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The voice of wind & marine energy

RenewableUK previously: BWEA

RIIO and RIIO-T1 (TPCR5)

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Price Control Review Forum
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RenewableUK (formerly BWEA)

- UK's leading renewables trade association
- 650 corporate member across Wind, Wave and Tidal
- Engaged with and responded to RIIO consultation
- Engaged with and responded to TPCR5 consultation
- RIIO-T1 Working Group member - Environment, Customer satisfaction/Connection Output Working Group member

Today's presentation will look at:

(1) Networks and the Sustainable Energy Sector

(2) Outputs for the low carbon economy

(3) Innovation

RIIO – Facilitating the low carbon economy

Box 1: Components of the RIIO model

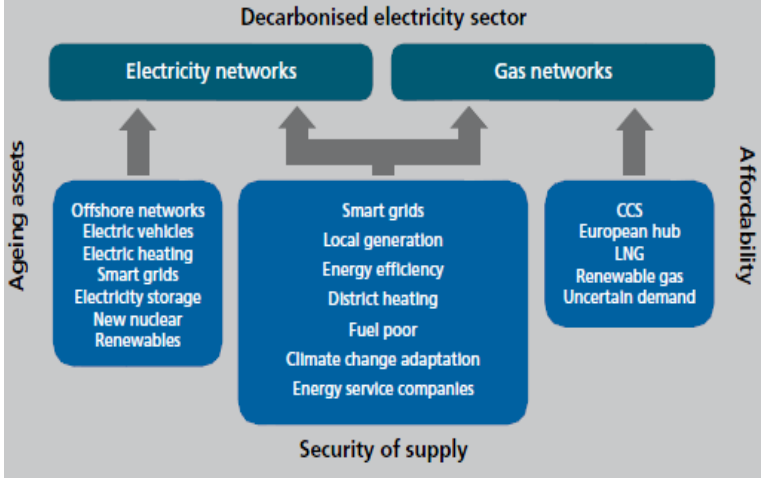
1 **Objective:** The overriding objective of the RIIO model is to encourage energy network companies to:

- play a full role in the delivery of a sustainable energy sector
- deliver long-term value for money network services for existing and future consumers.

Changes in the energy sector

2.3 The energy sector is in a period of significant change. As shown in Figure 2, the changes are primarily driven by the need to deliver a low carbon economy - with a target of 80 per cent reduction in greenhouse gas emissions by 2050 and decarbonised electricity generation by 2030 – while maintaining security of supply. The drivers of change will continue to evolve. Network companies and the regulatory framework will need to adapt accordingly.

