Gas TCMF Working Group Progress – March 2006

Gas TCMF

5th April 2006

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TCMF Progress

- **23rd February 06 - TCMF**
  - Ten key charging questions relating to Transmission Capacity Charging Methodology (LRMC Methodology) presented with options
  - Questions divided into Transport Model and Tariff Model

- **2nd March 06 - Working Group**
  - Transport Model Options discussed
  - Investigating potential enhancements to "Transcost" and alternative "simpler" models

- **9th March 06 – Working Group**
  - Tariff Model Options discussed
  - Assessing whether there are any better alternatives to the way in which the outputs from the Transport Model are used to derive tariffs
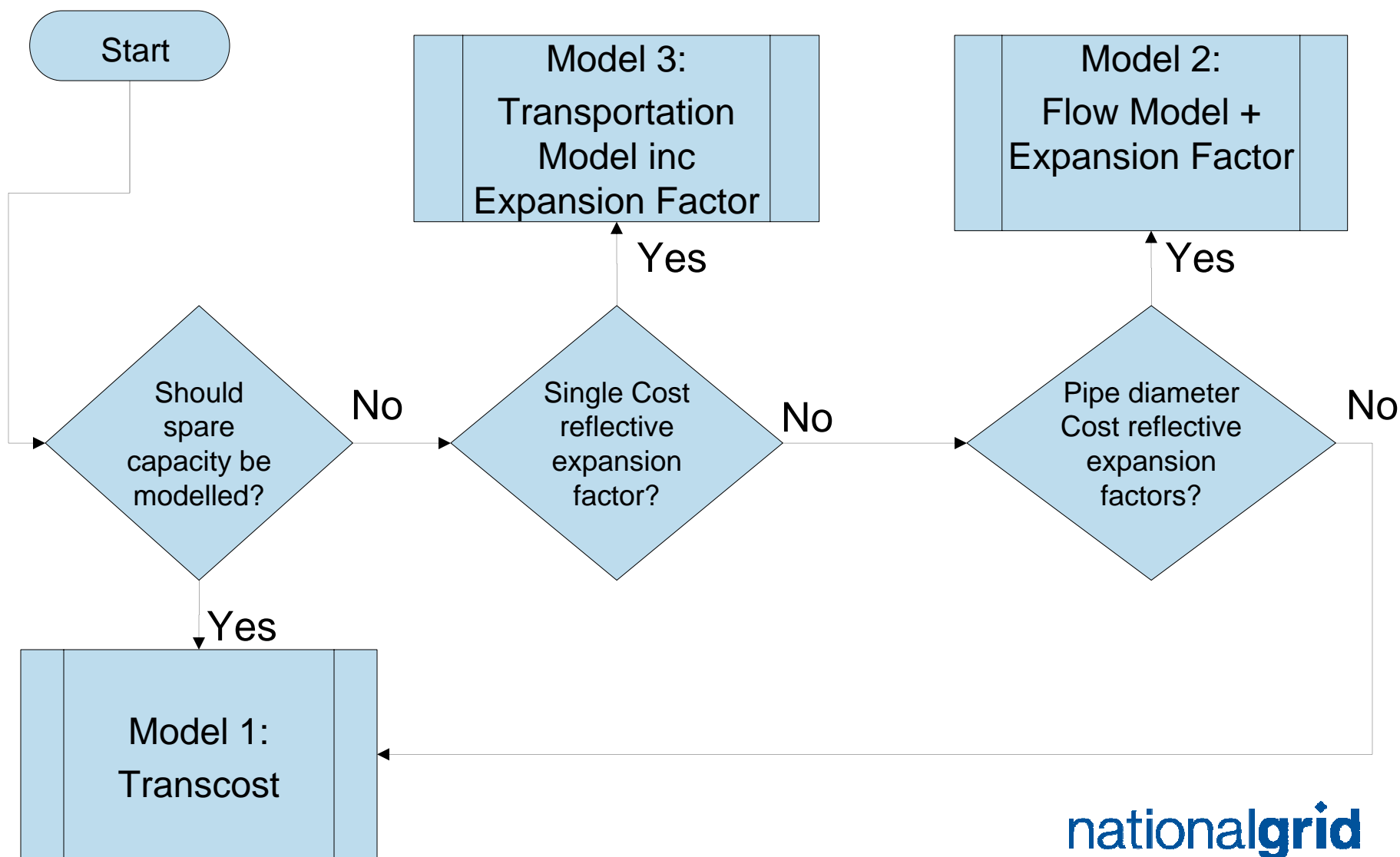
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Alternate Transport Models Summary

