

# NATIONAL INFRASTRUCTURE COMMISSION

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**Preparing for a drier future**  
England's water infrastructure needs

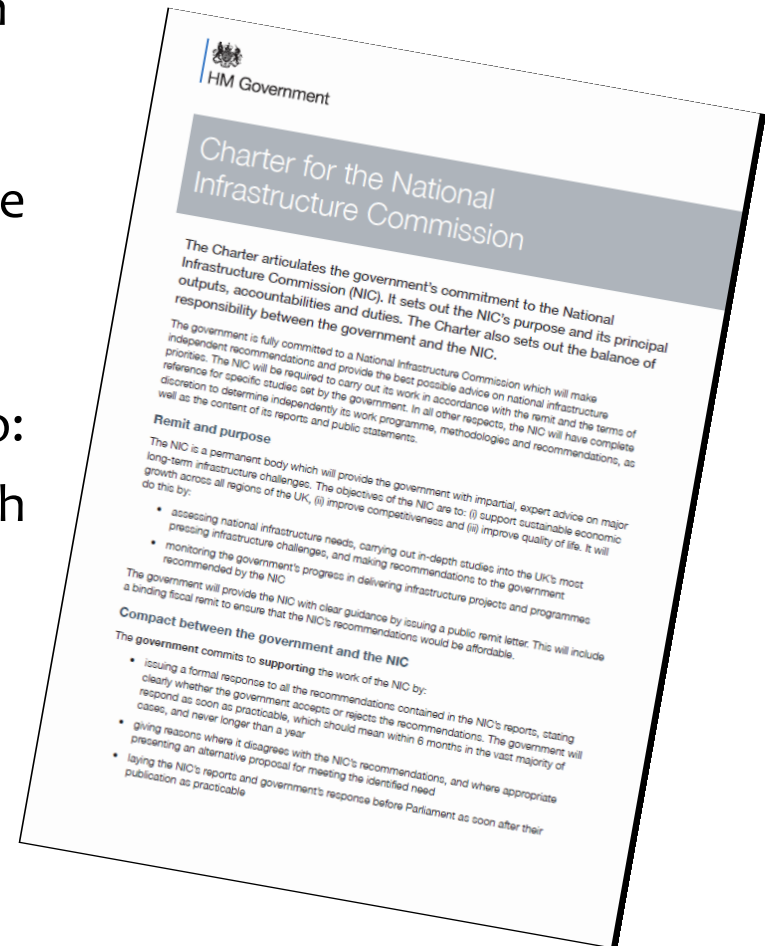
Manuela Di Mauro

# The National Infrastructure Commission

The National Infrastructure Commission is a permanent body providing the government with impartial, expert advice on major long-term infrastructure challenges.

The objectives of the Commission are to:

