



# Review of the Determination of Daily Calorific Values

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**Distribution Workstream, 26<sup>th</sup> March 2009**

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# Background

**Calorific Value (CV) is a measure of the energy contained within a volume of gas**

**How are applicable daily CVs determined?**

- ◆ NTS System Exit Points – site specific measurement
- ◆ DN System Exit Points – Flow Weighted Average CV (FWACV) methodology

**Calculated within each charging zone in accordance with the Gas (Calculation of Thermal Energy) Regulations 1996 as the lowest of:**

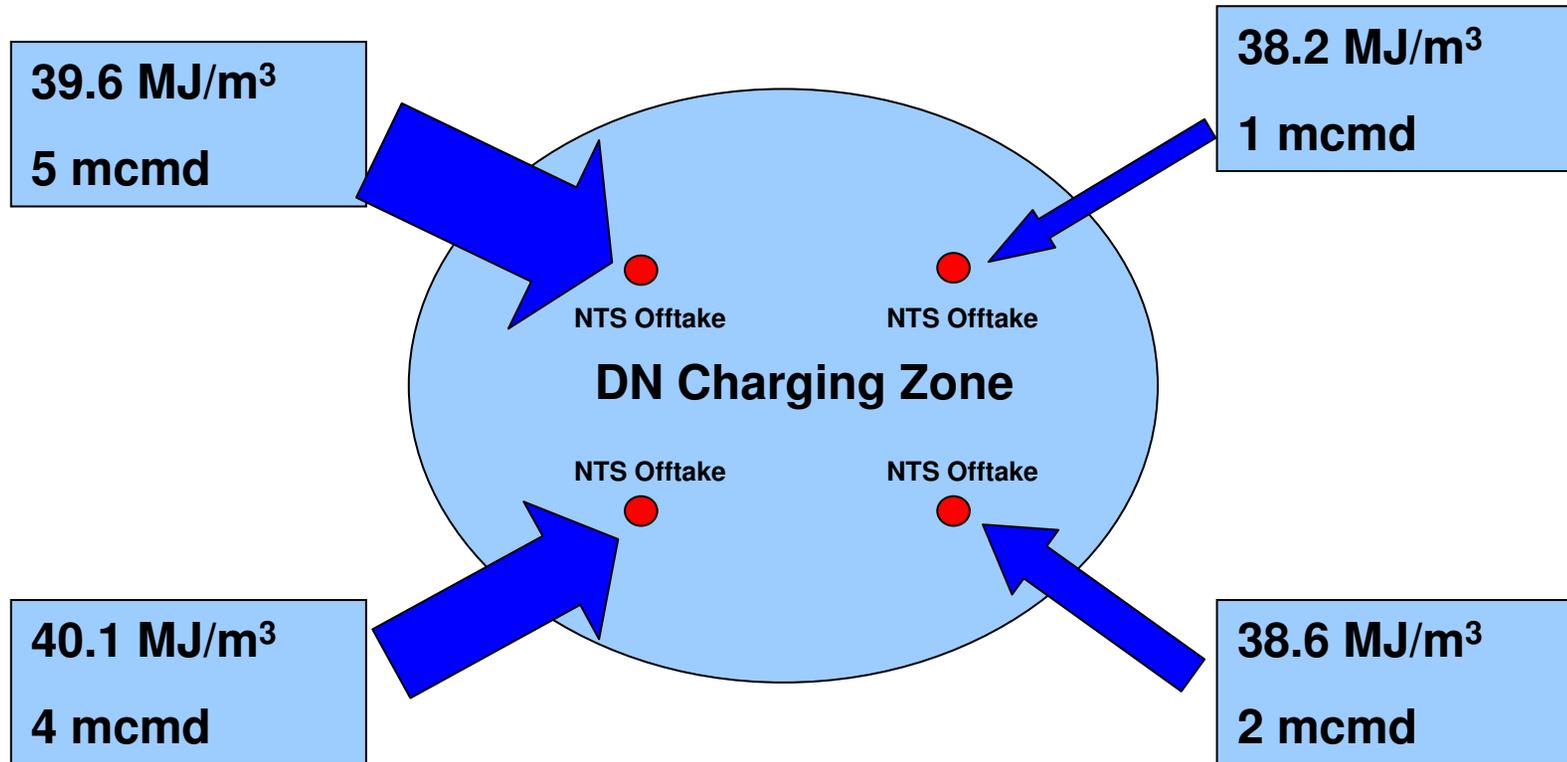
- ◆ FWACV across all inputs to the DN charging zone
- ◆ Lowest average CV at any single input to the DN charging zone, plus 1MJ/m<sup>3</sup>

