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Promoting choice and value
for all gas and electricity customers

RIIO-ED1 Distribution Losses

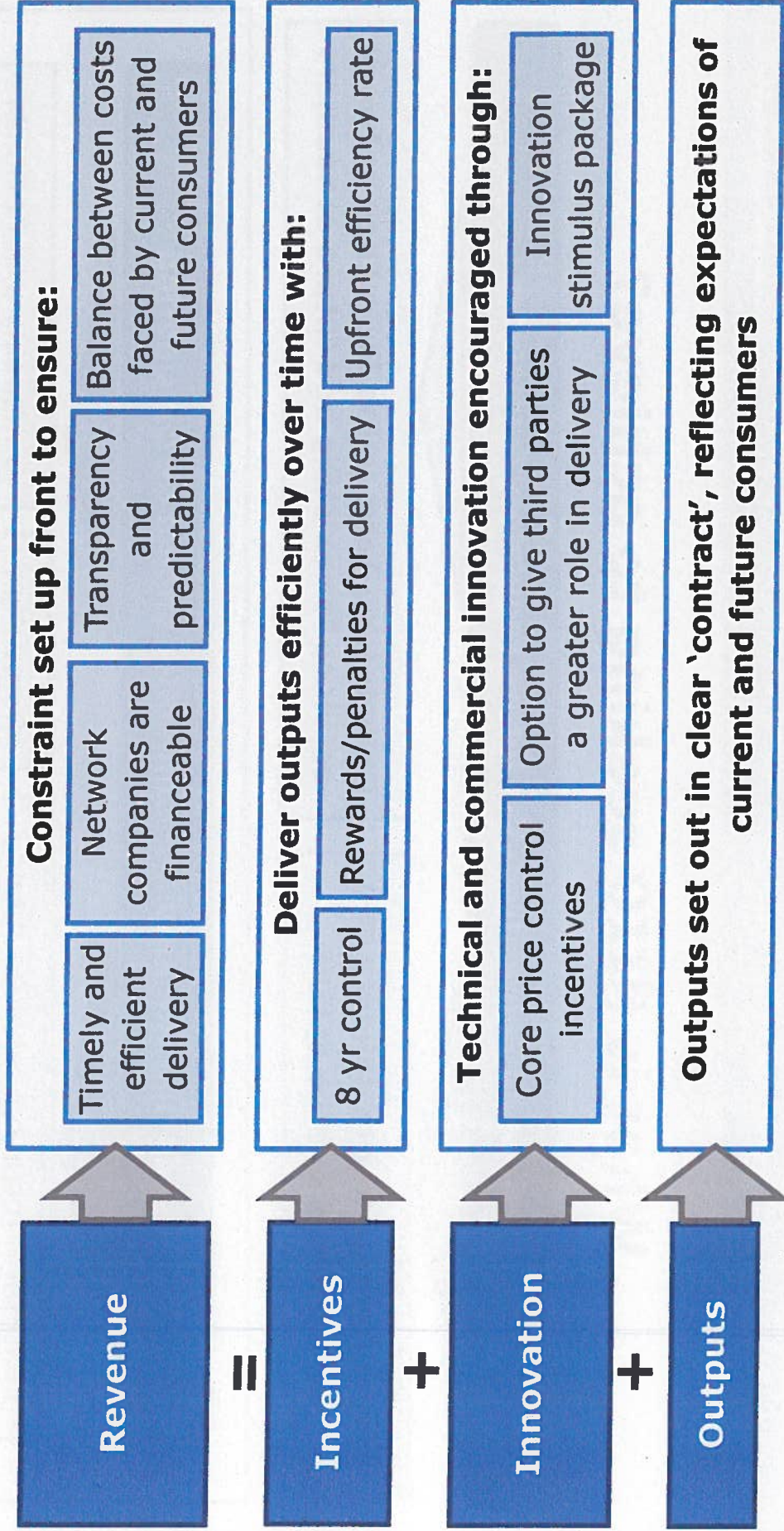
LWG discussion 4 May 2012

The Goal: To consider the approach to Distribution Network Losses in RIIO-ED1

What do we want to achieve?

