



# SALTFLEETBY GAS FIELD.

**UK Onshore Production**

**December 2019**



## National Grid Feasibility Study

- National Grid carried out a feasibility study for the proposed re-connection to the Theddlethorpe Gas Terminal (TGT)
- 9 Options were considered, and the most practical option was chosen
- The subsequent **Detailed Design phase** has begun

## Competent Persons Report (CPR)

- A **CPR** is currently in progress and expected to be completed early next year
- The CPR will provide accurate volumetric calculations and flow rate forecasts for the field
- Preliminary results suggest numbers should be *at least* as good as presented in these initial forecasts

## Field Development Plan (FDP)

- An updated FDP has recently been completed proposing a 3-phase development plan for the field, which will be submitted to the OGA
- Further work will be carried out to explore upside potential



Image of Saltfleetby site B with proposed new processing facilities highlighted

# SALTFLEETBY GAS FIELD

Stable gas/condensate production from large onshore field...

**Two Existing Sites with Production Facilities Installed**

## EAST MIDLANDS

The Saltfleetby Gas Field is located onshore UK at the western extent of the Humber Basin, in the **PEDL005** licence area.

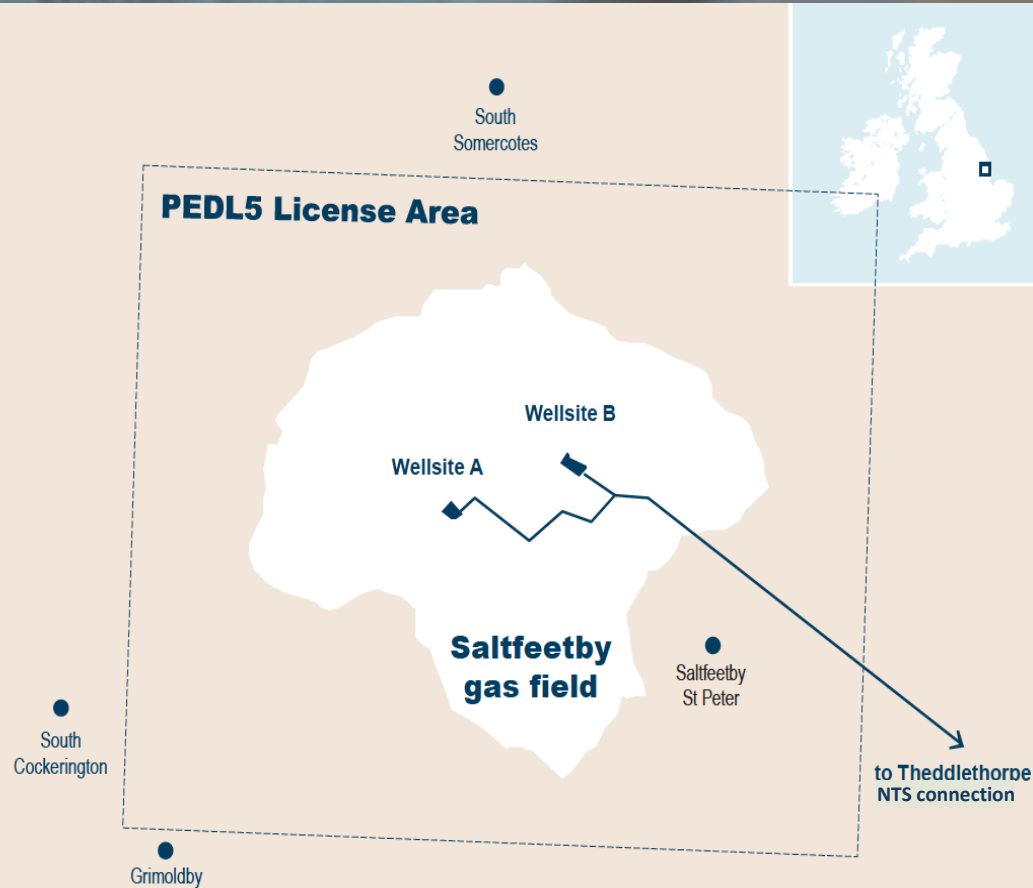
## PRODUCING GAS TO POWER HOMES & BUSINESSES ACROSS THE UK

Before gas was extracted from Saltfleetby, it was the **largest onshore gas field in the UK**.

Recent stable production rates suggest field life should be able to be extended into the future.