**Protects consumers by effectively capping billable CV at a maximum of 1MJ/m<sup>3</sup> above the lowest source of energy into a charging zone**

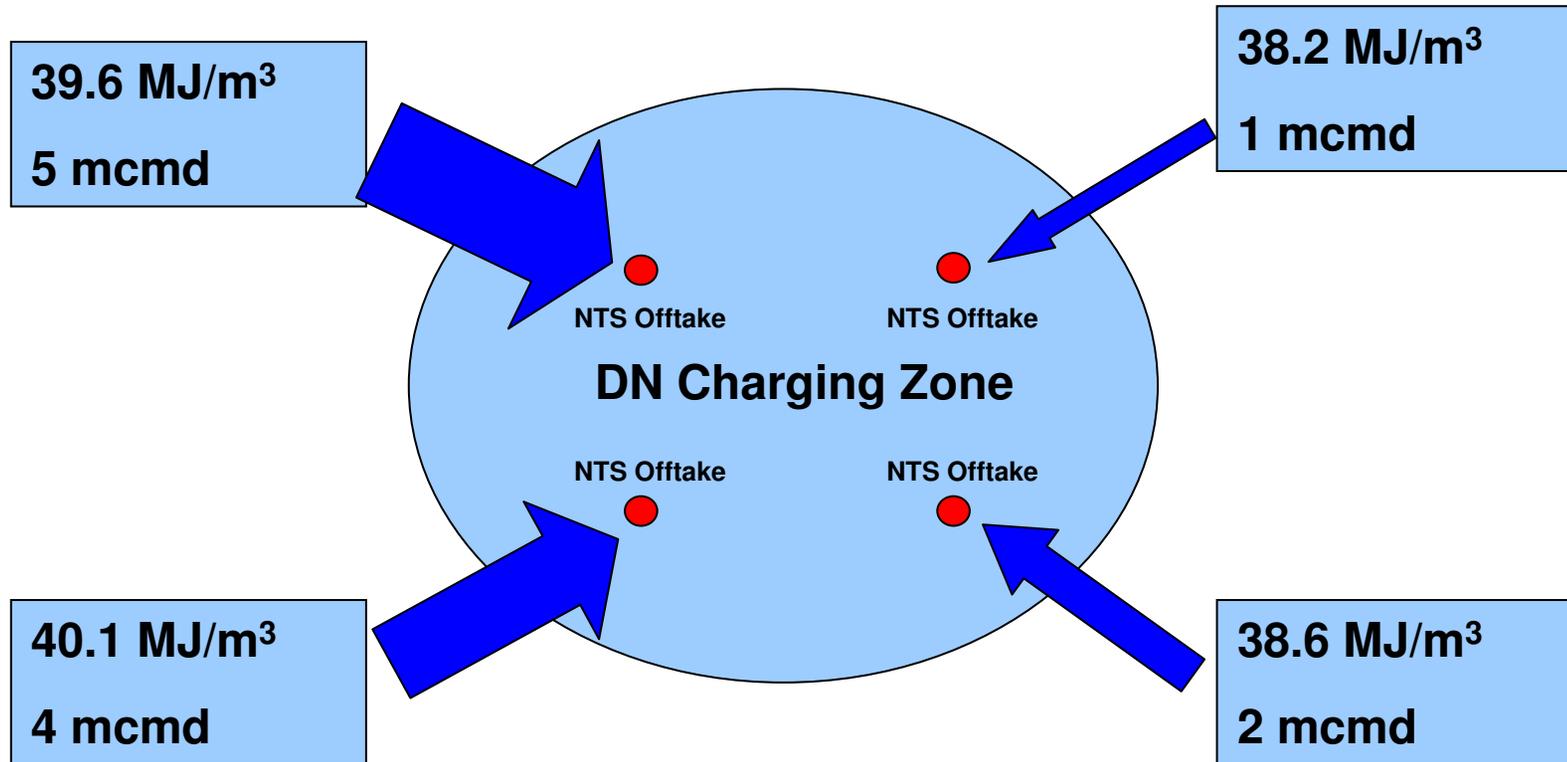
**Measured energy - billable energy = unbilled energy (CV shrinkage)**

