

# The Impact of Methanex Plant Outages on the Gas Wholesale Market

Prepared for

**Gas Industry Co.**

by



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## **Disclaimer**

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## 1 Executive Summary

In August 2018, Gas Industry Co (“GIC”) established a workstream to progress issues concerning information transparency and asymmetry in the gas sector, the purpose of which was to gain a broad understanding of possible information issues in the wholesale gas sector and consider whether current market arrangements related to information disclosure are sufficient or whether further arrangements are required. This work resulted in the release of the March 2019 consultation paper, “Options for Information Disclosure in the Wholesale Gas Sector”<sup>1</sup> (“Options Paper”).

Gas sector stakeholders were invited to comment on the Options Paper findings, and information disclosure in the wholesale gas market in general. Submissions and cross-submissions were received from 22 parties spanning the various parts of the gas industry as well as the wider energy sector. A summary of the issues raised during the consultation process can be found in the paper released in August 2019, “Analysis of Submissions on Options for Information Disclosure”<sup>2</sup>.

One information element submitted as currently not disclosed but maybe having a significant impact on the wholesale gas trading market was major gas user plant outage (planned and unplanned) information, and in particular, whether the lack of plant outage information in respect to Methanex, as New Zealand’s largest gas consumer, affects the efficient and effective operation of the emsTradepoint market (and the gas wholesale market more broadly). The primary concern raised in submissions is in respect to the potential impact a sudden influx of additional gas becoming available on the wholesale gas market as a result of a major user plant outage could have on the market operation – and in particular, wholesale gas prices.

Submissions were mixed on the potential significance a Methanex plant outage may have on the wholesale gas market and therefore, whether Methanex plant outage (planned and unplanned) information should be subject to an information disclosure regime.

Methanex submits that an outage does not materially affect either the available volume of gas or the gas price on the wholesale gas market, but that disclosure of its plant outage information is likely to have a negative commercial impact on Methanex Corporation’s international competitiveness.

Gas Industry Co has sought an independent view of the issues associated with the disclosure of Methanex’s planned and unplanned plant outages.

This paper assesses the information disclosure issues raised in the Options Paper and submissions in respect to the impact a Methanex planned or unplanned plant outage is likely to have on the wholesale gas market and estimates the potential commercial impact, at a qualitative level, that plant outage information disclosure may have on Methanex Corporation and concludes:

- 1) *To date, a Methanex plant outage (planned or unplanned) **has not** resulted in:*
  - a) *a material amount of additional gas becoming available on the wholesale gas market;*
  - b) *a material change in the gas price on the wholesale gas trading market; or*
  - c) *a material impact on the efficient and effective operation of the emsTradepoint gas market;*
- 2) *Disclosure of plant outage information (planned or unplanned) **may have** a negative commercial impact on Methanex Corporation, particularly in respect to:*
  - a) *potentially increasing the cost to Methanex Corporation to purchase methanol on the international methanol market in order to continue supplying its customers during the outage;*

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<sup>1</sup> “Options for Information Disclosure in the Wholesale Gas Sector”, <https://www.gasindustry.co.nz/dmsdocument/6480>.

<sup>2</sup> “Analysis of Submissions on Options for Information Disclosure”, <https://www.gasindustry.co.nz/dmsdocument/6589>

*b) creating asymmetrical information on the international methanol market to the detriment of Methanex Corporation's international competitiveness given the opaqueness of the methanol market globally;*

*although, Methanex Corporation may be able to mitigate many of the potential negative commercial impacts in respect to a planned plant outage disclosure provided sufficient allowance is provided in respect to when the outage information must be disclosed;*

- 3) Methanex has made small volumes of gas available on the emsTradepoint market on a small number of occasions in 2018 and 2019 (but nil gas in 2017). Analysis indicates that the majority of sales occurred during periods when Methanex plants were operating under normal production conditions, not during periods of plant outages. Information for production decisions is not being considered for disclosure;*
- 4) Gas producers appear to have made small additional gas volumes available on the emsTradepoint market in response to the Methanex unplanned plant outage in 2017. However, to date, any additional gas made available on the emsTradepoint market during a major gas user plant outage (Methanex or others) has had little corresponding impact on the wholesale gas prices offered. A more significant impact on the wholesale gas market volumes and prices has been seen as a result of gas production plant outages (particularly the Pohokura gas field outages); and*
- 5) There is no evidence that disclosure of Methanex NZ plant outage (planned or unplanned) information will address any information asymmetry concerns in respect to the gas wholesale market operation.*

To address the concerns raised in submissions in respect to information asymmetry and to seek to mitigate the potential impact that may result from a material volume of gas being suddenly made available on the emsTradepoint wholesale gas market (irrespective of the reason or cause for the gas release), **it is recommended:**

- ***GIC consider putting in place an information disclosure regime requiring a party (producer or gas user) intending to make a material volume of gas available on the emsTradepoint wholesale gas market to publicly disclose, prior to the gas being made available on the market (but with sufficient contingency provided for an emergency gas release), the expected daily and total volumes of gas to be released onto the market and the timing of each intended gas release.***

## **2 Purpose**

The purpose of this paper is to provide an independent perspective on the issues around disclosure of Methanex plant outage (planned and unplanned) information, and in particular:

- whether a Methanex plant outage significantly affects volumes and prices available on the wholesale gas market; and
- whether disclosure of outage information (particularly planned outages) would affect Methanex commercially.