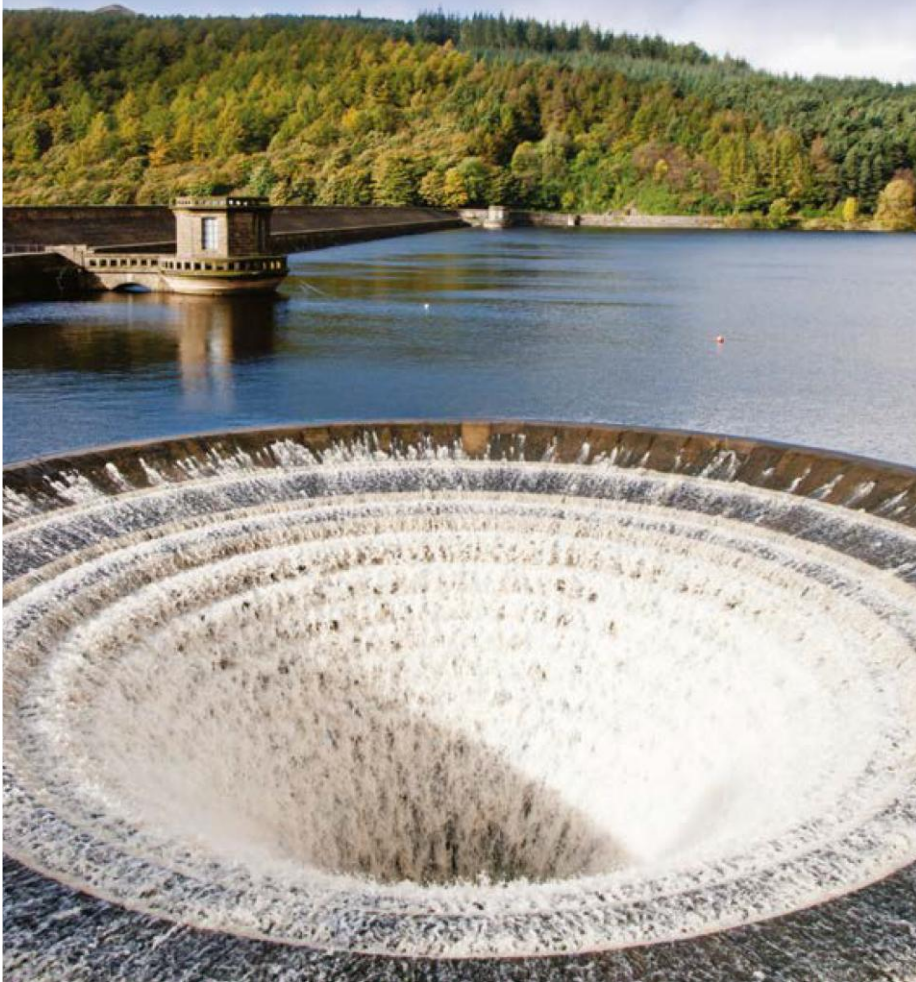
- support sustainable economic growth across all regions of the UK
- improve competitiveness
- improve quality of life