- ◆ NTS SO procures CV shrinkage

# FWACV Capping Example



# FWACV Capping Example



$$\text{FWACV} = \frac{(39.6 \times 5) + (38.2 \times 1) + (38.6 \times 2) + (40.1 \times 4)}{(5 + 1 + 2 + 4)} = 39.5 \text{ MJ/m}^3$$

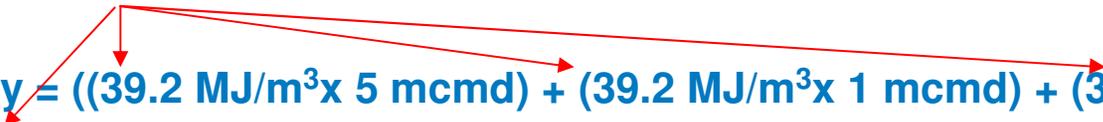
# FWACV Capping Example

**FWACV Energy = ((39.5 MJ/m<sup>3</sup>x 5 mcmd) + (39.5 MJ/m<sup>3</sup>x 1 mcmd) + (39.5 MJ/m<sup>3</sup>x 2 mcmd) + (39.5 MJ/m<sup>3</sup>x 4 mcmd))/3.6 = 131,666,667 kWh**

**Lowest source daily CV = 38.2 MJ/m<sup>3</sup>**

**Applicable cap = 39.2 MJ/m<sup>3</sup>**

**Billable Energy = ((39.2 MJ/m<sup>3</sup>x 5 mcmd) + (39.2 MJ/m<sup>3</sup>x 1 mcmd) + (39.2 MJ/m<sup>3</sup>x 2 mcmd) + (39.2 MJ/m<sup>3</sup>x 4 mcmd))/3.6 = 130,666,667 kWh**



**Unbilled Energy (CV Shrinkage) = 1,000,000 kWh**

# Why the Review?

## Potential drivers for increased CV variances in the future

### 1) Increasing diversity of UK supplies:

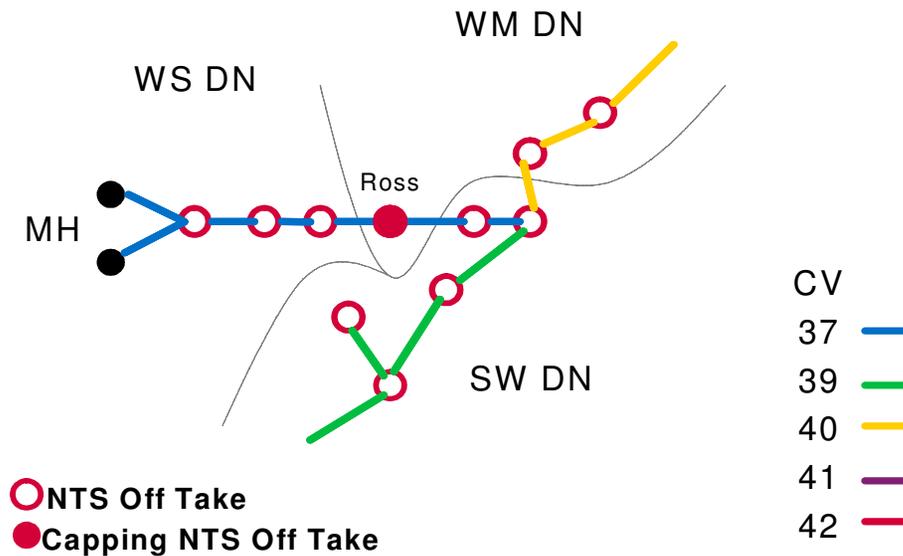
- ◆ LNG Importation, marginal UKCS fields, biogas, coal-bed methane, etc.