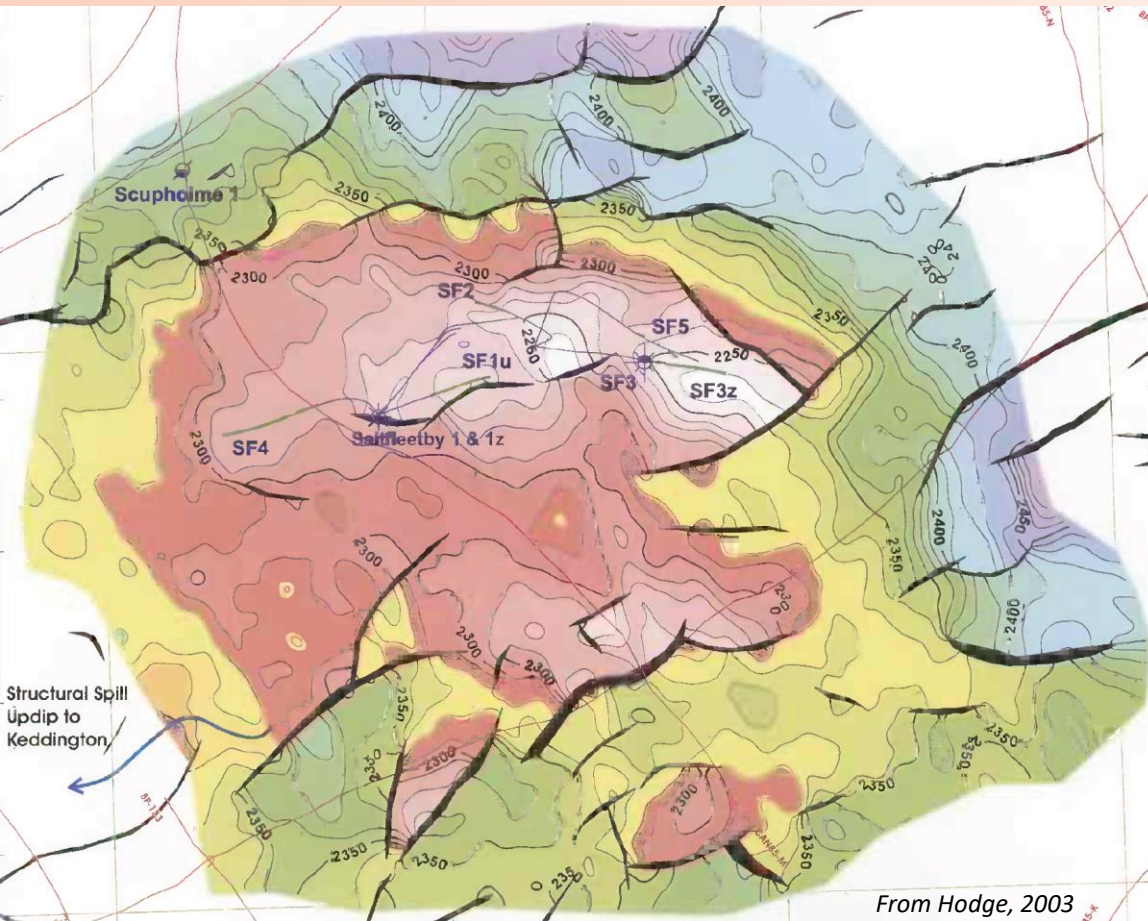
## LOCAL FACILITIES

**NTS Theddlethorpe** - Connection to the National Grid is just 10km away, via a short pipeline already in place.





# SALTFLEETBY - Structure



## Potential Upside

### Untapped Fault Blocks within structure

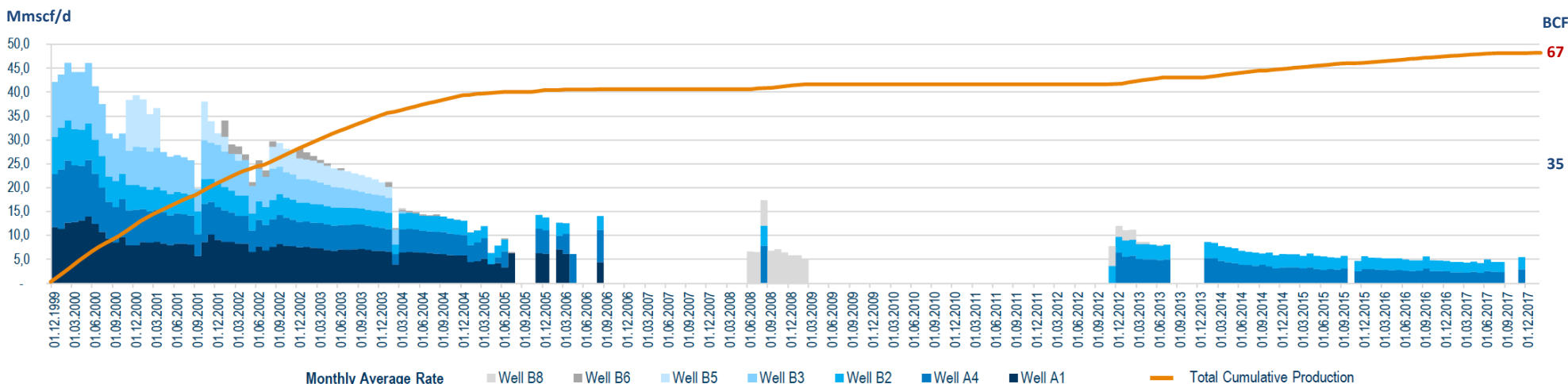
- **8 wells already drilled** with 7 completed and licensed for production – near horizontals (2 with full core available)
- **Proven reservoir** comparable with other established oilfields in East Midlands Basin. **Multiple sources of hydrocarbons** including Westphalian coals and organic rich basinal mudstones
- **3D seismic block** acquired in 1997-98 with reprocessing in 2003 – high degree of confidence in structural mapping of the field
- Faulting evident leaving good chance of further prospectivity in untapped blocks – **providing new drilling opportunities**