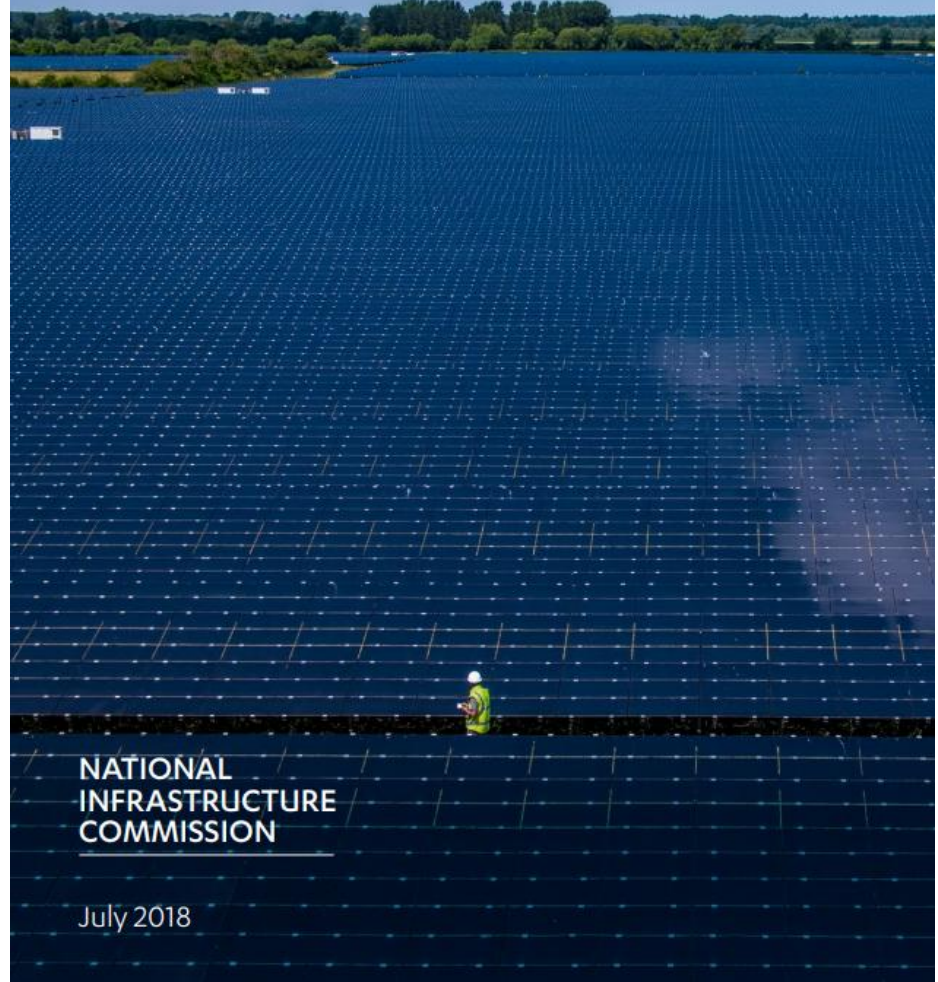
NATIONAL  
INFRASTRUCTURE  
COMMISSION

# Preparing for a drier future

England's water infrastructure needs



# NATIONAL INFRASTRUCTURE ASSESSMENT



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COMMISSION

July 2018

# THE ECONOMIC CASE FOR BOOSTING SUPPLY RESILIENCE

# £40



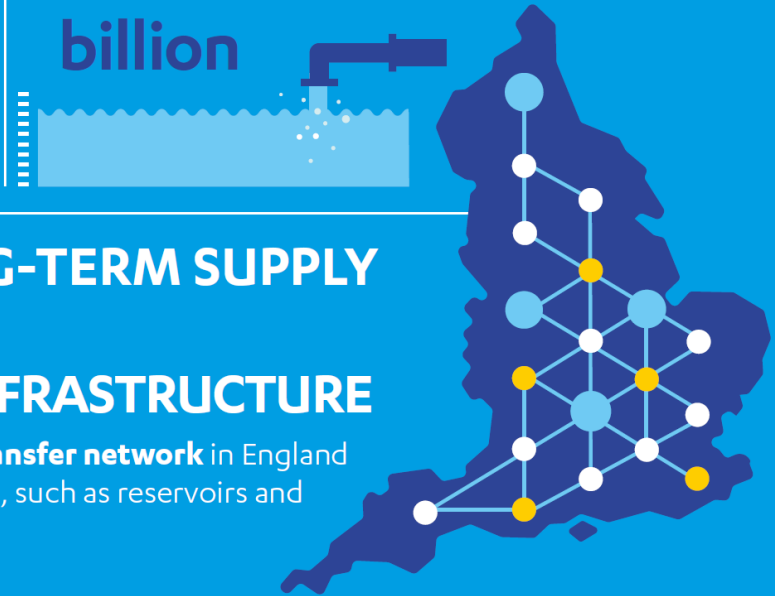
## billion

The predicted cost of relying on emergency options such as road and ship tankers over the next 30 years.

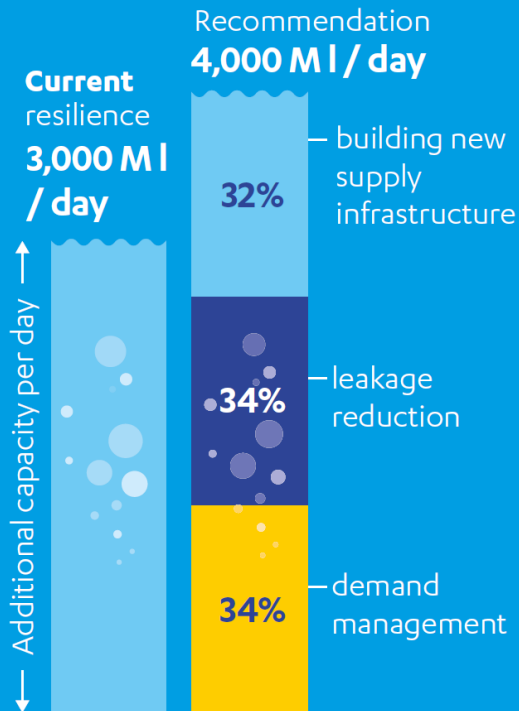
# £21

## billion

The corresponding cost of building resilience over the next 30 years.



