



# **Electricity distribution losses - A DNO perspective**

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# ***Electricity distribution losses*** ***- A DNO perspective***

- **What is the problem?**
- **Can it be resolved within existing framework?**
- **If not, what other options are available?**

## ***What is the problem?***

- **Distribution losses represent a significant cost to customers and the environment**
- **DNOs have limited control over them**
- **Losses are calculated as the difference between two large numbers, one of which is of questionable accuracy**
- **Current losses incentive fails to provide appropriate economic signals**
  - **Incentive scheme should provide a net benefit to DNOs to be effective**



## ***Nature of losses***

- **Energy consumed in transportation of electricity**
  - **fixed rate of consumption**
  - **variable consumption, dependent on load carried**
- **Energy not properly accounted for**
  - **measurement errors**
  - **settlement errors**
  - **illegal abstraction**

## ***Current incentive mechanism***

- **For non-technical losses existing arrangements work well**
  - typically costs are opex which can be set against a (declining) 10 year income stream
  - benefit from extra ‘units distributed’ in price control
  - reinforced by 2.9p/kWh losses driver
- **For technical losses existing arrangements fail to encourage new investment**

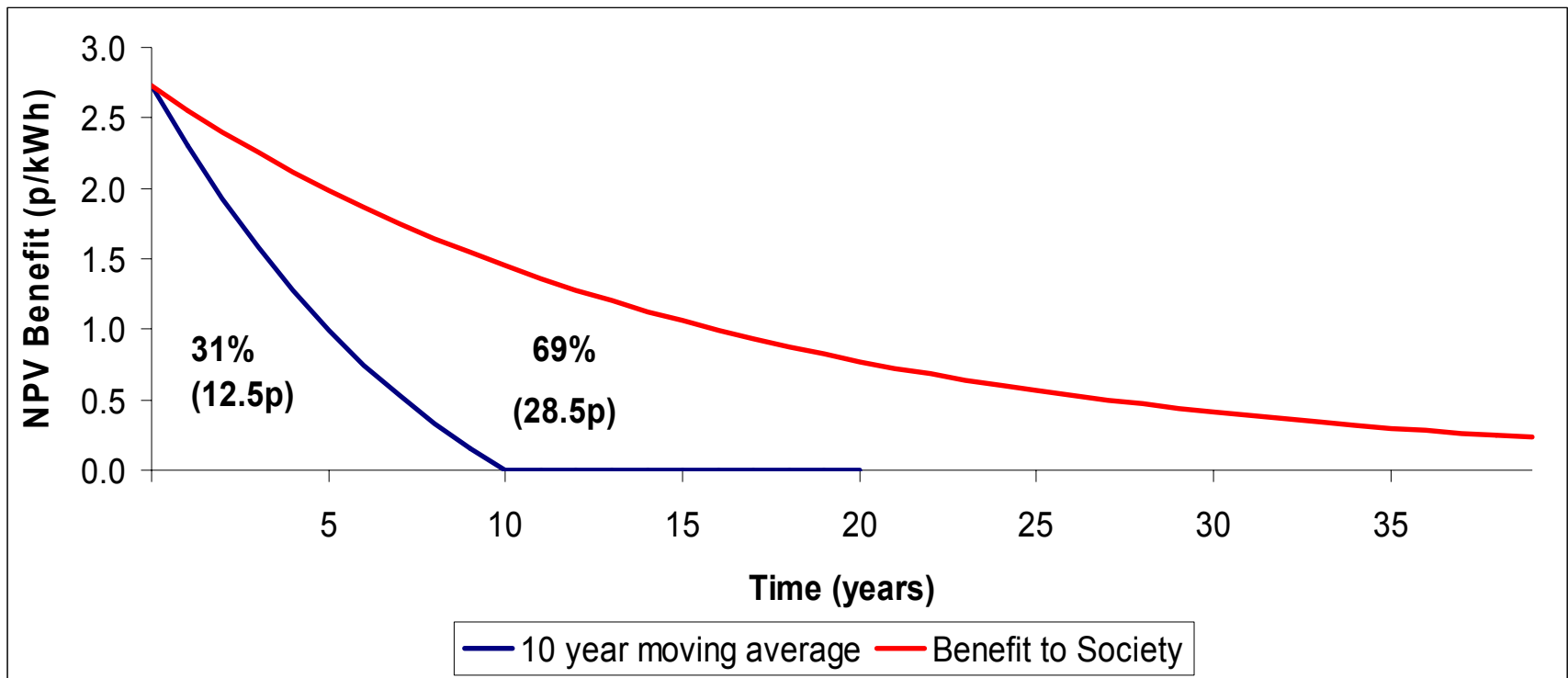
## ***Alternative incentive schemes***

- **Adjusting the current incentive scheme**
- **The NGC approach**
- **DNOs purchasing electricity to cover losses**