## Further Prospectivity

Potential further upside in structures to the South and North West – drilling opportunities

# SALTFLEETBY - Production

## Saltfleetby field gas production



## HISTORY OF SUCCESS

- Commercial discovery was made in 1996 after re-entering an exploration well drilled in 1986
- The field was put on stream in December 1999 producing from Early Westphalian sandstones at a depth of 2300m
- In total **8 wells and several sidetracks** have been drilled since production first commenced
- Full delineation of field from 3D seismic mapping indicated an in-place estimate of **114 BCF\* of gas**

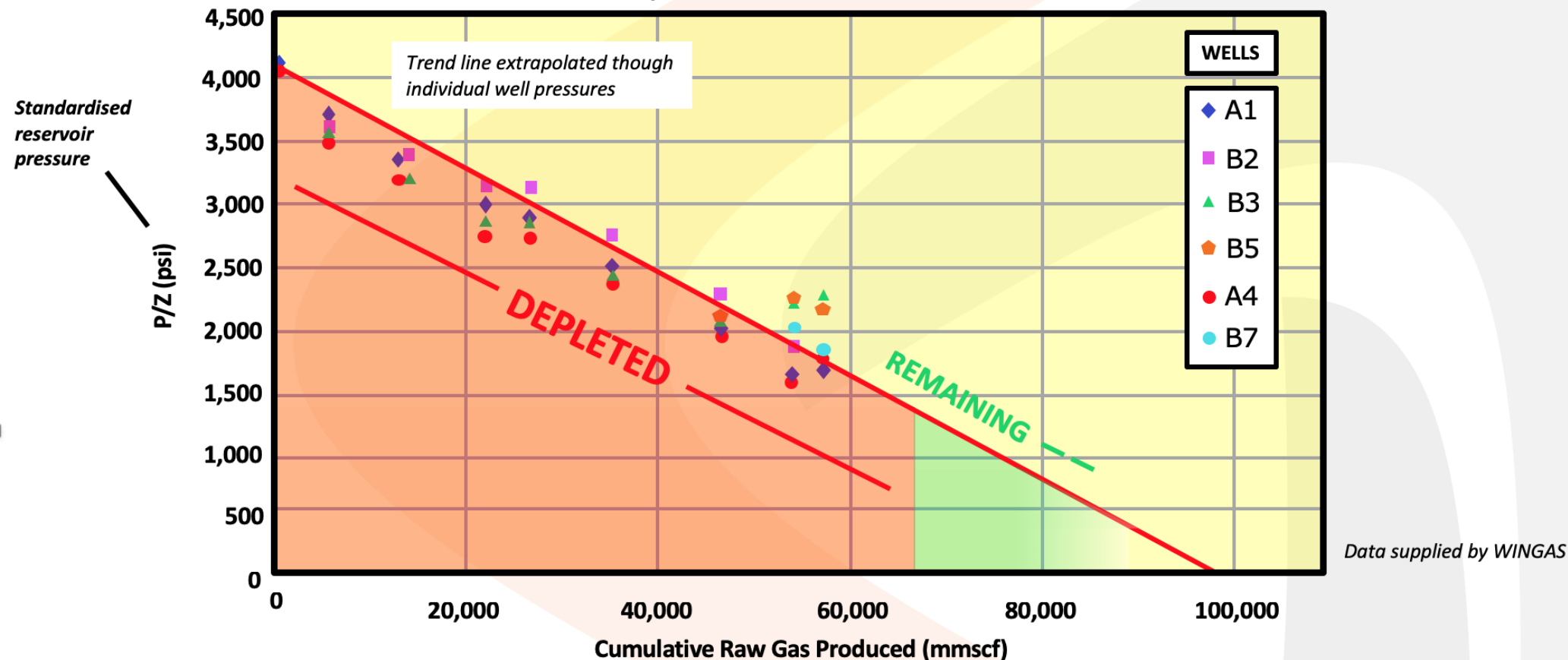
(Source: \*Hodge, T. "The Saltfleetby Field, block L 47/16, licence PEDL 005, onshore UK." *Geological Society, London, Memoirs* 20.1 (2003): 911-919.

