

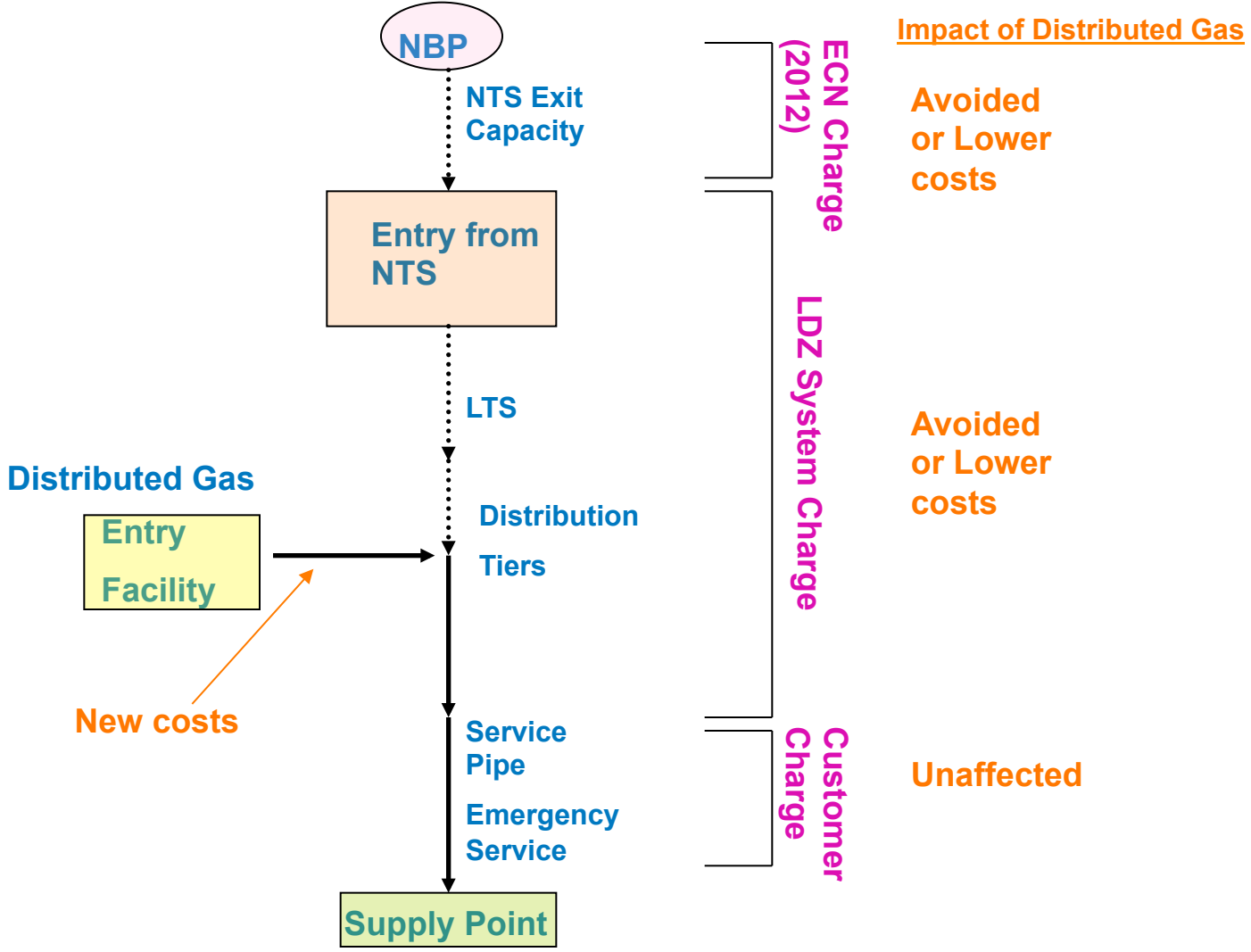
Detailed Charging Proposals for DN Entry Under Option 3 (shallow boundary with entry charge)



Steve Armstrong

15 November 2011

Transportation of Distributed Gas



Which costs are Incurred by each Party?

- Connectee

- Gas production facilities
- Connection pipe
- CV enrichment

- To be determined?

- Pressure/Flow control
- Metering
- Odorant Injection
- Shut-off valve
- Telemetry and control equipment

- Distribution Network

- Network reinforcement or within –network compression
- Additional network opex

Issues being considered by EMIB Expert Group

What cost variations would be taken into account under Option 3 for Distributed Gas?