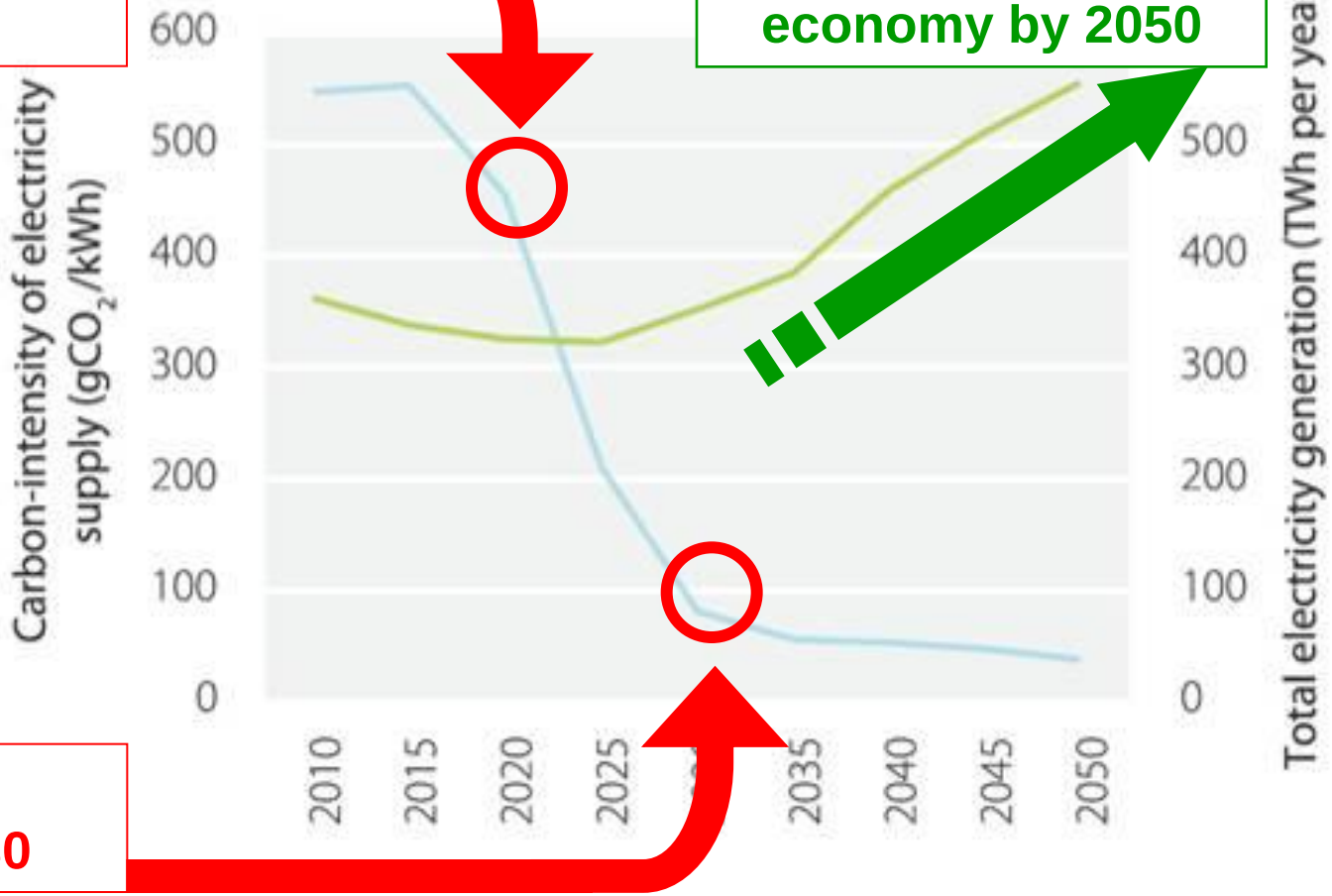
Figure 2: Challenges facing the energy sector



Decarbonisation of electricity by 2030

2020 RE Target is 1st milestones

Decarbonised economy by 2050



Decarbonised electricity by 2030

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Source: The Committee on Climate Change www.the-ccc.org.uk