## **3 Background**

In August 2018, Gas Industry Co ("**GIC**") established a workstream to progress issues concerning information transparency and asymmetry in the gas sector, the purpose of which was to gain a broad understanding of possible information issues in the wholesale gas sector and consider whether current market arrangements related to information disclosure are sufficient or whether further arrangements are required. This work resulted in the "*Options for Information Disclosure in the Wholesale Gas Sector*" consultation paper<sup>3</sup> ("**Options Paper**") being released in March 2019.

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<sup>3</sup> "*Options for Information Disclosure in the Wholesale Gas Sector*", <https://www.gasindustry.co.nz/dmsdocument/6480>.

One of the information elements identified as having possible transparency and asymmetry issues is in respect to major gas user facility outage information (for both planned and unplanned outages).

The Options Paper noted that the actions of all participants affect a market, whether they are producers or consumers. The concentrated nature of gas demand in New Zealand means that an outage in any major gas user facility could potentially have a significant effect on the volumes of gas available on the broader wholesale market and/or the volumes and prices traded by brokers or through emsTradepoint.

Gas sector stakeholders were invited to comment on the Options Paper findings, and information disclosure in the wholesale gas market in general. Submissions and cross-submissions were received from 22 parties spanning the various parts of the gas industry as well as the wider energy sector. A summary of the issues raised during the consultation process can be found in the paper “*Analysis of Submissions on Options for Information Disclosure*”<sup>4</sup> released in August 2019.

Submissions were mixed on what impact a major user plant outage (planned and unplanned) may have on the wholesale gas market and whether outage information should be disclosed. Some parties submitted that all major user outages should be disclosed. Some of these submitted that Methanex’s plant outages, given Methanex’s position as New Zealand’s largest gas consumer, in particular needed to be disclosed. Other parties submitted that major gas user plant outages (including those of Methanex) have little, if any, impact on either the volume of gas or the gas price available on the wholesale gas market or the operational effectiveness of emsTradepoint and therefore disclosure of major user plant outage information is unnecessary.

Methanex submitted that, given the absence of similar regulations internationally and the opacity of the methanol market generally, disclosure of its NZ plant outage information would enable its competitors to use the disclosure information to gain competitive advantage and possibly compromise Methanex’s international competitiveness. In particular, Methanex submitted that access to its outage information would enable its competitors to increase the cost to Methanex of purchasing methanol on the methanol international spot market to ensure Methanex can continue to supply its customers in response to the outage and provide its competitors with commercial information with which to target Methanex customers.

This paper assesses the information disclosure issues identified in the Options Paper and submissions in respect to Methanex site outages and estimates the costs, at a qualitative level, associated with Methanex providing this information.

## **4 Methanex<sup>5</sup>**

### **4.1 Methanex Corporation<sup>6</sup>**

Methanex Corporation is a Canadian domiciled corporation, headquartered in Vancouver, BC. Methanex Corporation operates production sites located in New Zealand, Canada, Chile, Egypt, Trinidad and Tobago and the United States. Methanex Corporation is the world’s largest producer and supplier of methanol, capable of producing 9.4 million tonnes/year of methanol. In 2018, Methanex Corporation supplied 14% of the worldwide total demand for methanol.

The methanol business is a global commodity industry affected by supply and demand fundamentals. Due to the diversity of the end products in which methanol is used, demand for methanol largely depends upon levels of industrial production, energy prices and changes in general economic conditions, which can vary across the major international methanol markets. International methanol markets

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<sup>4</sup> “*Analysis of Submissions on Options for Information Disclosure*”, <https://www.gasindustry.co.nz/dmsdocument/6589>

<sup>5</sup> Information regarding Methanex Corporation and Methanex obtained from Methanex Corporation’s 2018 Annual Report.

<sup>6</sup> In this paper, Methanex Corporation refers to Methanex’s global operations (including NZ) and Methanex refers to Methanex local operations within New Zealand.

operate in much the same as gas markets in New Zealand, with a substantial portion of methanol being sold via bilateral methanol purchase agreements containing various certainty of supply and uplift obligations on each party as well as liability provisions for any contractual breach of these obligations. Methanol trading is also undertaken on a spot market with methanol trade prices being publicly posted.

Natural gas is the primary feedstock for producing methanol and is the most significant component of produced methanol costs. Accordingly, results from operations depend in large part on the availability and security of supply and the price of natural gas. If, for any reason, Methanex Corporation is unable to obtain sufficient natural gas for any of its plants on commercially acceptable terms or if there are interruptions in the supply of contracted natural gas, Methanex Corporation could be forced to curtail production or close such plants, which could have an adverse financial effect on them.

In 2018, Methanex Corporation reported that it had contract purchase rights in place for gas supplies sufficient to meet more than half of its global production needs at that time. It also stated that the gas price in all of its bilateral natural gas purchase agreements is set on the basis of a base gas price plus a variable price component adjusted by a formula related to methanol prices above a certain level. Methanex Corporation states that the methanol linked variable price component is a critical component of its contracts as it reduces methanol commodity price risk exposure and enables Methanex Corporation facilities to be competitive throughout the methanol price cycle.

In addition to supplying methanol produced from its own sites, Methanex Corporation also purchases methanol produced by other methanol producers under both methanol offtake contracts and on the spot market to provide flexibility in managing their supply chain and to ensure they continue to meet their customer needs (for example, during an unplanned plant outage). The cost of the purchased methanol is directly related to the market price of methanol at the time of purchase.

Methanex Corporation's production and sales operations are supported by an extensive global supply chain of terminals, storage facilities and the world's largest dedicated fleet of methanol ocean going vessels.