- High level understanding of the RIIO approach
- Recap of the current losses approach
- Overview of feedback from RIIO-ED1 February 2012 consultation
- Listening to stakeholder views
- Questions to consider
- Way forward

RIIO: A new approach to regulation



What is RIIO seeking to achieve?

Desired outcomes from the future regulatory framework

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

Issues that the network companies should be considering

Long-term focus on value for money

Working with others to identify best delivery solutions

Innovation

Optionality and flexibility

Understanding and responding to needs of existing and future consumers

The current approach to losses

- Why do we do anything about losses?
 - To encourage DNOs to manage distribution network losses (network efficiency and reduce emissions)
- How can DNOs manage network losses?
 - network investment (efficient equipment)
 - optimising network operation
 - Encouraging users to control losses
 - Improved quality of data
 - Actions to reduce theft
- Key requirements
 - Reporting (data) integrity
 - Consistency over time

Summary of RIIO-ED1 Open Letter responses

- Question asked in the open letter published in February 2012
 - Which of the DPCR5 outputs and incentives do you consider to be fit for purpose, or require minimal amendment, for RIIO-ED1?
- Responses summary
 - Of 26 responses, 9 refer to the losses incentive directly, and 4 indirectly
 - Those that refer to it specifically are
 - Four DNOs
 - Three suppliers
 - REA
 - Consumer Focus

What do respondents say about the losses mechanism?

- ALL responses query the mechanism's suitability in its current form
 - Smart metering roll-out and its impact on quality of data
 - DNO efforts to reduce losses negated by measurement errors no incentive
 - DNO/Supplier Working group concluded mechanism fundamentally flawed and settlement data is not appropriate for measuring distribution losses →
 - No evidence of reduced carbon
 - Windfall gains / losses outside of DNO control
 - Suggest incentive should be limited to technical losses, and/or incentive strength substantially reduced
 - A mechanism to assess improvements based on technical interventions
- Other stakeholders refer to it indirectly
 - Low carbon a priority
 - Impact of the incentive on other stakeholders / tariffs
 - IDNO participation in incentives
 - Link to innovation and its effect on the network

Some concepts and principles to consider in going forward

Proportionality

Adaptability and
Commitment

Consistency

Clarity and
Controllability

Transparency

Credibility

Some questions

- Is there still a rationale for trying to reduce distribution losses?
- Do DNOs have enough direct control to undertake adequate actions to reduce losses?
- If the current mechanism isn't fit for purpose – do we walk away from it?
- Does the approach taken focus on a) the right stakeholders, and b) the right data?
- Has the current approach improved the losses position / carbon emissions in any measurable way?
- Incentive vs penalty approach?
- Who pays for it? Should they?

The logo for Ofgem, consisting of the word "ofgem" in a white, lowercase, sans-serif font, centered within an orange rounded rectangle. The background of the entire page is a faded image of an industrial facility with a large white dome and various structures under a blue sky.

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for all gas and electricity customers**



Distribution Losses in ED1

4 May 2012

Tony McEntee



Purpose of A Losses Incentive

- What is the purpose of a losses incentive?
 - Encourage DNOs to reduce real losses on their networks?
 - Encourage DNOs to ensure all units entering or exiting their system are accounted for?

Reducing Real Losses

- └ What do we mean by a mechanism that encourages DNOs to reduce losses on the network?
 - Is this at an absolute level (e.g. Total Losses)?
 - Is this a relative level (e.g. Compared to Units Distributed)?
 - Is this from what they would have been had the DNO taken no action?
- └ Changes in load can cause changes in losses that mask the effects of underlying performance.
 - Loading up existing capacity causes total losses to increase, relative losses to decrease?(dependent on fixed/ variable ratio)
 - More peaky load causes total and relative to increase.
 - Location and volume of Distributed Generation.
- └ Any output approach may need to be adjusted for these effects.

Reducing Real Losses (2)

- ✔ May need some form of assessed benefits approach for ED1 for DNO losses initiatives with benefits audited.
- ✔ Are targets needed in order to ensure some minimum level of assessed improvement is achieved?

