electricity north west

Bringing energy to your door

Energy Storage, Local Generation and Distribution - Transforming Energy in Cumbria

Cara Blockley – Central Services Manager

Stay connected...

www.enwl.co.uk

Agenda

Introducing Electricity North West

Regulation

Rising to the energy challenge

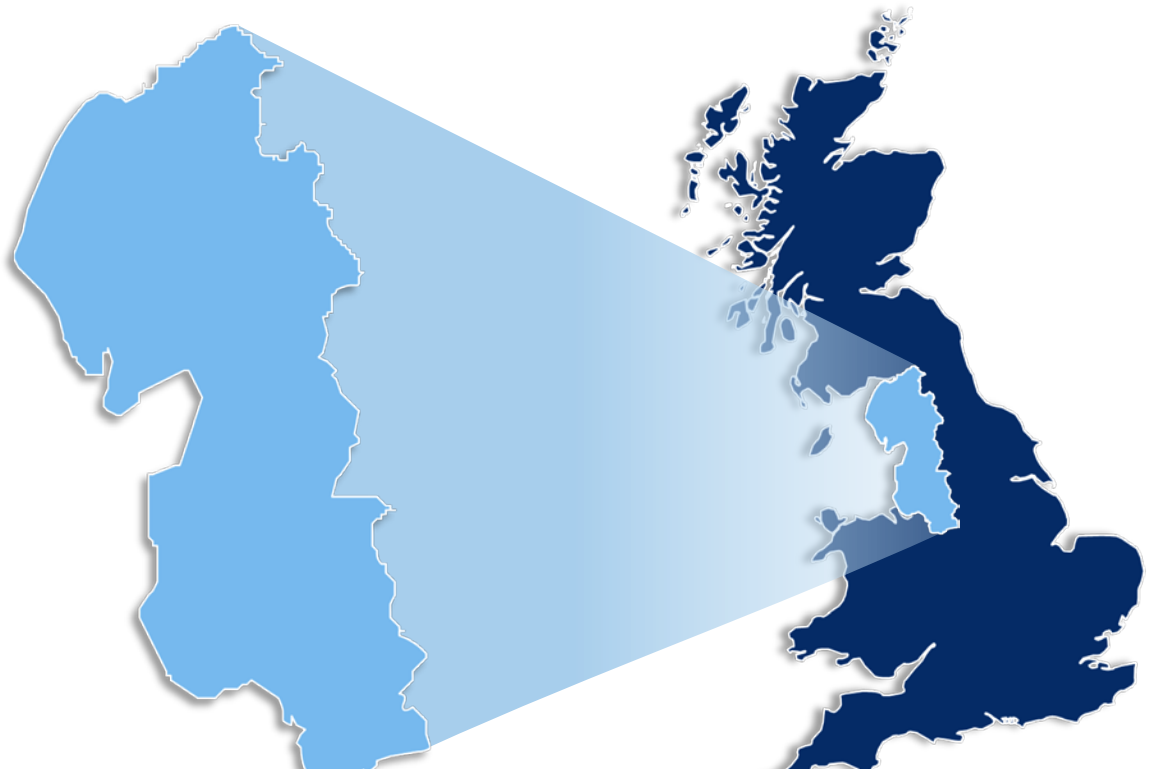
Summary and questions

Introducing Electricity North West

4.9 million

2.4 million

25 terawatt hours

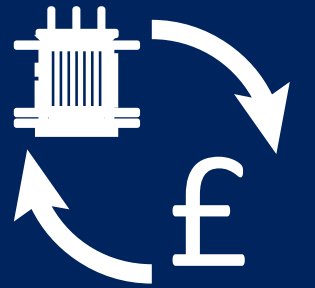


£12 billion of network assets ● 56 000 km of network ● 19 grid supply points
66 bulk supply substations ● 363 primary substations ● 33 000 transformers