## ACTION IS NEEDED TO ASSURE LONG-TERM SUPPLY



### 1 IMPROVE INFRASTRUCTURE

through a **national transfer network** in England and new infrastructure, such as reservoirs and water re-use systems.

### 2 HALVE LEAKAGE

20% of mains water currently lost each day



### 3 REDUCE DEMAND

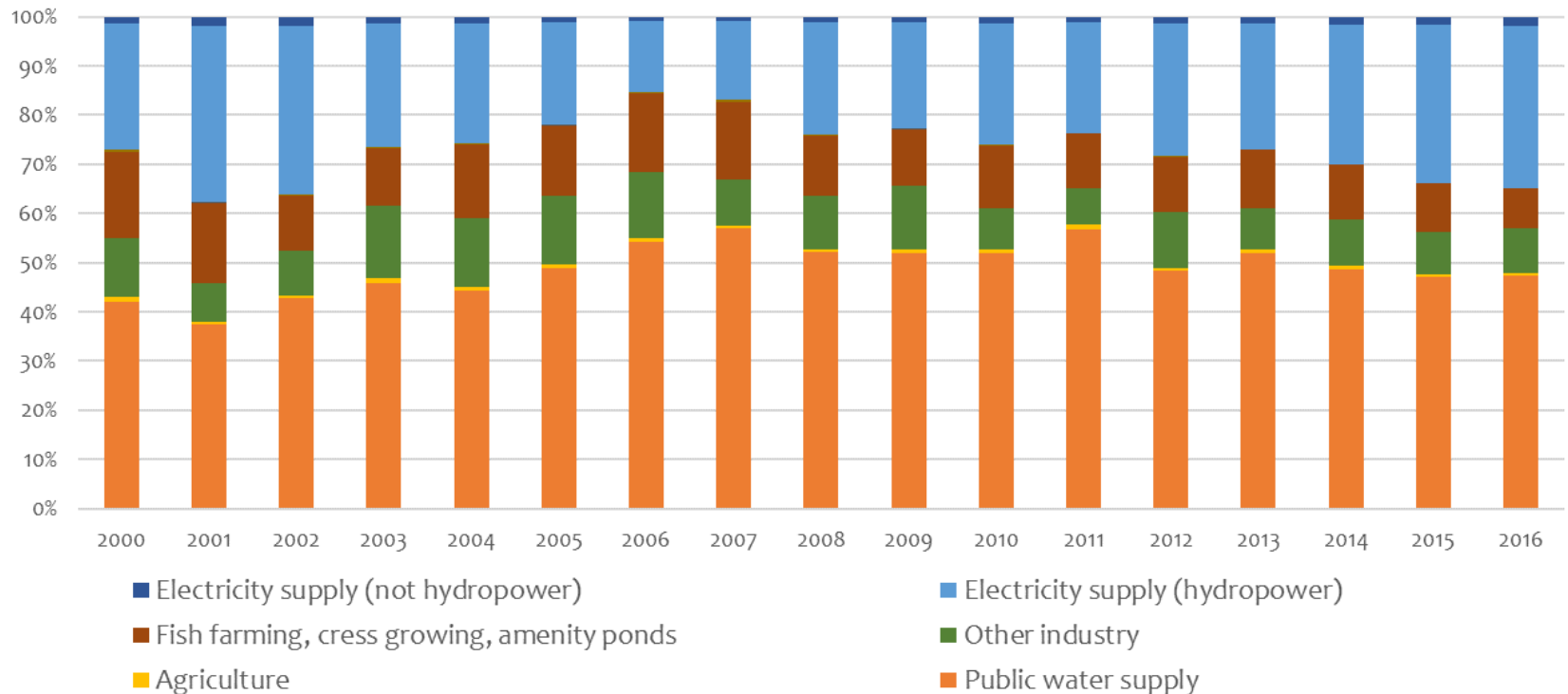
from 141 litres per person per day to 118.





