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Mr J Majdanski
Secretary, Modification Panel
Joint Office of Gas Transporters

12 October 2005

Dear Mr Majdanski

Draft Modification Report 0049 "Optional limits for inert gases at System Entry Points"

This letter sets out the response from the Department of Trade and Industry (DTI) to the above Draft Modification Report. The report was raised following a National Grid UKT (NG-UKT) proposal to amend the Unified Network Code to give all Delivery Facility Operators the option of adopting common network entry specifications of (a) 2.5 mol% carbon dioxide; and (b) unlimited total inerts.

This representation reflects only the views of the DTI and, whilst based in part on work undertaken as part of the ongoing 3-Phase Gas Quality Exercise, should not be taken to represent the views of any Project Steering Group affiliates; namely The Health & Safety Executive, The Office of Gas & Electricity Markets, and The Department of the Environment, Food and Rural Affairs.

Timing & Deadline

Whilst this response is being submitted after the consultation deadline I would hope that you are still able to publish it alongside the other responses that you have received. NG-UKT were alerted last week to the anticipated delay and, in consideration of the important issues DTI has raised here, I therefore trust that they will ensure this response is brought to the attention of the Modification Panel.

Policy Background

Research undertaken for Phase 2 of the Gas Quality Exercise is now close to completion. The Government expects to put proposals for Great Britain's (GB) gas quality arrangements out to public consultation, probably before the end of this year. Policy decisions based on the consultation responses could then be expected to emerge in the first half of 2006.

In this context, the timing of the present consultation is not optimal. In particular, it risks insufficient consideration of the interdependencies between gas quality parameters. Nevertheless, DTI broadly supports early consultation on the limits applying to carbon dioxide and total inerts because of the benefits that an adjustment to the current arrangements might have for securing added gas supplies into the UK in time for next winter. As NG-UKT have identified in their proposal, broadening these limits has the potential to facilitate supply from new sources and to reduce the risk of interruptions from others, thus improving competition in supply and leading to the best long-term outlook for secure supplies and competitive gas prices for GB consumers.

DTI Views

The draft report usefully identifies a number of benefits that might accrue from adoption of this proposal, but fails to provide a balanced presentation of the issues. Specifically, it fails to identify the extremes in total inerts or higher hydrocarbon content that could occur if this proposal were to be approved, or to recognise the potential consequences that changes in the proportions of these constituents might have for consumers. Neither does it discuss any of the options available should the current proposal not be approved.

We have identified a range of potential safety, environmental and economic impacts in connection with the changes that are proposed here (Annex A), and in the interests of arriving at a balanced review of the proposal it will be important that these issues are properly addressed. It is difficult to see that resolution can be achieved within the timeframe identified in the draft report, so a process needs to be agreed by which consideration of these can be taken forward, providing stakeholders an opportunity to contribute.

To conclude, in DTI's view the draft report in its current form does not provide sufficient information to enable a full assessment of the costs, benefits and risks associated with this proposal. Our support for this is therefore reserved, pending further work.

We are grateful for the opportunity to respond to this proposal and look forward to contributing to the ongoing debate.

Yours sincerely

Dr C.S. Mansfield

Annex A

Future Gas Composition

1. The note providing supplementary information very helpfully identifies what Transco NTS believes will be the consequences for system average levels of carbon dioxide and total inerts levels in the near term if this proposal is approved. However, there is insufficient information in either this note or the original draft report to identify what extremes consumers could be exposed to.

2. Similarly, for future levels of higher hydrocarbons there is insufficient information in either the supplementary information note or the original draft report to what extremes consumers could be exposed to.

Safety

3. An increase in the inerts content of a gas permits an increase in the higher hydrocarbon content, for the same Wobbe Index. This can have the effect of lowering the Lower Explosion Limit (LEL) of the gas mixture. What is the magnitude of this effect under the proposed changes?

Environment / Emissions

4. Increases in the CO_2 content and the higher hydrocarbon of the gas will cause an increase in the emissions of carbon dioxide and the oxides of nitrogen during combustion. What is the likely magnitude of this effect under the proposed changes, across the domestic, commercial, power generation and industrial sectors?

5. Research undertaken for DTI has shown that an elevated higher hydrocarbon content in the gas risks increased sooting in gas appliances and elevated emissions of unburnt hydrocarbons. The former suggests there may be a risk of increased emissions of particulate matter (PM10s and PM2.5s), whilst the latter would contribute to the increased formation of ozone in the atmosphere. What are the likely magnitudes of these effects under the proposed changes?

Both of the above will need to be assessed against the incremental impact on the UK's obligations under the EU ETS, the National Emissions Ceiling Directive and other air quality standards

Commercial

6. How would the proposed changes translate to changes in the Carbon Emissions Factor of the gas? What incremental economic impact could be expected for those consumers operating under the EU ETS?

7. Would the proposed changes increase the risk of corrosion, particularly at Underground Gas Storage sites?

8. What impact could a (local) increase in the level of total inerts and / or higher hydrocarbons have for chemical processes dependent upon the gas supply as a source of methane?

9. The presence of higher hydrocarbons facilitates ignition of natural gas mixtures. Thus any increase in the higher hydrocarbon content could impact both turbines and gas engines. Modification of the ignition timing and lowering of the engine load may be necessary. What impacts might arise here under the proposed changes?

10. We understand that large gas turbines typically have a total inerts limit of 15 mol%. What (local) impacts could arise for power generators under the proposed changes?

11. Natural Gas Fuelled Vehicle (NGV) engine performance is also sensitive to the level of total inerts, especially nitrogen. This can affect emissions compliance, and in severe cases vehicle operation will be impaired. Poorest performance can be expected where total inerts concentrations exceed 12%, whereas little change would be expected if concentrations remain below 7%. What impacts might arise for NGV manufacturers and operators if this proposal were to be approved?

12. Would the proposed changes present an increased risk of tank-rollover at the current LNG peak-shaving facilities? Information presented to DTI suggests that nitrogen concentrations higher than 3mol% require removal at these facilities otherwise there are potential safety and environmental consequences, and also the likelihood of reduced LNG-make. If the proposal is approved what incremental costs would be incurred to avoid this?

13. Maintaining a constant Wobbe number does not guarantee a constant calorific value. Increasing the level of inerts in the gas supply can increase CV-shrinkage costs. What (local) incremental impacts might arise here if the proposal is approved?

14. Similarly, if the local calorific value of the gas changes, or could be expected to fluctuate more rapidly, under this proposal would the variations significantly affect the economics of gas storage facilities?

Alternatives

15. What other options exist that would enable future gas supplies to be landed at the proposed specifications but protect consumers from exposure to extremes or fluctuations in these constituents?

a. Blending of gas streams could provide a very useful solution, particularly where anticipated excursions above the current specifications are short duration or of limited frequency. In DTI's view this warrants serious consideration.

b. Carbon dioxide stripping and / or nitrogen rejection might also be commercially viable, particularly where excursions above the current specifications are of longer duration or are expected to be more frequent.

There can be a significant premium for firm gas over interruptible, and any rejection of these options should make clear why either is not technically feasible, could not be achieved in time or, considering the likely incremental increase in carbon dioxide / total inerts levels, is not economically efficient.

16. What supply interruption risk is posed if the UK does not amend the carbon dioxide and total inerts limit as proposed? If this risk is low, could any shortfalls be managed within the present system flexibility