Our heritage

NORWEB

United Utilities

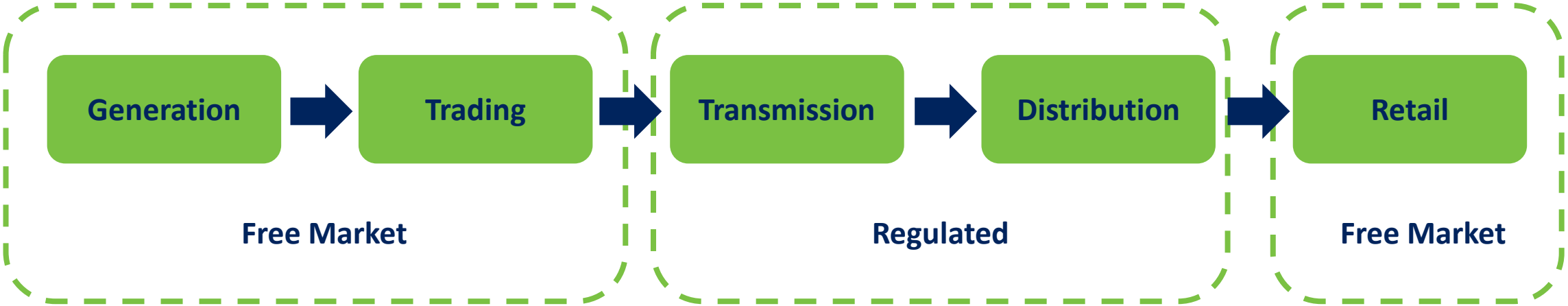


electricity north west

1948	1990	1995	2000	2007	2010
Electricity national-isation: North West Electricity Board	Privatisation: Norweb plc	North West Water takeover of Norweb: United Utilities	Norweb supply business sold	Sale of United Utilities Electricity to private investors	Acquisition of UU Electricity Services

The GB energy market

All large generators, suppliers and networks are regulated



But network businesses are the only ones with price regulation

ofgem Making a positive difference for energy consumers

RIIO regulatory framework

Revenue + Incentives + Innovation + Outputs = RIIO

- *ED1 = Electricity Distribution*
- 14 DNO areas
- Eight years

£1.8 BILLION Total to be spent on the network 2015 - 2023

£24.6 BILLION Total to be spent on the network 2015 - 2023

£10 Resulting annual average savings in consumer bills

8% The power distribution part of a dual fuel bill

Almost 56k The length of our power network

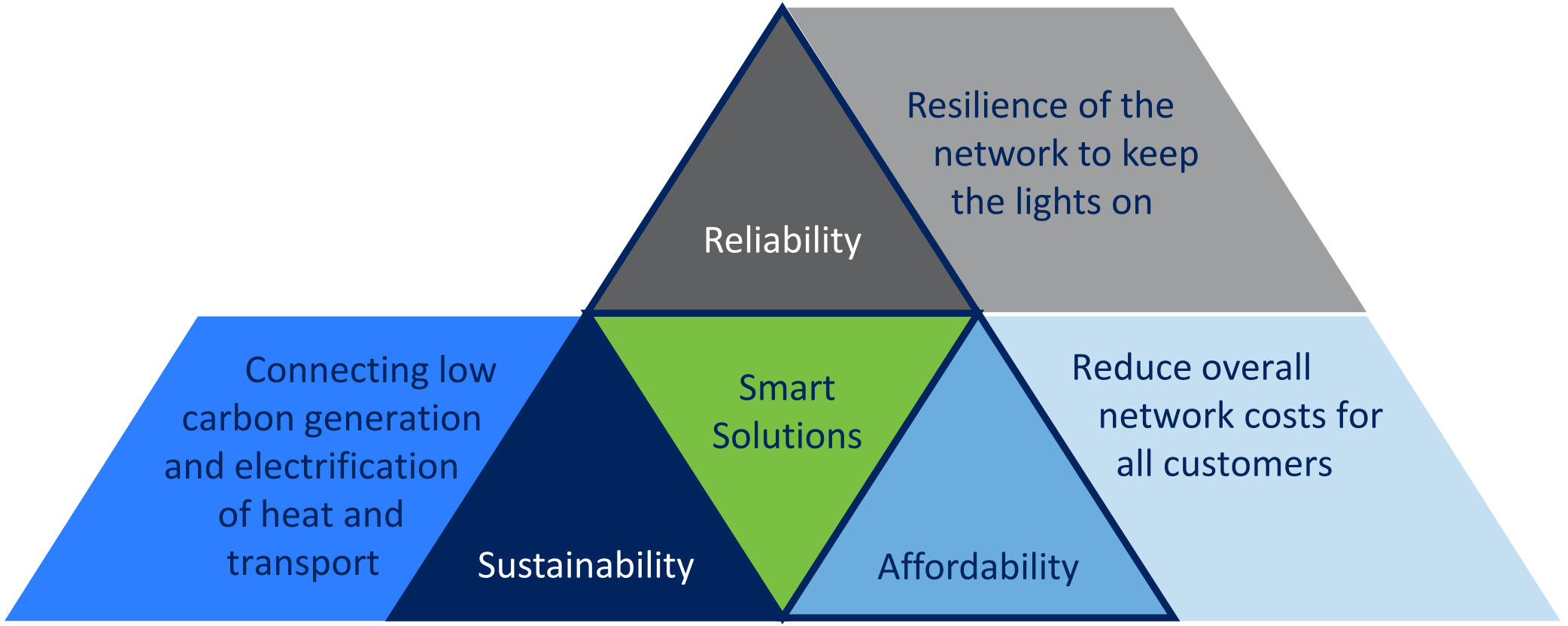
30% Network reliability increase since 2002