## 4.2 Methanex

Methanex has three methanol producing trains located at two sites (Motunui and Waitara Valley) in Taranaki, New Zealand. The three trains are capable of producing a total of up to 2.4 million tonnes of methanol per year (depending on natural gas composition), making New Zealand Methanex Corporation's largest methanol production operation globally.

In 2018, Methanex produced 1.6 million tonnes of methanol<sup>7</sup> (i.e., 22% of Methanex Corporation's total methanol production and 3% of the world's total methanol supply). Methanex is projected to produce ca. 1.8 million tonnes of methanol in 2019. This is a material operation, by both New Zealand and global standards.

The Motunui facility is comprised of two trains, with each train operating at full capacity capable of using up to ~34 PJ/year (~93 TJ/day) of gas. The Waitara Valley facility is a single train that operating at full capacity is capable of using up to ~20 PJ/year (~55 TJ/day) of gas. Methanex Corporation states in its annual report that its plant operate at around 95% efficiency in general, meaning that operating all three trains fulltime could see Methanex capable of consuming ca. 83 PJ of gas each year (i.e., ~40% of New Zealand's total annual gas demand). As such, Methanex is, by far, the single largest consumer of gas in New Zealand.

Methanex's facilities are ideally situated to supply the growing Asia Pacific market and 95% of the methanol produced by Methanex is exported to customers in Asia. Given this export focus, Methanex's gas demand is driven by the competitiveness of its New Zealand production costs relative to other

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<sup>7</sup> Planned turnarounds and maintenance activities at both the Motunui and Waitara Valley sites and gas supply constraints due to planned and unplanned gas field and pipeline outages negatively impacted production in 2018.

international methanol sources. Methanol cost competitiveness is driven principally by the availability and cost of gas supplies (along with methanol's international transportation costs).

In July 2018, Methanex announced that it had agreed a bilateral gas supply contract sufficient to supply "more than half" of its New Zealand operations through to 2029. There is little detail provided about the agreement. However, industry sources have indicated that the contract covers two of the three trains, with some of the supply quantity contingent on producer future successful field development. This contract combines with a ten-year contract agreed in 2012 between Todd Energy and Methanex. The combination implies that Methanex has sufficient gas to enable production at full capacity at both of its sites out to the expiry of the Todd contract in 2022. Methanex continues to pursue opportunities to contract additional natural gas to supply its plants in New Zealand beyond those dates. The key question is whether it can contract enough gas at a price that allows its production of methanol in New Zealand to remain competitive.

In addition to its bilateral gas supply contracts, Methanex also has agreements in place with First Gas to pay for transportation capacity on the First Gas transmission system to enable its contracted natural gas to be transported from the supplier's gas production facility to the Methanex sites.

## **5 Methanex Plant Outage Information Disclosure**

### **5.1 Description**

One of the information elements identified as having possible transparency and asymmetry issues is in respect to major gas user facility outage information (for both planned and unplanned outages).

The Options Paper noted that the actions of all participants affect a market, whether they are producers or consumers. The concentrated nature of gas demand in New Zealand means that an outage in any major gas user facility could potentially have a significant effect on the volumes of gas available on the broader wholesale market and/or the volumes and prices traded by brokers or through emsTradepoint. This may be particularly relevant in respect to Methanex plant outages, given Methanex's position of New Zealand's single largest gas user.

In respect to major gas user outage disclosure information, it is noted that electricity generation companies already disclose gas-fired generation outages as part of the disclosure regime in the electricity sector. The Electricity Industry Participation Code (2010) requires parties to disclose, in a timely manner, any information that they hold that they expect would have a material impact on prices in the electricity wholesale market if it was made publicly available. The question then is whether other major gas users should also be subject to a disclosure regime to avoid information asymmetry in the gas wholesale market.

It is important to note that the implications of major gas user outages on the gas wholesale market are different to production outages. A production outage leads to a reduction in overall gas supply (unless production from another field is increased to compensate), which may result in some consumers having to reduce demand. A major user may reduce production (e.g. by bringing forward a planned outage) in response to a production outage, helping to mitigate the impact of the production outage. Nonetheless, a production outage creates potential gas security of supply issues and wholesale prices may increase in response. In contrast, a major gas user outage does not create gas security of supply issues. In this situation, gas producers may lower production to meet the reduced demand – or the gas producer could elect to make short-term additional gas available to the market at lower prices. Given these differing security of supply outcomes, the risk profile associated with limited major gas user information is much less significant in respect to the wholesale gas market than it is to production outage information.

It is also important to point out that the information that is being considered for disclosure is plant outage information only. It is not proposed that major users disclose short-term (daily, weekly or monthly) production decisions – and the associated implications for gas demand. Yet these decisions may potentially have an effect on the market that is as large as an outage event. For example, Methanex's

three production trains each have an operating flexibility of roughly 1/3<sup>rd</sup> of the train's total operating capacity<sup>8</sup> (below which the train must be brought completely offline). This production flexibility gives Methanex the capability of adjusting its daily gas demand by up to ~80 TJ/day based solely in response to current methanol demand/prices on the international methanol market. Information in respect to this "production decision" to vary Methanex's daily gas demand would not be captured under an outage disclosure regime. As another example, Enerlytica noted in its *NZ Energy Weekly* of 20 July 2019 that the recently signed OMV/Contact gas supply arrangements appeared to have resulted in Methanex having access to less gas, with gas demand for methanol production reducing by around 40-50 TJ/day. Enerlytica also anticipated that Genesis would reduce gas-fired generation production at Huntly Power Station in response to the announced Kupe plant shutdown scheduled for November 2019. These examples demonstrate that there are factors that may significantly impact major gas user demand that an outage disclosure regime is unlikely to capture.

