terms of assessing the options, we have undertaken an assessment using the following criteria:

- Transparency for shippers
- Simplicity of Application
- Scale of incentive
- Impacts on non-peaking users
- Assessment in relation to MPOC
- Assessment in relation to VTC

Item	Option 1	Option 2
Transparency	TSO determines those points to be included in the scheme based on assessment criteria.	Points to be included in the scheme are defined by fixed criteria. However eventual tolerance limits would be agreed with users.
Simplicity	Tolerance is calculated based on the profile submitted.	Tolerance is fixed for the point.

Item	Option 1	Option 2
Scale of charge	Charging is linked to DNC and therefore proportionate to the additional usage of the system.	Charging is linked to DNC and therefore proportionate to the additional usage of the system.
Impacts contained to those peaking	Yes. Other points are not charged if one point exceeds peaking.	Yes. Other points are not charged if one point exceeds peaking.
In relation to MPOC	Less prescriptive than MPOC regime and greater TSO input.	Very similar to MPOC regime but more targeted to large loads.
In relation to VTC	NA – no hourly peaking in VTC	NA – no hourly peaking in VTC

We believe that either of these options resolves the issues raised in the FAP and are therefore better than the options previously presented. We look forward to discussing these options with stakeholders.