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Dear Paul

Open letter consultation on National Grid's proposal to commence generating electricity at gas distribution pressure reduction stations.

National Grid Gas plc (NGG) owns and operates the Gas National Transmission System (NTS) and four of the Gas Distribution Networks (GDNs) in Great Britain. This response reflects the views of both the Gas Transmission and Distribution businesses.

Subject to agreeing contract terms with Blue-NG and obtaining relevant permissions and consents, we intend to facilitate a trial to install and operate combined cycle bio generation plants, incorporating expansion turbines to recover surplus heat within up to eight Distribution Pressure Reduction Stations. The first two sites at which Blue-NG will conduct phase 1 of the trial are at Beckton and Southall in London and they are due to commence operation by Autumn 2009. A comprehensive description of our proposal is explained within Ofgem's consultation document and we therefore do not intend to add anything further within this response, other than answering the specific questions raised by Ofgem in the open letter.

Do respondents agree with NG's proposed environmental benefits associated with this technology?

National Grid is committed to minimising its impact on the environment and is actively pursuing a number of initiatives, of which this is one, to reduce its and the UK's "greenhouse gas" emissions. While the proposal will have to be commercially viable to extend beyond a trial, a major imperative in undertaking this venture is to help meet the stretching[1] environmental objectives we have set for our business as a whole.

It is anticipated that the combined cycle bio generation technology will be classed as renewable generation and thus in line with the Government's "greenhouse gas" emission reduction objectives. If it proves to be technically and commercially viable, we estimate there is potential for up to 1 GigaWatt

[1] National Grid has recently announced a revised global target for its business of reducing its greenhouse gas emissions **to a more stretching target of 80 per cent by 2050** (from 60% previously).

of low carbon generation capacity from NGG's pressure reduction stations. This development would align with Government and Ofgem objectives to encourage distributed generation and increases diversity of supply within the UK.

Are there any potential benefits, costs or risks to consumers that have not been considered in this letter?

In relation to the eight trial sites, we believe both the risks and benefits to gas consumers are likely to be relatively small. The agreement we are negotiating with Blue-NG is constructed such that Blue-NG bears all the costs of construction, maintenance and operation of its plant. This includes bearing the costs of the resources engaged by NGG in developing and negotiating the current proposal. NGG and hence consumers will not incur any costs as a consequence of this venture. To the extent that the trial is unsuccessful, Blue-NG will be wholly liable for decommissioning and removal of the installed plant and equipment.

Although there will always be some inherent risk to NGG and consumers through such a venture, this will be minimised through requiring Blue-NG to adhere to NGG's strict controls on construction, maintenance and operation of the generation plant and underpinned with a contractual liability framework. There are no other risks we are aware of as neither the transmission nor distribution systems will operate any differently than they do currently.

The benefits to gas consumers will be modest for the trial sites as they will largely be confined to a reduction in the amount of shrinkage gas used for pre-heating, which in itself is a small percentage of total shrinkage. Although pre-heating currently provided by gas combustion will be substituted by heat from the combined cycle bio generators, this will only occur when the generators are operating. Gas pre-heating will therefore remain in regular use and the equipment maintained as it is currently. Any benefits in reduced levels of pre-heat gas will only be realised by an adjustment in the next formula period.

We believe the real financial benefit for gas consumers will arise if the trials are successful and therefore attract investors who are willing to pay a premium to utilise the NGG facilities for schemes using comparable technologies. An appropriate level of sharing of these benefits with gas consumers could then be agreed with Ofgem.

More generally, UK consumers could benefit from the additional source of renewable electricity made available through this project.

Are there any other licence conditions that could be affected by NGG's proposal?

Having examined NGG's gas transporter licences applicable to our gas transmission and distribution businesses and NGET's electricity transmission licence, we do not believe there are any licence conditions that could be affected by our proposal, other than those for which we are seeking consent.

The open letter states that NGG requires consent "to relinquish operational control of assets since the additional apparatus to be installed … will be assets owned and controlled by the third party". This statement does not accurately reflect the requirement for a consent under Standard Special Condition A27 (Disposal of Assets), since NGG will not relinquish control of any transportation asset for the

purposes of that condition. We have applied for consent on a precautionary basis, as a disposal for the purposes of this condition includes the grant or permitting of any encumbrance over a transportation asset. Although "encumbrance" is not defined within the licence, we believe that by granting a licence, wayleave or easement over NGG's land and by granting Blue-NG access to the rotating shaft of the expansion turbine embedded within NGG's pipe-line system, an "encumbrance" could be considered to have been granted. As the licence is not clear on this point we have applied for consent, but Ofgem's view on whether such consent is necessary in this case would be appreciated.

