Safety, Resilience, and Reliability Working Group
Meeting 1
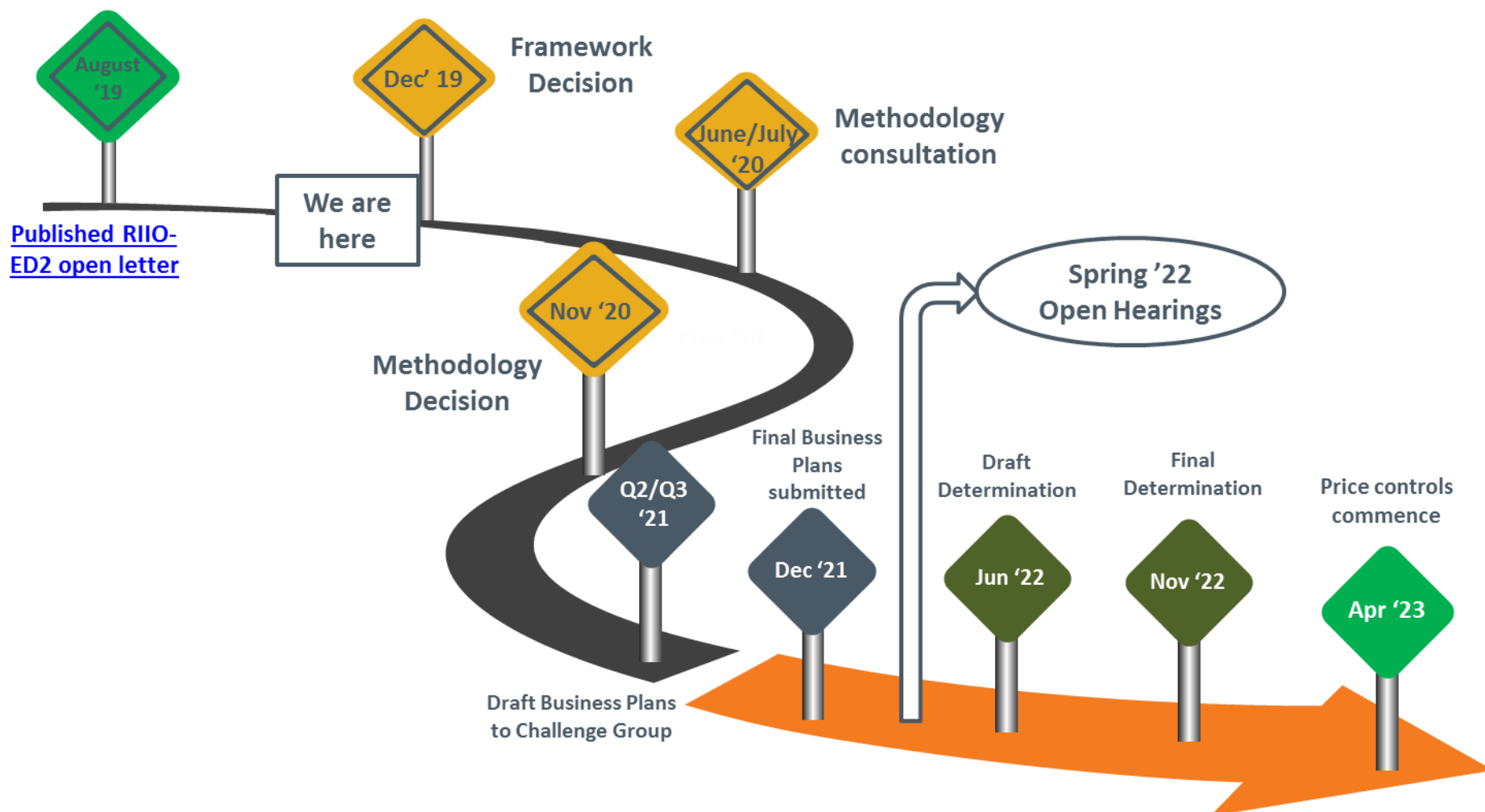
RIIO Electricity Distribution
27/11/2019