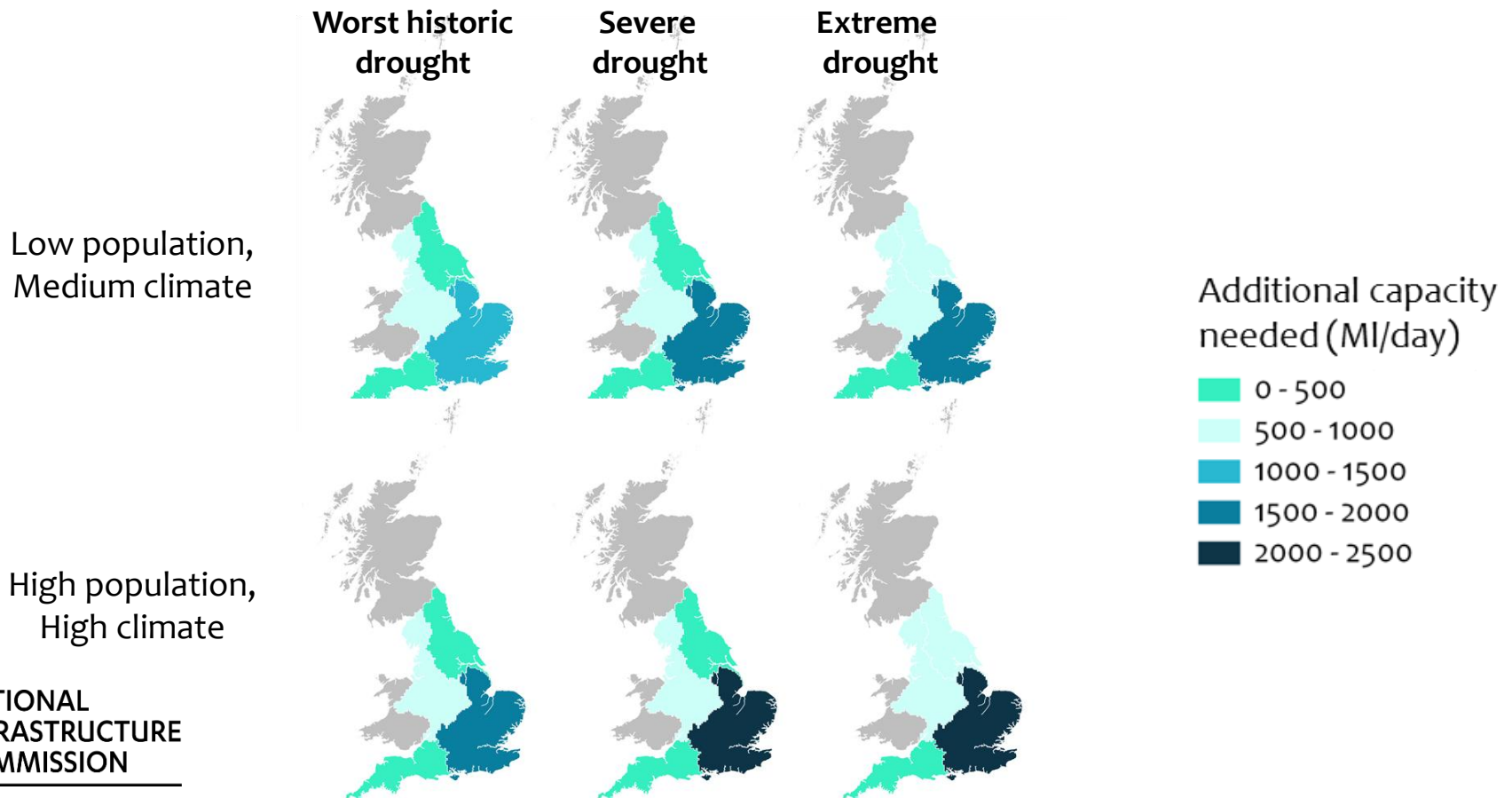
# Why focus on public water supply

- One in five surface water bodies and a third of groundwater bodies in England are under pressure due to water abstraction.
- About half of the freshwater abstracted in England is for public water supply.
- Managing public demand and creating resources to supply water even in periods of drought will also ensure that more water is available to accommodate the need of other sectors and the environment.