Should this kind of arrangement be ruled out as it has the potential to dilute the incentive on NG to operate either the transmission or distribution networks efficiently?

While there is a theoretical risk that NGG could alter the operation of the system in favour of Blue-NG's generation requirements, in reality there are a number of factors intrinsic to the proposal (and contracts) which would disincentivise such behaviour:

a) **Contracts** – The contracts have been developed such that NGG retains complete control of its system, including operation of the pressure reduction apparatus. It can choose to either use the expansion turbine or existing Joule-Thompson valves to reduce pressures and no communication will take place with Blue-NG in making those decisions. The contracts are being developed on an arms length basis, to ensure no undue discrimination in favour of Blue-NG or NGG occurs.

b) **Generation** – Over 70% of the generation capacity of the Blue-NG plant will be from the combined cycle bio generators, which can run independently of whether NGG uses the expansion turbine or not. The turbine merely improves the efficiency of the generation process, recovering waste heat from the engines that would otherwise be lost.

c) **Expansion Turbine characteristics** – The turbines will be designed to operate within the pressure ranges that the Pressure Reduction Stations currently exhibit. There will therefore be no benefit in increasing pressures on the pipeline system upstream of such turbines to generate more power, as it will reduce efficiency and may increase maintenance costs.

d) **GDN Price Control** – There is a theoretical risk that NGG could invest in downstream pipeline assets to increase generation capacity. Apart from the fact that for the reasons outlined above, it would not be economic, the Capex Information Quality Incentive would disincentivise investment over and above the baselines agreed with Ofgem. In addition, Ofgem have the facility to dis-allow capex investment if it is identified as being inefficiently incurred for the purposes of the economic and efficient development of the system.

e) **NTS Price Control** – In theory the NTS could increase its pressures by utilising additional compression upstream of the Pressure Reduction Stations, but this would increase NTS System Operator Costs in relation to NTS shrinkage to which NGG has some exposure through its System Balancing Incentive Scheme. However, as described in c) above, increasing pressures would not be beneficial to the Blue-NG plant in any way.

f) **Existing Licence Conditions –** There are a number of relevant licence conditions relating to the behaviour of the GDN and NTS which are described in more detail in our response to Ofgem's final consultation question. Breach of such conditions could lead to enforcement action and a financial penalty of up to 10% of licensees turnover. These conditions reinforce the incentives on NGG to operate efficiently.

Any one of these reasons is sufficient to incentivise NGG to operate its pipeline systems efficiently and economically. In combination, they reduce the risk of inefficient operation beyond any reasonable assessment of probability since any other form of behaviour would bring significant downside risk without providing the prospect of upside benefit.

Given that NG also owns the England and Wales electricity transmission network and is therefore not allowed to generate electricity itself, are there any concerns regarding the proposal from this perspective?

The only potential concern we envisage is that National Grid Electricity Transmission (NGET) as the GB system operator (GBSO) could conceivably favour Blue-NG when accepting bids, offers or other balancing services for system balancing or constraint purposes.

In reality we believe that Blue-NG will not participate in the balancing mechanism as the anticipated generating capability is insufficient for the balancing requirements of the GBSO. There is some potential for Blue-NG to provide balancing services to the GBSO although the volumes would be relatively small and the procurement decisions of NGET are open to regulatory and market scrutiny. Furthermore, it would be immediately apparent if Blue-NG was favoured ahead of other market participants and this would be subject to regulatory oversight by Ofgem.

Are there any other issues Ofgem should be considering in reviewing NGG's proposal?

We believe Ofgem has addressed all the main issues arising from this proposal.

Should Ofgem be considering the proposal to reduce own use gas for pre-heat using biomass generators separately from the proposal to convert the energy lost in depressurisation into electricity turbo-expanders?

Although bio mass generation could operate and provide pre-heat at Pressure Reduction Stations without the inclusion of an expansion turbine, the generation efficiency factors would be reduced unnecessarily. As explained previously the generators will not be operating continually (for example because of outages for maintenance) and the existing gas pre-heaters, in combination with Joule-Thompson valves, will therefore remain in regular use and continue to require quantities of own use gas.