The majority of submissions in respect to major user plant outage (planned and unplanned) information disclosure centred on Methanex plant outage information. However, submissions were mixed. Some parties submitted that, given Methanex is the largest gas consumer in New Zealand, the lack of information on its plant outages may affect the efficient and effective operation of the emsTradepoint market and the gas wholesale market more broadly. Others submitted that Methanex plant outages (planned or unplanned) have little, if any, material impact on the availability of additional wholesale gas, or on the wholesale gas price, and therefore disclosure of Methanex plant outage information is likely of little real benefit to the operation of the wholesale gas market.

The next section of this paper examines whether a Methanex plant outage (planned or unplanned) is likely to result in additional gas becoming available to wholesale gas market or likely to materially affect gas prices available on the wholesale gas trading market.

## 5.2 The Effect of a Methanex Plant Outage on Volumes and Prices available on the Wholesale Gas Market

As discussed above, Methanex is New Zealand's single largest gas consumer, with a total gas demand capable of reaching upwards of some 230 TJ/day (all three trains operating at full capacity). This would be an extremely large volume of gas if it were to become suddenly available to the wholesale gas market (roughly eight times the 28.2 – 32.2 TJ/day average forward trading volume seen in November 2019 on emsTradepoint). The amount of gas that could be released by Methanex even by an outage affecting only a single methanol train could be expected have a significant material impact on the wholesale gas market. One thing it is important to remember is that, unlike other major gas users that use gas mainly for heat generation (and therefore may have other options available (diesel, biomass, etc.) to achieve this), Methanex requires gas in its production process to make methanol. As such, given the limited gas supplies available in New Zealand, Methanex is extremely reluctant to release any of its gas entitlements, let alone significant volumes of its entitlements.

As this paper (and history) will show, while the amount of gas that Methanex's plants consume could potentially affect the wholesale gas market if it were to be suddenly released onto the market, Methanex is unlikely to ever be forced to release any such significant volumes of its gas entitlement onto the wholesale market.

According to Methanex Corporation's 2018 Annual Report, all of its current New Zealand gas supply is purchased under bilateral gas supply agreements ("GSA") with various gas suppliers. As the following discussion will show, two key contractual provisions, commonly contained within industrial GSAs, mean that Methanex is unlikely to be forced into releasing any of its gas entitlements as a result of any of its plant outages – planned or unplanned.

First, almost all contract types (including GSAs) in New Zealand (and every other jurisdiction) include a *Force Majeure* provision. This provision is designed to protect each contract party against an unforeseen

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<sup>8</sup> Methanex's three production trains operating at full capacity use upwards of ca. **230 TJ/day** of gas in total.

event unintentionally causing a party to breach its contractual obligations to the other party. The usual protection provided by a *Force Majeure* provision is a suspension of the *Force Majeure* party's contractual obligation for the duration of the *Force Majeure* event. In the case of Methanex, an unplanned plant outage<sup>9</sup> is almost always considered to be a *Force Majeure* event and the contractual *Force Majeure* protection is to release Methanex of its obligation to take delivery of gas at the plant undergoing the unplanned outage. Under the *Force Majeure* protection provisions of its bi-lateral GSAs, Methanex is therefore unlikely to ever be forced to release any of its contracted gas entitlement into the wholesale gas market as a result of an unplanned plant outage.

GSAs entered into with industrial companies, such as Methanex, normally include allowance periods for routine maintenance (i.e., planned) outages. This allowance provides the gas purchaser with the right to suspend its gas uplift obligations during the allowed maintenance period. (Note GSAs also provide similar planned maintenance allowances to the gas seller/supplier to enable them to suspend gas supply during allowed periods of production facility maintenance.) Planned outage allowance periods are negotiated between the parties so vary between specific bi-lateral agreements. It is the writer's experience that GSAs typically include an annual 'routine maintenance' outage allowance period of 5 - 10 days per year plus an additional 'major turnaround' outage allowance period of ca. 4 - 6 weeks but only once every ca. 5 years (duration and timeframes vary depending on the plant type, usage, etc. of the purchaser). During either an annual routine maintenance outage or a major plant turnaround outage (as incurred by Methanex in 2018), Methanex would not be obliged to uplift - nor would it lose - any of its contracted gas entitlements. Under the planned maintenance outage provisions of its bi-lateral GSAs, Methanex is therefore unlikely to ever be forced to release into the wholesale gas market any of the volumes of gas that it foregoes uplifting during the planned outage.

Lastly, Methanex's GSAs are for the purchase of a fixed minimum quantity of natural gas (usually with additional volume available subject to future field development) with various gas suppliers and each GSA includes "take-or-pay" obligations. "Take-or-pay" means that Methanex is obliged to pay for certain agreed upon quantity of the gas to be supplied to Methanex over a specific contract period (e.g., weekly, monthly, annually, etc.) *regardless of whether Methanex actually takes delivery of the gas* during the period.<sup>10</sup> Take-or-pay commitments are common in most New Zealand bilateral GSAs. Fixed minimum quantity contracts normally provide the gas purchaser with a degree of daily uplift flexibility to organise delivery of the full fixed gas volume over a contractually agreed timeframe. In the case of Methanex, this uplift flexibility is to allow Methanex to be able to match its daily gas demand to the day-to-day methanol production its needs from its New Zealand trains<sup>11</sup> to meet the needs of its customers.