### 2) Changing network topology:

- ◆ Historically, UKCS gas flowed North to South, East to West
- ◆ New world has major supplies in the South (Milford Haven, Grain LNG, etc.)

**We believe there is increased potential to trigger CV capping, thereby generating higher levels of unbilled energy**

# Milford Haven Low CV Scenario



**Up to 707 GWh per annum of CV shrinkage could result from this scenario\***

- @30p/therm = £7.2M cost of gas procurement per annum

**CV shrinkage costs are shared between shippers and NG NTS (SO incentive)**

**However, where the NTS SO has no mitigating tools,\* shippers would fund 100%**

\* [www.nationalgrid.com/uk/Gas/soincentives/archive/National Grid Gas and Electricity System Operator Incentives Initial Proposals Consultation](http://www.nationalgrid.com/uk/Gas/soincentives/archive/National%20Grid%20Gas%20and%20Electricity%20System%20Operator%20Incentives%20Initial%20Proposals%20Consultation), 7<sup>th</sup> Dec 2007, p53-56.

# Regulatory Context

**National Grid NTS first contemplated a review of the FWACV rules in December 2007\***

**Ofgem, BERR and others have subsequently indicated their support for a review of the FWACV regime\*\***

**Ofgem recently urged National Grid NTS, DNOs and shippers to progress this review\*\*\***

\* [www.nationalgrid.com/uk/Gas/soincentives/archive/National Grid Gas and Electricity System Operator Incentives Initial Proposals Consultation](http://www.nationalgrid.com/uk/Gas/soincentives/archive/National%20Grid%20Gas%20and%20Electricity%20System%20Operator%20Incentives%20Initial%20Proposals%20Consultation), 7<sup>th</sup> Dec 2007, p.55

\*\* [www.nationalgrid.com/uk/Gas/soincentives/docs/NGG \(NTS\) - Consultation on Shrinkage and Residual Balancing Incentive Issues](http://www.nationalgrid.com/uk/Gas/soincentives/docs/NGG%20(NTS)%20-%20Consultation%20on%20Shrinkage%20and%20Residual%20Balancing%20Incentive%20Issues), 22<sup>nd</sup> August 2008, p.51 and [www.ofgem.gov.uk/CustomPages/Pages/ArchivedPublications.aspx](http://www.ofgem.gov.uk/CustomPages/Pages/ArchivedPublications.aspx), NGET and NGG System Operator Incentives from 1 April 2009, 27<sup>th</sup> February 2009, p.35.

\*\*\* [www.gasgovernance.com/Code/Modifications/ClosedMods/CM231-240](http://www.gasgovernance.com/Code/Modifications/ClosedMods/CM231-240), Modification Proposal 0236, "Amendment to Px (TGPP) Limited Network Entry Agreement", Ofgem decision letter, 27<sup>th</sup> January 2009, p.4

# Review of CV Calculation Methodology

## We propose setting up a UNC Review Group to:

- ◆ Review the existing arrangements
- ◆ Identify tenable future supply scenarios
- ◆ Consider the issues which impact the accuracy of actual energy delivered vs. energy billed
- ◆ Develop potential solutions and potentially propose methodology changes

## UNC Review Proposal and draft Terms of Reference to April Modification Panel

## Review Group to report in Autumn 2009