

# Network Options Assessment

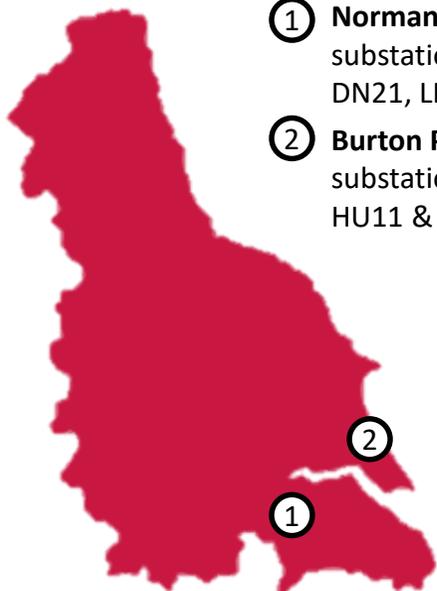
June 2021



# We're sharing our assessment of network options for two of our primary substations at Normanby by Stow and Burton Pidsea for stakeholder feedback

**Northern Powergrid:** We manage the electricity network for more than 8 million people across 3.9 million homes and businesses in the North East, Yorkshire and northern Lincolnshire.

## Our region



- ① **Normanby by Stow** substation (postcodes DN21, LN1, LN8)
- ② **Burton Pidsea** substation (postcodes HU11 & HU12 )

## Why are we seeking feedback?

- We will always consider flexibility services before building new infrastructure and be transparent about our decisions
- In November 2020, we sought expressions of interest from flexibility providers at 15 major substations where we may need flexibility services during ED2
- This spring we have been considering the use of flexibility services at two of our primary substations (see left)
- **Our preliminary decision is not to start flexibility procurement at Normanby by Stow or Burton Pidsea for two reasons:**
  1. We think that proceeding with reinforcement is likely to be more economic and efficient in this case
  2. We do not want to undermine trust or the long term development of flexibility markets in our region with pricing offers that are significantly below market rates
- **We are sharing our reasoning and seeking your feedback before making a final decision about our preferred option**

## Network Options: intervention is needed at Normanby by Stow and Burton Pidsea. We've considered flexibility and reinforcement options

### Normanby by Stow

- 33/11kV single transformer primary substation in Lincolnshire
- Network intervention needed under engineering regulations to ensure voltages remain in statutory limits under fault conditions

**Reinforcement Option** Install voltage regulators at cost of £500k

#### Flexibility Option

Seek flexibility providers in suitable postcodes under the following service requirements:

- 4,435 MWh of availability windows per year (3,696 hours at 1.2MW peak requirement)
- 4,435 MWh of flexibility provision (pre-emptive demand management service)
- Demand side response or generation turn up would be suitable

### Burton Pidsea

- 66/11kV single transformer primary substation near Hull
- Network intervention needed under engineering regulations to ensure voltages remain in statutory limits under fault conditions

**Reinforcement Option** Install voltage regulators at cost of £500k

#### Flexibility Option

Seek flexibility providers in suitable postcodes under the following service requirements:

- 280 MWh of availability windows per year (280 hours at 1MW peak requirement)
- 280 MWh of flexibility provision (pre-emptive demand management service)
- Demand side response or generation turn up would be suitable

# Flexibility Pricing: relatively low reinforcement costs mean that we are not able to offer market rate prices for flexibility at Normanby by Stow and Burton Pidsea

## Flexibility Pricing Process

1

**Overall Budget:** this is created by applying NPV assumptions to the cost of our network reinforcement option (£500k)

- Flexibility would allow us to defer £500k of reinforcement at both sites
- Assuming a discount rate of 3.5%, this creates a budget for flexibility services of £16,908
- We have inflated this budget by 20% to reflect the option value associated with deferring investment and our preference for flexibility solutions
- **Annual budget for flexibility: £20,289**