However, say that for some reason there is a reduced need for methanol production over a period which results in Methanex's gas demand falling below its contractually prescribed take-or-pay gas uplift volume. In this case, Methanex could elect to release the residual volume of take-or-pay gas that it is contractually bound to pay for, but does not expect to use in producing methanol at that time, to the emsTradepoint market as a way to mitigate the cost to Methanex of that residual volume of take-or-pay gas. As will be discussed in more detail in the next section, it appears that Methanex has made small amounts of gas available on emsTradepoint on a few separate occasions during 2018 and 2019 (nil gas in 2017). These sales almost all appear to have been in response to daily production decisions – not as a result of the Methanex plant outages that occurred during the same period. As stated earlier in this paper, it is not proposed that major gas users disclose short-term (daily, weekly or monthly) production decisions – and the associated implications for gas demand. Yet these decisions may potentially have an effect on the market that is as large as any outage event – and certainly likely to occur more frequently.

Lastly, in the very unlikely event that Methanex is unable to utilise one of its contractual protections during a plant outage (planned or unplanned), or does not elect to place residual take-or-pay gas on the emsTradepoint market, Methanex could seek to place the gas into storage for subsequent uplift for

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<sup>9</sup> A *planned* outage is not *unforeseen* and therefore cannot, by definition, be a *Force Majeure* event.

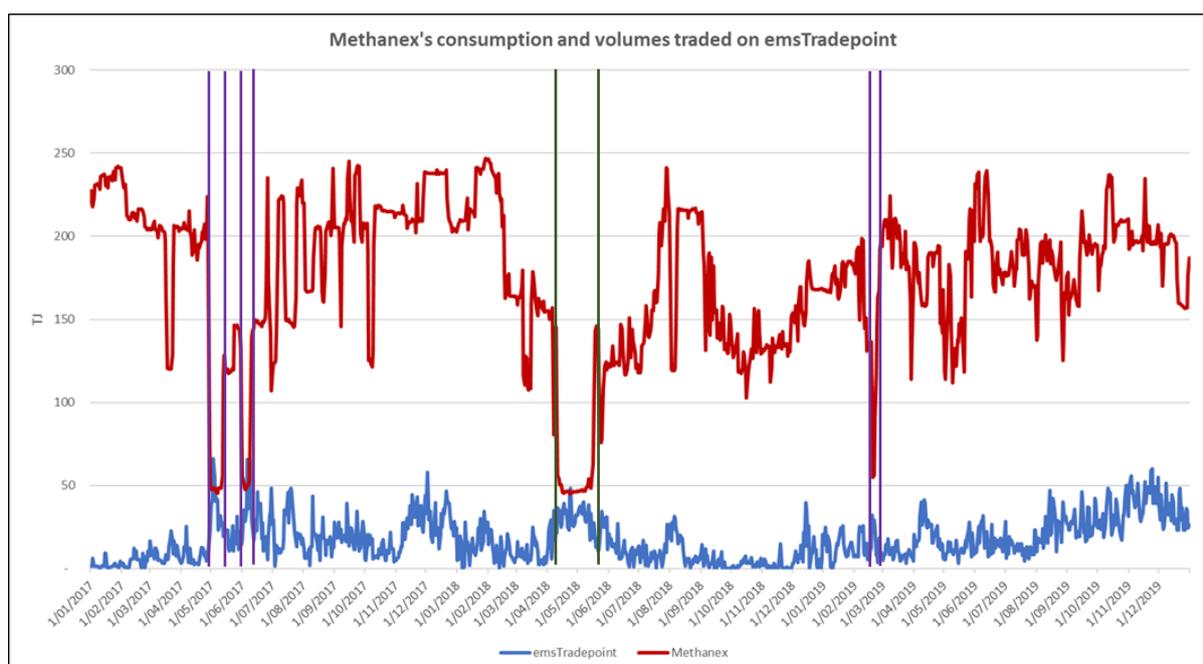
<sup>10</sup> Take-or-pay obligations generally apply to a quantity of gas less than the maximum quantity that the purchaser is entitled to purchase.

<sup>11</sup> Methanex production trains generally have a daily production 'swing' capability =  $\sim 1/3^{\text{rd}}$  of the train's full operating capacity, below this level the train is brought fully offline.

future methanol production rather than release the gas into the wholesale gas market. The simplest option would be for Methanex to contract with the gas producer to simply reduce the production level for a period, and 'store' the gas in its original reservoir for Methanex's future uplift. Alternatively, Methanex might utilise the Ahuroa Gas Storage Facility.

### ***Methanex and the emsTradedpoint market***

Analysis shows that the relationship between Methanex's consumption and emsTradedpoint volumes traded and gas price is insignificant during periods of normal plant operation. However, during periods of **supply strain** it appears, on first look, that Methanex's consumption and traded volumes are related. It is particularly obvious during the first two highlighted unplanned outages (highlighted in purple) that when Methanex was down, traded volumes increased (albeit not proportionally). However, deeper analysis of wholesale gas sales information shows that Methanex sold **nil** gas on the emsTradedpoint market throughout all of 2017. As such, as Methanex was not the source of the additional gas traded on the emsTradedpoint market, it is assumed that the additional gas volumes most likely came from a producer release. Further analysis shows that over the past two years Methanex has sold gas on the emsTradedpoint market on only a small number of occasions and that almost all of these sales were of a very small volume of gas sold for a single day. Importantly, neither Methanex's 2018 planned outage (highlighted in green) or the 2019 unplanned outage (highlighted in purple), both of which occurred in conjunction with Pohokura gas field outages, resulted in material additional volumes of gas becoming available on the emsTradedpoint market.



Analysis of gas price response to the various plant outages that shows that while there was a notable material gas price response to the Pohokura supplier outages there was no material gas price response to Methanex's planned or unplanned plant outages. On average, Huntly Power Station has the largest influence on emsTradedpoint prices and the Ahuroa Gas Storage Facility has the largest influence on emsTradedpoint volumes.