Ensuring all units are recorded

- ✔ Current data quality and the introduction of smart metering make a wholly output based approach unworkable for losses for ED1.
- ✔ One objective for ED1 should be to improve the measurement of losses.
- ✔ A low-powered output based approach may still have a role to play in ED1 to ensure all units are recorded.
 - DNO actions
 - Ensure all connections metered (correctly!)/ on an inventory
 - Tackle theft and ensure suppliers tackle theft
 - Scrutinise/ challenge supplier data and settlement processes
- ✔ A full output mechanism may still be appropriate in some form for ED2.

WPD – Losses Presentation



Serving the Midlands, South West and Wales

DPCR5 - Losses

Positives

- Consistent across DNOs
- Removes the LAFs
- The Cap and Collar provides limited exposure

Negatives

- No control over losses
- Includes DPCR4 Close Out Payment
 - uncertainty
- Indecision at a very late stage
 - uncertainty
- Methodology too Rigid
- Required a lot of investment in time and systems to set up



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ED1 – Losses Method

Suggestions

- Record losses but suspend incentive until smart metering roll out
 - Smart metering could have a significant effect in level of losses recorded
 - Mid period review
- Very little change from existing recording method as the systems are in place
 - Consistent across DNOs
 - Removes the LAFs
- No DPCR5 Close Out Payment
 - Improve certainty
- Example scenarios when methodology could be relaxed
- Certainty early on



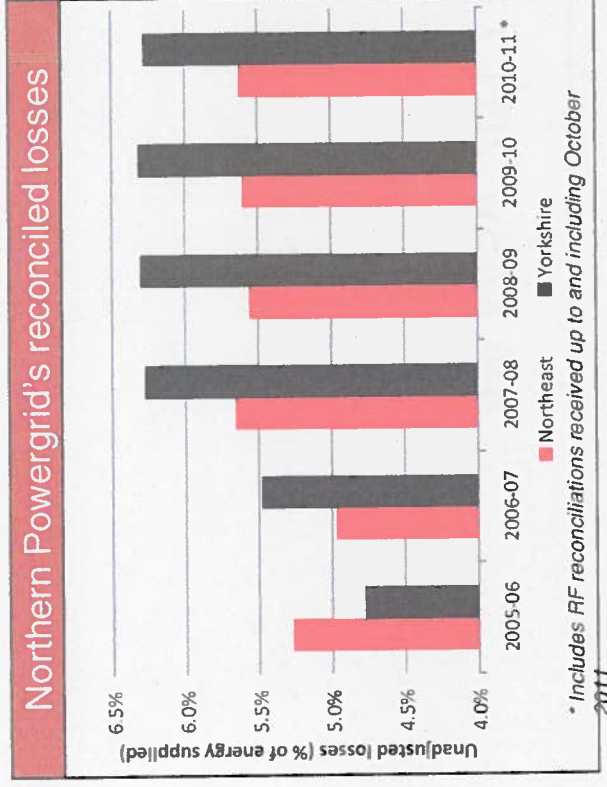
The RIIO-ED1 losses incentive

4th May 2012

The DPCR5 losses incentive will not be fit for purpose at the start of RIIO-ED1

- The DPCR5 losses incentive takes as its starting point settlements data which inherently relies on estimated consumption
 - There have already been material issues with consistency over time in DPCR4 settlements data as historical errors have been corrected
 - While the data should have been improved by RIIO-ED1, there is no guarantee an end point has been reached
 - The roll-out of smart meters during RIIO-ED1 is likely to uncover further material errors, and material discontinuities as these are corrected
- Establishing incentive targets and consistent measurement will be extremely challenging
- Any efforts DNOs can make to reduce actual electrical losses will be drowned by changes in measurement error, which is not an effective starting point for any incentive.

