Metering Requirements – Preliminary Technical Session

John Blackstock & Len Rodenburg



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- Provide First Gas' initial thinking and proposed approach in the areas of:
 - Minimum technical requirements for Metering Systems
 - Metering testing requirements; and
 - Metering corrections.
- Provides technical industry stakeholders with an opportunity to raise any matters at an early stage that they would like to see addressed or considered by First Gas in relation to Metering.
- First Gas happy to take away any issues, queries or proposals for further consideration.





Agenda Items

- 1. Introductions & Background
- Existing Code Requirements MPOC & VTC
 First Gas Proposal:
- 3. Why BS EN 1776:2015?
 - Comparison with existing arrangements
- 4. Special Testing
- 5. Discussion



- First Gas has committed to developing a single gas transmission access code (GTAC) to replace the two existing codes (the Maui Pipeline Operating Code and the Vector Transmission Code).
- GIC must determine whether the GTAC is "materially better" than the MPOC and the VTC when assessed against the objectives in the Gas Act and Government Policy Statement.
- GIC's Final Assessment Paper (FAP) notes that while there were a number of improvements in the GTAC compared to the current codes, it does not achieve the standard of being "materially better".
- FAP highlights the areas where First Gas would need to develop revisions to the GTAC in consultation with stakeholders to enable the GIC to assess the code as being "materially better"

Background – GTAC Process – Where are we at?



- Series of Industry 3-Day Workshops
 during July and August
- Enable FAP issues to be discussed, resolved and proposed GTAC drafting amendments formulated
- Allow stakeholders to review improvements and obtain legal review
- Allow time for First Gas to finalise the GTAC before submitting to GIC
- Allow stakeholders to comment on GIC's preliminary assessment on whether the GTAC is materially better than the MPOC and VTC

- GIC likely to publish more information on this stage
- IT system to support / implement GTAC to be progresses and finalised.



- Metering is not considered a material issue in the FAP that warrants significant attention in order for the GIC to determine that the GTAC is materially better than the existing transmission access codes
- However, the GIC noted in the FAP that:
 - a single set of metering requirements across the system should improve efficiency and reliability;
 - as the metering requirements were not yet available to industry both metering owners and the GIC were faced with a degree of uncertainty;
 - the minimum 9 month interval between special metering tests is worse than under the existing codes.

Existing Code Requirements – MPOC & VTC



Existing Code Requirements – MPOC & VTC

 Existing MPOC and VTC metering arrangements are substantially similar and are premised on the three key areas of Metering technical requirements, testing and corrections.

Metering Area					
	TECHNICAL		TESTING		CORRECTIONS
•	Minimum technical requirements for design, installation,	•	Testing requirements to ensure accuracy of metering system	•	How to correct for the effects of inaccurate metering
	operation, and maintenance		Frequency of testing and acceptable limits for all metering components	•	Applicable timeframes and correction methodologies
•	Information to be made available by Metering Owners				

Existing Code Requirements – MPOC & VTC

- The MPOC and the VTC Metering Requirements were put together a considerable number of years ago (2005 and 2007 respectively).
- They reflected best practice at the time, but technology has moved on and aspects are now out of date.
- The MPOC and the VTC Metering Requirements are largely prescriptive. Preference of the time was to "hard-wire" requirements
- MPOC framework especially made it difficult to accommodate atypical design factors or operating requirements.
- Existing code requirements "work" but development of GTAC provides an opportune time to revisit and update.

What is First Gas Proposing for Metering?