Some of our output commitments in RIIO

Customer service	Environment	Social	Safety	Reliability
90% complaints resolved in one day Pay compensation in storms after 18 hours	Reduce carbon footprint by 10% Underground 80km overhead lines	Mitigate fuel poverty – 20% price reduction Improve services for vulnerable and priority service register customers Resilient supplies to vulnerable locations	Site security investment	Maintain overall network health Complete flood protection programme Improve overall reliability by 20%

Network operator challenges

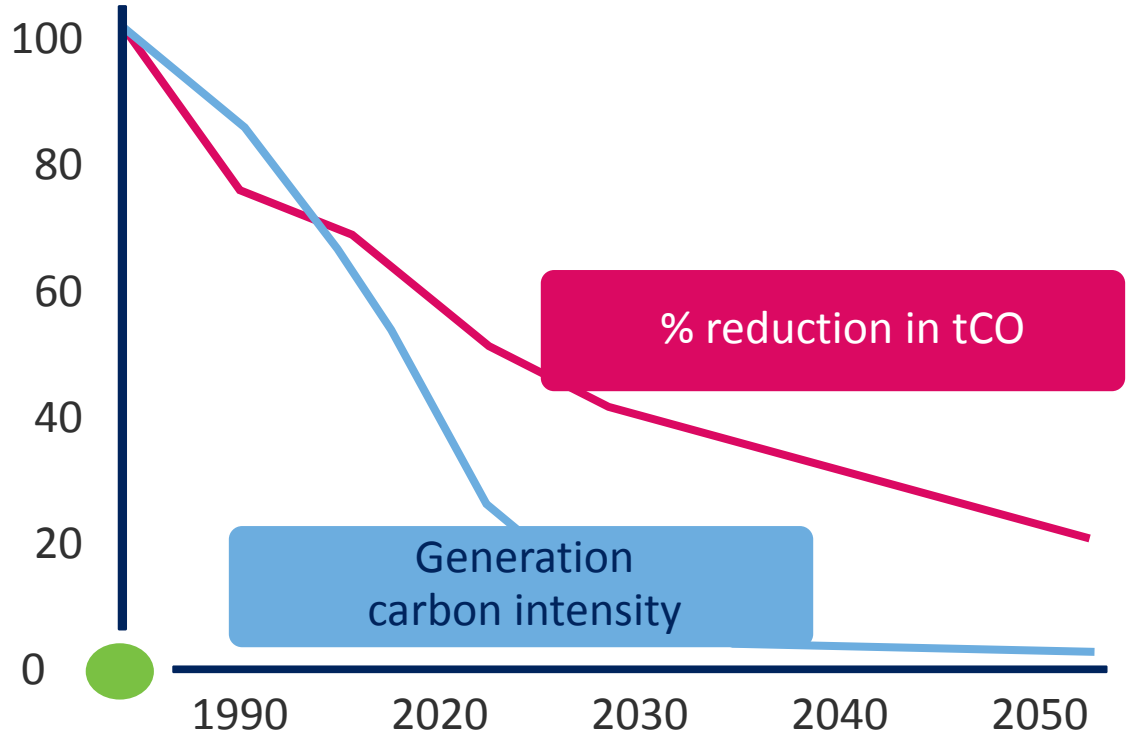
● The network operator ‘Trilemma’ ●



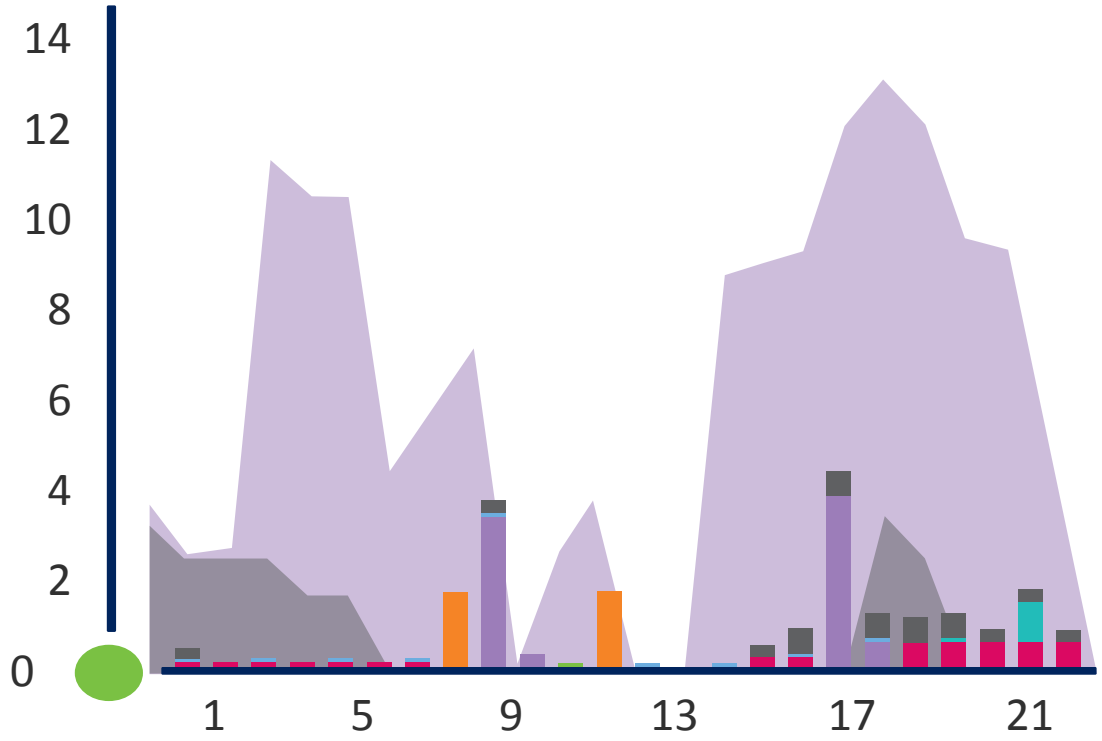
● Community energy projects can help us to deliver ●

The scale of the challenge for DNOs

UK government emission targets 1990 base



Domestic demand profile 2012



700k domestic heat pumps by 2030
8-10kW for 8 hours
Additional >2 GW

31% UK vehicles will be EV/Hybrid 720 000 domestic EVs
Additional >2 GW
Manchester >400MW