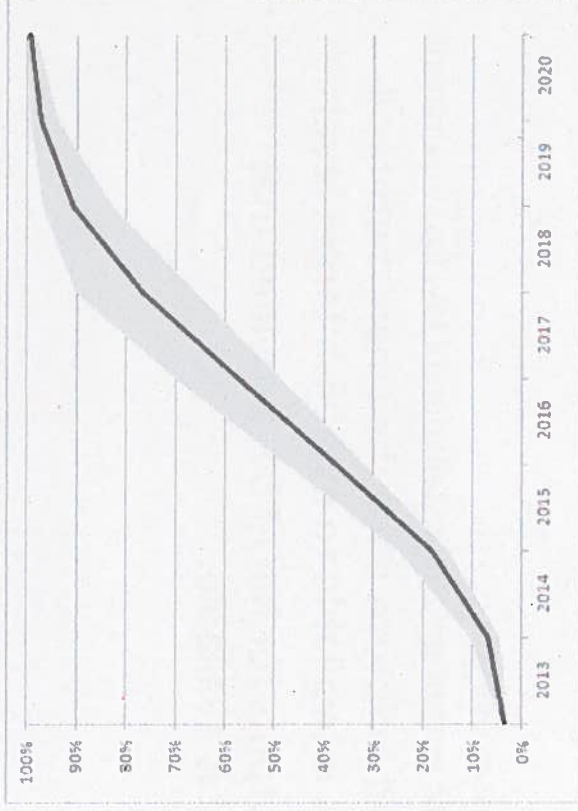
An alternative must be found if Ofgem is to be able to implement a credible incentive to reduce electrical losses from the start of RIIO-ED1



Smart meters should improve losses data but will need to be rolled out and bedded in first

- Smart meters should bring material benefits to the operation of networks
- This should include the ability to measure electrical losses on the network with much greater accuracy, provided that the :
 - technical specification of the meters and data transmission network is good enough; and
 - roll-out covers a large enough proportion of currently non half hourly metered sites
- But the rollout will take time...
- ... It might cause the data to get worse before it gets better...
- ... and we will need to have enough stable data available before targets can be set...
- Critically, we cannot forecast what the impact of the rollout will be when setting targets

Range of cumulative smart meter rollout volumes — DECC Impact assessment 30/03/2011



While smart meters should help, they will not provide an answer soon enough for the start of RII0-ED1

During the transition, an alternative way to incentivise electrical loss reduction is needed

- Although direct measurement and incentivisation of electrical losses would be ideal, this is not possible
- The best available proxy is required, and we have seen that the current settlements data is not fit for purpose
- This leaves the obvious alternative as an engineering model of electrical losses on the network which would:
 - provide a consistent measure of losses and changes in losses over time
 - be a sound basis for a relatively high powered incentive to encourage the installation of low loss equipment
- Any proxy arrangements should then be reviewed in future once the smart meter roll-out is completed and sufficient post roll-out data is available to establish target levels.
- This may be possible at the mid-period review of outputs for RII0-ED1, provided that sufficient data following the smart meter roll-out is available.

An engineering model of losses is the most obvious candidate, at least until enough data is available from smart meters



**SP ENERGY
NETWORKS**

Losses Incentive for RIIO-ED1

Garth Blundell

Gerry Boyd

4 May 2012

Summary of DPCR5 losses incentive



Purpose of the DPCR5 Losses Incentive

- To achieve an efficient level of losses on distribution networks
 - by making appropriate investments;
- Optimising networks operation;
- Working with third parties to improve data accuracy; and
- Reduce theft.

Incentive value £60/MWh (pre-tax, 2010-11 prices)