Scenario	Prevailing Exit (Transcost)	Model 1 (Transcost)	Model 2 (Transcost + Expansion Factor)	Model 3 (Transportation model + Expansion Factor)
1. S&D Scenarios: 1 Year or multiple Year?	10 Years	1 to 10 years	1 to n years	1 to n years
2. How should incremental costs be modelled?	Physical Flow Model	Physical Flow Model	Physical Flow Model	Transportation Model
	Physical Flow equation	Physical Flow equation	Physical Flow equation**	Shortest path
	Additional asset costs	Additional asset costs	Expansion constant	Expansion constant
3. How would spare capacity be treated?	Retained	Could be removed*	Would not be modelled	Would not be modelled
4. How would decrement (back flow) costs be treated?	Zero	Could be calculated	Negative expansion constant	Negative expansion constant

method to be defined – cap pressures or remove assets

**Incremental method to be defined – Identify route by adding minimum assets to maintain pressures or minimise pressure breaches*

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Transport Model Decision Route

Start

Should spare capacity be modelled?

— No → Single Cost reflective expansion factor?

— No → Pipe diameter Cost reflective expansion factors?

Yes ↑ Model 3: Transportation Model inc Expansion Factor

Yes ↑ Model 2: Flow Model + Expansion Factor

No

Yes ↓ Model 1: Transcost

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Transport Model Decision Route
Other factors

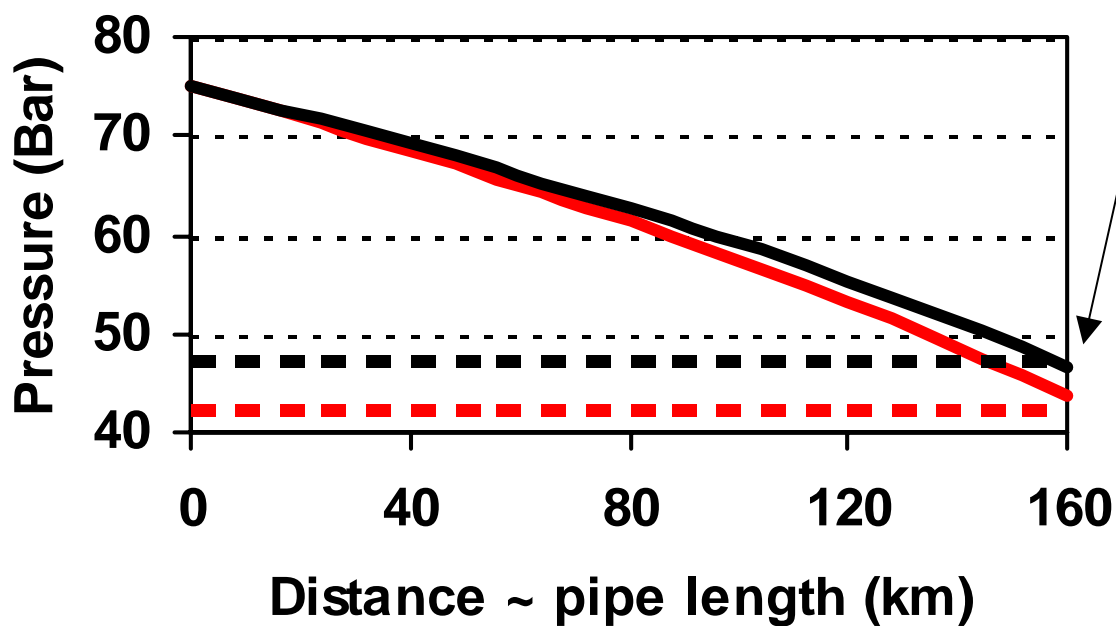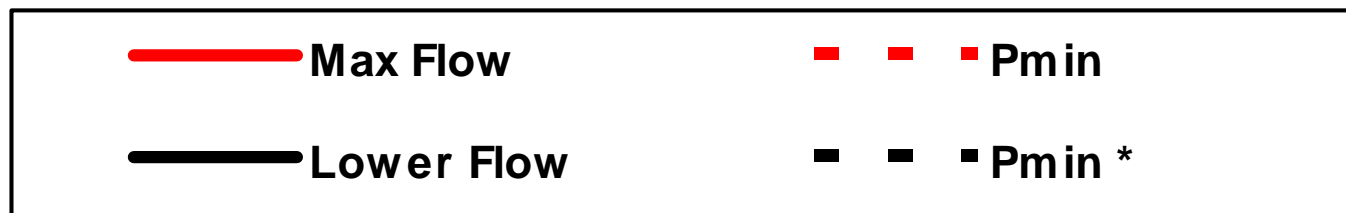| Model 1: Transcost | Model 2: Flow Model + Expansion Factor | Model 3: Transportation Model inc Expansion Factor |

Ease of use →

Transparency →

← Cost Reflectivity?