# ***Adjusting the current incentive scheme***

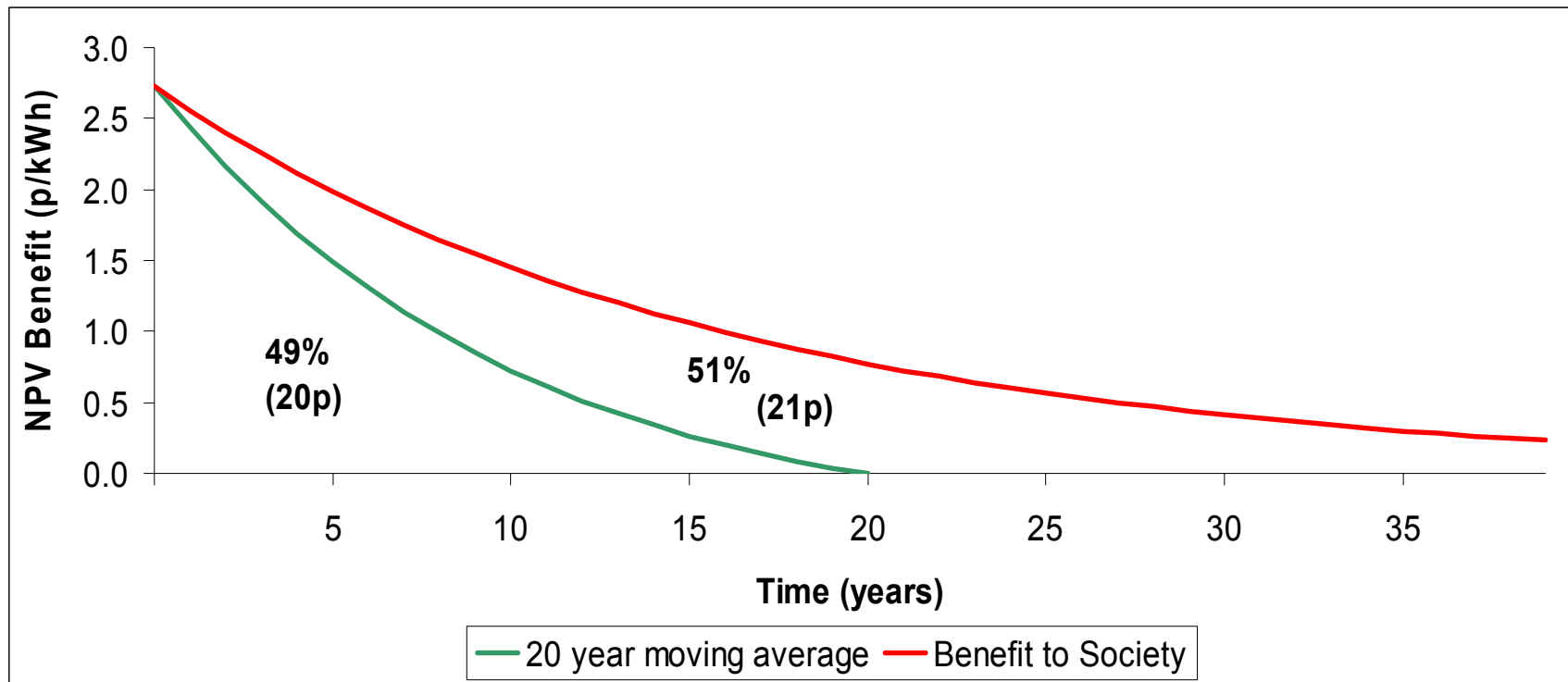
- **Extend benefit period closer to typical asset life**
- **Extend reporting period to remove short term volatility**
- **Increase valuation, to reflect full societal cost**
- **Use of benchmarking to set targets**

