Conclusion (Sensitivity Analysis)

Long Run Marginal Cost (LRMC) model Conclusion:

There are a wide range of prices in each of the different sensitivity analyses for the LRMC model, which can cause some large changes in the prices produced and on the stability of these prices. The prices change year on year as there is a large amount of sensitivity on the inputs into the overall charging framework.

The outcomes of changing the variables by the ranges seen in this summary highlight that:

- The results of the changes are not intuitive;
- Changes to the inputs of these sorts of levels are not uncommon; and
- Results are unpredictable.
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Capacity Weighted Distance (CWD) and Postage Stamp (PS) Model Conclusion:

Reference Prices generated by both the CWD Model and PS Model are impacted by fluctuations in the inputs; however the impact on Entry and Exit and across each location is identical and predictable.

Overall Conclusion:

The LRMC (or Virtual Point) model is no longer considered suitable and the sub-group's view is that it should not be the focus for developing a proposed RPM for the Gas Charging Review.
As the inputs into the LRMC model are varied, the resulting price changes are not intuitive and the changes can cause unpredictable results, and the changes to prices can be volatile. It is worth noting that variations to the inputs of these levels are not uncommon.

The LRMC model uses strong locational signals, a principle which Network Users considered as being of limited use and not a significant factor in decision making (*please see Locational Signals principle one-pager*).

If you change just one of the inputs into the LRMC model it will not resolve all of the issues in the prices produced by the model, as any of the inputs can have a large impact on the range of prices. The LRMC model and the inputs into the model would need to be modified so much that it would result in a model that resembles the CWD model. Hence it has been agreed that further modelling and analysis for the selection of a Reference Price Methodology will be focussed on alternative models such as the CWD or PS model.

The table below shows the differences between the LRMC and CWD/PS models when considered against the relevant charging methodology objectives:

Relevant Objective	LRMC Identified impact	CWD and PS Identified impact
a) Save in so far as paragraphs (aa) or (d) apply, that compliance with the charging methodology results in charges which reflect the costs incurred by the licensee in its transportation business;	None	None
aa) That, in so far as prices in respect of transportation arrangements are established by auction, either: **(i) no reserve price is applied, or**	None	None

(ii) that reserve price is set at a level - **(I) best calculated to promote efficiency and avoid undue preference in the supply of transportation services; and** **(II) best calculated to promote competition between gas suppliers and between gas shippers;**		
b) That, so far as is consistent with sub-paragraph (a), the charging methodology properly takes account of developments in the transportation business;	Negative	Positive
c) That, so far as is consistent with sub-paragraphs (a) and (b), compliance with the charging methodology facilitates effective competition between gas shippers and between gas suppliers; and	None	None
d) That the charging methodology reflects any alternative arrangements put in place in accordance with a determination made by the Secretary of State under paragraph 2A(a) of Standard Special Condition A27 (Disposal of Assets).	None	None
e) Compliance with the Regulation and any relevant legally binding decisions of the European Commission and/or the Agency for the Co-operation of Energy Regulators.	None	None

The table below shows the differences between the LRMC and CWD/PO models against the stakeholder objectives which were developed within NTSCMF:

Objective	What does it mean to people?	LRMC Identified impact	CWD and PS Identified impact
Minimise Volatility	Minimise magnitude of changes within year; sensitivity of inputs in the overall reference price methodology and overall framework (inclusive of all adjustments, alternative products).	Negative	Positive
Predictability	Use of charges in their own charging frameworks, timing of changes and transparency. Including ability to understand methodology and reproduce/forecast charges.	None	Positive
Stability of Prices	Minimise magnitude of changes year to year, sensitivity of inputs in the overall framework	Negative	Positive
Fairness	Equitable treatment for users where appropriate; how the design and application of discounts, exemptions and alternative products is done.	None	None
Security	Promote competition, facilitate cross border trade and supply of gas from domestic and non-domestic sources. Charges should facilitate delivery of new and flexible supplies as well as demand side response.	None	None
Network Efficiency	Charges should encourage efficient use and operation of the system. In a future of falling demand, changing supply patterns and probable decommissioning of system points the charging framework should facilitate optimal utilisation of the network including delivery of new investment and signalling of redundancy.	None	None

Version Control

V1.0	Updated post 14.12.16 and 19.12.16 sub-group meeting and agreed at sub-group on 18.01.17