## FUTURE POTENTIAL

- According to a Field Development Plan prepared for submission to the OGA in 2016, an estimate of an additional **12.7 BCF should be recoverable** from 2 remaining wells in production
- Last producing from 2 wells at approximately **5mmscf/d** when production shut in end of 2017
- 67 BCF of dry gas** already produced from Westphalian reservoir with an additional **1.1mmbls** of gas condensate
- In Angus' view, with additional workovers and sidetracks, along with optimisation of compression, **ultimate recovery could be increased further**

# SALTFLEETBY - Production

Westphalian Main Structure P/Z Plot



## Reservoir Pressure Monitoring

Individual well pressure data suggests that a substantial amount of remaining gas should be recoverable. Angus have considered two future production profiles based on past production trends (see next slide). These indicated that **10 -18 BCF** of gas could be recoverable over a 10 -12 year period. Additionally **100,000-180,000 bbls of gas condensate** would also be recoverable.

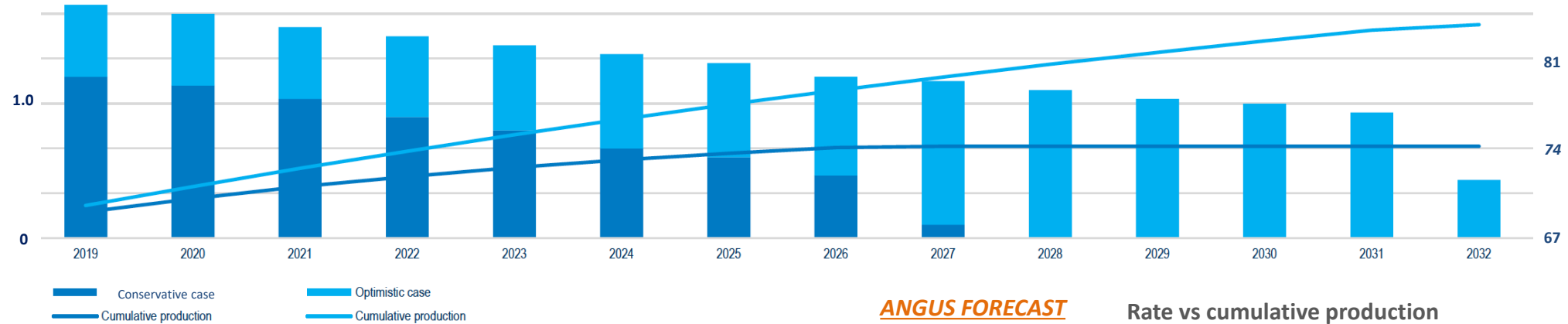
\*Ultimate recovery will be dependant on future gas price economics and reservoir performance