## Current regime



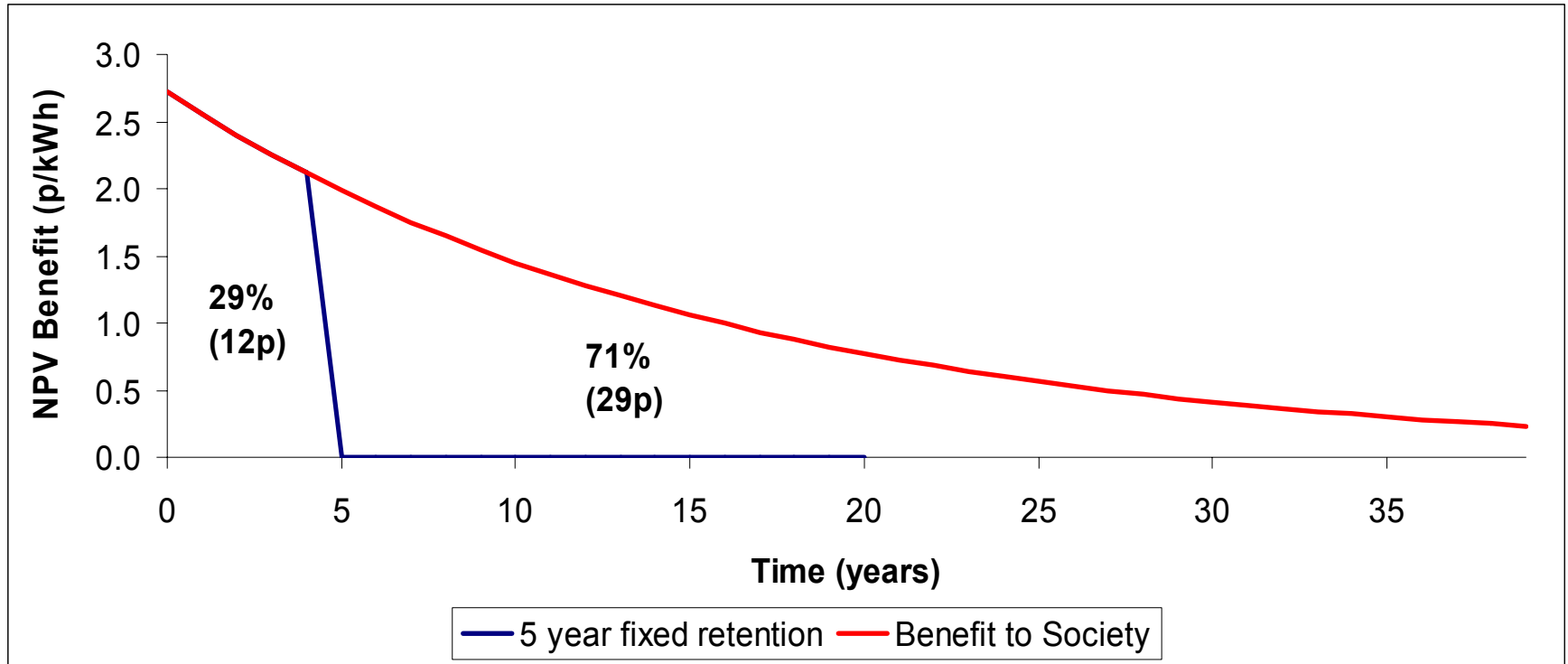
- **Current scheme divides 41p revenue between customers (69%) and DNOs (31%)**
- **DNOs are not getting a fair share to finance reductions in technical losses**

