

**electricity
north west**

Bringing energy to your door



Flexible Services Webinar

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25 April 2018

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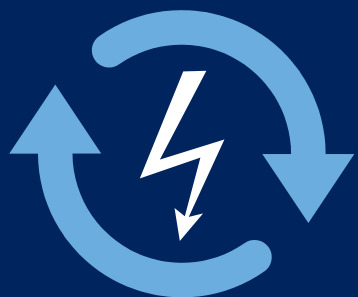
Introduction



Our challenges



Our strategy



Introduction to
flexible services



Timeline and next steps



Q&A



30 minutes presentation



20 minutes
questions & answers



Submit written questions online during the webinar



Press 01 on your telephone key pad to take part in the live Q&A at the end of the presentation

or



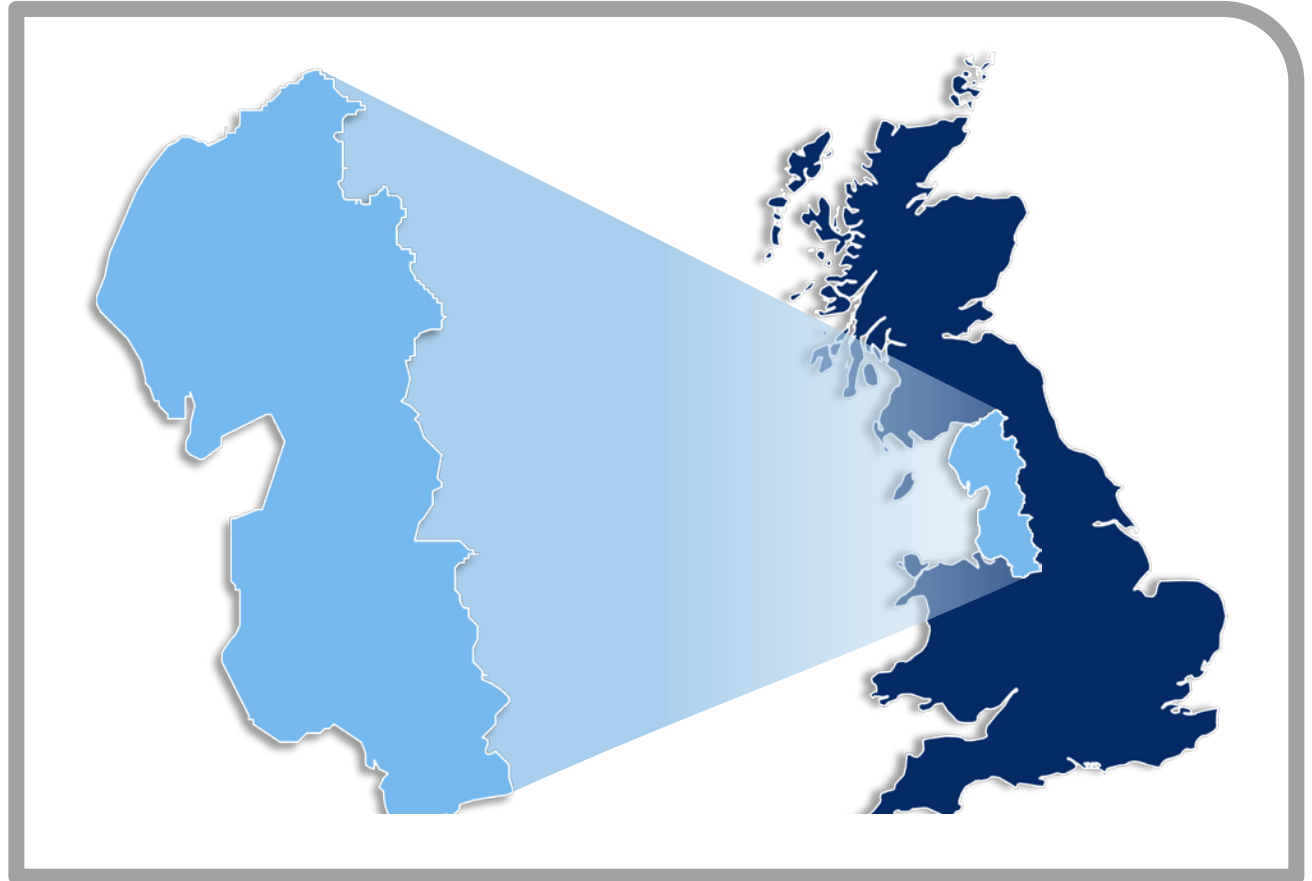
4.9 million



2.4 million
(45% of demand)