OFG1161

Safety, Resilience, and Reliability Working Group

- Welcome and introductions

- What we're seeking to achieve

  - Working Group Structure

  - High level timeline

- Review of progress from Reliability, Safety, and Environment Working Group

- Terms of Reference

- SRR Priorities

- Actions, Next Steps, AOB

What we are seeking to achieve

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August '19

Published RIIO-ED2 open letter

Dec' 19

Framework Decision

We are here

June/July '20

Methodology consultation

Nov '20

Methodology Decision

Spring '22 Open Hearings

Final Business Plans submitted

Draft Determination

Final Determination

Price controls commence

Q2/Q3 '21

Dec '21

Jun '22

Nov '22

Apr '23

Draft Business Plans to Challenge Group

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Our objectives

Meaning we have DNOs that ....

A high-quality and reliable service to all network users and consumers, including those who are in vulnerable situations

- Deliver great customer service
- Help fuel-poor households, and those that are most vulnerable from a loss of supply Support new customers in getting connected to the grid efficiently
- Enable people to produce their own energy and sell it easily

A safe and resilient network that is efficient and responsive to change

- **Are amongst the safest and most reliable in the world**

Enable the transition to a smart, flexible, low cost, and low carbon energy system for all consumers and network users.

- Support the target of net-zero carbon emissions for 2050 by enabling the rapid roll-out of low carbon technologies, including electric vehicles, and the development of a charging network to support them

Keeps network charges on bills as low as possible

We will achieve through our price control toolkit

In setting the price control
- Business plan incentive to encourage ambition and discourage gaming
- Cost assessment to root out inefficient costs
- Financial package to allow fair returns and maintain investor confidence
- Uncertainty mechanisms to mitigate the 'known unknowns'

In delivering the plan
- Totex incentives to drive the companies to beat the plan
- Flexibility solutions as alternatives to network investment
- Innovation to drive down costs
- Competition to use markets to set prices
- Enabling the best 'whole system' solution
- Return adjustment mechanisms to guard against 'unknown unknowns'

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A high-quality and reliable service to all network users and consumers, including those who are in vulnerable situations

- Cost of energy system transition may fall disproportionately on those most vulnerable, how does the price control provide a fairer balance?
- How should we distinguish between DNO and DSO roles in relation to funding and incentives?

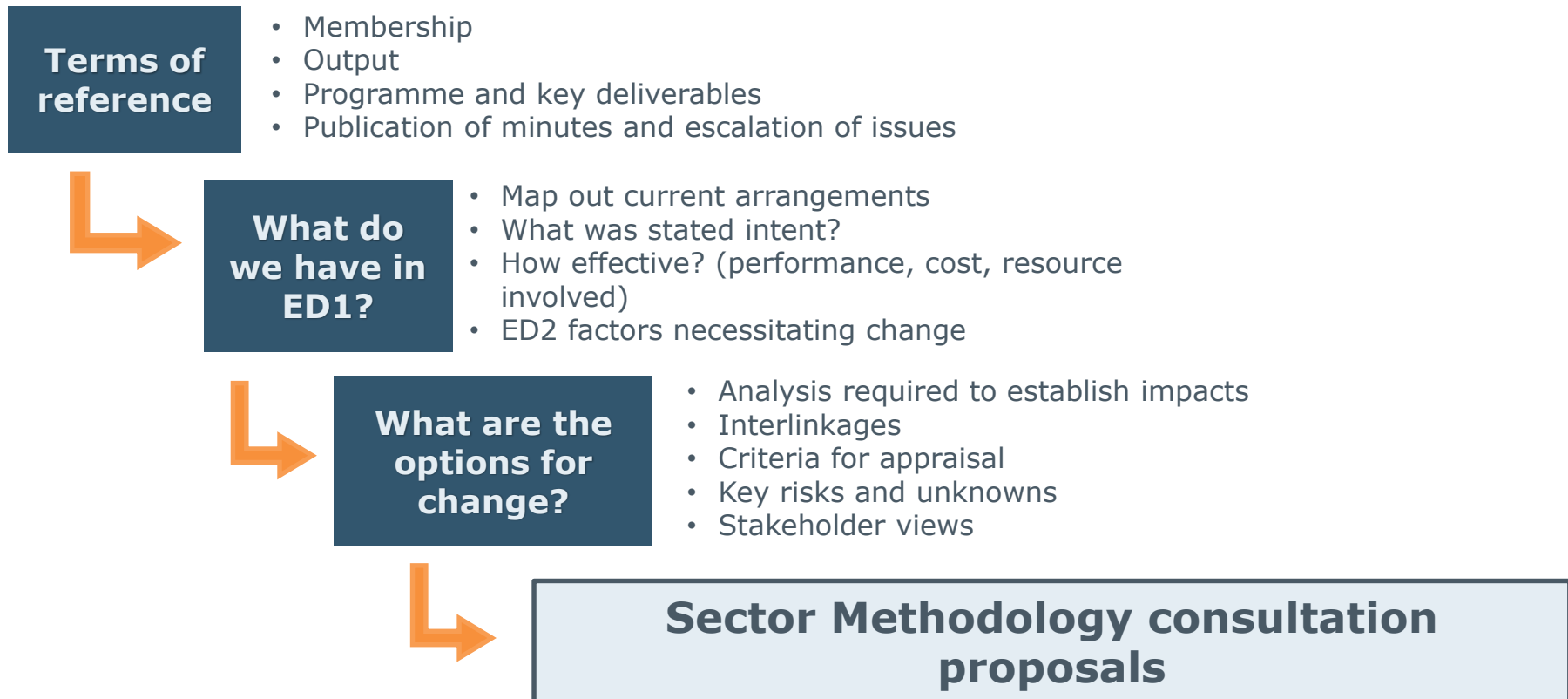**A safe and resilient network that is efficient and responsive to change**