The challenges

Changing customer needs

LCT penetration driving demand

Expensive and carbon intensive reinforcement not affordable

High customer bills

Fuel poverty

Low penetration of renewable generation at community level

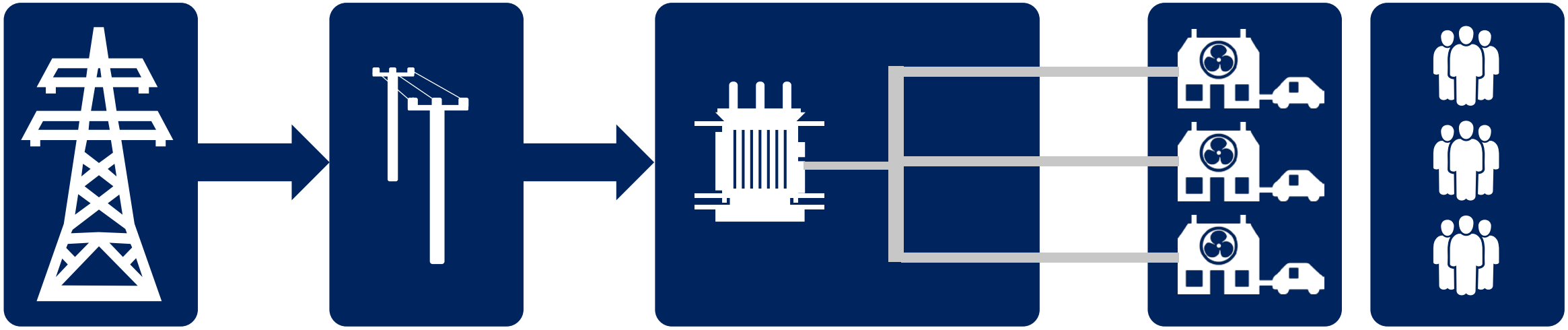
Random locations exclude network benefits

Benefits not aligned with costs

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

C_2C
HV network meshing

CLASS
Voltage at HV substations

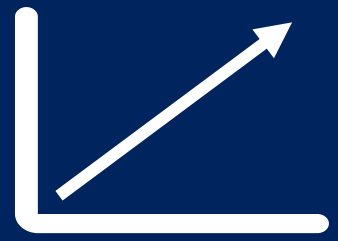
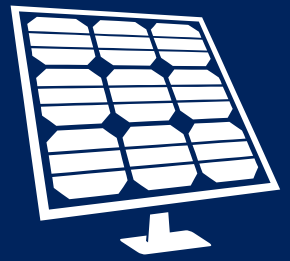
Celsius
Cooling at distribution substations

Smart Street
CVR
LV network meshing

Opportunity for significant savings 'beyond the meter'

Innovation benefits summary

Full set of results and learning from all projects are shared through closedown reporting and dissemination events

Rapidly deployable solutions	Reinforcement deferral	Cost deferral	Carbon reduction
			
Will better exploit existing assets, thus cost-effective and quickly implemented	Releases network capacity for use by customers' LCTs	Can defer reinforcement costs and the time taken to complete the associated works	Minimises carbon-intensive infrastructure

Community energy partnerships

Innovation projects demonstrate that smart solutions, particularly flexible customer contracts are more efficient and cost effective than reinforcement

DSO will be buyer of flex service auctions, bilateral + aggregators and it may buy from community energy groups (no urgent requirement for this due to impact of energy efficiency)

DG customers are offered flex contracts but the networks are filling up even for flex contracts so DG customers face reinforcement charges

