RIIO-ED2 BUSINESS PLAN: STRATEGIC SUMMARY

All costs in 2020/21 prices, inclusive of RPEs and ongoing efficiencies

DNO Group	**Northern Powergrid**
Customer numbers (as of 30/09/2020)	**3,912,593**

Financials

Expenditure (£m)	**ED1 Annual**	**ED2 Annual**			**ED2 Period**		
		Baseline plan	**£m vs. ED1***	**% vs. ED1**	**Baseline plan**	**Upper range**	**£m vs. baseline**
Load related	24.8	129.1	104.3	420.6%	645.5	893.4	247.9
Other	446.4	513.0	66.6	14.9%	2,565.0	2,601.0	36.0
Total	**471.2**	**642.1**	**170.9**	**36.3%**	**3,210.5**	**3,494.4**	**283.9**

* Variance in expenditure to ED1 driven by incremental decarbonisation spend of £170.2m per annum

Efficiencies (£m)	**ED2 plan**
Totex efficiencies	395.9
70% of totex efficiencies driven by innovation	*277.6*
Decarbonisation synergy savings (in the period 2028 to 2050)	470.8

Bill impact (£)	**End of ED1**	**ED2 Baseline plan**			**ED2 Upper range**		
		Bill impact	**ED2 bill**	**% vs. ED1**	**Bill impact**	**ED2 bill**	**% vs. ED1**
Ofgem assumptions	89.80	(4.31)	85.49	(4.8%)	(1.75)	88.05	(1.9%)
NPg view: Future customers pay more		*6.01*			*6.01*		
NPg view: Cost of Equity at 5.8%		*2.88*			*2.96*		
Northern Powergrid assumptions		4.59	94.39	5.1%	7.22	97.02	8.0%

Decarbonisation to Net Zero

Planning scenario and sensitivities	**End of ED1**	**ED2 Best view[1]**	**ED2 Upper view[2]**	**2050**
Electric vehicles	110,149	940,989	1,139,422	5,014,954
Heat pumps	57,515	308,595	334,447	3,572,156

[1] Keeps all future credible pathways open, ensuring that we are not an obstacle to any decarbonisation pathway. In line with the 10 point plan and CCC's Balanced Pathway scenario

[2] Output of highest credible pathway (Widespread Engagement); does not represent the discreet maximum parameters for EVs and heat pumps in individual scenarios

Flexibility and DSO	**ED1 Forecast**	**ED2 Forecast**
Investment in DSO enablers (£m)	78.0[1]	87.4
Net saving in conventional reinforcement (£m)*	-	169.2
Price-driven customer flexibility net saving	-	*113.2*
DNO contracted customer flexibility net saving	-	*12.3*
LV monitoring net saving	-	*21.3*
Smart solutions net saving	-	*22.4*
MW of flexibility procured	-	138

[1] Latest forecast, 2012/13 prices

% network with demand monitoring deployed	**ED1 to-date (2019/20)**		**End of ED1**		**End of ED2**	
	% substations	**% customers**	**% substations**	**% customers**	**% substations**	**% customers**
Primary	100	100%	100	100%	100	100%
Secondary - all at LV	3%		11%		50%	

Environmental Action Plan: Science Based Target	**Warming trajectory (°C)**	**Target date to achieve**	**End ED2 (% reduction)**
Science-based target Scope 1 and 2 emissions (including losses) (tCO_2e)	1.5	2035	21%

Outputs and track record

	Start of ED1 (2015/16)	**Average over ED1**	**ED1 Forecast (2022/23)**	**Forecast average over ED2**	**ED2 Forecast**
Broad Customer Satisfaction (0 - 10)	8.37	8.71	9.20	9.29	9.35
CIs (average number customers per 100 per year)	52.8	49.3	47.4	44.1	42.0
CMLs (average minutes lost per year)	40.1	38.2	34.0	30.4	28.3
IIS rewards earned (£ over cap)	3.2	2.5	0.0	0.0	0.0
Time to connect (working days)	44.9	50.5	32.4	26.0	26.0
Time to quote (working days)	7.5	9.7	4.4	3.6	3.6
Asset health (Absolute monetised risk ED1)	100%	94%	88%	Maintain	
Totex (underspend)/overspend	-2.8%	-1.4%	0.0%	0.0%	0.0%
Innovation Fund Utilisation (%)	35%	77%	100%	100%	100%
Average Domestic Customer Bill (£/yr)	87.51	85.41	89.80	94.39	94.39

Financing - NPg's view on financial metrics

Cost of equity	Above 5.8% plus CPIH
Cost of debt	Indexed as per Ofgem but with "pay as you go" debt funding (75% nominal, 25% CPIH linked)
Notional gearing	60%
Target ratings	A- (Fitch, S&P), A3 (Moody's)
Capitalisation rates	71% average across licensees
Depreciation rates	Underlying spend: 25 years, Incremental spend: 45 years, "pay as you go" debt funding

Bespoke outputs and CVPs

Bespoke outputs	**Category**	**Cost (£m)**	**% Base Revenue**
High voltage (HV) automation	PCD	64.2	
Total additional bespoke outputs		**64.2**	

Consumer Value Propositions	**Category**	**Cost**	**Gross Value**	**Net Value**
1. One-stop app solution for vulnerable customers	Vulnerable customers	£1.8m	£6.0m	£4.4m
2. Self-service analytics toolkit	DSO / Major Connections	£6.0m	£12.8m	£7.6m
3. Dynamic voltage optimisation for domestic energy efficiency	Whole Systems	£8.1m	£38.7m	£31.6m
4. Phase one rollout of next generation energy system	Whole Systems	£6.4m	£13.1m (10 yrs)	£7.6m (10 yrs)

