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Productie 1

Brattle's methodology for assessing dominance in the market for gas flexibility

An economic commentary

Prepared for

GasTerra

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1. OVERVIEW

1. We have been asked by GasTerra to review the methodology used by The Brattle Group ("Brattle") in their August 2011 report (the "Brattle Report") on gas flexibility services. In doing so we have considered the principles underlying the measurement of market power in gas flexibility markets (Section 2), the ways in which the Brattle methodology differs from earlier reports undertaken for the NMa/DTe by Frontier Economics ("Frontier") (Section 3), and finally set out our significant concerns over Brattle's methodology and assumptions (Section 4).

2. These concerns relate to all elements of the "sub-market analysis" on which Brattle bases its conclusion that GasTerra remains dominant (consisting of market share, pivotality and withholding analysis). They are serious, could in principle make a substantial difference to the results of the analysis, and therefore we believe invalidate the conclusions of Brattle's research:

   a. First, Brattle use a measure of flexibility that is different from the one previously used by Frontier in their analysis for the NMa/DTe, and by the UK authorities in their analysis of the GB gas flexibility market. The measure chosen by Brattle is not internally consistent, and can even result in a *negative* demand for "flexibility" if a daily rather than hourly peak is used. The measure is therefore not meaningful.

   b. Second, Brattle exclude a number of relevant sources from the market. First, flexibility exports are excluded from the market entirely (with the exception of historic re-import in 2009), again departing from the Frontier methodology: but the arguments on which this exclusion is based are not convincing. Moreover, Brattle's sub-market analysis excludes further sources from each weekly market definition on the basis of a cost-price comparison that is not in fact supported by the sources Brattle cites. In particular this approach has no basis in the European Commission's Notice on Market Definition or the United States FERC's DPT test (both of which are cited by Brattle, apparently as authorities for their approach).

   c. Third, Brattle's sub-market analyses of market shares, pivotality and withholding are all dependent on their estimate of what a "competitive" market price would be in each week. However, this estimate appears to have simply excluded exports from both the supply and demand side of the market. Clearly this is not an appropriate competitive benchmark: even if there were no significant size suppliers in the Netherlands, the Netherlands would still be a net exporter of flexible gas, and the price at which suppliers were willing to supply the Netherlands would still depend on the value of that flexibility in neighbouring markets. A model of competitive outcomes that simply ignores this export alternative is very unlikely to generate a meaningful prediction: yet it is this prediction that drives the exclusion of sources from the sub-market share and pivotality analysis, and the competitive benchmark against which GasTerra's "incentive" to withhold is assessed.

   d. Finally, and perhaps most critically, Brattle use cost measures that are entirely inappropriate to the questions they are analysing. First, it is worth noting that Brattle appear to misunderstand the opportunity cost concept, which is not a "take it or leave it" approach to assessment – but rather is a fundamental principle of economic analysis. Second, Brattle's choice of a total cost (rather than variable cost) approach is entirely inappropriate for the analysis of incentives to withhold:

withholding does not offer any scope to avoid *fixed* costs, which should therefore be irrelevant to the withholding decision. Third, the assumption that storage costs are higher in summer than winter is based on incorrect assumptions, and results in making storage (and therefore also imports) appear an artificially less tight constraint on GasTerra in the summer months. Finally, and more generally, Brattle's use of storage costs to model the costs of imported flexibility equate to an *assumption* that imports are a closer constraint on storage flexibility than on GasTerra's Groningen production. This assumption is simply not justified: there is no reason to believe that in summer, when flexible gas supplies are readily available from a wide range of off-shore and imported sources, these would only be supplied to the Netherlands at a price covering the investment costs of storage.

3. Even leaving aside concerns over the methodology applied by Brattle, it is therefore clear that Brattle's conclusion that GasTerra remains dominant is strongly driven by its assumptions. Moreover, many of these assumptions do not appear justifiable based on the available evidence, and no sensitivity analysis has been provided in order to test to what extent Brattle's conclusions might change if these assumptions were varied.

4. We therefore do not believe that Brattle's sub-market analysis of market shares, pivotality or withholding can be relied on as bases for concluding on the dominance question. Given that Brattle's simplified market shares (which do not rely on cost and competitive price assumptions: although they do still exclude exports) show market shares declining from 46% to 37% over the relevant period, there can be no presumption that GasTerra would still be found dominant if the errors in GasTerra's methodology and assumptions were corrected.

2. PRINCIPLES UNDERLYING THE MEASUREMENT OF FLEXIBILITY AND MARKET POWER

2.1. Market definition

5. The normal starting point for any test of dominance is establishing a well-defined relevant market, in both product and geographic scope, within which such market power can be tested.

6. **Product market definition** in relation to gas flexibility is not straightforward. Flexibility is simply the ability to consume more gas at some times than at others (i.e. the fundamental underlying product is gas). There are many different flexibility products practically and theoretically available, and although in principle most sources of flexibility can be used to meet most types of flexibility demand, these sources have different operating and opportunity costs, and as such should be seen as differentiated sources of supply within the broader flexibility market. In previous investigations both the Dutch authorities (through the Frontier reports)[1] and the UK authorities (in their consideration of gas flexibility issues in relation to the Centrica/Rough merger)[2] have addressed this issue by examining a range of different market measures, designed to focus on both longer term

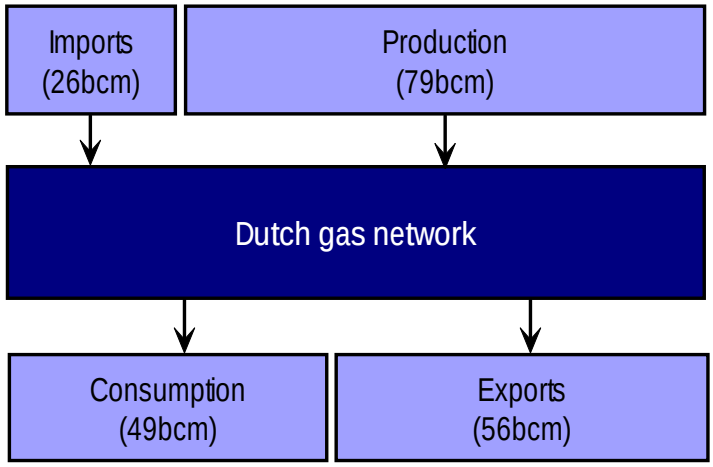
1 Most recently, "Research into gas flexibility services: Final Report", Frontier Economics, May 2008.

2 See Competition Commission reports in "Centrica plc and Dynegy Storage Ltd and Dynegy Onshore Processing UK Ltd: A report on the merger situation" completed in 2003, and the subsequent review of Undertakings in 2010/11.

and shorter term flexibility, in order to understand how market power may vary across different flexibility requirements.

7. **Geographic market definition** in a market as interconnected as the Netherlands is also complex. The Netherlands is a very substantial exporter of gas (exporting more gas than is consumed domestically), and also a significant importer. This makes market conditions in the Netherlands fundamentally linked to those in neighbouring countries. Therefore, although the core concern of a Dutch competition authority will naturally be the competitive conditions facing Dutch gas customers, the interdependencies between Dutch and neighbouring gas markets must be taken into account in order to properly understand these conditions. In particular, it is clearly crucial how both imports and exports are treated. The figure below illustrates the importance of both imports and particularly exports in relation to total gas demand (where the importance in relation to flexibility will vary depending on the measure of flexibility chosen: but with both imports and exports continuing to play a critical role).

Figure 1: The Netherlands is a highly interconnected gas market



Source: 2009 figures based on OECD/IEA data summarised at http://www.energydelta.org/

8. It is worth noting that the importance of wider influences on the Dutch market is accepted in principle in both the 2008 Frontier report (which accepted that *"the market(s) for flexibility services are likely to extend beyond the borders of the GTS system to the extent allowed by physical cross-border capacity"* (p.26); and in the Brattle report (which states that *"Defining the Netherlands as the relevant geographic market does not mean that we exclude the import and export of flexibility"* (p.8).