GTAC

- Shipper focussed
- Requires Metering at every point
- Provision of Info e.g. DDR's/HDR's
- Special Testing
- Corrections under MR Document

MR Document

- A single set of metering technical standards, testing requirements and correction methodologies
- Refers to local and int. standards

ICA's

- IP focussed
- Metering Location
- MR Document referenced (new metering / testing / corrections)
- Provision of Info
- Special Testing

Scope of Metering Requirements (MR) Document

- The MR Document is designed to ensure that the core terms of metering technical standards, testing and corrections are consistent across all interconnected parties.
- The MR Document shall apply to all Receipt Points and Delivery Points for the high-pressure gas transmission system owned and operated by First Gas with agreed exceptions for pre-existing assets.
- Except where recorded otherwise, pre-existing metering systems are to maintain compliance with their applicable technical standards and testing requirements.
- There may be circumstances where negotiated terms may be necessary for particular aspects of a metering system. These will be given effect to through provisions in an ICA.

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MR Document & BS EN 1776:2015



- The technical requirements and testing aspects of the MR Document largely involve the adoption of BS EN 1776:2015 "Gas Infrastructure – Gas measuring systems – Functional requirements".
- BS EN 1776:2015 is a generalized standard, so there are some clauses which allow options and there are some clauses which do not correspond with New Zealand practice.
- Therefore, where required the MR Document will include supplementary references that are intended to direct the user to the appropriate options and New Zealand practice.
- BS EN 1776:2015 does not cover the approach to metering corrections. First Gas proposes to retain the existing methodologies for metering corrections with minor refinements where required.



- BS EN 1776:2015 is an outcomes-based standard which will give users flexibility in design and maintenance of their Metering Systems.
- Because BS EN 1776:2015 was revised in 2015, it is up to date with respect to gas metering technology. First Gas envisage that we will adopt any future revisions to this standard, thus keeping up with technology.
- The First Gas Proposal includes alternative methods for energy determination, by referring to NZS 5259:2015 which is a standard tailored to the New Zealand situation.
- BS EN 1776 has been adopted in the UK and EU in order to standardise Metering Systems. Each jurisdiction adds its own requirements for situations not covered in detail, in the same way that First Gas will in the MR Document in the NZ context



 The following sections provide a comparison between some of the existing metering arrangements (EA) and what is proposed under the revised MR Document that references BS EN 1776 (New MR).

Scope

- The New MR provides a more comprehensive list of Normative References.
- The New MR covers Coriolis meters.
- The New MR covers ultrasonic meters in much more detail.
- The New MR does not differentiate between "Large" and "Small" stations which simplifies things

Gas Analyser

- Where a C6-type GC is used, the New MR specifies how an appropriate C6+ "split" should be determined. This is a new requirement which ensures consistency.
- 6-monthly comparison between the composition determined by the GC and the composition determined by an accredited laboratory. This is intended to prove that the sampling system is appropriate.

Comparison with Existing Arrangements

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Accuracy Requirements

- The New MR determines that all Receipt points shall be Class A with inservice uncertainty ≤ to 1.2%.
- The New MR specified in-service uncertainty applies to the whole metering system whereas EA contains a requirement for individual components e.g. pressure transmitters (2.2 c) being a fixed value regardless of transmitter range does not reflect best practice.
- The New MR states that accuracy testing of gas meters shall comply with NZS5259:2015 in order to promote consistency.

Other Aspects

- The New MR makes it clear that the "system" in NZ is based on gauge pressure. This is a historical anomaly, inconsistent with best practice, which is not documented in the EA.
- The FGC recognises all methods for density conversion documented in NZS5259:2015 3.8.2.4. This provides more flexibility.
- The New MR provides a more detailed specification for filtration which provides certainty.
- The New MR is more specific than the EA about alarm monitoring, although in practice these should be unchanged.



- The GIC's FAP noted that the minimum 9 month interval between special metering tests proposed in the GTAC is worse than under the existing codes.
- How do other Metering Owners feel about the frequency of special testing?
- First Gas is willing to revert this back to timeframe currently set out in the existing codes (3-months).

Discussion



- As noted at the start of this session, we are keen to provide technical industry stakeholders with an opportunity to raise any matters at an early stage that they would like to see addressed or considered by First Gas in relation to Metering.
- Past experiences / issues?