# SALTFLEETBY – Forecast

BCF  
2.1

## WINGAS FORECAST

BCF  
88



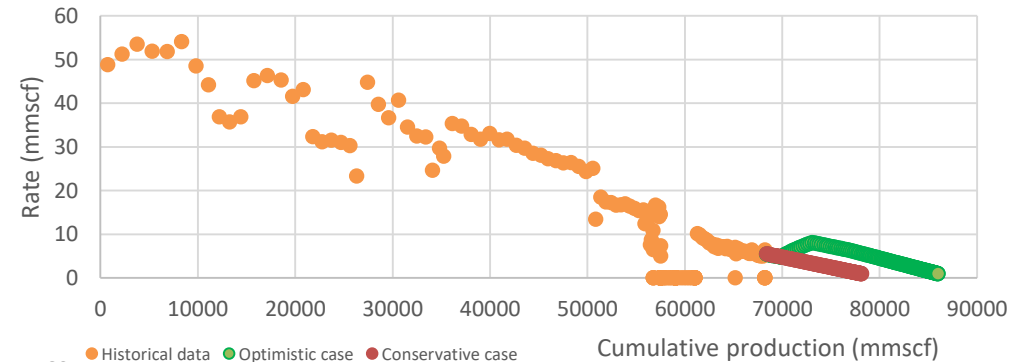
## PRODUCTION FORECAST

- WINGAS forecast scenario similarly in line with Angus' internal analysis from historical production data.
- Conservative scenario assumes unconstrained production with 2 wells running. Decline rate (c. 15%) based on historical production.
- Optimistic case assumes workover activity and bringing new wells online shortly after production start up. Decline rate based on historical production with this number of wells prior to consideration of field for gas storage.
- Under the conservative scenario, the field appears capable of producing 10 BCF over the next 10 years. The optimistic case indicates a **production of 18 BCF over 12 years**.

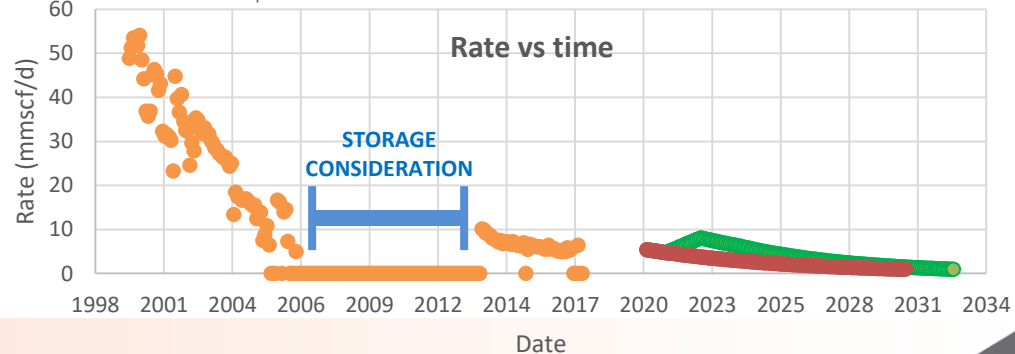
\*Ultimate recovery may extend beyond that period, and will be dependent on future gas price economics and reservoir performance

## ANGUS FORECAST

### Rate vs cumulative production



### Rate vs time



# SALTFLEETBY – Economics

VALUE	CONSERVATIVE (10YR)	OPTIMISTIC (12Y)
Gas volume (mmscf)	10000	18000
Gas volume (mm therms)	100	180
Gross value gas (£M)	50.03	90.54
Condensate volume (kbls)	100	180
Gross value condensate (£M) Value condensate = £38/bbl	3.80	6.84
Angus net share (51%)	<b>£27.4 M</b>	<b>£49.6 M</b>

ESTIMATED OPERATING COSTS		COST
<b>Fixed OPEX</b> including staff, contractors, rent, maintenance, security, insurance and licence fees		£1,000,000/annum
<b>Variable OPEX</b> Including:	<b>Condensate trucking</b>	£8.40/bbl
	<b>NTS Transmission costs</b>	£38,000/month
	<b>Water disposal</b>	£49.00/bbl

\*NTS Entry & Commodity charges estimated at £38k/month based on rate of 5.5mmscf/d

NET CASHFLOW (£M)	2020 H2	Y2	Y3	Y4	Y5	Y6 (2025)
CONSERVATIVE	1.8	3.7	3.0	2.4	1.9	1.5
OPTIMISTIC	1.8	4.2	6.2	6.1	4.9	3.8

## UK NATURAL GAS PRICES

Data from OFGEM, 2019



## ECONOMIC FORECAST

- Previous fixed OPEX totaled £1.8M in the year 2018. Angus aims to reduce these costs to approximately £1M by cutting overheads and streamlining the operating process.
- Average natural gas prices over a 10 year period have been used to calculate wholesale value of remaining gas reserves.
- Even under a conservative scenario the total net cash generated over the 10 year field life is **£17.6 million**.
- The optimistic scenario assumes total net cash generated over the 12 year field life is **£36.5 million**.