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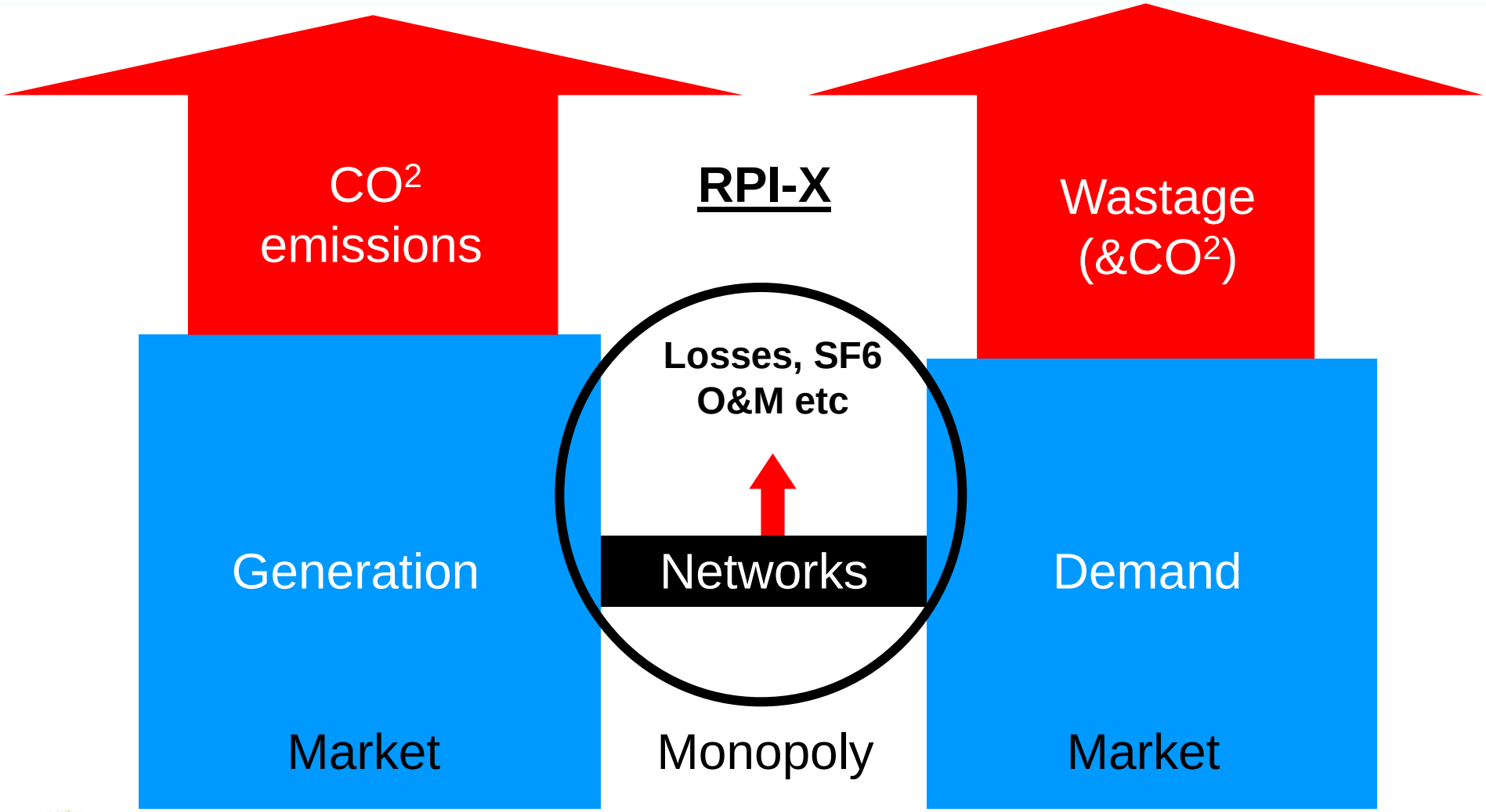