- **Are reductions in the 'average' duration/length of interruptions still appropriate when short interruptions are increasingly disruptive? What about the worst served?**
- **How do we ensure the networks are investing wisely for future resilience?**

Enable the transition to a smart, flexible, low cost, and low carbon energy system for all consumers and network users.

- How is the energy consumer benefit defined in relation to decarbonisation? What does this mean for the role of networks and the scope of the price control; strategic investment ahead of need; and strategic innovation funding?
- Should we promote the interests of low carbon technologies over non-renewables, for example by socialising more of the connection costs for low carbon electric vehicles?
- How do we future proof the networks to anticipate demands in 2050? How do we manage risks of stranding and closing down alternative pathways?

Keeps network charges on bills as low as possible

- Electrification of heat and transport likely to require significant additional expenditure
- How do we ensure flexibility and DER is fully utilised, and that markets between DER and network infrastructure are neutrally facilitated?

open, digitised data… cyber resilience… innovation… whole system solutions… interaction with govt (central, devolved, local)..

Terms of reference
- Membership
- Output
- Programme and key deliverables
- Publication of minutes and escalation of issues

What do we have in ED1?
- Map out current arrangements
- What was stated intent?
- How effective? (performance, cost, resource involved)
- ED2 factors necessitating change

What are the options for change?
- Analysis required to establish impacts
- Interlinkages
- Criteria for appraisal
- Key risks and unknowns
- Stakeholder views

Sector Methodology consultation proposals

- These are **working** groups. Membership is not granted because of interest in the topic but because you can provide information and analysis that will support policy development
- Not all working groups will run through to Summer, some may be short sprints feeding into other working groups
- We may have to adapt our approach once these are up and running

- We propose to hold a WG session approximately every other week.
- We plan to run sessions in the Glasgow and London Ofgem offices.
- Depending on room availability, we may need to restrict the number of representatives that each member organisation sends to meetings of the Group

Date	Location	Summary	Items to cover
27 November 19	London	First session	ToR, Priorities
05-Dec-19	London	NARM/CNAIM	
09-Jan-19	London	Quality of Supply	
16-Jan-20	Glasgow	NARM/CNAIM	
30-Jan-20	London	Resilience	
12-Feb-20	London	NARM/CNAIM	
18-Feb-20	London	Quality of Supply	
03-Mar-20	Glasgow	Resilience	
18-Mar-20	London	NARM/CNAIM	
31-Mar-20	Glasgow	Quality of Supply	
07-Apr-20	London	Resilience	

Progress in RSEWG

- Ofgem-DNO working group established in December 2018 based on RIIO-ED1 working group structure.