## *Extending the benefit period*



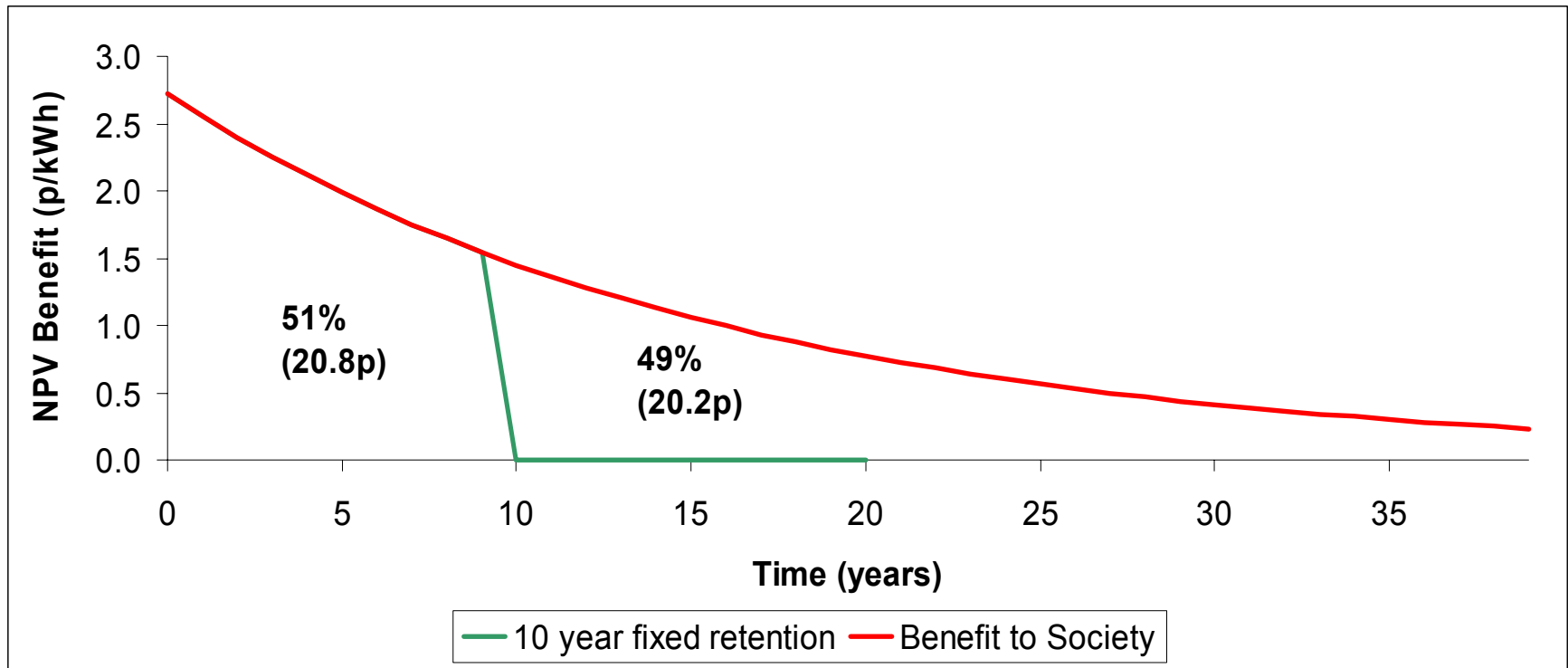
- **20 year moving average scheme increases the incentive to fund investment to reduce losses**
- **A 3.6p/kWh losses incentive increases the revenue shared between customers and DNOs by 10p to 51p**

# Fixed retention incentive



- **5 year fixed retention benefit provides a similar sharing factor to the current 10 year moving average scheme**

## Fixed retention incentive



- **10 year fixed retention benefit provides a similar sharing factor to the current 20 year moving average scheme**

## ***...but***

- **Losses still only partially under companies' control**
  - **Longer periods and higher rewards could also mean sustained penalties**
  - **Move to new connection charging arrangements could increase losses**
  - **Extended recovery periods add to risks from any change in regulatory framework**
- ⇒ **Input scheme could be based upon 12p - 26p/kWh to finance loss reduction investment**

# ***Benchmarking of losses***

- **Absolute level of losses determined by:**
  - **network configuration**
  - **sales volumes**
  - **sales mix**
  - **distributed generation**
- **... and in short term by settlements and measurement errors**
- **Suggests need for greater understanding of losses drivers before benchmarking can be considered (cf. IIP?)**

## ***Purchasing of losses***

- **Exposes DNOs to more risk, which will affect cost of capital**
- **DNOs exerting effort to control the price rather than reduce the volume of losses**
- **Complex issues that require significant investment in IT systems and human capital**
- **Measurement issues remain**

## ***Losses - The way forward?***

- **Modify present scheme to improve incentives for the benefit of all?**
- **Set targets on basis of past performance?**
- **Supplement with specific input incentives in capex planning for price review?**
- **Aim to make more radical reforms in 2010 as measurement and relative performance issues are resolved?**