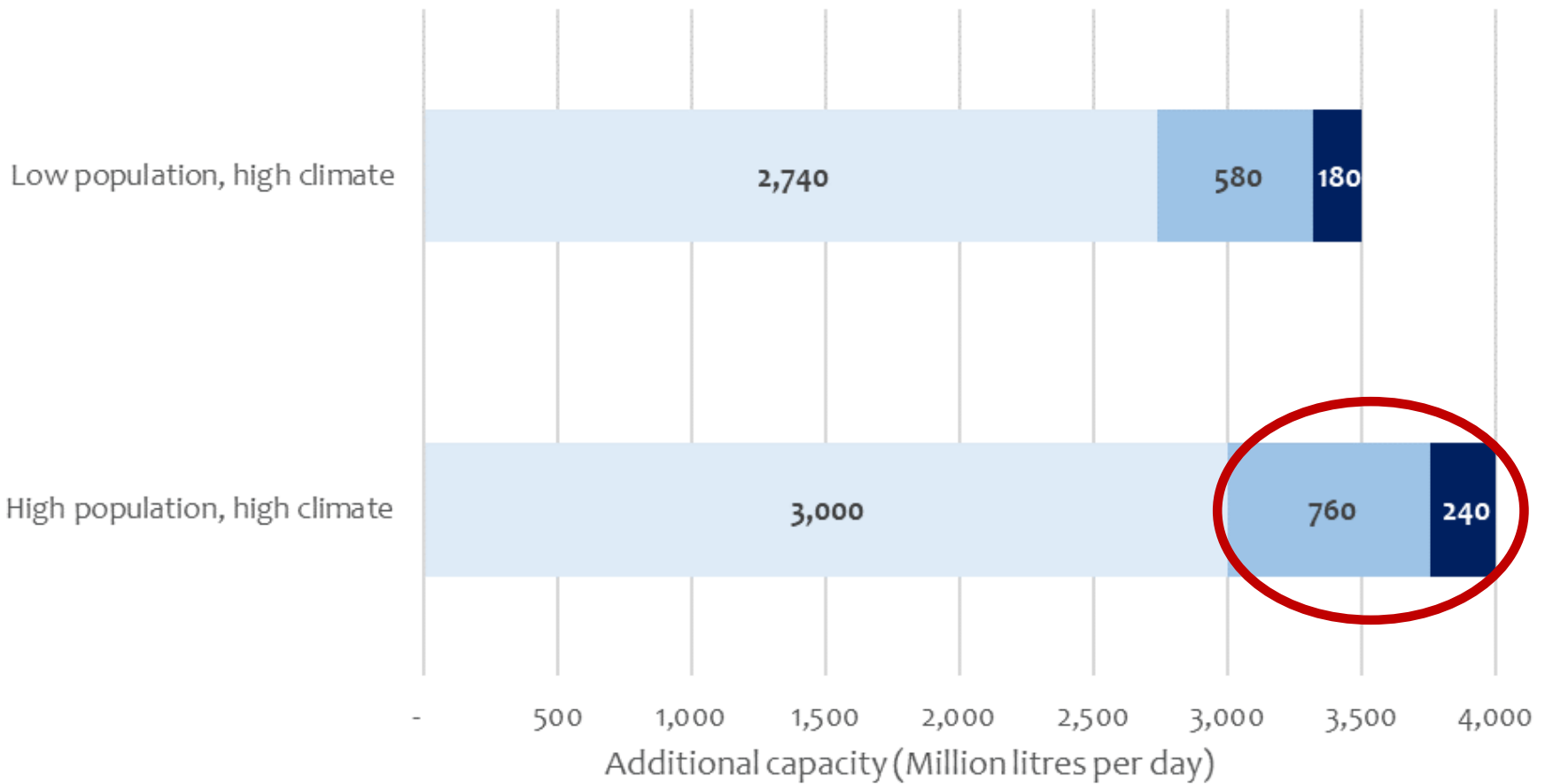
# Capacity needed to cope with different droughts