\*These projections are not inclusive of tax or capex requirement



## Theddlethorpe Gas Terminal (TGT) closed in 2018...

*In the end of 2017 ConocoPhillips (owner of TGT) announced plans to shutdown the terminal in 2018. Production ceased in August 2018. (conocophilips.com)*

### SELF-CONTAINED

Processing was previously carried out by a third party at TGT. Angus will now install in-house processing facilities including compression and dew-point control on site at the Saltfleetby Gas Field.

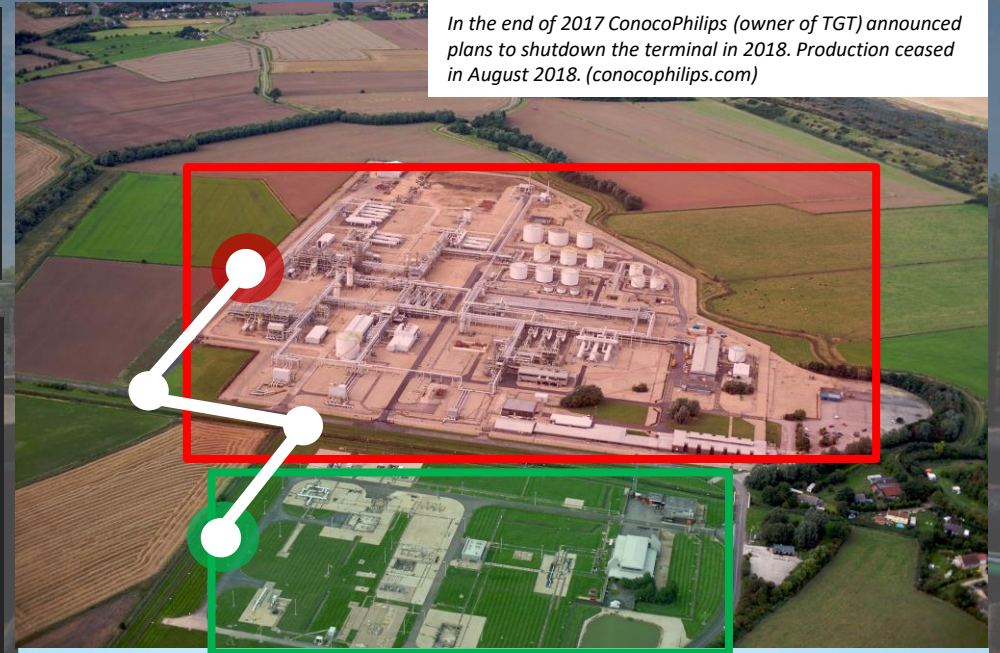
### PIPELINE TO THEDDLETHORPE

The gas will be treated so that its characteristics fulfill the specifications for the National Grid system which supplies domestic and industrial consumers.

The gas is then transported via pipeline to the National Grid entry point at NTS Theddlethorpe.