2.2. Standard approaches to measuring flexibility

9. Flexibility refers to the delivery of an above-average amount of gas at peak times. One of the key challenges of the gas market is the fact that demand varies substantially – both across the year (winter vs. summer), the week (weekdays vs. weekends), and the day (day vs. night), and that these fluctuations contain both predictable and unpredictable elements.

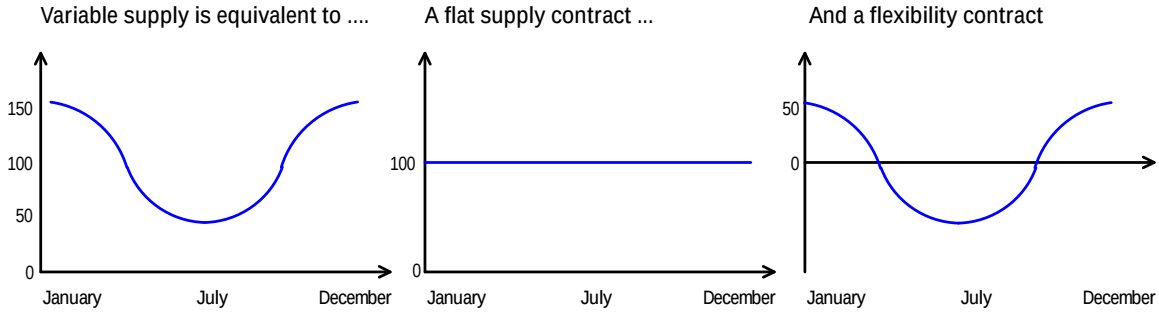
10. This flexibility of demand can be met through a number of mechanisms:

    a. building specific flexibility assets (storage facilities), which do not produce gas but allow injection and withdrawal to meet variations in demand patterns, or

b. building gas supply assets with effectively "excess capacity" (i.e. with a greater delivery capacity than is needed if the gas were to be delivered flat across the year, allowing the deliveries to vary from one day to the next): whether this be through effective "overbuild" of network capacity (line pack), off-shore production capacity, LNG import capacity, import and export facilities, or some other source.

11. From a flexibility point of view, flexible supply sources can be considered to be made up of a "flat" component (at the average supply level) and a "flexible" element (variations in supply from that average). The flexible element is effectively equivalent to a storage service, as illustrated in Figure 2 below.

Figure 2: Decomposing variable supply into flat and flexible contracts



12. Measures of flexibility then seek to summarise the flexible element of delivery in a single summary measure: namely the difference between the peak and average supply level over a given period of time. For a supply source this has the effect of stripping out the flat supply element, to leave only the flexible product.[3]

13. Flexibility measures then compare these peak and average delivery levels: either using a historic peak (i.e. the maximum delivery level seen over the relevant period), or (as in the Frontier and Brattle reports) using the peak *capacity* of the facility in question (so that the measure captures the ability of the source to provide a flexibility service, rather than only its historic behaviour).[4]

14. For a storage facility the average supply level over a year is zero, and therefore the flexibility capacity measure becomes a peak deliverability capacity measure if calculated on an annual basis. If measured over a shorter period (e.g. a month or a week), then a storage facility (like any other flexible supply source) may be in net import or export mode over the period, and the flexibility measure will capture the ability to flex supply around that average import/export level.

15. Usually these measures are calculated over a year: with the length of peak used to differentiate between "short term" flexibility (e.g. peak day demand versus average annual demand) and "seasonal" flexibility (e.g. demand over 91 winter days versus average annual demand). This was the approach taken in the UK Competition Commission's

3 Note that exactly the same can be said of a net export facility: with average export levels being stripped out to leave only the "flexible" part of the service.

4 The exception is in the Brattle Report's treatment of exports, which are only included in the relevant market to the extent that they have *historically* been back-hauled into the Netherlands.

investigation of Centrica/Rough and in the previous Frontier reports on the Dutch market. However, in principle a shorter period could also be relevant.

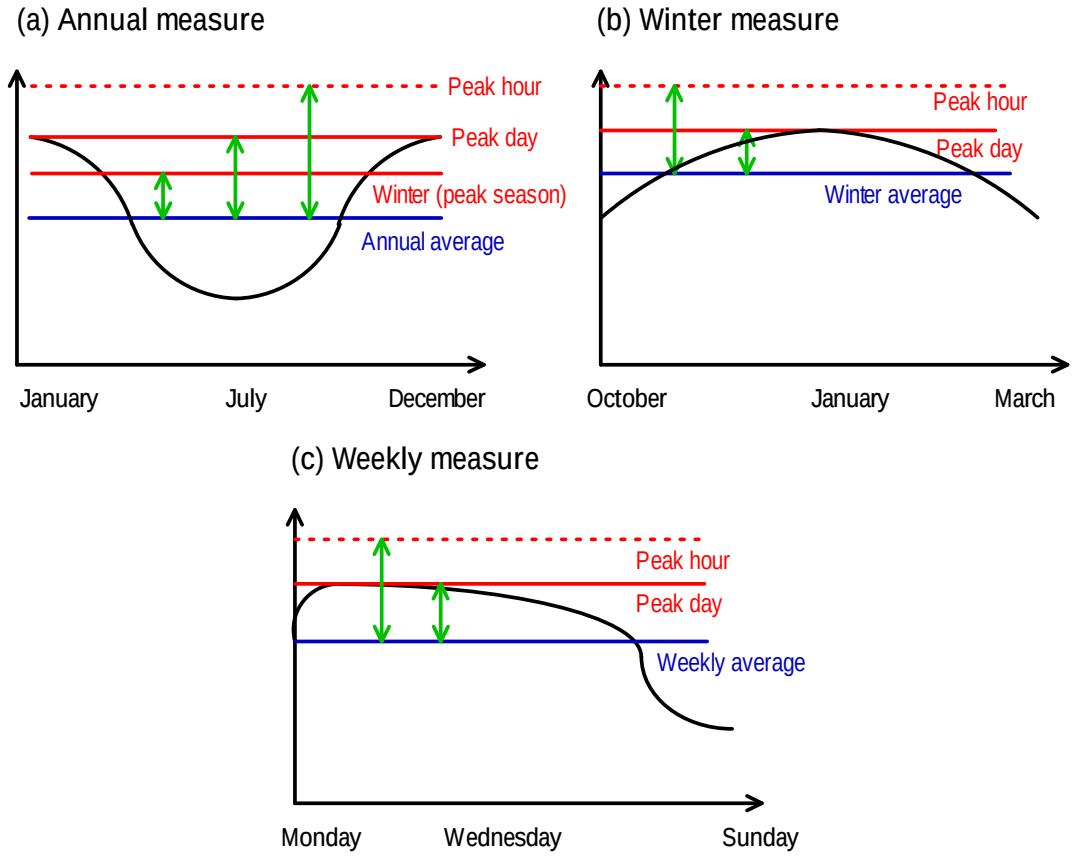
16. The figure below illustrates some of these possible approaches, where the green arrows represent the different possible flexibility measures that could be selected:

a. ***An annual measure:*** compares peak-season or peak-day delivery with the annual average volume (the winter flexibility measure used by the UK Competition Commission is an example of this, comparing demand across 91 winter days with average demand across the year as a whole, as are the peak hour/day/week/month measures used in Frontier's 2008 report);

b. ***A winter measure:*** would compare peak-day or peak-hour delivery with the winter average volume; and

c. ***A weekly measure:*** may be defined as peak-day or peak-hour delivery, compared with that week's average volume.

Figure 3: Standard flexibility measures



17. One important feature of these measures is that they compare the peak *from the same period as the average*. For example, it would make no sense to compare the peak demand in December with average demand in July, or the peak demand in July with average demand across the year (which might well actually result in a negative measure of flexibility, by restricting the peak to be taken from a relatively low demand period, rather than across the whole period across which the average is calculated).