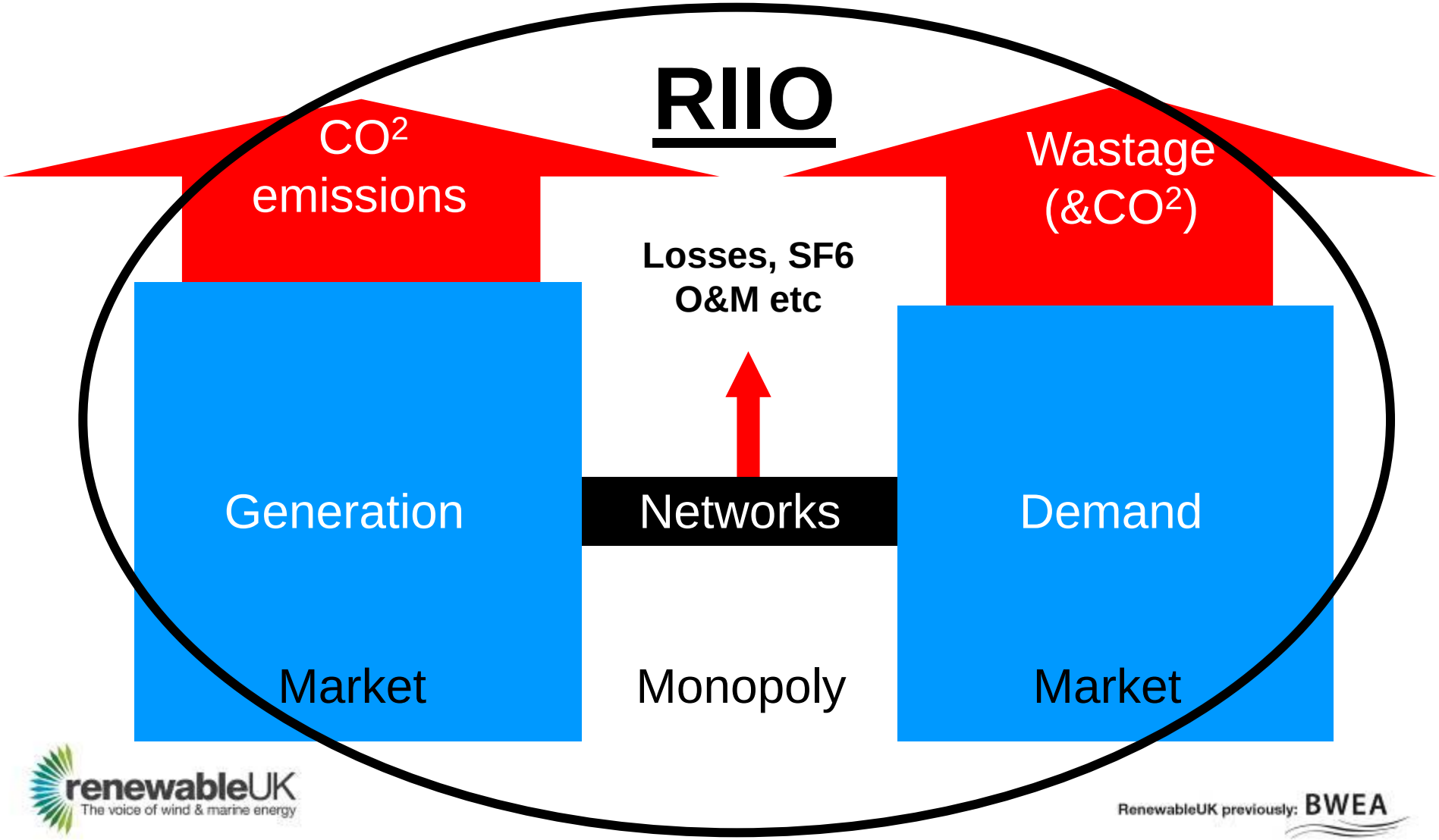
Networks exist for generation & demand