Wholesale price of electricity

Less EU Emissions Trading Scheme (ETS) cost of carbon

Plus the shadow price of carbon, as set by Defra

Common reporting methodology

- Using settlement data as at RF

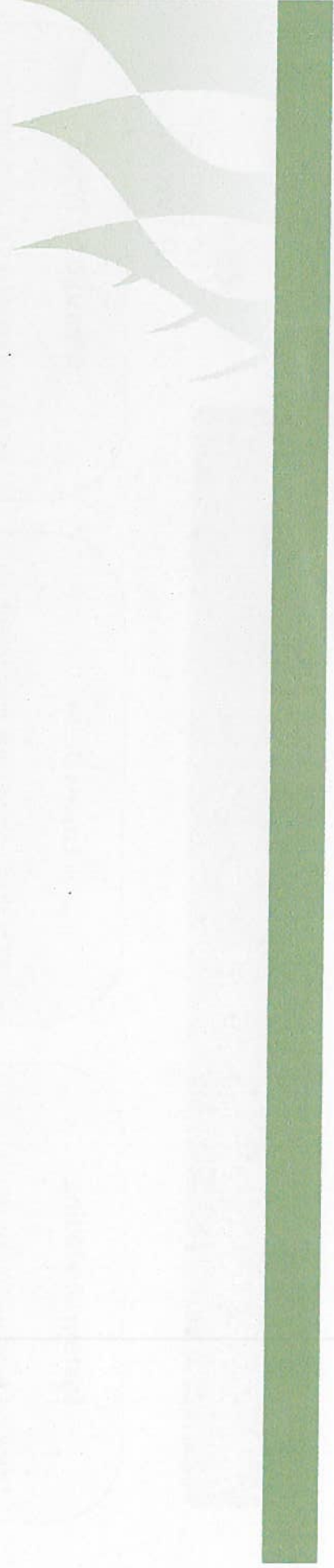
Cap and Collar

- 97 bps RORE (pre-tax)
- Annual threshold c75GWh

Focus of RIIO-ED1 should be on technical losses



- Reducing technical losses directly reduces carbon emissions
- Data movements likely to swamp underlying technical improvements
- Roll-out of smart metering raises new issues
- At cap or collar there is no effective incentive



Alternative Measurement Options



System Modelling

Using system data and known network parameters models could be created to evaluate the variance in technical losses over time. These models could then be used to incentive DNOs against set improvement targets.

Pros

- Analysing the impact of technical losses
- Eliminates volatile settlements data from the mechanism

Cons

- At lower voltage levels the capture frequency, quality of system data reduces whilst system complexity increases
- Consistency of DNO modelling and resource implications to implement

Losses Delta

DNOs already have clear investment plans during a Price Review with an implicit movement in technical losses. By quantifying this as part of our investment plans we can be measured against the installation of low loss equipment.

Pros

- Drives DNOs to ensure that they install low loss equipment
- Can be implemented to incentivise continuous system loss reductions
- Relatively simple to measure and model movements

Cons

- System conditions will create a variance between theoretical vs actual loss reductions

Measure by Type

By measuring losses improvements by the type of loss they can be proportionately treated based on the level of control DNOs have over the root causes.

- Technical
- Data Accuracy
- Theft

Pros

- Proportionate treatment
- Continues to address technical losses whilst continuing improvements in other problem areas

Cons

- Still requires a mechanism to measure technical losses
- Further complications to the losses mechanism
- Limited powers to influence settlement data

DNO Losses Incentive

Friday 4th May

Andy Manning- British Gas

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We believe it is important for customers that we have an effective Losses Incentive scheme

- There are significant potential benefits from reducing distribution losses
- Lower losses will lead to:
 - Lower quantities of electricity being required
 - Environmental benefits from reduced carbon savings
 - Reduction in the need for network investment, reinforcement and maintenance
- DNOs should face robust incentives to reduce controllable losses on their networks

Any scheme must be transparent and only offer a reward when customers have received a benefit

The *Data Quality* aspect of the current incentive means the scheme is not cost-neutral for customers. DNOs receive a benefit for increasing settlements volume, without any corresponding energy decrease for customers

Targets should be robust. Targets could be adjusted for approved capital expenditure plans.

Any rewards for losses improvements need to be correlated against actions taken by the DNO. DNOs should be able to explain the drivers behind losses performance

All data and calculations underpinning any losses incentive should be transparent. Under DPCR5 methodology, calculations could potentially be done centrally

- In a fuller 'SMART' world the current scheme will broadly work, with robust targets, and ensure 'real' benefits
- In the shorter term, this approach needs to be augmented by a consideration of the actual DNO activity