- Regular meetings in 2019, mainly covering Network Asset Risk Metric (NARM) and Quality of Supply (QoS).
  - Identified the key priorities to focus on; these formed the agenda/basis for future meetings.

- NARM meetings focused on:
  - Data quality
  - Application and use of CNAIM (within and across sectors)
  - Links to CBA development

- QoS meetings covered:
  - Applicability of Load Indices and future options
  - Value of Lost Load/Willingness to Pay
  - Interruption types

NARM	QoS
Developments of methodologies to report future (whole life) risk improvements	Load Indices unlikely to be fit for capturing network use with increased LCT/DG uptake
Prioritisation developments of the harmonisations and extension of CNAIM	VoLL will be greater than for ED1, and varies across customer types
Focus to develop an engineering guidance	Data quality on non-incentivised interruptions needs improving
Development of Non-CNAIM risk measures	IIS target setting process may need reviewing

What did we say in our Open Letter consultation?

- Our proposed position is that the **Network Asset Risk Metric (NARM) will apply to RIIO-ED2**, as part of a toolbox approach to justifying and assessing network companies' (proposed) investments and preferences for chosen strategies.

- Our proposed position is to introduce arrangements to **ensure DNOs are appropriately managing the risks associated with cyber and physical security, and workforce resilience**.

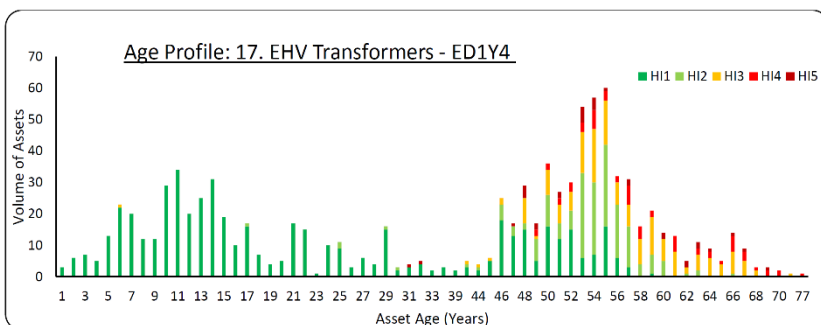Some key themes from stakeholder responses to our Questions on resilience:

Cyber and Physical Security
- While a decentralised and digitised energy system, with an increase in the connected smart devices, while Some key themes from stakeholder responses to our Questions on resilience: provide significant opportunities for new services for customers, it will also represent new attack surfaces that could be used to disrupt supplies.

- DNOs also stress that investment will be required to improve network resilience in the face of increased risks posed by climate change (increased frequency and severe weather events, increased ambient temperatures etc.).

- Enhanced Disclosure Task Force (EDTF) findings and recommendations regarding data openness and transparency represents a significant threat.

Workforce Resilience
- While DNO activities are changing, core asset operational functions remain broadly the same. Challenges are not new and have been well managed by DNOs as part of a gradual transition.

- DNOs fully aware of future challenges and have plans in place to address skills and ageing workforce challenge.

- There could be a requirement to explicitly set out proposals to maintain resilient workforce in RIIO-2 within Business Plans.

Some initial thoughts on Common Network Asset Indices Methodology (CNAIM) and Regulatory Instructions and Guidance (RIGs) reporting:

Age Profile: 17. EHV Transformers - ED1Y4

- Health Index is based on an ageing rate with weak condition modifiers. The mathematical relationship is the same regardless of asset type, voltage level, inspection and maintenance regime etc. For higher value assets can a more representative relationship be developed to better represent asset degradation?