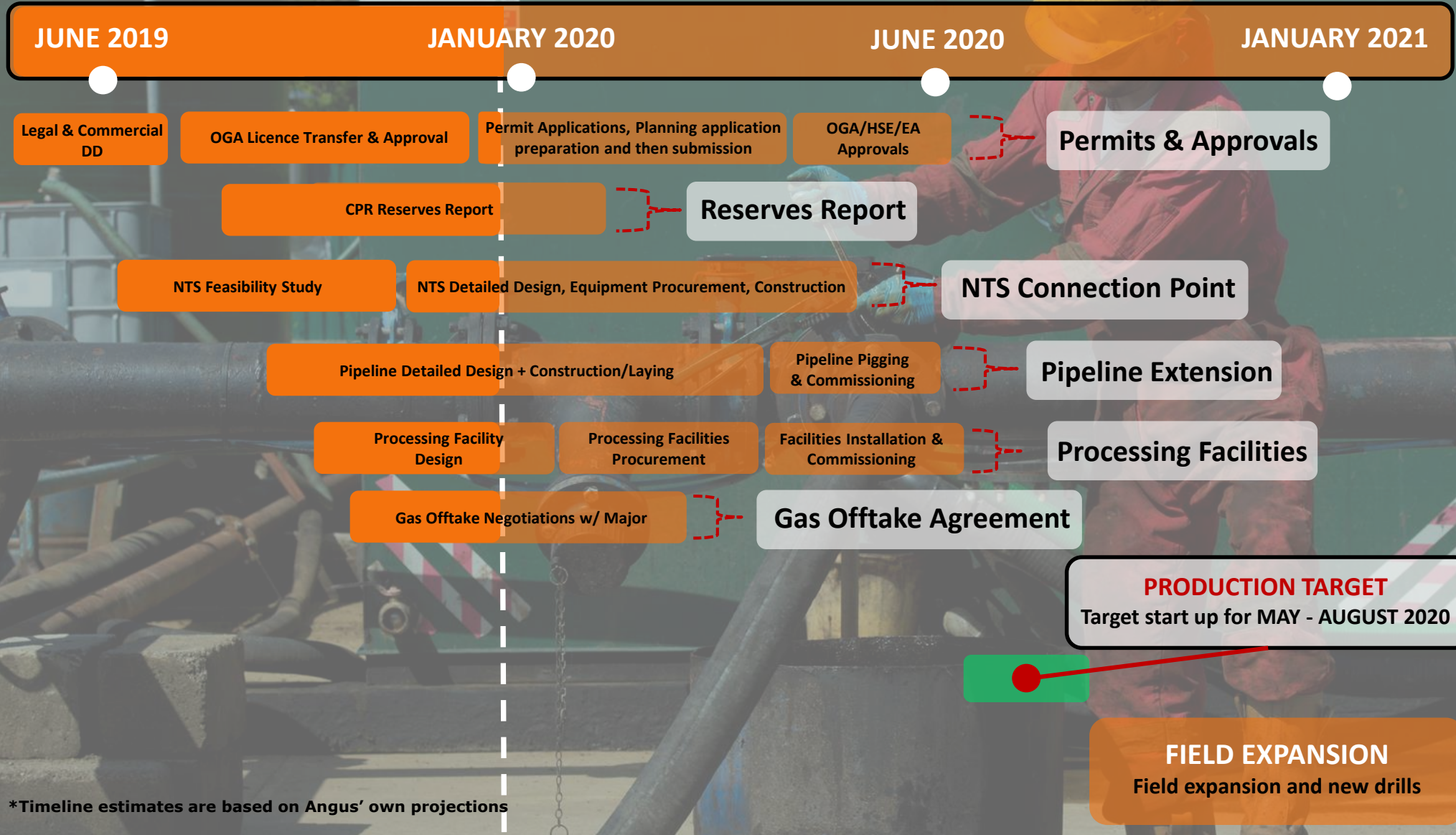
### NEW CONNECTION

Minor additional work in the form of a new 10 inch flowline diversion (<1000m) is required. Preliminary discussions with the NTS have taken place – hope to find mutually beneficial agreement in near future.



Current facilities at Saltfleetby Site B

# SALTFLEETBY – *Timeline*



\*Timeline estimates are based on Angus' own projections



## ANGUS ACTION POINTS

The field presents an opportunity for field rehabilitation and further development. To recommence production we believe the following would be required:

- Reconnection to the National Grid via existing connection point at NTS Theddlethorpe – discussions are already underway with the NTS and Angus view this as a reasonably straightforward process
- A short pipeline extension (<1000m) to bypass the old terminal and feed directly into the connection point
- Installation of new hydrocarbon and water dewpoint control. Compression to enable export into the pipeline at reduced wellhead pressures

Once production is successfully restarted there are a number of factors which we believe offer economic upside:

- Past operating costs were high but even at those rates would generate a profit at current gas prices – We expect to significantly reduce operating costs (OPEX) by reducing overheads which would further extend field life and ultimate recovery
- There are low risk drilling opportunities. With many parts of the field left undrilled – nearby infill drilling is relatively low risk

### Abandonment provisions:

A £2.5 million abandonment provision for the Angus share has already been made. Angus has commissioned a plug and abandonment cost estimate which is below this figure