On the other hand, the expansion turbines rely on the extra heat provided as a bi-product of bio-generation to operate safely. They extract more heat energy as part of the generation process than the throttling effect of a conventional Joule-Thompson valve does and absent the pre-heat provided by the bio-generators this could lead to unsatisfactory conditions for the pipeline system such as frozen pipes. They could therefore not be operated independently in the configuration required by this proposal.

The two parts of the generation plant are therefore mutually supportive and in particular, although the expansion turbine contributes significantly less generation than the bio generators, it leads to increased levels of efficiency that would otherwise be unobtainable. We therefore believe this proposal cannot accurately be addressed by reference to its component parts and indeed its commercial viability could be put at risk by doing so.

Are there any modifications to NGG's gas transportation licences that would be appropriate to safeguard consumers if the Authority grants the relevant consents?

We believe there are sufficient provisions within NGG's gas transmission and gas distribution licences to provide adequate safeguards for consumers and when taken together with the factors outlined previously, should give a reasonable level of assurance that consumers will not be disadvantaged in any way. Rather this proposal, if successful, could be beneficial for the energy consumer generally, given that it would lead to the installation of sustainable sources of renewable electricity and cost benefits for gas consumers in the future.

The principal licence conditions which are applicable in this case are set out below:

a) **Standard Special Condition A6 (Conduct of the Transportation Business)**
Paragraph 1 - *"The licensee shall conduct its transportation business in the manner best calculated to secure that neither –*
   - *(a) the licensee or any affiliate or related undertaking of the licensee (including for the avoidance of doubt any other relevant gas transporter which is also owned by the holder of this licence, the licence for which is held in the same legal entity);*
   - *(b) any gas shipper or gas supplier*
   - *(c) any DN operator (who has entered into transportation arrangements with other gas transporters),*

obtains any unfair commercial advantage including, in particular, any such advantage from a preferential or discriminatory arrangement, being, in the case of such an advantage accruing to the licensee, one in connection with a business other than its transportation business."

b) **Standard Special Condition A33 (Restriction on Use of Certain Information and Independence of the Transportation Business)**
Paragraph 3 - *"The licensee shall at all times manage and operate the transportation business in a way calculated to ensure that it does not restrict, prevent or distort competition in the supply of electricity or gas, the shipping of gas, the generation of electricity, any trading business, or the supply of meter-related services or meter-reading services."*

NGG is also required under this condition to provide a statement to the Gas and Electricity Markets Authority no later than the 1 May each year describing how it achieves compliance with this condition.

c) **Standard Special Condition A35 (Prohibition of Cross-Subsidies)**
Paragraph 1 – *"The licensee shall procure that the transportation business shall not give any cross-subsidy to, or receive any cross-subsidy from, any other business of the licensee or of an affiliate or related undertaking of the licensee."*

This condition also contains specific provisions prohibiting cross-subsidies between the NTS and GDN businesses of the licensee.

d) **Special Condition E22 and C20 (Separation of NTS and Distribution Network Business)**
Paragraph 1 – *"In particular, the licensee shall ensure that no associated gas transporter business solicits any action from the NTS Operator which would constitute a breach of Standard Special Condition A6 and Standard Special Condition A33. To the extent required, the statement referred to above shall also be construed appropriately in respect of the licensee's role as a DN Operator."*

These are extracts for the purposes of illustrating the extent of current licence obligations applying to our GDN and NTS licences. There are other licence conditions and further provisions within those specified above, which are also relevant and ensure comprehensive regulatory reporting and compliance with our obligations.

These conditions, when taken as a package, ensure that no undue benefit will accrue to NGG from the project, and that no distortion will arise on any market. It should also be remembered that NGG's business operates under clear economic incentives which also drive efficient behaviour in respect of the gas transportation businesses which further disincentivise NGG from taking any action which would favour Blue-NG, since such favouring would inevitably lead to a less efficient outcome for the gas transporter businesses.

Conclusion

Overall we believe that the environmental and potential energy consumer benefits of this proposal when weighed against the relatively low risk taken by NGG provide a compelling case for Ofgem to grant the consents requested without the need for additional regulatory intervention. We have demonstrated in our response how the existing commercial and regulatory framework provides considerable protection for gas consumers and disincentivises the risk of diluting incentives for National Grid to operate its gas and electricity systems economically and efficiently. Finally, we believe that this proposal supports UK Government and Ofgem objectives in relation to carbon emissions and distributed generation and utilises an existing facility at Pressure Reduction Stations that would otherwise be unexploited.

If you would like to discuss any of the issues raised in this response please contact Paul Rogers on 01926 65584.

Yours sincerely

Phil Lawton
By email