### **5.3 The Potential Impact of a Plant Outage Disclosure Information Regime on Methanex Commerciality**

In submissions, Methanex was the only party that identified that there may be a material impact on Methanex commerciality from outage disclosure (although several upstream parties recognised the potential costs on Methanex from this disclosure). Methanex submits:

*“It has long been Methanex Corporation’s global policy to not publicly disclose plant outage information as this is deemed to be commercially sensitive and could have a material impact on sector wide demand and supply, with a flow on effect to share and product pricing. This is evidenced by our quarterly public conference calls where our CEO is regularly required to decline answering questions on plant outages.”*

*“Methanex is concerned about making public disclosure of forward-looking information; specifically, where the information is individually identifiable and relates to plant outages or contract details. Methanex would face adverse consequences if such information were to be widely disclosed, given the prospect that its competitors in global methanol markets would be able to use that information to gain a competitive advantage where they are not required to disclose such information themselves.”*

The largest cost to Methanex Corporation from disclosing plant outage information appears to relate to the potential impact that disclosure could have on the posted price of methanol on the international methanol market, and in turn, the cost to Methanex to source spot methanol to continue supplying its customers during the outage. Some submissions question why such a price increase may be likely.

The methanol business is a global commodity industry affected by supply and demand fundamentals. Demand for methanol largely depends upon levels of industrial production, energy prices and changes in general economic conditions, which can vary across the major international methanol markets. Given that in 2018 Methanex’s New Zealand operation produced ca. 22% of Methanex’s total methanol production (and 3% of total global demand), the impact of a New Zealand plant outage on global methanol supply is significant – even more so on the available methanol supply to the Asia market, given 95% of Methanex’s New Zealand methanol production is exported to Asia. As seen during the 2018 Pohokura outage (and whenever there is an unplanned thermal electricity plant outage), the commodity market’s usual response to an unplanned outage is a sudden, often substantial, increase in commodity market price. The same response is likely to a Methanex plant outage (planned and unplanned) on the international methanol market. Given the price (and demand) volatility on the international methanol market, the nature and actual impact of the expected methanol price increase on Methanex is only able to be determined precisely at the time of the plant outage.

As at 23 January 20, the posted price for methanol delivered into the Asia Pacific region is USD 335 per metric tonne. An 1% increase in the posted methanol price resulting from disclosure of plant outage information would cost Methanex Corporation upwards of an additional **USD 22,400 per each outage day** to ensure that it is able to continue supplying its customers the ~6.7 thousand tonnes of methanol its New Zealand plants are capable of producing each day, but unable to deliver as a result of the outage<sup>12</sup>. Under this scenario, each 1% increase in methanol price (as a result of Methanex having to disclose a 30-day planned plant turnaround) would see Methanex Corporation incur an additional cost upwards of some USD 672,000 to ensure Methanex Corporation is able to continue supplying methanol to its customers during the planned outage.

However, it must be noted that, depending on when disclosure of a *planned* outage is required, Methanex Corporation may be able to mitigate some of the impact of a potential methanol price increase by securing sufficient additional methanol supply in the period following its internal approval of the planned shutdown and before any disclosure is required to be made. Methanex Corporation may be able to increase methanol production from one of its other international plants to cover the NZ production shortfall, albeit this will likely incur greater shipping cost to supply its Asia Pacific customers. Methanex also would be able to contract to purchase methanol from one of its competitors in the Asia Pacific region well in advance of the planned outage, or lastly on the international methanol spot market at the time of the outage. It is the risk to the pricing for these competitor sources that is most likely to have a negative commercial impact on Methanex Corporation as a result of having to make an information disclosure too early. There could also be potential repercussions from an early disclosure that would need to be accommodated. For example, if there was a change to the planned outage scheduling, say

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<sup>12</sup> ~\$8,700/day for per each Motunui train and ~\$5,000/day for Waitara Valley.

due to the late delivery of needed equipment, parts, etc. A disclosure regime would need to ensure it did not inhibit Methanex's flexibility in being able to manage the process.

The writer submits that disclosure of planned outage information is unlikely to be of much benefit to the wholesale gas market but is likely to have a negative commercial impact on Methanex Corporation. Nevertheless, should GIC determine to implement a disclosure regime irrespective, in order to minimise the potential negative impact of any such information disclosure, disclosure of planned outage information should be required to be made at the time the planned outage actually commences.

Methanex also submits that disclosure of its plant outages (planned and unplanned) may compromise its international competitiveness. Methanex submits that, given the absence of similar regulations internationally and the opacity of the methanol market generally, such outage information disclosure would in itself create an information asymmetry in the international methanol market that would enable its competitors to use Methanex outage information to gain competitive advantages. For example, it is well known in the market that 95% of Methanex's New Zealand production is exported to Asia. As such, disclosure of a New Zealand plant outage would provide Methanex's competitors information that allows them to specifically target Methanex's Asia Pacific based customers.

Lastly, there would be compliance costs and platform costs in disclosing plant outage information. Methanex is already required to notify its gas suppliers and the transmission system operator of any plant outage under the terms of its various bilateral agreements (and CCO for any unplanned outage). As such, the additional administrative cost to disclose plant outage information to the wholesale gas market is likely to be *de minimus* – and certainly much less than the costs likely to be incurred by Methanex in respect to the negative commercial impacts as a result of the information disclosure as is outlined above.

#### 5.4 Methanex Plant Outage Information Transparency and Asymmetry

The following section examines some of the possible implications of Methanex plant outage information disclosure for various parts of the gas industry value chain, as well as other related sectors.