20,000 I&C
(55% of demand)



- 25 terawatt hours
- £12 billion of network assets
- 56 000 km of network
- 19 grid supply points
- 66 bulk supply substations
- 363 primary substations
- 33 000 transformers

The challenges



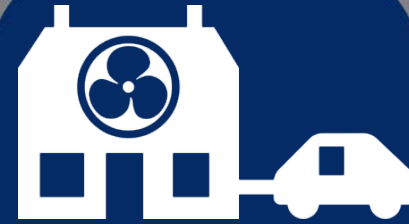
2010

1/3 gas
1/3 electricity
1/3 oil



2016 /17

30% of energy from
renewables
42% reduction in CO₂
from 1990
Generation mix is
radically 'overhauled'
First 'non-coal day' in
130 years (April 2017)



2030

60% reduction in CO₂
Electricity demand
increases, driven by
electric cars & heat
pumps
Distribution network
capacity significantly
increases

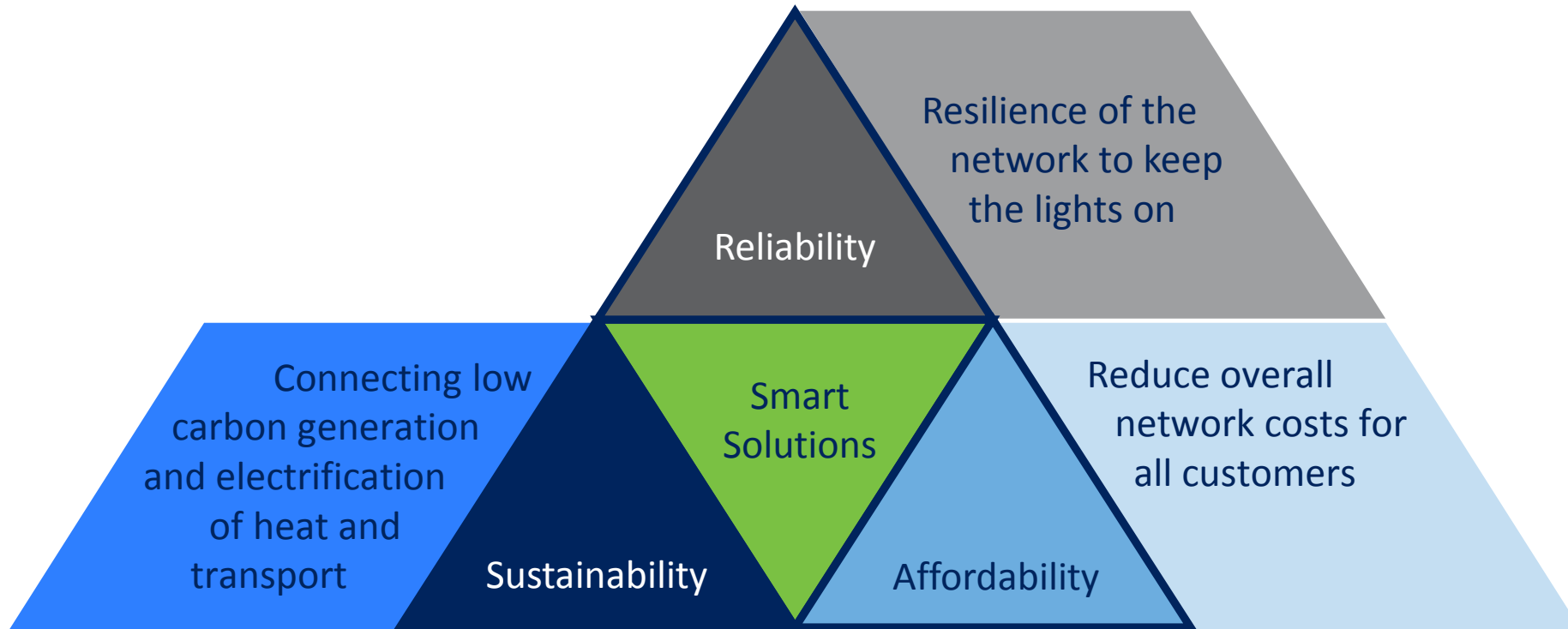


2050

80% CO₂ reduction
Significant increase in
electricity demand

