Gas System Operator

Modification 0712: Amending the Oxygen Limit in the NEA at the St Fergus SAGE Plant

NTS Penetration Analysis

Transmission Workgroup

9th January 2020

nationalgrid

Mod 0712: NTS Penetration Analysis

National Grid NTS annually performs a two part process to inform the long term (10 year) adequacy, utilisation and development needs of the NTS pipeline network

- Industry consultation via Future Energy Scenarios (FES) to help to define scenarios of future flow into and out of the NTS
- Modelling of gas flows within the NTS network which may arise from these future scenarios. The results of this analysis are summarised in the Gas Ten Year Statement

The results of the 2019/20 cycle of this modelling were examined for the Ancala entry point for gas years:

- 2019/20
- 2025/26
- 2030/31

NTS Penetration Analysis: Gas Year 2019/20

The heat maps in slide 4 show the ranges of penetration of Ancala gas into the NTS under peak and low demand conditions for the 2019/20 network

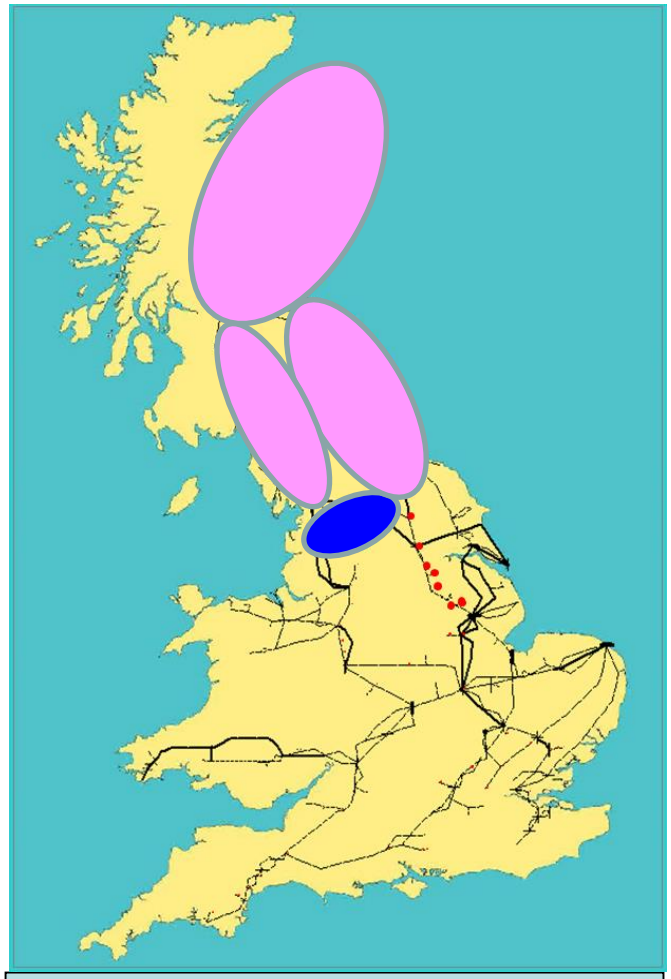
- Peak scenario uses FES forecast under which Ancala gas comprises ~15ppm of total St Fergus supplies
- Low demand scenario assumes Ancala gas comprises ~25% of total St Fergus supplies (equal to the 2019 summer average)

Assumptions:

- Ancala entry flows contain 100ppm of oxygen content
- NSMP and Shell entry points flow with no oxygen content

Therefore, post-comingling in the NG terminal, ~15ppm (peak case) and ~25ppm (low demand case) of oxygen would enter the NTS pipelines at St Fergus