RIIO expands the scope!

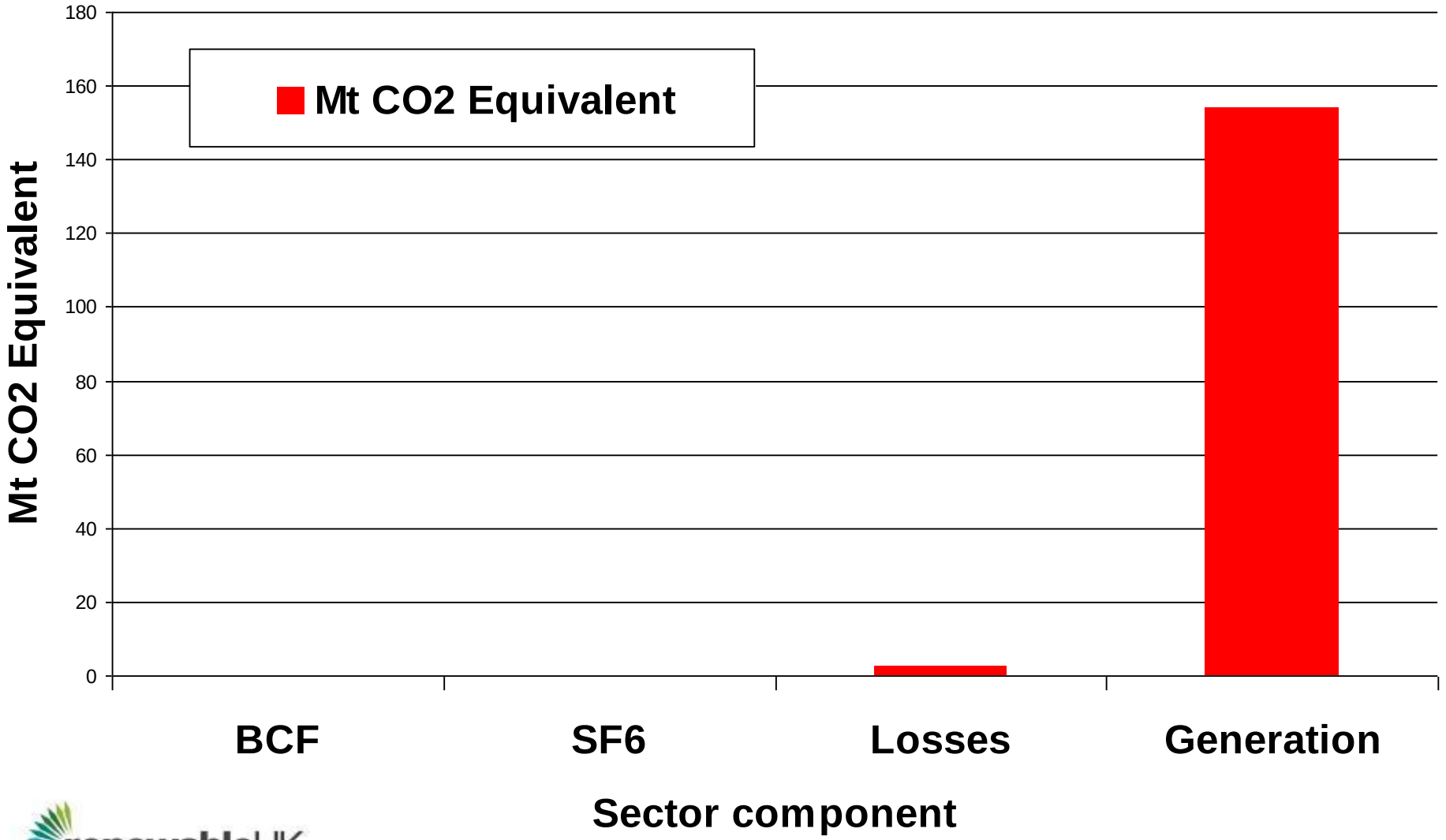


Materiality – Contributions compared

Sector	MtCO2 Equivalent	Percentage (%)
BCF (1)	0.01	0.01
SF6 (2)	0.14	0.14
Losses	2.64	2.64
Generation	154.00	98.22
Total	156.79	100