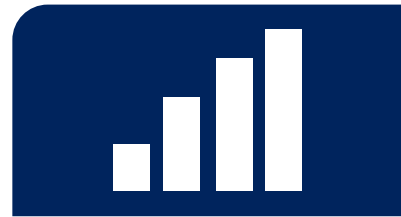


● The network operator 'Trilemma' ●



● Customers can help us deliver ●

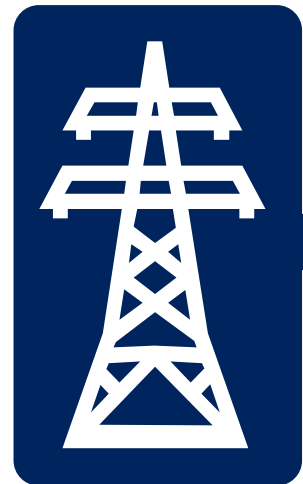
Managing these challenges – our smart grid strategy



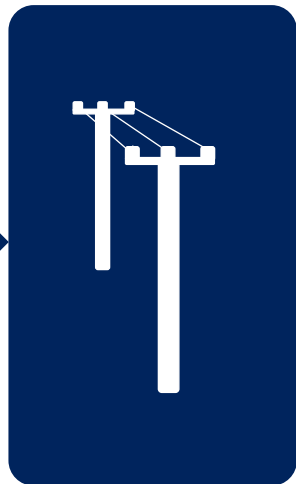
Deliver value from existing assets



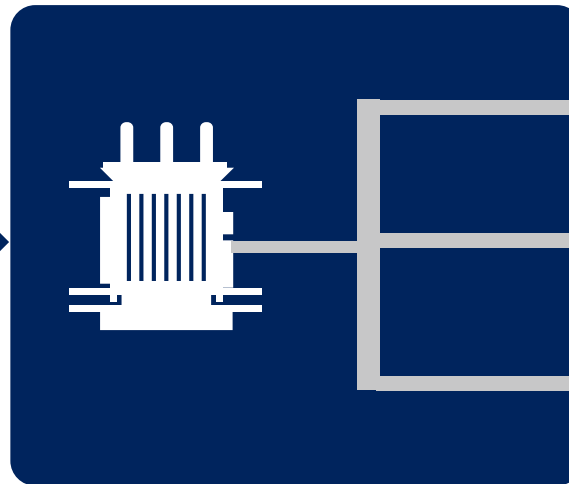
Customer choice



Extra high voltage network



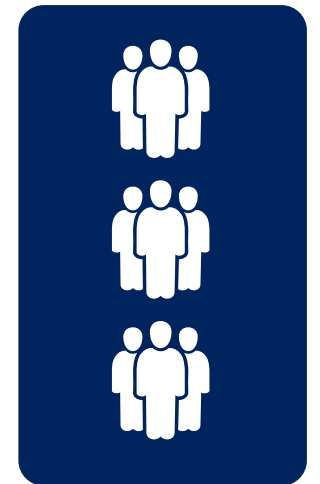
High voltage network



Distribution substation



Customers' LCTs



Customer behaviour

Respond
EHV and HV
fault level

C₂C
HV network
meshing

CLASS
Voltage at HV
substations

Celsius
Cooling at
distribution
substations

Smart Street
CVR
LV network
meshing

Opportunity for
significant savings
'beyond the
meter'