18. It is worth noting that the issue in question in this case is primarily short-run weekly gas flexibility in the Netherlands (i.e. a product which allows the customer to take gas on some days of the week and supply it on others, but with no gas supplied either by or two the grid operator over the period as a whole: see Article 15, second paragraph, sub c of the Dutch Rules on Tariff Structures and Conditions of Gas). This is the product that GTS must offer if GasTerra is found to hold a dominant position on the market for flexibility services (see Article 10a, first paragraph, sub d of the Dutch Gas Act), and it therefore makes sense to define that dominance in relation to the product in question (otherwise the law would effectively result in a firm found dominant in "apples" being forced to sell "oranges").

2.3. Standard measures of market power

19. Dominance is defined in the European competition policy context as *"enjoying substantial market power over a period of time"*.[5] That is to say, an undertaking has the ability to maintain prices above the competitive level (to a sufficient degree to constitute "substantial market power"), for a significant period.[6]

20. However, the "competitive level" against which market power is to be assessed tends to be difficult to model directly, and often market concentration is used as a proxy for market power, on the basis that (all else equal) a larger supplier operating in a more concentrated market is more likely to have the ability and incentive to raise price. There are two types of market concentration measure that have been applied by Brattle (and before them Frontier) in this context: market shares and pivotality.

21. **Market shares:** Market shares are in practice the starting point for most competition cases, and this case is no different. Market shares are the most long-standing approach to looking at the market power of individual suppliers within a market, and are valued as a clear and easily interpreted measure of market concentration. Although they do not capture product differentiation, they do provide a useful starting point for analysis, and one that is well understood. In order to summarise market shares further, the Herfindahl Hirschmann Index ("HHI") can be calculated: a single figure designed to capture the concentration of the market as a whole, which will be higher the greater the importance of large suppliers.

22. **Pivotality:** Another measure used by Brattle is pivotality: a measure that has emerged from electricity market analysis. The idea behind pivotality is that it is not only the share of the market held that matters, but also the extent to which rivals have sufficient spare capacity to replace any output that is withdrawn. A supplier is found to be pivotal if rivals would be unable to replace *the whole of its output* if it were withdrawn (so for example a supplier with a 10% market share is pivotal if there is less than 10% spare capacity in the market).

23. Although an interest in spare capacity is in principle sound, in practice pivotality measures are not easy to interpret:

    a. A large player who is pivotal may still not have any incentive to withdraw output: for example, if GasTerra had to withdraw half its supply in order to make the market

5 Communication from the Commission – Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings (OJ C 45, 24.2.2009, p.8)

6 Typically, this period is taken to be two years(OJ C 45, 24.2.2009, fn.6).

"short", the cost of doing so would likely be very substantial, and might well outweigh any price benefit (e.g. if trade flows responded to the change in GasTerra behaviour).

b. Even a small player who is not pivotal could have the ability and incentive to withhold flexibility from the market (if the opportunity cost of withdrawal is sufficiently low – as might be the case if the small supplier controlled a marginal supply source – and if the expected price increase was relatively significant, due to a lack of closely constraining rival sources).

c. Moreover, given these difficulties of interpretation, there is no clear intuitive dividing line between acceptable and unacceptable levels of pivotality, either in terms of degree of pivotality (recognising that there is a difference between a supplier having to withdraw 10% of their output to make the market "short" or 90%), or in relation to the number of hours in which a pivotal position would have to be present before it is interpreted as evidence of a dominant position (e.g. if there are 10 market participants and each of them is pivotal in some hours of the year, are they all dominant?)

24. Therefore pivotality measures should carry limited weight as a measure of ability to withhold. Moreover, as Brattle accepts, they are a good measure of incentives to withhold. Pivotality should therefore only be considered in conjunction with other available evidence on the competitiveness of the market. We note that Brattle does not in fact present pivotality measures for the wider market analysis used by Frontier, but instead applies this methodology only in the context of the narrower "sub-market" analysis discussed in the next section.

25. **Withholding analysis:** Defining markets where the question is whether or not a dominant position exists is not straightforward, for reasons that are well known. Specifically, it may be difficult to distinguish in the empirical data between a situation in which a competitive firm is competing with a wide range of alternatives, and a situation where a dominant firm has raised its price *until* it is competing with a wide range of alternatives.

26. One approach to this problem is to estimate what a competitive market price would be based on available evidence on costs and demand, and then test whether the firm in question would have the ability and incentive to raise prices above that level. However, there are some fundamental principles that must apply to such analyses:

a. If a competitive benchmark is to be defined, this must be done on the basis of a coherent model of what a competitive market would look like: in this case one that is consistent with the Netherlands' role as a substantial importer and exporter of flexible gas, for example, and that takes into account the true economic drivers of supply decisions in a competitive market.

b. Given the difficulties of accurately modelling what a "competitive market outcome" might look like, it is also important to check that the results of such analysis are robust to reasonable changes in the underlying assumptions. To the extent that the results vary as assumptions vary, it is obviously critical to have good evidence for the approach chosen (e.g. the apparently different treatment of the re-import of exports, compared with the treatment of imports, or the approach taken to measuring flexibility or costs).

27. These requirements are challenging. However, this does not mean that they can simply be ignored. This is made clear, for example, in the European Commission Guidelines on the standards required of economic evidence.[7]

3. THE BRATTLE AND FRONTIER APPROACHES TO FLEXIBILITY MEASUREMENT

28. As a background to the assessment of the Brattle report, it is instructive to look also at the earlier Frontier reports commissioned by the NMa/DTe for the same purpose in previous years, and then to compare the Brattle methodology.

3.1. The Frontier approach

29. Frontier Economics have written a number of reports on GasTerra's position in the Dutch gas flexibility market – most recently in 2008. In that report they calculated capacity shares and pivotality indicators using a variety of different measures of flexibility. Specifically, they calculated a number of different peak supply levels (e.g. average peak supply in the peak hour of the year, across the peak day, week, or season) and compared these peaks to the annual average supply level. These therefore fall in the category of "Annual measures" summarised in Figure 2(a) above – with short term versus seasonal flexibility distinguished through the use of different durations of peak supply.

30. In relation to capacity shares, Frontier used a 50% market share threshold as an indicator of dominance. The results of its analysis can be found at page 31 of its May 2008 report, and show a declining market share picture across all measures: with shares falling from between 65-86% in 2006 to 41-68% in 2011: i.e. falling on some measures below the threshold at which Frontier would identify a clear dominance concern.

31. Frontier also applied pivotality ("pivot") analysis in their 2008 assessment. Again they found a position transitioning from very high levels of pivotality to measures that were more moderate. Table 5 on page 39 of the report summarises these results, showing L-gas pivotality declining from 4500 hours in 2006 to 1200 hours in 2011. Frontier suggested that although *"in theory, whenever the number of hours for which GasTerra is found to be pivotal is greater than zero, this is an indication that it is dominant … In practice, as the number of hours of pivotality approaches zero (or as the extent to which GasTerra is essential to meet demand in an hour approaches 0mcm/h) doubts over whether GasTerra is truly dominant may be raised"*[8] on the basis that the result could fall within the margin of error, and GasTerra might not be certain enough of its dominance to take advantage of it.

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7 See DG Competition, "Best Practices for the Submission of Economic Evidence and Data Collection in Cases Concerning the Application of Articles 1010 and 102 TFEU and in Merger Cases", 2010, available at http://ec.europa.eu/competition/consultations/2010_best_practices/best_practice_submissions.pdf which notes in relation to economic modelling that "Any economic model which explicitly or implicitly supports a theoretical claim must rely on assumptions that are consistent with the facts of the industry under consideration. These assumptions should be carefully laid out and the sensitivity of its predictions to changes to the assumptions should be made explicit." (paragraph 10) and later that "Economic and econometric analysis should always be accompanied by a thorough robustness analysis, except where its absence is appropriately justified." (paragraph 37).

8 This statement is unsupported by references or economic argument, and as noted above may certainly be questioned.

32. Although we do not fully support all the elements of the Frontier approach, it is true to say both that their approach is broadly within the standard framework applied to such cases, and that their findings indicated that in 2011 GasTerra's dominance was already in decline: such that Frontier had started to discuss the conditions under which GasTerra's on-going dominance might in their view be questioned.