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Activity Title	Description	Expected impact	
Vulnerable Customers			
ENHANCED DATA & DIGITAL SOLUTIONS ***£4m benefits*** *Targeted PSM recruitment and tailored services*	- 'One-stop-solution' app - Front-line staff have real-time access to amend the PSM	Eligible high-risk customers recruited to PSM	70%
		Net customer value from our app solution (CVP)	£4.4m
ONSITE SUPPORT FOR >6 HR POWER CUTS *More temporary restoration and upgraded communications*	- New support team to provide additional on-site support - Roll-out innovative SilentPower battery vehicles	Customer satisfaction	≥93%
		High-risk (P1) customers contacted <1 hour	100%
		PSR customers contacted <3 hours	95%
		Customers with enhanced on site support for >6hr power cuts	75%
SUPPORT 100k CUSTOMERS IN FUEL POVERTY ***£40m benefits*** *New partnerships to overcome barriers*	- Tailored affordability service for those in extreme fuel poverty - Partnerships for energy efficiency, available grants and support on how to benefit from the energy transition	Households in fuel poverty supported	100k
		No. interventions supporting socially inclusive transition	25k
Connections			
FACILITATE 90% UPLIFT IN LCT CONNECTIONS *Streamlined LCT processes enabling customers to identify the most viable and cost-effective connections*	- Self-serve quotations for a range of LV connections - LV heat map using monitoring and smart meter data	Uplift in EV LCT connections volumes by 2030	90%
SELF-SERVE TOOLS ***£7.6m customer value*** *New network data tools helping customers decide how and where to connect*	- Improved HV and EHV network capacity heat maps - Bespoke platform for ICPs and IDNOs	Customer value from AutoDesign self-service	£7.6m
SMARTER AND MORE FLEXIBLE SOLUTIONS *More technical advice for customers and smarter solutions*	- ANM system - network data and curtailment operations - Upfront discussions on flexible solutions with EHV connections customers	Major connections customer satisfaction	≥90%
Environmental Impact			
CARBON-NEUTRAL OPERATIONS BY 2040 ***20% BCF reduction by 2028***	- Introduce a science-based target (SBT), 63% lower by 2035 - 40% ULEV/ZEVs on fleet by 2028 - Renewable generation at 50 sites	Reduction in internal BCF (excluding losses)	20%
		SBT: reduction in scope 1 and 2 emissions by 2028	21%
		Reduction in SF_6 losses	15%
LOWER ENVIRONMENTAL IMPACT OF OPERATIONS *Upgrades in waste, biodiversity and supply chain standards alongside continuation of core programmes*	- 90% of suppliers compliant with our Responsible Procurement Charter - Collaborative biodiversity initiatives at 200 sites	Reduction in oil lost to ground	15%
		OHL undergrounded	61km
		Waste diverted from landfill	90%
		Recycling and reuse	85%
ADDITIONAL PCB COSTS OFFSET BY INNOVATION *Significant step up in PCB reduction programme alongside lower unit cost of fluid loss improvements*	- Unavoidable cost of £41m for PCBs offset by efficiency savings from the roll-out of innovative technology for oil filled cables including PFT tracers and self-healing cables	- Reduction in environmental costs vs. ED1	8%
DSO			
STEP CHANGE IN DATA CAPTURE AND ANALYTICS *Vital building block for the smart energy system*	- 10,000 more LV load monitors - Network data combined with external datasets - Analytics via a static strategic planning model	Ground mounted substations monitored	50%
		Improved data availability, quality and forecasts	✓
		Monitoring of losses through smart meter and LV data	✓
FLEXIBILITY FIRST APPROACH *Monitor, manage, reinforce* *Facilitate new markets for flexibility services*	- Flexibility market evaluation at 55 more EHV areas - New customer flexibility system integrating network operation with flexible resources - Enhanced control of Active Network Management	Investment in flexibility enabling actions	£87m
		Flexibility net benefits	£169m
NEW OPEN DATA PLATFORM *Unlock new capabilities and benefits for stakeholders*	- New open data platform with analytics tools - DFES updates - focal point for regional energy scenarios - New team supporting Local Area Energy Plans	Increase in energy system open data products	70%
		Supporting flexibility markets	✓
		More dynamic and robust regional energy plans	✓
Whole Systems			
MICROGRIDS AND VOLTAGE OPTIMISATION ROLL-OUT ***£253m benefits***	- LV network voltage optimisation for 27% of domestic customers improving energy efficiency - Early deployment of microgrid technology at 30 remote LV network locations to enhance system resilience	Whole systems benefits from voltage optimisation and microgrid roll-out	£253m
		Annual energy bill saving from voltage optimisation - domestic customers	£20
		Carbon reduction from voltage optimisation - domestic customers	27kg
CROSS-SECTOR, CROSS-VECTOR PLANNING *Regional planning and collaboration*	- Planning with heat networks, hydrogen and transport - Network planning modelling flexibility and mobile loads - Dedicated support for community energy	Quicker and lower cost decarbonisation	✓
		Increased service performance	✓
OPEN REGISTER FOR WHOLE SYSTEM COLLABORATION *Support customers to drive whole system benefits*	- Process that allows parties with complementary energy needs to find each other - Innovation into options for inter-seasonal storage	Lower whole system costs	✓
		Faster, lower cost connections	✓