Response services provided to utility companies which offers customers incentives to reduce their electricity usage or increase their generation during times of peak demand



At peak times, demand for energy can outstrip supply placing stress on the electricity network



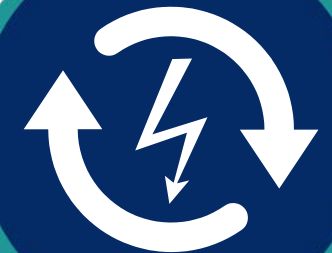
Energy suppliers need to generate more electricity to meet peak demand which is expensive and increases customers' bills



By changing their electricity usage, consumers can benefit financially and help balance the grid

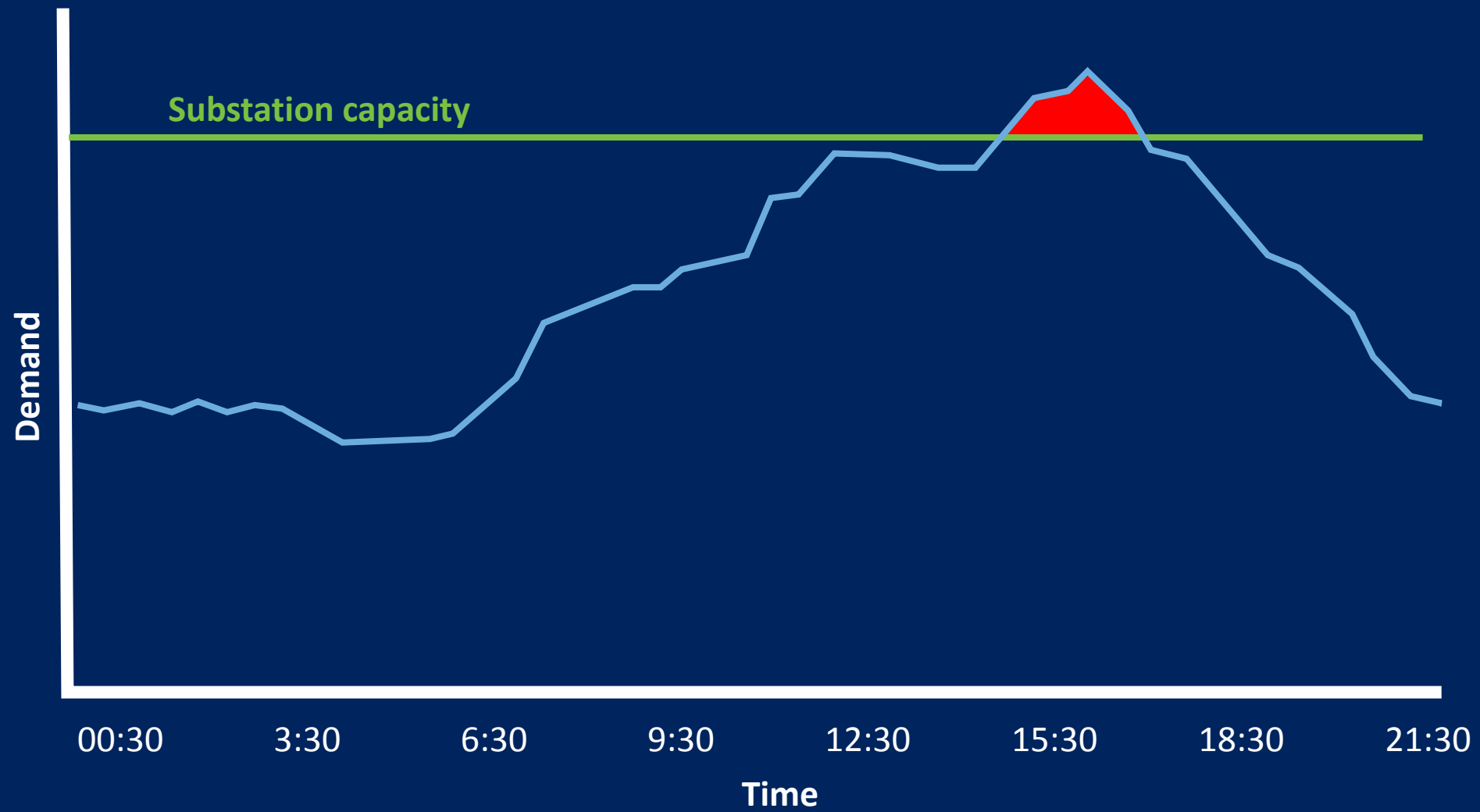


Consumers can provide a demand response (DR) by providing additional generation or storage, or by reducing usage