3.2. The Brattle approach

33. The Brattle report first presents what they call "simple market shares", following one of the approaches used by Frontier (comparing peak versus annual average supplies). This analysis (presented in Section 3 of the Brattle report) shows GasTerra's share, even without taking full account of the re-import of exports, falling from 46% to 37% between 2012 and 2016: below the level typically associated with dominance. Brattle does not extend Frontier's pivotality analysis based on standard flexibility approaches – but only on the basis of its novel "sub-market" approach, discussed in more detail below.

34. However, in Section 4 Brattle go on to present results that follow a methodology that is novel in a number of respects.

35. First, the Brattle report uses a new measure of flexibility. Instead of comparing average supplies across the year with peak supplies across the year as a whole (using the peak hour, day, week or month as Frontier did), Brattle calculate a peak hourly demand *in each week*, and compare this with the average demand *across the entire season*. In the range of methods set out in Figure 2 above, this is equivalent to taking the peak from measure 2(c), and comparing it with the average from measure 2(b). No sensitivity testing of results to alternative (more standard) measures of flexibility is provided.

36. Second, the sub-market analysis defines the market size in each week more narrowly, not only excluding any potential re-import of exports beyond the level seen in 2009, to exclude a range of other sources on a week by week basis. Brattle model the competitive price of flexibility in each week and then excluding any source whose cost is not within 110% of that flexibility. This results in significantly higher shares and pivotality findings for GasTerra: indeed it appears to be the case that in many weeks of the year this methodology defines a relevant market that consists *only* of GasTerra supplies (presumably primarily from the Groningen field, which is assumed by Brattle to be the cheapest source of flexibility by a large margin). No sensitivity testing of results is provided.

37. Finally, Brattle engage in a "withholding analysis" – again estimating the competitive price that would prevail in each week, and then asking whether GasTerra would have the incentive to withdraw flexibility from the market in order to increase prices to at least 10% above the competitive level. No detailed results or sensitivity testing are provided for this analysis (indeed the entire discussion of the analysis: including the set-up, assumptions, and reporting of results amounts to a single page, with no supporting annexes giving the underlying weekly results or price predictions of the model). Again Brattle conclude that GasTerra is dominant on the basis of this analysis, suggesting that GasTerra would have the incentive to withhold, resulting in prices more than 10% above the competitive level, in 83% of weeks.

3.3. Comparison of the Brattle and Frontier approaches

38. It can be seen from the comparison of Brattle and Frontier analyses that, while the 2008 Frontier paper suggested that GasTerra's dominance might be coming to an end around

now as the market developed, Brattle's analysis comes to a different conclusion on the basis of new approaches to flexibility measurement, market definition, and market power assessment. Although Brattle argue that their analysis relies on standard approaches taken in competition law and energy regulation, this is not in fact the case. Rather their results are sensitive to a methodology and assumptions which are in many cases ad hoc and in some cases simply wrong, as will be discussed in greater detail in the next section.

4. PROBLEMS WITH THE BRATTLE APPROACH

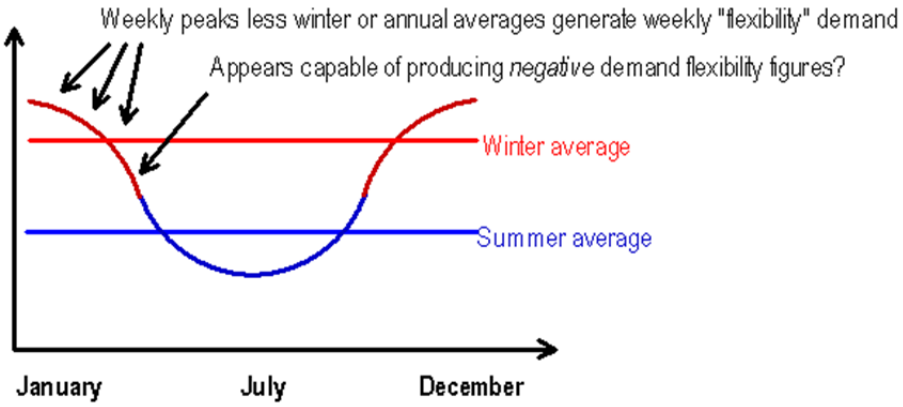
4.1. The measure of flexibility used is not meaningful

39. As noted above, the standard measures of flexibility allow the analysis to focus on flexibility services of different durations and over different periods. However, all those measures had the same fundamental structure: comparing the average supply across one period with the peak supply during a "peak" of some duration *within* that period. That is, they all captured the idea of "turning up" from an average to a peak: whether that peak lasts only an hour or a whole season.

40. The Brattle measure of flexibility used for the sub-market analysis, by contrast, loses this internal consistency, and compares a peak *for each week* with an average measured *across the whole season* (i.e., as noted above, comparing the peak from Figure 2(c) with the average from Figure 2(b)). This loss of internal consistency makes the measure at best very difficult to interpret, and at worst leads to nonsensical results.

41. The figure below illustrates the make-up of the Brattle measure. It can be seen that in the coldest week of the winter it is akin to the type of seasonal measure shown in Figure 2 above (as in that week the peak within the week is also the peak for the season). However, in all other weeks it bears no direct relationship to any of the standard measures.

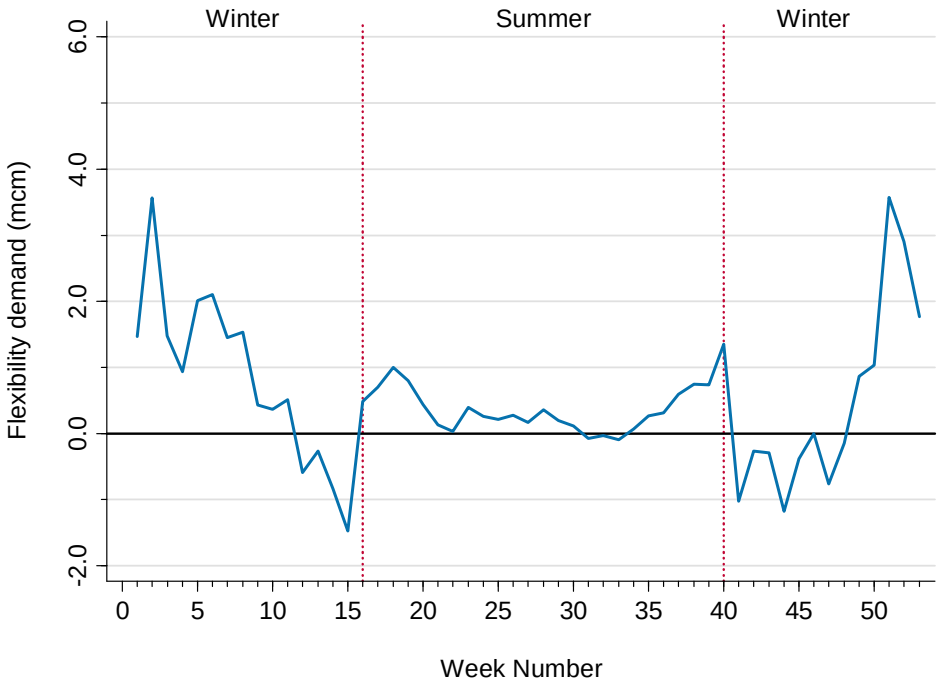
Figure 4: The Brattle flexibility measure



42. This lack of underlying rationale is then reflected in the results of the analysis. The Brattle Report purports to show that their measure is in practice never negative (although in shoulder periods it gets very close to zero). That is, even in the middle of summer the peak hour demand for gas is always greater than the average across the summer as a whole, and even at the very beginning and end of winter the peak hour demand is greater than the average across winter as a whole. However, there is no inherent reason why this should be the case in every year.

43. Moreover, it is notable that Brattle's sub-market analysis focuses only on the peak level of demand in the single highest demand hour. If (in line with the type of sensitivities used in the Frontier report) the measure is adapted to look at peaks of a daily rather than hourly duration, then negative results *are* seen, as can be seen from the figure below.