1. Estimated
2. Estimated from SP 700kg/year

Materiality – Contributions compared

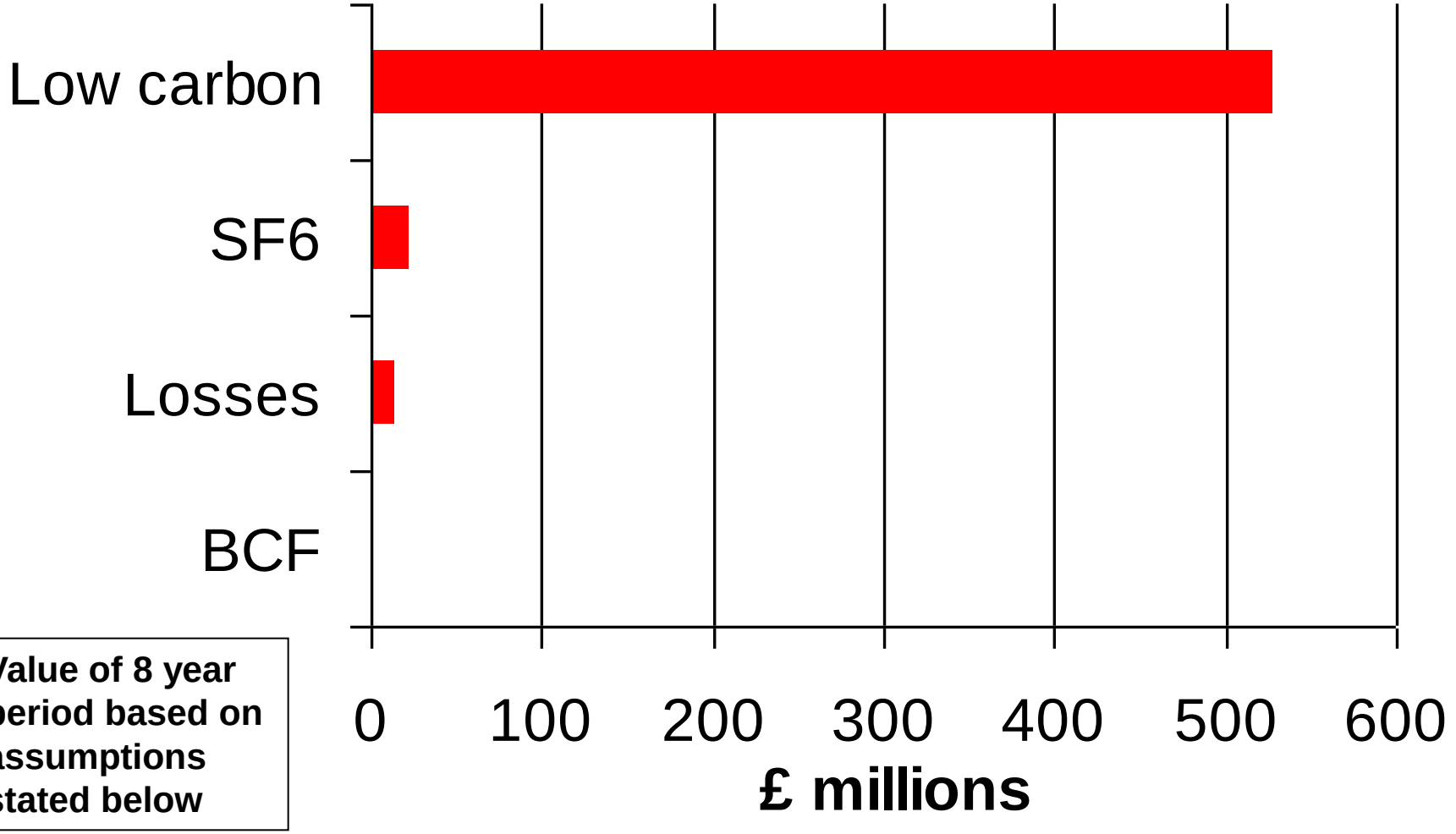


Sustainable network opportunities

- BCF – 25% reduction in CO2
- SF6 – 600kg CO2 annual reduction
- Losses – 2.6% annual reduction
  (e.g. by replace 30% of transformers)
- Low carbon – 1GW brought forward annually
- £50 per tCO2

(Full list of assumption stated in the back of handouts)

RIIO-T1 CO2 potential savings (£ millions)



Value of 8 year period based on assumptions stated below

Options for low carbon economy outputs

(1) No measures

(2) Sulphur Hexafluoride (SF6)

(3) Business Carbon Footprint (BCF)

(4) Customer satisfaction

(5) UK targets based measures

Measures should be:

Principles	Details
Material	significant contribution toward the objectives of Sustainable Network Regulation
Controllable	have full or a sufficient degree of control over performance against the primary outputs, with the strength of any incentive taking account of the degree of controllability
Measurable	possible to meaningfully measure the primary outputs using quantitative or qualitative methods
Comparable	be possible to measure the primary outputs meaningfully over time and across network companies in a sector by normalising the levels of performance that they are incentivised to achieve
Applicable	possible to use the primary outputs to set penalties and rewards as part of the process of determining revenue allowances
Compatible with promoting competition	facilitate competition in upstream and downstream markets
Legally compliant	compatible with existing legal obligations