- The use of the Maximum Minimum Increment (MMI) approach, ensures that the Health Score Factor is primarily driven by the strongest observed or measured Condition Input Factor, supplemented to a lesser and controlled degree by any additional Condition Input Factors. This approach diminishes the impact of multiple poor condition scores, locking the condition modifier close to the highest single score. Is this approach still appropriate and well justified and is the calibration in CNAIM still correct. i.e. does the observed condition impact the POF and therefore Health Index?
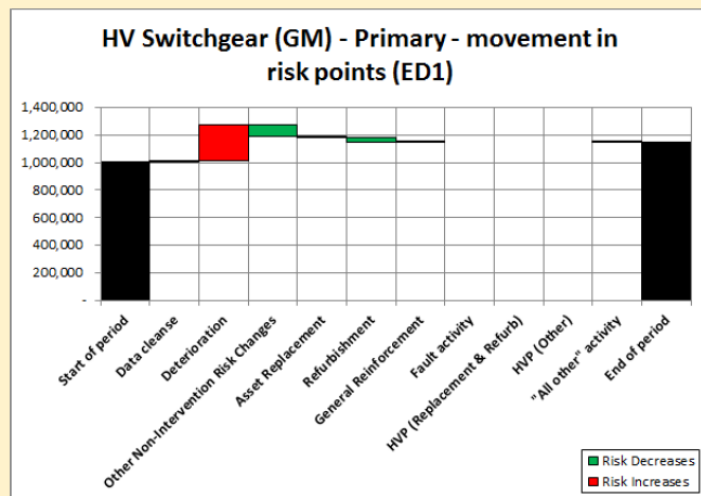
Case 1: one or more Factors > 1

- Factors = 1.2, 1.0, 1.1, 1.02, 0.9, Max. No of Combined Factors = 4, Factor Divider 1 and Factor Divider 2 = 2
- Var 1 = maximum of Factors = Max(1.2, 1.0, 1.1, 1.02, 0.9) = 1.2
- Var 2 = sum remaining Factors where Factor - 1 > 0 = (1.1-1) + (1.02 - 1) = 0.12
- Var 3 = Var 2 / Factor Divider 1 = 0.12 / 2 = 0.06
- Combined Factor = Var 1 + Var 3 = 1.2 + 0.06 = 1.26

- Throughout the ED1 period, licensees submit RIGs Annex D data templates. These templates contain the net movements across the risk matrices for asset categories associated with Health Index categories included in each licensee's NASD targets.

2019	Start of year					
	HI 1	**HI 2**	**HI 3**	**HI 4**	**HI 5**	
C1	11040	2799	13826	1778	2174	**31,617**
C2	7940	2384	7723	1517	1693	**21,257**
C3	5255	1391	4435	716	723	**12,520**
C4	2147	777	2123	265	205	**5,517**
	26,382	**7,351**	**28,107**	**4,276**	**4,795**	**70,911**

Impact of deterioration					
HI 1	**HI 2**	**HI 3**	**HI 4**	**HI 5**	
236	-424	193	182	218	**405**
-655	-173	160	176	114	**(378)**
-444	21	127	90	81	**(125)**
-142	24	112	56	48	**98**
(1,005)	**(552)**	**592**	**504**	**461**	**-**

HV Switchgear (GM) - Primary - movement in risk points (ED1)

- What graphics or visual aids are available, that can be incorporated in the RIGS packs, to make it easier to track movements between asset categories?

- Where volumes are lower than the targets in the business plan, explanation and commentary should be provided. Are we capturing alternative investments and asset 'trades' in the current RIGs reporting?

Reliability
- 14% reduction in CIs and 10% reduction in CMLs in RIIO-ED1 to date.
  - GB Figures: 43.7 CI and 35.2 CML
  - GB reliability: >99.99%

- 3% reduction in Short Duration interruptions; GB figure now at 81.9 (CI equivalent).*

- £548m earned under the IIS to date; £9.8m per DNO per year on average.

Guaranteed Standards (18-19 prices)
- £4.4m mandatory payments made in RIIO-ED1 to date; £3.9m in ex gratia/voluntary payments made.
  - Average mandatory payment in 18-19: £68
  - Average ex gratia payment in 18-19: £69

Worst Served Customers
- 77% increase in the number of customers off supply >24 hours since 2015-16.

- £5.8m spent on WSC schemes in RIIO-ED1 to date (12-13 prices).