Figure 5: Adjusted Brattle flexibility: peak weekly day versus season average



Source: GTS data from http://www.gastransportservices.nl/downloads/publicaties/rapporten
Winter defined as weeks 1-15 and 41-52 inclusive (based on an inspection of Brattle's charts)

44. By contrast all the measures discussed in Section 2.2 above would provide meaningful results regardless of the period over which the peak was measured (hour, day, etc.): because the peak is taken from within the period across which the average is calculated (so cannot be *lower* than that average). Similarly the measures previously used by Frontier had at least this level of internal consistency. By contrast it is very unclear what the logic for the Brattle measure is, how it should be interpreted, or why Brattle have diverged from standard approaches.

4.2. Relevant sources are excluded from the market

4.2.1. Exclusion of the re-import of exports

45. The Brattle report's treatment of exports is different to that in the Frontier report, and remains inconsistent with the treatment of other flexibility sources, for reasons that are not made clear.

46. We understand that in the 2008 Frontier report, all Groningen production was included in GasTerra's market share, regardless of whether it was exported or consumed in the Netherlands. That is, exports were *included* in the relevant market, but were treated as part of GasTerra's share.

47. Brattle point out that in fact many of these exports are made under long term contracts that cede long term control of these flows to the *buyer*, meaning that GasTerra would not

have the option to withhold these volumes in order to generate an increase in the value of their remaining flexible gas sales. However, having correctly recognised that this places control of these flexible gas volumes in the hands of the *buyer*, rather than in the hands of GasTerra, Brattle then decide to effectively exclude these volumes from the relevant market.

48. Specifically, whereas all other sources of flexibility appear to be included in the relevant market in relation to their capacity to supply the Dutch market, exports are included only in relation to those volumes that were actually historically re-imported in 2009.[9]

49. We see no fundamental reason for this difference in treatment, and find Brattle's suggested reasoning for this exclusion unconvincing:

a. *Brattle comment that the seller would need to replace the gas, which was otherwise destined for a customer outside the Netherlands.* However, this is equally true of imports, which would be sold in neighbouring countries if a better price could be obtained for them there: yet Brattle (correctly) do not use this as a reason to exclude imports from the relevant market. The correct way to account for the alternative use of flexible gas outside the Netherlands, whether in relation to imports or exports, is to take account of the value of that alternative use in looking at the incentive to withhold and/or to increase supplies to the Dutch market. It is not a reason to exclude re-import from the market (or to treat it differently – e.g. limited to historic quantities) – as in principle the same "opportunity cost" applies to all sources (in that all sources could be exported to neighbouring countries if they were not used in the Netherlands). Indeed, Brattle's exclusion of exports from the relevant market appears to reflect a more general misunderstanding of the "opportunity cost" concept: which is not just (as Brattle appear to suggest) a possible approach to a given problem, appropriate in some cases and not in others, but rather a fundamental principle of economics. This is discussed in more detail in Section 4.4.1 below.

b. *Brattle also suggest that the fact that back-haul capacity is non-firm makes re-import of export more of a constraint.* Again, the logic behind this is unclear. While it is true that back-haul capacity is not firm (as it is only available if there is an export against which it can be netted off), firms who have already booked and are using export capacity know that there is an "outflow" (their own) against which the import could be balanced. Moreover this gas is already at the border. We understand that there is evidence that back-haul, while (unsurprisingly for a net exporting country) not a major feature of the market in the past, is absolutely viable,

9 We note that at page 11 Brattle suggest that an alternative assumption would be that GasTerra exports gas on a flat basis, and then purchases flexibility outside the Netherlands in order to meet its contractual commitments to supply flexibility to those buyers. Brattle appear to contend that this would *increase* GasTerra's share of flexibility. This is simply not correct. If GasTerra were to sell additional flexibility in the Netherland, but then be forced to purchase an equal quantity of flexibility in order to meet its export contract commitments, then we would expect the net impact on GasTerra's incentives to withhold would be negligible: for every unit of flexibility retained (on which GasTerra could profit from a price increase), GasTerra would be forced to procure an additional unit of flexibility to meet its contractual commitments (on which purchase any price increase would cost GasTerra money). Given the clearly strong connections between neighbouring markets – as explicitly recognised by both Frontier and Brattle – there is no reason to expect that such a scenario would result in an increase in GasTerra's market power (as measured by its incentive and ability to withhold flexible gas from the Dutch market).

and has indeed been seen in recent winters (as indeed must be the case, given that Brattle included what we understand is a small volume of historic back-hauled volumes in the relevant market).

50. Therefore we do not believe that the different treatment of re-import of exports, compared with other flexibility sources (and particularly imports) is justified. As a net exporting country it is not surprising that volumes of exported gas that have been re-imported may historically have been limited. However, this does not preclude that significant volumes could be "turned" at the border *if* GasTerra were to attempt to raise the price of flexibility in the Netherlands (which would then make the Netherlands a relatively more attractive destination for flexibility services, compared with neighbouring countries).

51. Indeed, this move from including exports (but counting them as controlled by GasTerra) to accepting that they are in the hands of buyers, but then excluding them from the relevant market, is particularly strange given changes in the market structure since the 2008 report. In particular, the BBL pipeline to the UK exports significant flexibility, but has recently become increasingly open to reverse flows bringing flexibility *back* to the Netherlands if market conditions make this attractive. Specifically, opportunities for other shippers to do this have been opened up with the launch in August 2010 of an Interruptible Reverse Flow Service, open to all BBL shippers.[10] Therefore if anything the re-import of exports appears to be becoming more rather than less viable over time.

4.2.2. Exclusion of sources from weekly sub-markets based on cost is done on an entirely ad hoc basis

52. As noted above, the Brattle report argues that measures of market power including all sources of supply are likely to understate GasTerra's market power, on the basis that some rival sources to GasTerra may be so high cost that they do not provide a very tight competitive constraint on GasTerra's flexibility sources (and in particular the Groningen field). They attempt to take account of this through a number of measures, all of which essentially reduce to:

a. Estimating what a "competitive" price would be, based on the interaction of the supply curve (which depends heavily on cost estimates) and the demand curve (which depends heavily on the treatment of exports); and

b. Making a competitive assessment including only sources whose costs are within 10% of that "competitive" price level.

53. We have a number of serious concerns over the cost and demand assumptions used to calculate the "competitive price", which are discussed in greater detail below. However, in addition to this, we note that the choice of a 10% threshold is an ad hoc one, which does not find support in the practice of other competition and regulatory authorities.

54. Brattle refer in particular to the Commission's market definition notice, and to the SSNIP test used to define markets, which includes a 5-10% figure. However, the "5-10%" referred to in that test is a 5-10% change in *relative price*, and not a 5-10% difference in *absolute price or cost levels*. Contrary to Brattle's claim that products with a 5-10% cost difference would be found to be in separate markets (Brattle Report, page 15), this does not have to be the case. A recent example from energy markets is the EDF/British

10 See http://www.bblcompany.com/news/news/bbl-interruptible-reverse-flow-service for details.

Energy case,[11] in which the Commission defined a single electricity generation market in the UK, despite the fact that nuclear and renewable generation variable costs are a fraction of those for coal and/or gas fired generation.[12]

55. Brattle also refer to the US regulator FERC's "DPT" (Delivered Price Test) (Brattle Report, page 21). This test does indeed exclude sources based on their cost, but with some important differences to the Brattle methodology:

a. The DPT test does not estimate a competitive price, but rather uses the prevailing market price as the basis of comparison (which by definition must be the same as or higher than the competitive price, and therefore would result in the exclusion of fewer rival sources). [13]

b. Moreover, while the Brattle report excludes sources whose *total* cost is above price, FERC's DPT test excludes sources whose *variable* cost is above the price.[14] As can be seen from Brattle's own cost calculations in the annex of their report, fixed costs make up the great majority of their cost estimates, with variable production costs for gas flexibility typically extremely low.

56. The competitive price should usually be lower than the prevailing price, and variable costs will always be at or below total average costs. Therefore the DPT test uses both a higher price benchmark and a lower cost benchmark than the test that Brattle proposes, making it significantly less likely that any particular source would be excluded for a given price difference threshold (be it 5% or 10%).