SF6 – Score

Principles	Score	Details
Material	1	Only ~0.1% of GB emissions
Controllable	2	In practice control depends on asset replacements with impacts on outages and decadal timescales.
Measurable	3	Already measured by network company.
Comparable	1	Normalisation should be possible bearing in mind numbers and age distribution of GIS gear..
Applicable	2	Yes
Compatible with promoting competition	1	Irrelevant to competition
Legally compliant	1*	Yes – done before
SCORE	11	

Scores:

0 Zero / No*

1 Low / Yes*

2 Medium

3 High

Business carbon footprint – Score

Principles	Score	Details
Material	0	Immaterial part of GB emissions
Controllable	2	Control depends on business growth / shrinkage and efficiencies.
Measurable	2	Most measured under CRC.
Comparable	1	Normalisation should be possible allowing for geography, business size, expansion/ shrinkage
Applicable	2	Yes
Compatible with promoting competition	1	Irrelevant to competition
Legally compliant	1*	Yes – done under CRC
SCORE	9	

Scores:

0 Zero / No*

1 Low / Yes*

2 Medium

3 High

Losses– Score

Principles	Score	Details
Material	1	Losses are only 1.8% of emissions – and carbon cost of losses will be negligible post decarbonisation.
Controllable	1	Depends on generation being connected and demand changes. TO changes higher voltage and low loss trafos are decades to roll out.
Measurable	2	Already measured but mixed up with accuracy and data issues + (at DNO level) theft.
Comparable	1	Normalisation will be difficult because of voltages, flows and annual differences. Outages exacerbate..
Applicable	1	Difficult - see above
Compatible with promoting competition	0	Irrelevant or anti-competition (discourages remote connections)
Legally compliant	1	Yes – done before
SCORE	7	

Customer satisfaction - Score

Principles	Score	Details
Material	2	Assuming vast majority customers are low carbon / renewables
Controllable	2	Do customers understand roles of TO, SO or DNO and planning system (e.g. w.r.t. statements of works, charging, time delays)
Measurable	1	Hard to ensure potential customers are captured
Comparable	1	Hard to weigh importance / potential of each customer. Low numbers for TOs could be statistical errors.
Applicable	2	Assuming problems can be surmounted.
Compatible with promoting competition	3	Compatible with competition
Legally compliant	1*	Yes- Networks must respond to customers
SCORE	12	

UK targets – Score

Principles	Score	Details
Material	3	High level measure is most material
Controllable	1	Depends on generation being connected and demand changes
Measurable	2	Energy flows and related fuel types are already measured by others, needs breaking down by network company.
Comparable	1+1	Normalisation will be difficult because of geographic differences and changing technologies – however team bonus is proposed.
Applicable	2	Yes
Compatible with promoting competition	3	Compatible with competition
Legally compliant	1*	Yes - Supports UK international obligations and UK law
SCORE	14	

UK targets - issues

- UK targets – RIIO is GB
- Renewables 2020 – Energy/Electricity
- Role of DNOs and OFTOs
- Role of heat and transport
- Decarbonisation 2030
- Benchmarking Networks with different opportunities
- SO role
- Team bonus structure

Innovation – Demonstration to Deployment ?

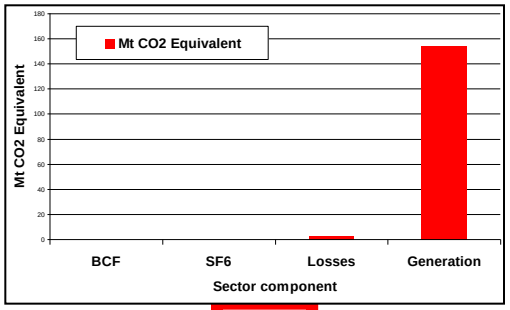
- Network companies are encouraged to innovate.
- Innovations could result in ideas which
  - Save networks money to deliver
    - Therefore networks will roll out innovation.
  - Save others money but cost networks more to deliver (i.e. lower cost to consumer).
    - Why should networks roll out the innovation before the next price control review period when this innovation can be targeted and incentivised?
- However with a low carbon target in place
  - If the innovation supports the low carbon targets there will be a reason to drive it through even if it costs the networks some money.