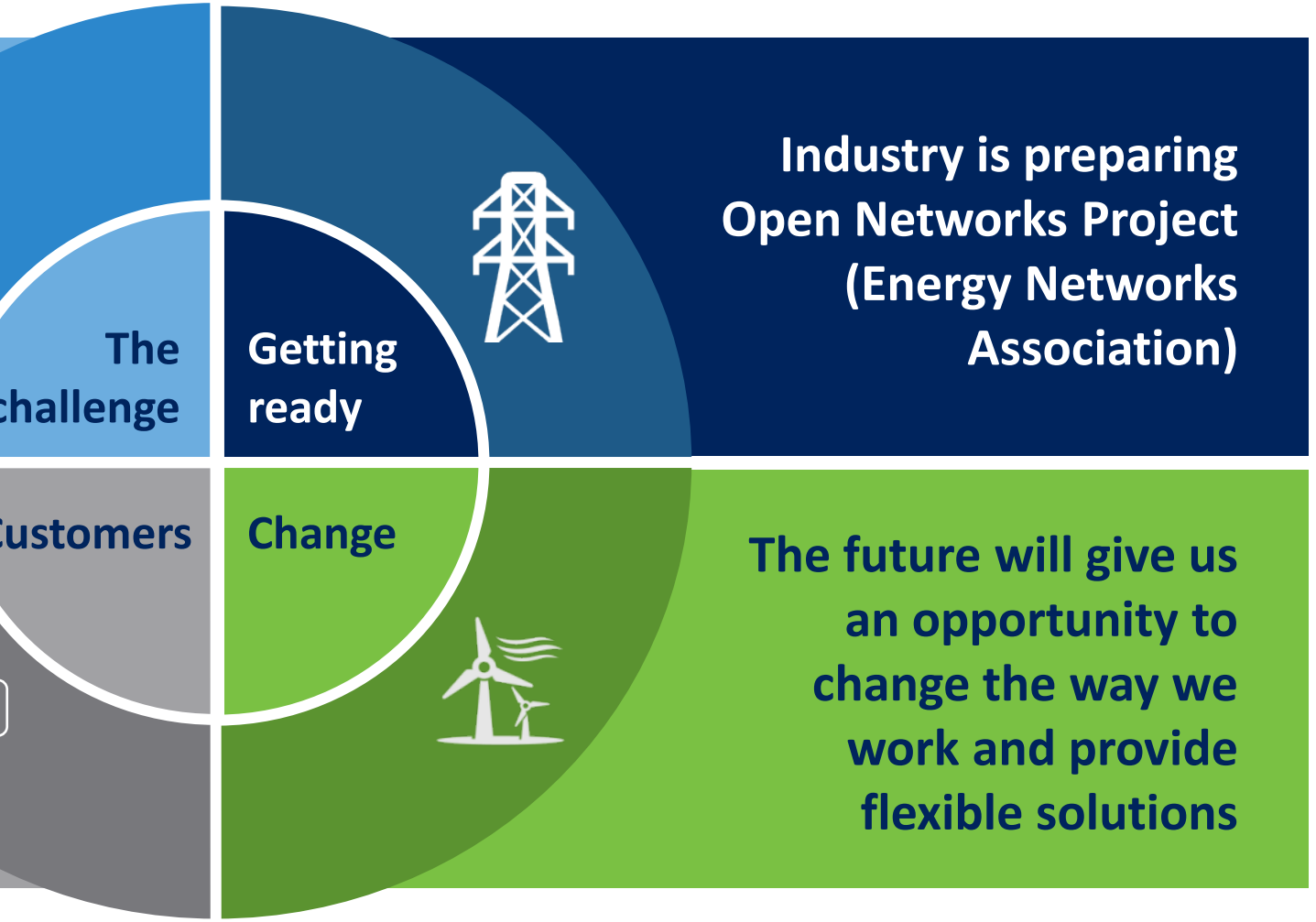
DNOs bring technical expertise while community groups have extensive local knowledge

DSO will introduce a market to facilitate realisation of the various benefit streams

Visibility and direct communication are key to this process

● Co-ordinated approach needed to realise benefits for all parties ●

Summary


Low carbon future will bring new challenges
CO_2
The challenge
Getting ready
Industry is preparing Open Networks Project (Energy Networks Association)
Engaging with customers is a key part of our trial work
Customers
Change
The future will give us an opportunity to change the way we work and provide flexible solutions