57. The difference in approach is illustrated in the Figure below: showing a case in which the DPT test would find a source to be well below the relevant price benchmark, and the Brattle test well above it. It is worth noting that Brattle's estimated fixed costs are by far the largest component of their total cost estimate, exacerbating the difference in results due to the changed methodology.

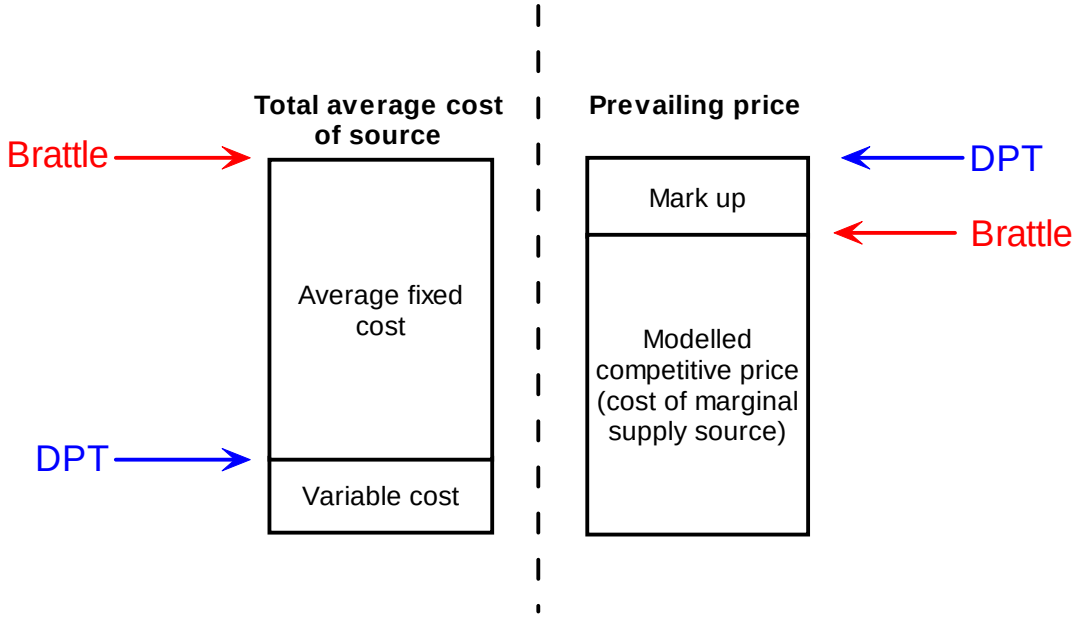
11 European Commission, COMP/M.5224 – EDF/British Energy.

12 More generally we disagree with Brattle's statements on page 15 that *"a key idea in competition analysis and economics is that products are only considered substitutes if they have similar costs"*, that *"if one source of flexibility was about 5% to 10% more expensive than another, then the two products would not be substitutes"* and that *"the European Commission regards two products – which obviously perform similar functions – priced within 5-10% of each other as reasonable substitutes"*. This apparent belief in a linear relationship between price and/or cost *levels* and market definition, particularly in relation to differences as small as 5-10%, can be seen from any inspection of European Commission guidelines or practice to be simply incorrect.

13 FERC Docket ER96-2495-016, et al. ¶ 61,018 2004 Appendix F.3.

14 FERC Docket ER96-2495-016, et al. ¶ 61,018 2004 Appendix F.4.

Figure 6: Illustration of differences between the Brattle and FERC DPT methodologies



58. Given that these authorities do not in fact support the Brattle approach, Brattle should ensure that it provides the logic for their chosen (novel) method, and a sensitivity analysis of the threshold selected and the measures of cost and price used. In principle this could make a substantial difference to the results: for example, if variable rather than total costs were used as the basis for modelling, there is no basis to simply assume that the same conclusions on dominance would be upheld.

4.3. The competitive price of Dutch flexibility is likely to be misestimated

59. The Brattle report also reflects a more general failure to take proper account of the interconnectedness of Dutch and neighbouring gas markets. This is manifested not only through the exclusion of exports from market size calculations, but also in a model of the competitive price in the Netherlands that is unlikely to bear any relation to the price that might actually be expected to result from even a "textbook" competitive market.

60. Specifically, even if the Dutch market structure were "atomistic" (i.e. with a large number of small non-strategic suppliers), as long as it remained a large net exporter then the market conditions in those export markets would clearly have a substantial influence on the market price of flexibility in the Netherlands. Even if there were no significant sized gas producers in the Netherlands, it cannot be expected that the cost of Dutch flexibility would fall significantly below the cost of flexibility in neighbouring countries. If this were to happen, there would be a strong incentive for competitive Dutch suppliers to increase their exports until prices for export and domestic use equalised (controlling for export costs and any binding transportation constraints).

61. By contrast, the Brattle report appears to calculate the competitive price of flexibility not only on the basis of inappropriate costs (as discussed above), but also through a comparison of domestic supply against domestic demand: both net of exports. Therefore it does not appear to take account of the status of the Netherlands as a net exporter, or

the arbitrage opportunities that exist (and would exist even in a "textbook" perfectly competitive Dutch market).

62. This could in principle result in modelled "competitive" prices that are well below the value of the export alternative. This would then in turn result in the exclusion of viable sources from the relevant market. It is not viable to calculate a "competitive" Dutch price without checking whether that price would be sustainable even in the absence of *any* Dutch suppliers of significant size – but operating in the context of an interconnected gas (and gas flexibility) market.

4.4. Brattle's sub-market analysis of market shares, pivotality and withholding are based on incorrect cost measures

63. As noted above, on the basis of "simple" market shares Brattle show GasTerra's share falling significantly over the next 5 years. However, Brattle instead place weight on "sub-market" analysis of market shares, pivotality and withholding – all of which are driven by an estimation of what the "competitive" market price might be.

64. In practice this is a challenging exercise which will be very strongly driven by its assumptions. This means that (a) all assumptions must be carefully considered and justified and (b) where there is uncertainty over the assumptions used, it is vital that the sensitivity of results to these assumptions is tested. As noted above, this standard of evidence is widely established in the economics community, and can be found explicitly stated in the European Commission's guidelines on best practice for economic evidence, cited above, for example.

65. In this case the results will clearly be strongly driven by both the cost measures used (discussed in this section), and the treatment of Dutch production that is exported (discussed in the next section).

66. It is important to recognise that Brattle's assumptions in these respects are not only of relevance to the withholding analysis, but also more generally to their estimates of what a "competitive" market price would be, and therefore to their calculations of sub-market market shares and pivotality (as their "sub-market" sizes are driven by the relationship between the assumed cost of each source and the estimated competitive price, which again depends on costs).

67. Therefore it is essential that the cost measures used are appropriate and accurate, and that results are checked for the robustness of cost assumptions. Unfortunately this is not the case in the Brattle report, and no robustness analysis has been reported. Therefore no weight can be placed on any of Brattle's results that rely on these measures.

4.4.1. Brattle appears to misunderstand the opportunity cost concept

68. Brattle reject the use of the "opportunity cost" principle in this case, on the basis that it "implies" the use of actual market prices (rather than competitive prices), and that "most sources of flexibility do not have an opportunity cost of providing upward flexibility". These are both entirely invalid criticisms, for the following reasons.

69. We would first note that opportunity cost is not "an alternative approach" to thinking about capital and operating costs, as Brattle suggest (page 16), but is a fundamental logical principle. Opportunity cost is simply the idea that where an economic agent faces a range of mutually exclusive options, then when considering the incentive to follow one path, it must take account of the benefits of that action *relative to the other options*.

70. This is therefore not a "take it or leave it" approach to costs, but a fundamental principle of economics that must be given consideration in any economic analysis of costs. The definition of opportunity cost in the New Palgrave Dictionary of Economics notes:[15]

71. *"The concept of opportunity cost (or alternative cost) expresses the basic relationship between scarcity and choice. … scarcity introduces the necessity of choice …. Choice implies rejected as well as selected alternatives. Opportunity cost is the evaluation placed on the most highly valued of the rejected alternatives or opportunities. It is that value that is given up or sacrificed in order to secure the higher value that selection of the chosen object embodies.*
[…]
Opportunity cost is a basic concept in economic theory. In its rudimentary definition as the value of opportunities foregone as a result of choice in the presence of scarcity, the concept is simple, straightforward, and widely understood."