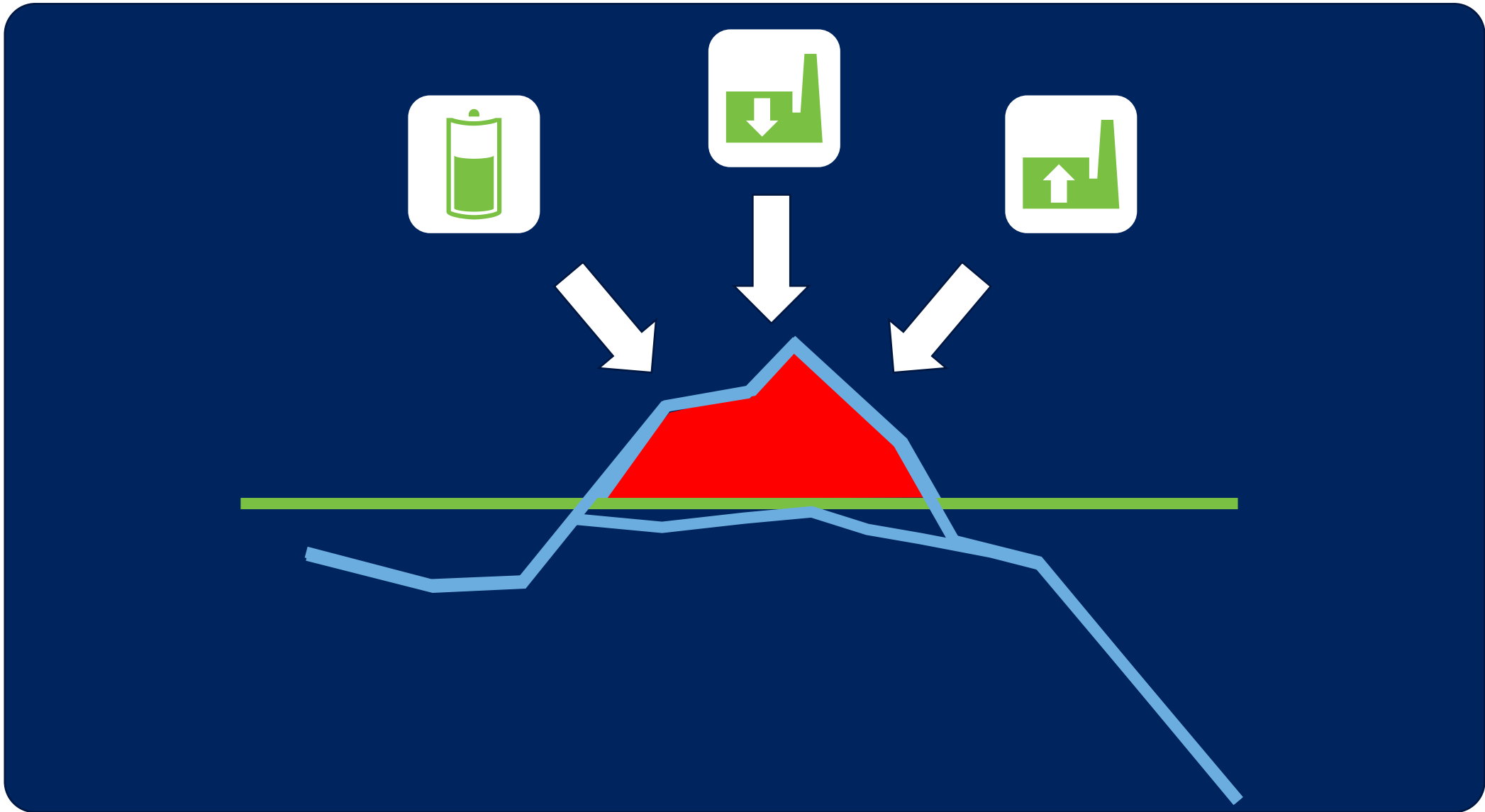


Electricity North West has used DR for a few years as an alternative to reinforcement. These DR techniques are now known as **flexible services**