*Reporting and recording of short duration interruptions is not (yet) consistent across the industry; this figure is based on the data submitted by DNOs as part of the RIGs

Over the course of RIIO-ED1, we have identified some challenges and areas to improve:

Application of Clock Stopping under the IIS
- There were different practices of stopping the clock on an interruption
- We have changed the Regulatory Instructions and Guidance to provide clarity on the circumstances in which DNOs can stop the clock on an interruption
- 2019-20 reporting will give better comparison across DNOs

Reporting on short duration interruptions
- Different DNOs record and report short duration interruptions differently.
- Short duration interruptions are not incentivised under the IIS, and the RIGs only require DNOs to report the total number of Short Interruptions due to four causes (automatic operation of switchgear, automatic operation of switchgear plus manual/remote control, manual/remote operation of switchgear for deliberate disconnection, operation of switchgear on transmission/other DNO systems).
- We are considering how to improve reporting in RIIO-ED1, to better understand and monitor performance

Guaranteed Standards reporting
- The current template is not easy to populate or compare performance.
- Work with Citizens Advice (and the ED1 QoS WG) is developing better reporting to help improve our understanding of what (if any) changes may be needed.

Incentive Rates

Value of Lost Load is a good basis; previous value will need updating.

Revenue Exposure

Currently limited to 250 RoRE basis points. May need to be reviewed based on updated VoLL.

Targets

Unplanned targets have been fixed, based on a combination of DNO and industry performance. Planned targets are rolling based on DNO own performance.

Improvement Factors

Currently vary based on position vs benchmark. Two options may need to be reviewed.

Performance baseline

Likely to need a 'dry-run' ahead of finalising the targets. ED1 targets based on performance up to 2012-13.

Weightings

Planned interruptions weighted at 50%; NGET interruptions weighted at 10% only on CML. VoLL/WTP studies should inform review of current weightings.

Benchmarking

HV performance is disaggregated for benchmarking. LV performance may be the next option.

Classification of expenditure

Treatment of DNOs' expenditure on driving IIS performance – included in RAV, sharing factor application etc.

Terms of Reference

- The ToR will need to be reviewed and updated following taking account of stakeholder feedback.

SRRWG ToR RIIO ED2:

The Group will evaluate current approaches in the RIIO-ED1 price control. In doing so, it will:

- Consider options for the development of the Network Outputs framework which, in RIIO-ED1, currently consists of the Health and Load Indices;

- Assess the approach to the Interruptions Incentive Scheme (IIS), Guaranteed Standards of Performance (GSOP) and worst-served customers (WSC);

- Explore how network resilience will be assessed, and any potential metric that may cover physical and/or cyber security, workforce resilience, and impacts of climate change; and

- Establish possible safety outputs;

- Consider how the measures referred to above will need to adapt to enable the transition to Net Zero, including how flexibility and the changing use of the networks may affect the outputs DNOs need to deliver.

SRR Priorities

Theme	Topic	Detail
Reliability - NARM	Methodology - General	
	Commonality of assets/extension to further assets	
	Non-NARM assets	
	Cost alignment	
Reliability - QoS	Interruption types, including WSC	
	Target setting	
	Exceptional Events	
	Guaranteed Standards	
Resilience	Climate Change Resilience Metric (CC Adaptation)	
	Cyber, physical, and workforce resilience	
Safety	Safety metrics	

Actions, Next Steps, AOB

- The next meeting will take place on 5th December, covering NARM/CNAIM. It will be in London.

- We will circulate notes and an actions log from this meeting.

- Based on the prioritisation exercise, we will set out the anticipated topics to be covered at the upcoming meetings.

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Our core purpose is to ensure that all consumers can
get good value and service from the energy market.
In support of this we favour market solutions where
practical, incentive regulation for monopolies and an
approach that seeks to enable innovation and
beneficial change whilst protecting consumers.

We will ensure that Ofgem will operate as an efficient
organisation, driven by skilled and empowered staff,
that will act quickly, predictably and effectively in the
consumer interest, based on independent and
transparent insight into consumers' experiences and
the operation of energy systems and markets.