- Deemed Reduction in NTS Exit Capacity bookings
 - Difficult to relate precise changes in bookings to individual Distributed Gas connections
 - Provide credit or allowance based on average NTS Exit capacity unit cost
 - Use “Reliability Factor” for Distributed Gas to take into account uncertainty of Distributed Gas for meeting peak requirements?
 - Any credits provided would be included in costs covered by new supply point-based LDZ ECN charge

- Lower Usage of network pipeline tiers
 - Current LDZ System functions assume gas enters from NTS
 - Average cost of use of each pressure tier determined in DNPC08 analysis underlying current charges
 - Take account of actual tier of connection and hence tiers not utilised for Distributed Gas?
 - Alternatively, use simplified approach to determine standard credit/allowance for typical lower tier utilisation?

- Variation in Entry equipment costs between NTS-DN offtakes and Distributed Gas entry points
 - Should cost variations be taken into account or just be included in LDZ System costs as at present?
 - Unit capacity costs of equipment for Distributed Gas likely to be considerably higher than for NTS-DN offtakes
 - Due to loss of economies of scale
 - But DN costs could be lower if provided by connectee at Distributed Gas entry points

- Specific Reinforcement or (if feasible) within network compression and additional operating costs for Distributed Gas
 - Could be specific costs to enable Distributed Gas to flow at all times
 - Should these be assessed on case-by-case basis or use some simplified approach?

Entry Credit for Deemed Reduction in NTS Exit Capacity Requirements

- Calculate Average LDZ ECN charge for each DN
 - Difficult to link to particular offtake or zone
- Apply a Reliability Factor
 - Suggest same factor is used for each type of entry facility
 - Use same factor for all entry types until experience gained?
 - Basis of factor?
- Example for West Midlands DN