Comparisons of scores

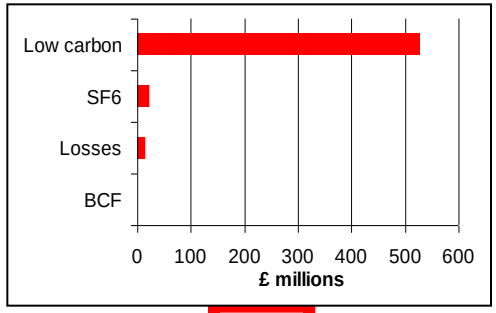
Principles	SF6	BCF	Customer	Losses	UK targets
Material	1	0	2	1	3
Controllable	2	2	2	1	1
Measurable	3	2	1	2	2
Comparable	1	1	1	1	1+1
Applicable	2	2	2	1	2
Compatible with promoting competition	1	1	3	0	3
Legally compliant	1*	1*	1*	1*	1*
SCORE	11	9	12	7	14

Summary

- RIIO – facilitates the low carbon economy
- Materiality - Environmental opportunities
- Materiality - Potential savings (£ and CO2)
- Proposed outputs compared



Principles	SF6	BCF	Customer	Losses	UK targets
Material	1	0	2	1	3
Controllable	2	2	2	1	1
Measurable	3	2	1	2	2
Comparable	1	1	1	1	1+1
Applicable	2	2	2	1	2
Compatible with promoting competition	1	1	3	0	3
Legally compliant	1*	1*	1*	1*	1*
SCORE	11	9	12	7	14



Conclusions

- RIIO is the catalyst for Networks to facilitate the low carbon economy
- Outputs should reflect national targets/milestones:
  - 2020: Renewables
  - 2030: Decarbonised electricity
  - 2050: Decarbonised economy
- Materiality must be the heart of incentives structure
- Innovation should not be incentivised for its own sake
- Broad, high level outputs are key to deploying innovative solutions in line with objectives

Request for forum agreement

- Establish the objectives of RIIO at the heart of the future price control periods – Starting now!
- Truly transform TPCR5 into RIIO-T1

- Recommend the completion of carbon materiality assessments by Ofgem
- Endorse the inclusion of “UK target” primary output within the forthcoming consultation

Assumptions

- The below stated assumption support quantitative comparisons for potential savings across the RIIO-T1 timeframe.
- These assumptions are not for presentation, but can be provided with any external distribution for reference outside forum discussions.

BCF – potential savings

25%		Assume a 25% reduction over price control review period
0.01	MtCO2	existing footprint
0.0025	MtCO2	annual reduction at end of TPCR
0.01	Mt CO2	saving over 8 years
0.50	£m	carbon value over price control review period

Carbon @£50/tonneCO2

SF6 – potential savings

20	kg	Say 20kg per annum per changed GIS CB/CT
30	units	Say 30 units GB per annum
600	kg	annual reduction
4800	kg	annual reduction at end of TPCR
0.11	MtCO2	annual reduction at end of TPCR
0.42	MtCO2	saving over 8 years
21.00	£m	carbon value over price control review period

Carbon @£50/tonneCO2

Losses – potential savings

20%		Say 20% of losses are transformer losses
30%		30% of transformers are replaced in PCRP
40%		losses are reduced by 40% by low loss versions
2.4%		Annual Reduction
0.06	Mt CO2	annual reduction at end of TPCR
0.86	£m	carbon value over price control review period

Carbon @£50/tonneCO2

Low carbon & renewables – potential

1000	MW	low carbon generation brought forward one year, each year
35%		load factor
3.07	TWh	Annual generation brought on a year early
0.43	kg/kWh	Carbon intensity
1.32	MtCO2	each year
10.55	MtCO2	saving over 8 years
527.50	£m	carbon value over price control review period

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