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Spare Capacity

- Spare Capacity might be identified as a result of
  - Declining beach flows
  - Economic investment:
    - Catering for growth for a number of years
    - Next higher pipe diameter
    - Next higher compressor unit power
  - Storage flows supporting extremity pressures
- Need to identify whether any individual element could be excluded with Transcost
  - Other models would exclude all spare capacity

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Spare Capacity

Legend: Max Flow, Pmin, Lower Flow, Pmin *

Y-axis: Pressure (Bar), values 40, 50, 60, 70, 80
X-axis: Distance ~ pipe length (km), values 0, 40, 80, 120, 160

- •Reduced Flow increases extremity pressures
- •Increasing min pressures within the model can remove "spare capacity"

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Alternate Transport Methodology Working Group Consensus

Issue	Working Group Consensus
1. S&D Scenarios: 1 Year or multiple Year?	Less than ten years to remove forecasting uncertainty & increase simplicity
2. How should incremental costs be modelled?	No opinion, although inclusion of spare capacity would indicate Transcost
3. How would spare capacity be treated?	Include "genuine spare capacity" within the Model
4. How would decrement (back flow) costs be treated?	Include within Model

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Alternate Tariff Methodology Working Group Consensus

Issue	Working Group Consensus
5. How should entry and exit costs be disaggregated?	Solver with 50: 50 constraint
6. How should negative costs be treated?	Removed as final step (Consider commoditisation of negative prices)
7. Should capacity charges be adjusted to 50:50 entry:exit and if so how?	Solver constraint
8. Are zones required?	Only if capacity is a zone based product
9. Are capacity charges adjusted to recover allowed revenue and if so how?	Where possible by adjustment, otherwise cost recovery via commodity based charges
10. Should year on year price changes be capped?	Retain: Potential to remove year-on-year capping but have capping based on forecast prices

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Summary of Options

Issue	Variant A (Status Quo)	Variant B	Variant C	C1/C2/C3
1. S&D Scenarios: 1 Year or multiple Year?	10 Years	<10	<10	<10
2. How should incremental costs be modelled?	Transcost	Transcost	Transcost	Transcost, Model 2 or 3
3. How would spare capacity be treated?	Include	Include	Include	Exclude**
4. How would decrement (back flow) costs be treated?	No Backhaul	No Backhaul	Backhaul*	Backhaul
5. How should entry and exit costs be disaggregated?	Solver with non-negative constraint	Solver 50: 50 Constraint	Solver 50: 50 Constraint	Solver 50: 50 Constraint
6. How should negative costs be treated?	Remove by Solver	Remove as final step	Remove as final step	Remove as final step
7. Should capacity charges be adjusted to 50:50 entry:exit and if so how?	Exit – Yes, Scaled Entry - No	By Solver	By Solver	By Solver

Backhaul could be modelled in Transcost by only considering forward flows.

*** Spare capacity could be removed in Transcost by capping pressures.*

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Options

Option A (Status Quo)	Option B	Option C	Option D	Option E	Option F
10 year forecast	1 to n (<=10) year forecast				
Transcost				Flow Model + Expansion Factor	Transportation Model + Expansion Factor
Spare Capacity			No spare capacity		
No Backhaul	Backhaul benefit				
Solver (non-negative constraint)	Solver 50: 50 Constraint remove negative prices as final step (Consider commoditisation of negative prices)				
Zoning, Capping and Revenue Recovery method depend on the capacity product					

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Analysis Requirements

Generate 2006 LRMC Entry and Exit Prices

Option A (Status Quo)	Option B	Option C	Option D	Option E*	Option F
Transcost				Flow Model + Expansion Factor	Transportation Model + Expansion Factor
"No change"	➢1 and 10 year forecast ➢revised solver	➢ 1 and 10 year forecast ➢revised solver ➢forward flows only	➢ 1 and 10 year forecast ➢revised solver ➢forward flows only ➢remove spare capacity		
May 06				Aug 06 (Earliest)	May 06

*Potentially discount as non-optimum

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