Heat Maps: Gas Year 2019/20



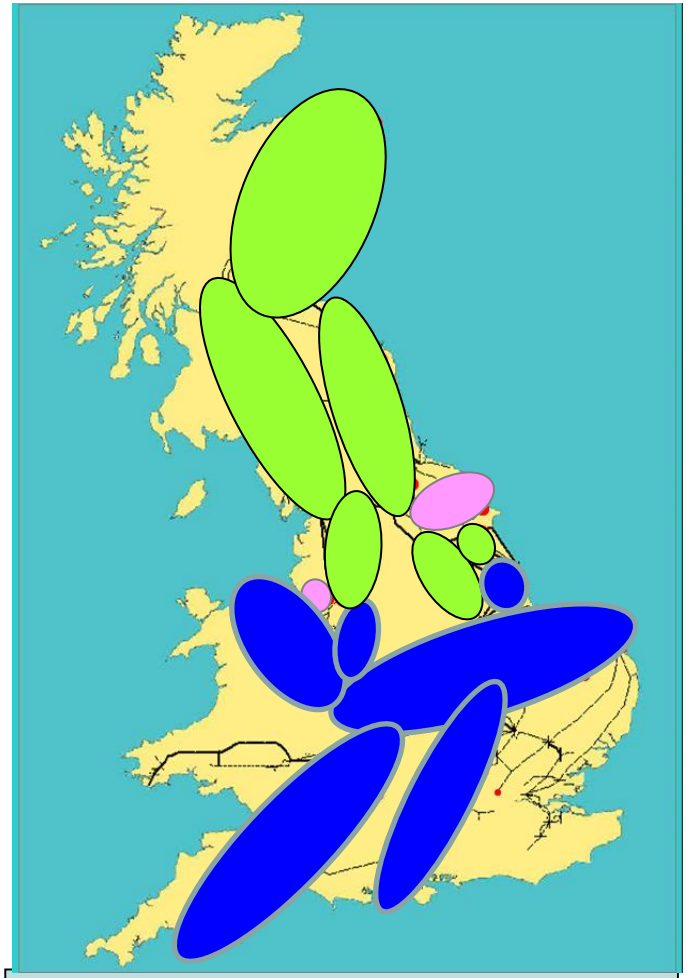
HIGH DEMAND
(High Winter 1-in-20)

15% to 25% Ancala Gas

10% to 15% Ancala Gas

5% to 10% Ancala Gas

< 5% Ancala Gas



LOW DEMAND
(Typical Summer day)

NTS Penetration Analysis: Gas Years 2025/26 & 2030/31

The heat maps on slide 6 show the ranges of penetration of Ancala gas into the NTS under peak and low demand conditions for a combination of the 2025/26 and 2030/31 networks

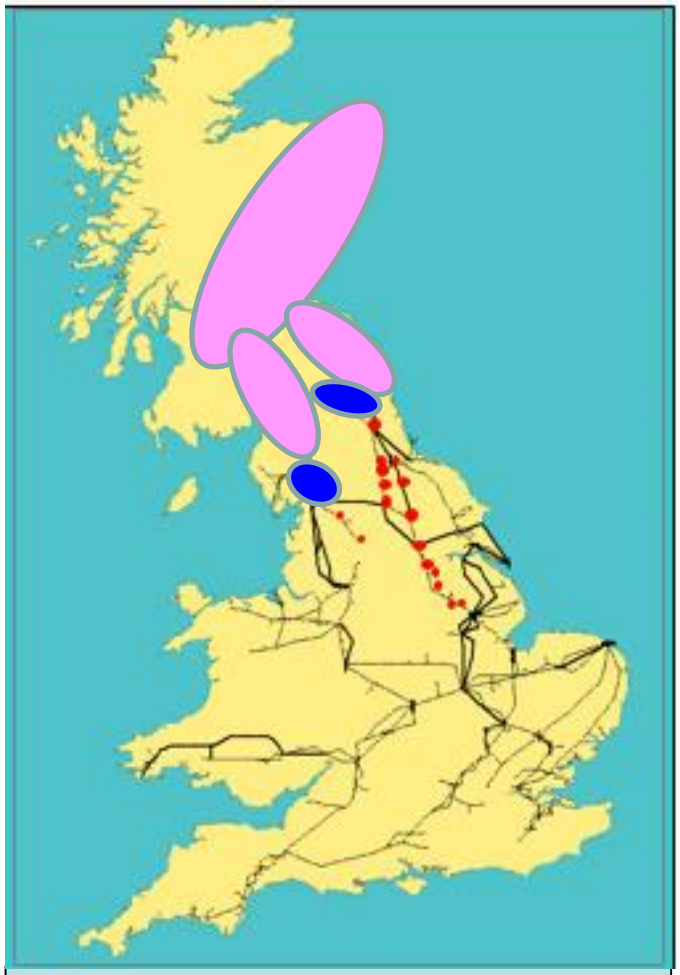
Ancala gas is forecast to contribute ~14% to total St Fergus supplies