72. It is clear that Brattle are not proposing that there is no scarcity for flexible gas supplies (as scarcity is a necessary requirement for market power). Therefore they cannot simply ignore the opportunity cost principle.

73. To understand the basics of the opportunity cost concept, consider a hypothetical case where a manufacturer only has the capacity to manufacture 1 widget a year. The supplier cannot both produce and not produce the widget, and cannot supply the widget to both customer A and customer B: so it faces a number of mutually exclusive options.

    a. If choosing not to supply any widgets at all, the supplier has given up the opportunity to supply a widget to either customer A or customer B.

    b. If choosing to supply customer A, the supplier has given up the opportunity to supply customer B and vice versa.

74. So what does opportunity cost mean in practice in this case?

    a. Consider the situation where the willingness of both A and B to pay for the widget outstrips the production cost: so the decision is taken to produce. In this case the opportunity cost of that decision is the cost incurred by doing so (i.e. the variable production cost of running the plant).

    b. Now the supplier has to decide whether to supply the widget to A or B. Then the opportunity cost of supplying A is not the production cost of the widget, but rather *the fact that the widget cannot then be sold to B.* So in this case the opportunity cost of selling to A would be the revenue given up by deciding not to sell to B. Only if A is willing to pay more than B for the widget will the price outstrip the opportunity cost. Otherwise the widget will be sold to B instead.

75. In relation to Brattle's criticisms, it is important to note that this approach is just as amenable to the use of non-market prices as is any other. Regulatory constraints or physical constraints can be taken into account in defining the options and the costs and benefits of each, as can hypothetical scenarios in which the level of competition and market price were different. There is therefore no truth to Brattle's suggestion that *"using actual prices, which is what is implied by an opportunity cost approach, could lead to an*

15 *"Opportunity Cost"*, James M. Buchanan, New Palgrave Dictionary of Economics, pp198-201.

erroneous analysis of the product market" (page 16): a competitive market model is not inconsistent with the opportunity cost principle.

76. In relation to the contention that *"most sources of flexibility do not have an opportunity cost of providing upward flexibility",* it may well be the case that providing flexibility from an existing source has a very low opportunity cost. However, this means that in fact the opportunity cost of the opposite action (i.e. failing to use flexibility in order to withhold it from the market) is commensurately higher (as there are few physical costs that can be avoided through withholding). Brattle's approach of ignoring the opportunity cost concept, and thereby using total rather than variable costs as a benchmark for assessing behaviour, is therefore likely to have *understated* the costs to GasTerra of withholding in this manner (as discussed in the next section), as well as likely *overstating* the prices at which rival sources would be willing to supply.

77. Moreover, it may be that physical costs of production are not in fact the most appropriate opportunity cost in this case. If the benefits of supplying flexibility are so great that a far more attractive way to remove flexibility from the Dutch market would be to export it (rather than to fail to supply it), then the relevant opportunity costs of GasTerra supply and rivals' responses will be set by the value of flexibility in export markets (i.e. in terms of the dictionary definition above, this may be the most attractive of the alternatives "rejected" by supplying flexibility to the Dutch market). It is also worth noting that GasTerra has no dominant position in these export markets, and there is therefore no clear reason why readily available market prices should not be used as the basis for an opportunity cost calculation, even if prevailing prices *within the Netherlands* were not believed to be competitive.

4.4.2. The use of costs incorporating return on investment is invalid

78. A necessary result of the opportunity cost concept discussed above is that the relevant measure of costs for an economic analysis depends on the behaviour of concern (and therefore on the "next best" alternative behaviours against which the costs and benefits of a given withholding strategy need to be compared). For example:

a. If we are interested in whether a firm has an incentive to invest in building a new storage facility (or to withhold that investment), then the relevant cost to look at would be the full life-time costs of building and running the facility (appropriately discounted) – which would then be compared against the expected revenues associated with doing so (again discounted).

b. By contrast, if we want to understand the incentives to use (or withhold) an existing facility, then the relevant cost is the direct cost associated with using the facility (i.e. marginal or variable operating costs, taxes, etc.), which is compared with the revenues gained by using it.

c. If the realistic alternatives are instead a trade-off between selling flexibility in the Netherlands and selling it elsewhere, then the cost incurred by selling it in the Netherlands is the revenues given up by failing to sell it elsewhere, which is then compared with the revenues that can be earned in the Netherlands.

79. The economic assessment of market power relies on comparing these costs and benefits to see whether a firm has the ability and incentive to reduce its own output to a given market in order to raise prices significantly above the competitive level.

80. In this case, the question is whether GasTerra would want to withdraw some short-term (weekly) gas flexibility from the market (either through failing to supply that gas flexibility at all, or by supplying it to a different geographic market instead of the Dutch market), in order to benefit from any increase in price that might result.

81. Therefore it is short run incentives that matter – and in turn it is short run operating costs of the various sources that determine the costs saved by "withholding" (i.e. failing to use a given source) – or alternatively, the short run opportunity cost of failing to sell that flexibility in the Netherlands, and instead exporting it to a neighbouring country. A gas storage operator cannot reduce his costs of investment by *using* the facility less. Similarly an off-shore gas producer like GasTerra cannot "get back" their original investment if they run the field with a less flexible supply pattern (i.e. there is no saving in investment costs for an existing field simply by reducing its supply of flexibility). Therefore it is clear that these investment costs, which are sunk, do not affect incentives for suppliers to *use* these sources in a given day, hour, week, month or year.

82. Brattle's reasoning for rejecting this approach is simply incorrect. Their two reasons for adopting a cost including investment costs are:

    a. *"We observe that actual flexibility offers in the form of storage bundles are based on the total costs of flexibility" (p.18).* First, we have not seen Brattle's evidence that this is in fact the case. Moreover, it fails to recognise that the price at which annual or longer-term storage bundles are sold does not necessarily relate at all closely to the incentives for the purchaser of that storage bundle to actually *use* it. The price paid for flexibility depends on valuation that drives the buyer's willingness to pay (i.e. what is the expected value of the arbitrage opportunities created by the flexibility?), and the alternatives available to both buyer and seller (what price could I get this flexibility for/sell this flexibility for elsewhere?), which in turn depends on long run entry incentives, prices in neighbouring markets, etc. Therefore it would not be surprising that the value at which this optionality is sold across a full year reflected a higher cost than the pure operating cost associated with the service. However, this does not mean that the total average cost concept has any relevance to the decision for the purchaser of a flexibility asset (who therefore controls the use of that asset through the year) to actually <u>use</u> that asset – which is the relevant competition question in this case, and is driven by variable costs alone.

    b. *"The use of total costs would be more common of a market in which flexibility is arranged bilaterally, rather than through a centrally cleared market"* (p.18). This is simply wrong. Under either a centrally cleared market or a bilateral trading system competitive prices are set by the variable cost of the marginal source of supply, and fixed costs are recovered through infra-marginal rents (i.e. rents earned at times when each source has a lower cost than the source setting the market price at that time: with investment decisions ensuring that the level of competition is consistent with the recovery of investment costs over the long term). There is no fundamental difference between bilateral and centrally cleared systems in this respect. This can be clearly seen in the UK Competition Commission's decision on Centrica/Rough, which used a marginal cost concept in a market that is also arranged through bilateral deals. The FERC's DPT, to which Brattle refers (apparently approvingly), is also based on variable costs, not total average costs.

83. Our argument is not that returns on investment are irrelevant to the price that we would expect to see emerging in the market. Over the longer term it is clear that investment in

new facilities (or the maintenance of existing facilities) will only take place if the owners of those assets believe they will earn a return on that investment. This is one of the reasons we rarely see text book "perfectly competitive" markets: in reality capacity will only be built to the extent that the last firm to build expects to be able to earn a return on its investment, taking account of the impact its additional capacity will have on the market price.

