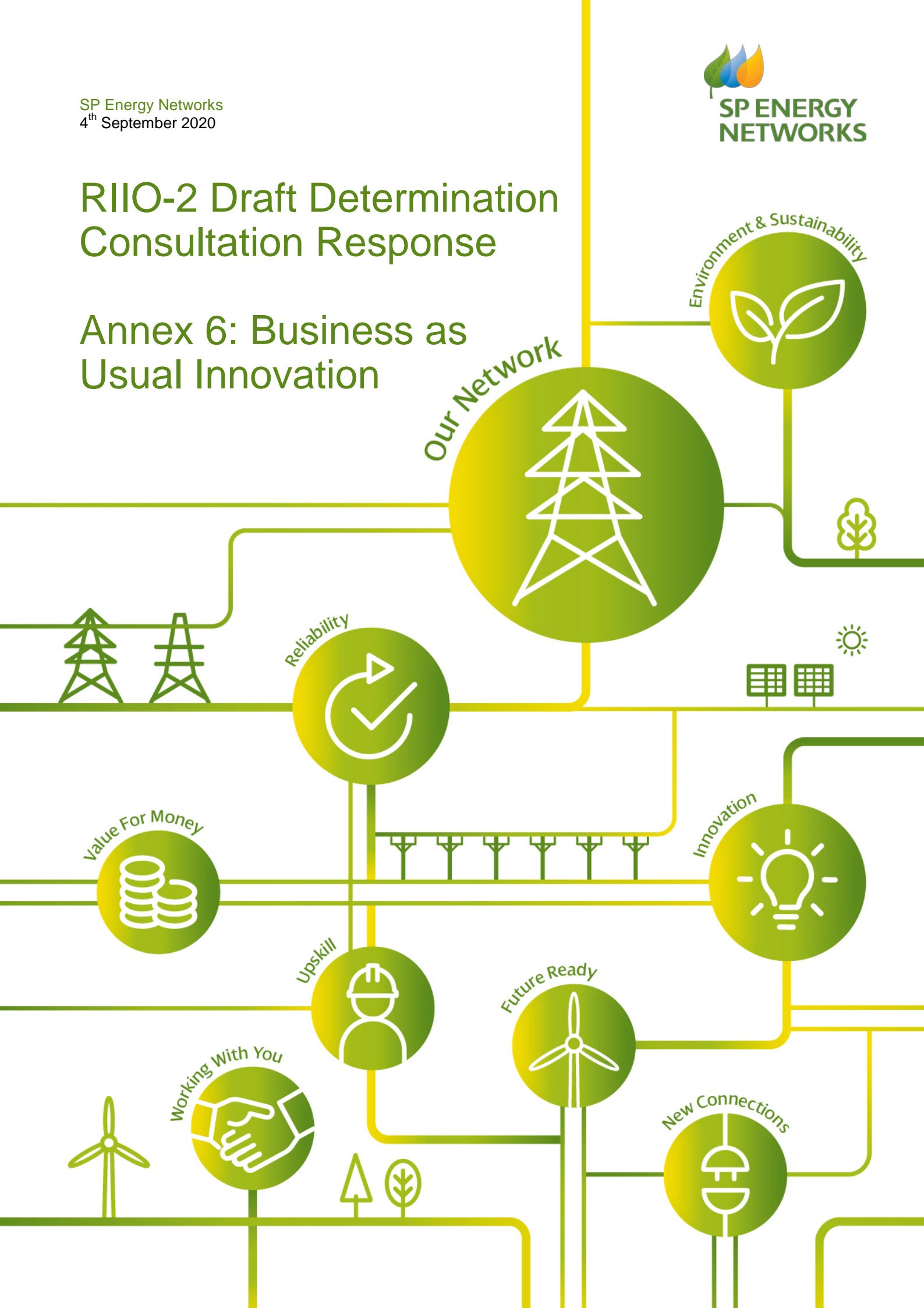


RIIO-2 Draft Determination Consultation Response

Annex 6: Business as Usual Innovation



CONTENTS

Chapter 1: Introduction

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Chapter 1: Introduction

1.1 As referenced in paragraph 12.36 of the core Draft Determination response document, the BaU innovation activities detailed in Annex 6 of SPT's Business Plan have been collated in the table below.

RIIO-T2 BaU Innovation	RIIO-T2 Incremental Innovation- NIA
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C1 Network Modernisation

Theme 1: Optimal Grid Design	Probability Planning Technology Uncertainties in Planning Learning From GARPUR (N-1)	Dynamic Load Modelling Whole System Modelling Modelling and Studies platform with enhanced computational capability
Theme 2: Smart Asset Management	Dissolved Gas Analysis P.D. Monitoring; HVDC Monitoring Use of thermo vision cameras for thermal imaging Use of drones and Unmanned Aerial Vehicles (UAVs)	Detection of ACSR Corrosion AI on asset management Non intrusive measurements Assessing environmental exposure of OHL routes
Theme 3: New Material, Technology	from HTLS, to Optimal Fibre Sensor Build in substantial learning from 20 NIA projects	Visualisation of assets, Digital Twin
Theme 4: HEALTH & SAFETY	Reducing Energy Losses from Transmission Substations	
Vulnerable Customers	The resilience to floods and investing in temporary transmission tower technology	Environmentally friendly alternatives of substations build and design

C2 System Security and Stability

Theme 5: System Observability	Wide Area Monitoring	Harmonic Mapping and Filtering
Theme 6: Grid Control	Phoenix, Synchronous Condenser	Power System Oscillation and Damping
Theme 7: Network Reliability and Resilience	Deploying wide area protection and control in SPEN's network using state of the art routable GOOSE (R-GOOSE).	Quantification of protection system challenges in future power grid Investigation into nature of future cascading faults
Theme 8: Enhanced Ancillary Services	Wide Area Monitoring, working with ESO Enhanced frequency control capability on a phasor controller platform	The Virtual Synchronous Machine implementation

C3 Network Flexibility

Theme9: TO-DNO Interface	Combine two different energy and distribution management systems (EMS, DMS) Data management: DNO Network Management Centres (NMCs)	Dynamic Modelling of demand and improving information exchange in real-time to improve day ahead operation planning procedures Using state estimators to provide a better picture of the transmission network operation parameters
Theme 10: Flexible Use of DERs	support Open Networks and provide transmission data modelling using DER as a valid option for Blackstart	Aggregated modelling of the distributed generation in different parts of the wider network and enabling network services through adoption of dynamic distributed demand modelling and distributed grid control
Theme 11: T11 Flexible Network Use	South West Scotland Generation Export Management System (GEMS) Offline Planning Tool for Dynamic Thermal Rating	Localised state-estimation to enhance network capacity

Theme 12: Whole System Approach	A Whole (Electricity) System and Whole Life assessment process Coordinated planning between TSO/DSO	The whole system assessment model development
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C4 Digitalisation of Power Networks

Theme 13: New Digital Technologies	Condition monitoring systems and digital recording devices to monitor system behaviours Roll out of Digital Substation	Enabling Digital Twin, 3D visibility
Theme 14: Standardisation	The use of IEC 61850 and other international standards	Definition of international standards for digitalisation and standardisation
Theme 15: Enhanced Data Analytics	Develop and deploy the meaningful data analytics platforms	Enhanced data analytics across our network for system planning, operational planning and forecasting
Theme 16: Cyber Security	The Network Information System Directive (EU) covers Operators of Essential Services (OES) the completion of a Cyber Assessment Framework (CAF) Deployment of Security Information and Event Management (SIEM)	Investigations into methods for wide-area cyber security Investigation into future cyber security threats and risk model development