2

**Flexibility Requirements:** what are the requirements for a flexibility service sufficient to defer reinforcement?

- Requirements are created by considering electricity demand patterns against network capability
- A peak MW requirement, availability windows and expected utilisation are created
- **For Normanby by Stow these are for up to 1.2MW over 3,696 hours, so 4,435 MWh**
- **For Burton Pidsea it is 1MW for up to 280 hours, so 280 MWh of flexibility**

3

**Unit Pricing:** what does our available budget allow us to pay for flexibility services at these two sites?

- Available budget (c.£20k) is spread across the flexibility need
- **For Normanby by Stow this means £4.57 is available per MWh of flexibility per year**
- **For Burton Pidsea it is £72 per MWh of flexibility per year**

## Analysis

- Our analysis indicates ~£300 per MWh as a unit price for flexibility services to defer network reinforcement
- We don't want to offer flexibility at prices that are not attractive. We're concerned this may frustrate providers and harm the long term development of markets in our region
- Paying £300/MWh would lead to us exceeding available budget by c.6500% at Normanby by Stow and 414% at Burton Pidsea. We do not think this is an economic or efficient option for our customers

# Options Assessment: our preliminary decision is to proceed with reinforcement. We are seeking stakeholder feedback before finalising our decision

| Option  | Advantages   | Risks  | Assessment  |
|---|--|--|---|
| <b>1. Proceed with £500k reinforcement plan at both sites</b> | <ul style="list-style-type: none"> <li>Relatively low reinforcement cost</li> <li>Resolves network issues</li> <li>Avoids risk of flexibility procurement that is either inefficient or detrimental to long term market development (see below)</li> </ul> | <ul style="list-style-type: none"> <li>Network reinforcement is an irreversible investment. This investment should not be made until stakeholders have had the chance to feed back on our preliminary decision</li> </ul>  | <b>Preferred Option (to be confirmed with stakeholders)</b> |
| <b>2. Seek flexibility services under available budget</b>    | <ul style="list-style-type: none"> <li>Allows us to test availability of providers in the two locations identified</li> <li>Efficient procurement within allowable budget</li> </ul>   | <ul style="list-style-type: none"> <li>Offering flexibility at price points significantly below market prices may damage long term development of flexibility markets in our region</li> <li>May deter future participation in flexibility tenders if returns offered to providers are not adequate</li> </ul> | <b>Not preferred</b>  |
| <b>3. Seek flexibility services at unit price of £300/MWh</b> | <ul style="list-style-type: none"> <li>Increased chance of successful flexibility procurement compared to seeking services under available budget</li> </ul>   | <ul style="list-style-type: none"> <li>The budget required for this option would be much higher than allowable under budget assumptions</li> <li>Our preliminary decision is that this option does not represent an economic and efficient approach managing our network</li> </ul>                            | <b>Not preferred</b>  |

# What comes next? We won't make a final decision on our network options for 4 weeks to allow time for our stakeholders to feedback

## Finalising our decision

- We're publishing our preliminary decision today **(25/06/2021)**
- We will allow 4 weeks for stakeholders to feedback on our preliminary decision
- At the end of that 4 week window we will review our feedback and make a final decision on our preferred option
- We're committed to keeping all options open until we have gathered stakeholder feedback

## Future developments and further reading

- Later this year or in 2022, we plan to provide early visibility of the sites on our network where we expect to seek flexibility services during the upcoming ED2 price control period (2023-28)
- In April we published our [Distribution Flexibility Services Procurement Statement](#) setting out our plans for flexibility procurement in the coming regulatory year
- Last year we published our [Emerging Thinking](#), setting out our early plans for the upcoming ED2 price control period
- There are a range of other materials and resources available on the [DSO Section of our website](#)

# We would really like to hear your views before we make a final decision



**What are your views on our preliminary decision and the rationale set out in this document?**

- Are you a flexibility provider located near to either Normanby by Stow or Burton Pidsea?
- Do you agree with our assessment of our network options?
- Would you like to learn more about our approach to flexibility services in our region?

**Whoever you are, we'd love to hear from you.**

**Please get in touch via  
[flexibility@northernpowergrid.com](mailto:flexibility@northernpowergrid.com)**