84. But in a case that turns on incentives to *use or withhold* an existing flexibility resource (rather than to invest in a new one), it is incentives to ***use*** the resource that need to be the basis for modelling, not incentives to ***build*** a new facility. To the extent that taking account of investment costs could be pertinent to an assessment of a long-term sustainable competitive price for flexibility services, this does not mean that the same cost can be used to assess the opportunity cost associated with withholding a source from the market, or the incentives of a rival source to supply more flexibility from existing assets in response to any such withholding.

85. It is worth noting that this difference of approach is clearly empirically important. Based on Brattle's own analysis, investment costs make up the large majority of the cost levels estimated: and in turn differences in investment costs make up the vast majority of absolute variations in cost between sources (which in turn drive the exclusion of sources from the market, and the finding that GasTerra is dominant). While differences in Brattle's estimates of variable costs are still significant in percentage terms, in terms of an absolute increase in price they are very small. Therefore it is far from clear that a similar analysis using a realistic competitive price and assuming that rival supply decisions were driven by marginal costs would show a dominant position.

86. In our view, therefore, the entire logic on which Brattle's cost calculations are made is flawed, which is by itself a strong reason why Brattle's measures of sub-market shares, pivotality and withholding cannot be relied upon.

4.4.3. The assumption that storage facilities have higher costs in summer than winter is invalid

87. In addition to the fundamental problems noted above, there are also some more specific problems with Brattle's approach. For example, Brattle assumes that storage facilities have a higher cost to supply short-term flexibility in summer than in winter on the basis that there is a *"risk of not being able to fill storage sufficiently during summer"* and *"the expense and risk of switching from injection to withdrawal mode."* In fact, neither of these reasons are valid:

    a. The product in question is short term (weekly) flexibility – which is gas neutral across the week (the weekly balance must end at zero). Therefore any impact on ability to fill the facility would not come through actual *withdrawal* from the facility during the summer, but rather from a failure to fill the facility at the absolute maximum possible rate throughout the week in question. However, exactly the same consideration would then apply to the winter season: with the provision of a short run flexibility service, meaning that there would be times in a cold winter weak when the storage facility might otherwise be in full withdrawal mode, but due to the provision of this short-term gas-neutral service is at some times in less than maximum withdrawal mode. Therefore it cannot simply be assumed that the opportunity cost of giving up injection opportunities in summer is greater than the opportunity cost of giving up withdrawal opportunities in winter, as Brattle appear to do. Brattle do not explain why the opportunity cost associated with the failure to

fully fill the facility in the summer (or to fill it in a sub-optimal way) should be treated any differently than the failure to fully draw down the facility over winter (or to draw it down in a sub-optimal way).

b. Moreover, there would be no need to switch from injection to withdrawal mode in order to provide such a service: the facility could, if desired, be in injection mode across the entire summer: but could shape that injection in each week in a way that allows it to provide a weekly flexible gas product to a customer at the same time.

88. Therefore Brattle's assessment of rival costs of supply of flexibility is likely to be even more overstated in the summer than is already the case across the year due to the inclusion of investment costs discussed above. In turn this will yet further (and inappropriately) increase the likelihood of finding GasTerra dominant in the summer months, to the extent that its market share is primarily driven by non-storage flexibility sources (i.e. Groningen).

4.4.4. The use of storage costs to model import (and re-import of export) incentives is invalid

89. Another problem with Brattle's specific cost calculations is the assumption that import costs can be modelled as storage costs. Brattle effectively assume that storage flexibility is always the marginal source of imported flexibility, and that flexibility imports will not take place unless the price of flexibility is higher than the long run average cost of storage (including a return on investment costs).

90. Yet there is no reason at all – particularly in summer when gas is plentiful – to assume that imports will not flow unless a price is reached that gives a return on investment on storage. As noted above, not only is this not the case even for a storage-based import, but more generally there is no reason to assume that storage must always be the basis for flexibility imports. For example, offshore flexible gas fields also exist on the UK Continental Shelf and Norwegian Continental Shelf – and even if physical production cost were the most appropriate method for assessing the incentives to import these sources, there is no reason to simply assume that it would not be attractive to import this gas to the Netherlands.

91. Therefore Brattle's approach effectively *assumes* that imports are a close constraint on Dutch storage facilities but not on Dutch offshore production: but they provide no logical support for that view. This assumption will inevitably increase the perceived "uniqueness" and therefore dominance of Groningen – and is likely to contribute substantially to the finding that GasTerra is particularly dominant in the summer months. Therefore it is clearly an assumption which at the very least requires careful support and sensitivity testing. As a matter of principle we see absolutely no reason to expect these costs to be (a) related to required returns on storage investment, (b) constant across each season, or (c) higher in summer than in winter, all of which are assumed by Brattle. Rather we would expect this cost will vary across the year depending on the price at which flexible gas is available outside the Netherlands (which may well come not only from storage, but also from other off-shore gas fields brought onshore in the UK, Norway or elsewhere).

5. CONCLUSIONS

92. As a result of the errors described above, Brattle's conclusion that GasTerra will continue to have a dominant position over the next 5 years cannot be relied upon.

93. First, it should be noted that the flexibility measure chosen is not a standard measure, is not intuitive, and bears no relationship to the remedy imposed by law if GasTerra is found to be dominant. Indeed a minor and reasonable adjustment to the measure (using a daily rather than hourly peak from within each week) would result in *negative* demand for flexibility in a number of weeks.

94. Second, all the "sub-market" analysis (including market share, pivotality and withholding analysis) is based on cost and demand assumptions that are simply not reliable:

95. The costs that are used are *dominated* by investment costs, even though in fact we would *not* expect investment costs to be taken into account in determining the supply behaviour of flexible gas sources. Moreover, these investment costs are assumed to differ substantially between sources: an assumption which appears to be the prime driver of a finding of so many weeks in which Groningen is essentially found to be in a market by itself (i.e. in which market shares are found to be 90%+)

96. The assumption that storage costs are higher in summer than winter is also unjustified (and likely to understate the competitive constraint from storage in summer months), as is the assumption that imports are likely to behave "like storage" rather than "like flexible production" (which will understate the competitive constraint from imports year round).

97. The failure to take account of the Netherlands' role as an exporting country may also seriously undermine the results. Brattle's analysis appears to simply exclude exports and export demand from their assessment of what a "competitive market outcome" would look like. But even if the Dutch market were characterised by 1000 small gas suppliers there is no reason to believe that this would have any significant impact on the status of the Netherlands as an exporting country or on the price paid for exports. Therefore this "outside alternative" cannot simply be ignored in assessing what the "competitive" Dutch price would be.

98. Moreover the 10% threshold used in these analyses (either as an "acceptable" price margin over the competitive price in the withholding analysis, or as the threshold at which rival sources are excluded from the market in the market share and pivotality analysis) is entirely ad hoc. It has no support either from the Commission's market definition guidelines (which relate to relative prices) or the FERC's DPT test. Indeed, the DPT test uses the prevailing market price rather than competitive price as a benchmark, and variable cost rather than total cost. Therefore it compares a lower cost against a higher price, compared with the Brattle methodology, and therefore all else equal is significantly more likely to include sources in the relevant market for any given threshold.

99. These problems are compounded by the lack of transparency over the results obtained - particularly in relation to the withholding analysis, which does not benefit from any annex of detailed results against which the "fit" of those results to reality could be judged. However, even based on the assumptions that are described in the previous sections of the report (and which therefore presumably are carried over into the withholding section), it is clear that the results will be just as unreliable as the sub-market market share and pivotality tests employed due to the assumptions used, even before other problems are taken into account.

100. The only part of Brattle's report not undermined by (most of) these issues is the presentation of "simple" market shares in Section 3. Those market shares, despite essentially excluding the bulk of the capacity to re-import exported flexibility, show GasTerra's share declining substantially over the period, from 46% to 37%. Therefore there can be no presumption that GasTerra would be found dominant if errors of methodology and assumptions in relation to Brattle's other analyses were corrected.