##### *Upstream gas production (including processing)*

Methanex Corporation, in its 2018 annual report, states that all of the gas used in its New Zealand operations is purchased under long-term bilateral gas supply agreements. All gas sales agreements contain nomination of offtake provisions (as well as both supply and uplift obligations and liabilities for breach). These provisions will necessitate the parties keep each other informed as to any planned outages. As planned plant outages are significant events, these will always be scheduled well in advance of the actual outage (often years ahead). It is common for gas producers to seek to coordinate their own production facility turnarounds with those of their major gas purchaser, such that, most often gas production is also reduced during the period of the planned outage.

As discussed in section 5.2 above, all bilateral gas supply agreements include *Force Majeure* provisions. As such, producers selling gas to Methanex are likely to become informed of any Methanex unplanned plant outage almost immediately upon its occurrence through notification by Methanex under the GSA *Force Majeure* provisions.

Given the nomination and *Force Majeure* provisions contained within its GSAs, there is likely little benefit to be gained by producers from Methanex outage information being publicly disclosed, while noting that there will be some information asymmetry among gas producers as non-sellers of gas to Methanex will not be informed of either Methanex's planned or unplanned plant outages.

Importantly, as also discussed previously in this paper, the most likely source of an any additional volumes of gas being sold into the wholesale gas market is if producers decide not to reduce gas production fully to account for the reduction in demand from Methanex. Whether this additional gas becomes available from a portion of Methanex's gas entitlements or from a portion of the producer's remaining uncontracted gas supply depends on the terms of the producer's bilateral contractual

arrangements for Methanex's gas supply. It is submitted that, in this event, disclosure of any additional gas volume being made available for supply would be for the producer to make, not Methanex. It is also important to note that, while there could potentially be the opportunity to source some cheaper gas, analysis of emsTradepoint historical volumes traded vs. gas prices shows little correlation in respect to additional volumes becoming available in response to a major gas user plant outage (planned or unplanned). The only times additional volumes and price appears to be correlated is in relation to producer unplanned outages (e.g., Pohokura).

### *Transmission*

Methanex has agreements in place with First Gas to deliver natural gas to the Methanex plants via the transmission network. Under the GTAC arrangements, downstream participants that connect directly to the transmission network must provide outage (planned and unplanned) information to First Gas under their interconnection agreements. Given these arrangements, there is no obvious benefit to be gained by the gas transmission system operator from Methanex outage information being publicly disclosed.

The Critical Contingency Operator ("CCO") is another party in the transmission part of the sector who can be affected by limited access to major user facility outage information. Under s38A of the Gas Governance (Critical Contingency Management) Regulations 2008, the CCO can ask producers and large consumers for information. However, as a practical matter, the CCO needs to know whether there is an issue in order to request this information. Formalised information disclosure regarding planned outages would likely improve the CCO's processes for managing potential contingency events. The current lack of planned plant outage disclosure means that the CCO has incomplete information about factors affecting the transmission system, potentially hampering its ability to anticipate and manage a critical contingency event.

### *Downstream (including other major users)*

As discussed in section 5.2 of this paper, a Methanex plant outage is likely to have little or no effect on another downstream party's gas supply. Though, as discussed above, there could potentially be the opportunity to source some cheaper gas if producers decide not to reduce production fully to account for the reduction in demand from Methanex.

### *Gas wholesale trading market*

emsTradepoint submits that the GPS includes an objective of providing for "Efficient arrangements for the short-term trading of gas" (criterion 15). emsTradepoint considered that:

*...in the absence of meaningful and transparent information disclosure, this objective is not met. Market participants face material barriers as they seek to make informed trading decisions. The consequential loss of efficiency is against the interests of gas consumers and, more broadly, consumers in downstream inter-related markets including electricity.*

emsTradepoint considered that all major plant outages "**that affect its market**" (*emphasis added*) should be disclosed. It commented that a lack of information regarding major user outages has a very negative effect on its market, with corrosive effects on investors' trust and confidence. Trading activity is adversely affected as market participants have limited information to make informed trading decisions. However, emsTradepoint did not provide supporting information backing up these points.

As discussed in this paper, given its bilateral gas contract arrangements, a Methanex plant outage is very unlikely to result in a material volume of additional gas being released to the short-term wholesale gas trading market or therefore to impact materially on the wholesale gas trading prices being offered during the plant outage. Therefore, there is likely little benefit to be gained by the emsTradepoint wholesale gas trading market from Methanex outage information (planned or unplanned) being publicly disclosed.

Notwithstanding the above, this is not to say that there may be certain circumstances where an outage of a major gas user facility (Methanex or others) could possibly result in a material volume of gas becoming available to the wholesale gas trading market, either from the major gas user directly, or, as noted above, more than likely by the major gas user's gas provider releasing additional gas into the market rather than reducing production fully to account for the reduction in demand from Methanex.

#### *Related energy markets – electricity*

Some electricity sector parties commented that major gas users, Methanex in particular, should be required to disclose outage information (for both planned and unplanned outages) as otherwise there could be possible transparency and asymmetry issues in respect to the wholesale gas trading market.