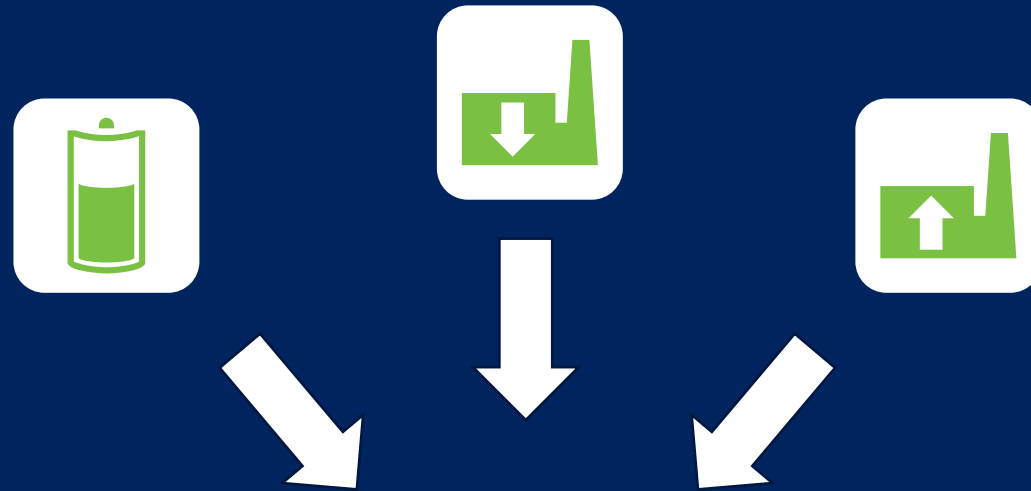
Flexible services (2)



Flexible services (2)



Flexible services (2)



Target areas, 2018 – 2020



Substation	Area served
Alston, near Carlisle	Cumbria
Coniston	Cumbria
Easton	Cumbria
Nelson	East Lancashire
Blackfriars Road	Salford and Central Manchester
Cheetham Hill	North Manchester
Stuart Street	Central and East Manchester

Indicative requirements – winter 2018/19



Network location	Voltage of connection	Total flexible service requirement 2018/19 (MW)	Availability window					Utilisation rate
			Months	Earliest start date	Latest end date	Times	Days	
Alston	LV or HV	0.5	Nov - Mar	Nov-18	Mar-19	06:30 to 21:30	All week	Up to 40 hrs pa
Coniston	LV or HV	1.0	Nov - Mar	Nov-18	Mar-19	All day	All week	Up to 40 hrs pa
Easton	LV or HV	2.0	Nov - Mar	Nov-18	Mar-19	All day	All week	Up to 40 hrs pa
Nelson	HV or 33kV	20.0	Oct - Mar	Oct-18	Mar-19	06:30 to 21:30	All week	Up to 40 hrs pa
Blackfriars	LV or HV	0.5	Jan - Feb	Jan-19	Feb-19	16:30 to 21:30	Weekdays	Up to 40 hrs pa
Cheetham Hill	LV or HV	2.5	Nov - Mar	Nov-18	Mar-19	11:30 to 21:30	All week	Up to 40 hrs pa
Stuart Street	HV or 33kV	9.5	Nov - Feb	Nov-18	Mar-19	06:30 to 21:30	Weekdays	Up to 40 hrs pa