October 2012 Indicative ECN Charges

WM1: 0.0181 p/pdkWh/d

WM2: 0.0152 p/pdkWh/d

WM3: 0.0115 p/pdkWh/d

Weighted Average DN ECN charge: 0.0152 p/pdkWh/d

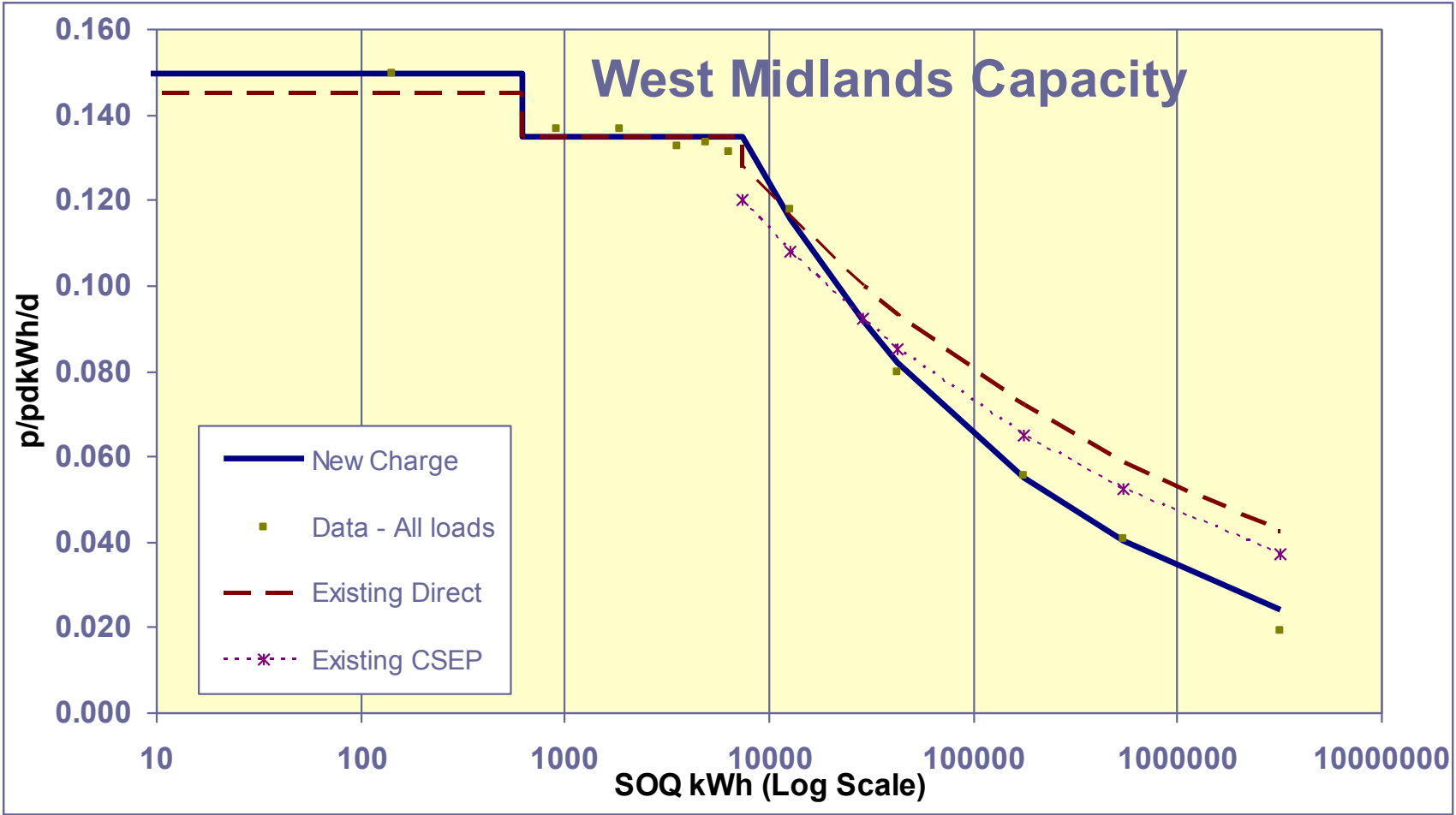
Reliability Factor: 80%

Entry credit = 0.0122 p/pdkWh/d

Entry Credit for Reduced Usage of LDZ System Tiers

- LDZ System charges assume typical usage of system tiers by gas entering from NTS
- Appropriate to give Entry Credit for DN Entry for reduced usage of tiers
 - Based on cost-reflectivity of usage of existing assets
 - Not related to avoided costs
- New LDZ System charges from April 2012
 - Based on DN-specific costs
 - Assumed higher tier usage similar for different Supply Point sizes

New LDZ System Capacity Charge



Derivation of Credit for Reduced System Tier Usage

- Higher tier usage consistent for different load sizes

Assumed Tier Usage Costs for 3 Load Sizes: Capacity Charge			
Tier	0 - 73.2 p/pdkWh/d	732-2931 p/pdkWh/d	14,654-58614 p/pdkWh/d
LTS	0.0165	0.0165	0.0165
IP	0.0037	0.0037	0.0038
MP	0.0260	0.0259	0.0253
LP	0.1196	0.0843	0.0158
TOTAL	0.1658	0.1305	0.0615

- Proposal: Use figures for 0-73MWh analysis
- Credit related to costs of higher pressure tiers above the tier of connection

Derivation of Credit for Reduced LDZ System Usage (ctd)

	Usage Costs	Proposed Credits (WM)	
	0 - 73.2	Connection	Credit
Tier	p/pdkWh/d	Tier	p/pdkWh/d
LTS	0.0165	LTS	0
IP	0.0037	IP	0.0165
MP	0.0260	MP	0.0202
LP	0.1196	LP	0.0462
TOTAL	0.1658		

- Credit based on sum of typical usage costs for higher pressure tiers
 - Should some credit be provided for LTS connection?
- Approximately 70% of LDZ System charges relate to Low Pressure tier costs
 - Should there be any credit for lower LP tier usage be given?
 - Should we take into account precise pressure tier of connection?
- Similar credit applied in respect of LDZ System commodity usage

Entry Charge for Entry Facility Costs

- Where DN provides and operates the entry facility covering Pressure/Flow control, Metering, Odorant Injection, Shut-off valve, Telemetry and control equipment

Potential Entry Facility Costs	
Capital Cost	£500,000
Annuitisation factor (6% for 20 years)	11.47
Annuitised capital cost	£43,592 per annum
Opex % of capital (guess)	2%
Opex	£10,000 per annum
Total annuitised cost	£53,592 per annum

- Charge as fixed cost per annum or convert to capacity charge?

Entry Charge for Network Reinforcement or Compression

- Where DN undertakes pipeline reinforcement or installs within-network compression so as to enable gas to be entered into system

Potential Network Compression Costs	
Capital Cost	£150,000
Annuitisation factor (6% for 20 years)	11.47
Annuitised capital cost	£13,078 per annum
Opex % of capital (guess)	10%
Opex	£15,000 per annum
Total annuitised cost	£28,078 per annum

- Charge as fixed cost per annum or convert to capacity charge?
- Opex has large fixed maintenance element so keep as fixed?

Example of Potential Entry Charge

Example for Biomethane Facility Entry

Assumptions

Biomethane Flow Facility	500 m3 per hour
Annual Flow	44,000 MWh/annum
Assumed Load Factor	90%
Entry Capacity	133.9 MWh/day
Connection at Low Pressure tier	
DN operates full entry facility; no DN reinforcement or compression	

	Charge	Per annum
Entry facility cost	0.1096 p/pdkWh/d	£53,592
NTS exit capacity credit	-0.0122 p/pdkWh/d	-£5,945
LDZ System usage credit (capacity)	-0.0462 p/pdkWh/d	-£22,593
LDZ System usage credit (commodity)	-0.0077 p/kWh	-£3,385
Total Charge		£21,669

- Should individual charge elements be updated each year in line with other transportation charges?
- Should capacity basis be fixed at the time of connection?
- Is it worth having a separate commodity credit element for system tier usage?
- Should all charges be converted to equivalent fixed elements at the time of connection based on parameters at that time so that a single fixed charge or credit can be invoiced?