The primary issues identified by submitters are:

1. Thermal electricity generators are required to disclose outages at their facilities to meet obligations under the Electricity Industry Participation Code 2010 while other major gas user (particularly Methanex) plant outage information is not disclosed. This creates information asymmetry in the wholesale gas trading market. (In short, thermal generators are required to disclose outages so 'non-electricity generator' gas users should also be required to do so.)
2. There is a small number of parties that consume most of the gas in New Zealand, with Methanex the single largest gas consumer. By definition, this means that all Methanex operations and outages (planned or unplanned) are significant to the gas wholesale market and disclosure of Methanex plant outages is necessary to keep the market fully informed.
3. While an outage at a major gas user's site does not cause gas supply issues like an outage at a production site, significant changes in demand by one of these parties is likely to have a large impact on the supply and price of gas on the wholesale market. At the very least, this can influence the electricity wholesale market in the form of different bidding or trading strategies.
4. Disclosure of a major user outage can signal availability of gas and potential price implications to both thermal electricity generators and other electricity market participants that need to manage risks associated with thermal generation. Electricity market risks increase when there is a shortage of other fuels, primarily water for hydro generation. In these situations, any information that can help participants form opinions about gas availability and price will be of huge value and help electricity market participants manage and hedge against risks.

Many of these points relate primarily to the impact that an absence of major gas user plant outage information may have on generators' (particularly non-thermal generators) electricity wholesale market activities and positions (including the formulation of electricity bidding and trading strategies). They are less concerned with the effect on wholesale gas trading efficiency. The comments are primarily from non-thermal generators concerned that if a major gas user (and Methanex, in particular, given its size) dumped gas on the wholesale market it might encourage parties with gas-fired generation assets to buy cheap gas, thereby impacting electricity prices, etc. They are also concerned that this activity may adversely affect their market-making activities.

As discussed in other sections, a Methanex outage (planned or unplanned) does not necessarily result in more gas being available on the short-term wholesale gas market. Producers may elect to make some additional gas available during this period, but this very much depends on the prevailing wholesale market conditions at the time. As the graph in section 5.2 shows, the volume of additional gas that may be traded (if any is offered to the market at all) is not particularly large in terms of overall emsTradePoint activity and may not be readily distinguishable with other periods where 'above average' quantities of gas are traded on the market. This implies that there is limited information content associated with Methanex outages that would assist electricity companies in trading on the electricity wholesale market. Indeed, given the lack of direct relationship between a Methanex plant outage and market activity, disclosure of this information could potentially be misinterpreted by parties (particularly electricity companies that have limited understanding of the gas sector).

## 6 Conclusions

The major issue identified by submitters is a concern that a sudden, unforeseen, release of a material volume of gas on the wholesale market may cause a major impact on not only the volume of gas available on the market but also the wholesale gas price, which in turn, may have a knock-on effect on other competitive markets, principally the electricity trading market. However, as discussed in this paper, it is unlikely that a major gas user plant outage would be the cause of a material volume of additional gas being made available on the market or that the source of any material volume of additional gas released onto the market during a major user plant outage is likely to be the major gas user (and certainly not Methanex) – although it is not impossible that a major user could release a material amount of gas at some time. Rather, it is much more likely that any additional gas volumes would come from a gas producer deciding not to fully reduce production volumes in response to the user plant outage. Moreover, as this paper also shows, additional volumes of gas coming into the market from major gas users are much more likely to be the result of day-to-day production decisions, rather than a major user's plant outage.

From the assessments discussed in this paper, the following conclusions are made:

- 1) *To date, a Methanex plant outage (planned or unplanned) **has not** resulted in:*
  - a) *a material amount of additional gas becoming available on the wholesale gas market;*
  - b) *a material change in the gas price on the wholesale gas trading market; or*
  - c) *a material impact on the efficient and effective operation of the emsTradepoint gas market;*
- 2) *Disclosure of plant outage information (planned or unplanned) **may have** a negative commercial impact on Methanex Corporation, particularly in respect to:*
  - a) *potentially increasing the cost to Methanex Corporation to purchase methanol on the international methanol market in order to continue supplying its customers during the outage;*
  - b) *creating asymmetrical information on the international methanol market to the detriment of Methanex Corporation's international competitiveness given the opaqueness of the methanol market globally;*

*although, Methanex Corporation may be able to mitigate many of the potential negative commercial impacts in respect to a planned plant outage disclosure provided sufficient allowance is provided in respect to when the outage information must be disclosed;*
- 3) *Methanex has made small volumes of gas available on the emsTradepoint market on a small number of occasions in 2018 and 2019 (but nil gas in 2017). Analysis indicates that the majority of sales occurred during periods when Methanex plants were operating under normal production conditions, not during periods of plant outages. Information for production decisions is not being considered for disclosure;*
- 4) *Gas producers appear to have made small additional gas volumes available on the emsTradepoint market in response to the Methanex unplanned plant outage in 2017. However, to date, any additional gas made available on the emsTradepoint market during a major gas user plant outage (Methanex or others) has had little corresponding impact on the wholesale gas prices offered. A more significant impact on emsTradepoint wholesale gas market volumes and prices has been seen as a result of gas production plant outages (particularly the Pohokura gas field outages); and*
- 5) *There is no evidence that disclosure of Methanex NZ plant outage (planned or unplanned) information will address any information asymmetry concerns in respect to the gas wholesale market operation.*

## **7 Recommendation**

To address the concerns raised in submissions in respect to information asymmetry and to seek to mitigate the potential impact that may result from a material volume of gas being suddenly made available on the emsTradepoint wholesale gas market (irrespective of the reason or cause for the gas release), **it is recommended:**

- ***GIC consider putting in place an information disclosure regime requiring a party (producer or gas user) intending to make a material volume of gas available on the emsTradepoint wholesale gas market to publicly disclose, prior to the gas being made available on the market (but with sufficient contingency provided for an emergency gas release), the expected daily and total volumes of gas to be released onto the market and the timing of each intended gas release.***