Assumptions:

- Ancala entry flows contain 100ppm of oxygen content
- NSMP and Shell entry points flow with no oxygen content

Therefore, post-comingling in the NG terminal, ~14ppm of oxygen content would be expected to enter the NTS pipelines at St Fergus

Heat Maps: 2025/26 and 2030/31 FES Networks



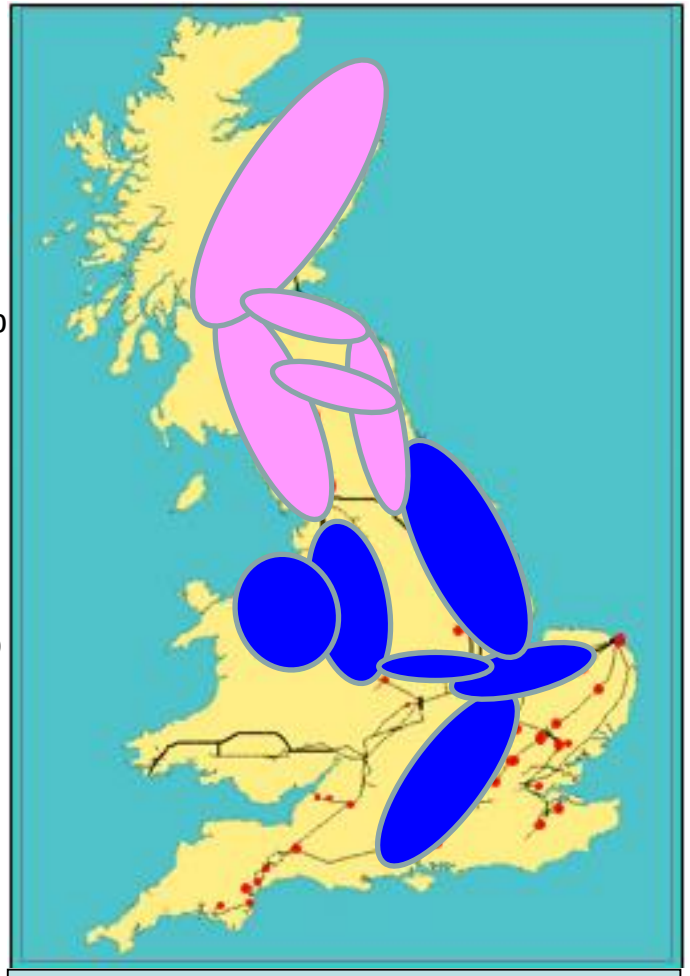
HIGH DEMAND
(High Winter 1-in-20)

>14% Ancala Gas

10% to 14% Ancala Gas

5% to 10% Ancala Gas

< 5% Ancala Gas



LOW DEMAND
(Typical Summer day)

Conclusions

Over the next 10 years, penetration of Ancala gas into the network is expected to be greater in summer than winter

Ancala gas is expected to be consumed / comingled with other NTS supplies as it travels south such that:

- Under a peak scenario, Ancala gas is not present beyond the north of England
- Under a low demand scenario, a small percentage of Ancala gas would penetrate to southern areas

The proposer does not expect oxygen content to exceed 70ppm in reality

The incremental oxygen content that may arise in the network due to Mod 0712 is expected to be relatively small