Future requirements



Network location	Approximate requirement (MW)				
	18/19	19/20	20/21	21/22	22/23
Alston	0.5	0.5	0.5	0.5	1.0
Coniston	1.0	1.0	1.0	1.0	1.0
Easton	2.0	2.0	2.0	2.0	2.0
Nelson	20.0	20.5	21.0	22.0	22.5
Blackfriars	0.5	1.0	1.0	1.5	1.5
Cheetham Hill	2.5	2.5	2.5	2.5	3.0
Stuart Street	9.5	19.5	19.5	20.5	21.5

Information we need from you



1	<p>Is the flexible resource(s) connected to the Electricity North West's distribution network? Providers should use the postcode list to check that the resource is in the right geographic location. Electricity North West Limited will verify that the electrical connection is suitable using the submitted MPANs.</p>
2a	<p>For aggregated portfolios, is the total portfolio size above the minimum size of 200kW?</p>
2b	<p>For directly contracted resources, it is above the minimum size of 100kW?</p>
3	<p>Are you able to monitor that, upon an Electricity North West Limited request, a net reduction in the load or an increase in the export, is seen by the distribution network? If so, please describe how.</p>
4	<p>Are you able to act (provide a response) reliably and consistently, in both magnitude and duration, throughout the contracted windows?</p>
5	<p>We are open to all technology types that can meet our requirements. Service providers may represent any existing or new industry sectors and any type of response mechanisms, such as demand reduction, demand offset, generation export, or electrical storage discharge. Please describe your type of response mechanism.</p>
6	<p>For generators and storage, greater than 16A per phase, looking to export to the network do you have a long-term parallel connection and be compliant with the requirements of EREC G59/3-3*?</p>
7	<p>Are you able to deliver the service this winter (starting November 2018) and/or next winter (2019/20)?</p>



Lead time from instruction to full delivery (mins)

Maximum response duration (mins)

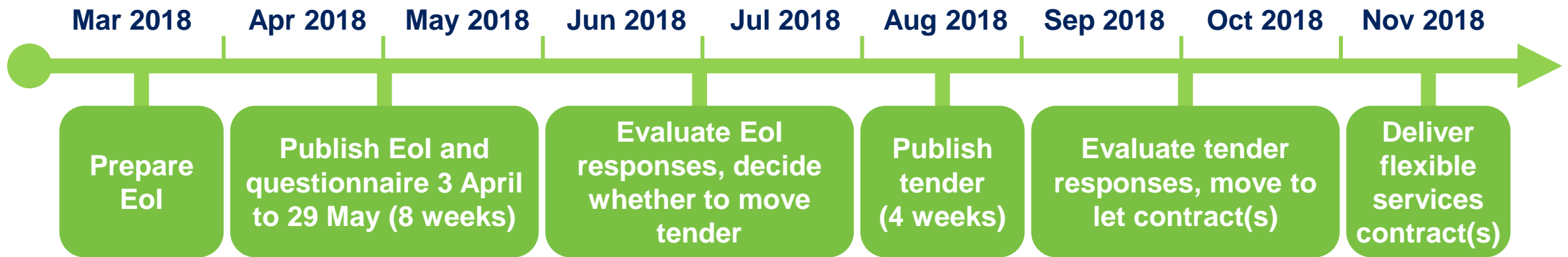
**Recovery time (mins)
(from end of delivery to when next available to deliver)**

**Monitoring and control capability.
Can you respond to a text/email instruction?**

**Existing metering capability and resolution
(eg four quadrant metering measured every minute)**

**Load return profile following load shedding activity
(eg bounceback)**

Timeline



Our intention is to make this an annual process during this price control period (April 2015 – March 2023)



- 80% carbon reduction target by 2050
- Expected huge increase in demand for electricity
- Significant impact on local network and cost



Challenges



Strategy

- Maximise use of existing assets
- Combine innovative ideas with technology
- Deliver value to customers

- Complete an expression of interest by 29 May 2018
- Tender process August 2018
- Contracts in place November 2018



Next steps

Flexible services



- Target network where peak demand is a problem
- Offer financial incentive for generation, storage or reduced demand
- Reduce peak demand cost effectively



www.enwl.co.uk/flexible-services



Flexible.contracts@enwl.co.uk



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Please contact us if you have any questions or would like to arrange a one-to-one briefing about providing flexible services