- Currently not all companies are resilient to the “worst historic drought”, approximately a drought with 1% annual chance to occur.
- All regions would be in deficit during such drought by 2050.



# Capacity needed to increase resilience

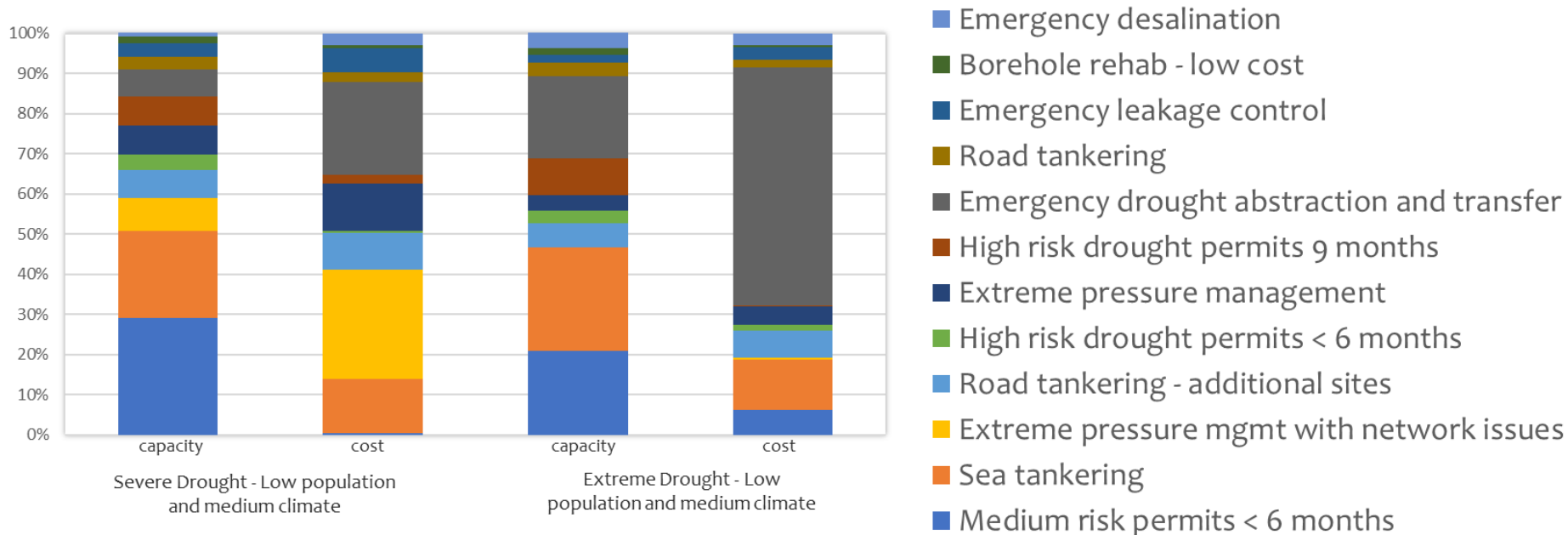
- 3,000 Ml/day are needed to maintain 1% resilience – running to stand still - whilst 4,000 M/day would increase the resilience to 0.2%.



■ Capacity needed by 2050 to maintain 1% drought resilience ■ 0.5% drought resilience ■ 0.2% drought resilience

# Drought has high economic, environmental and health costs

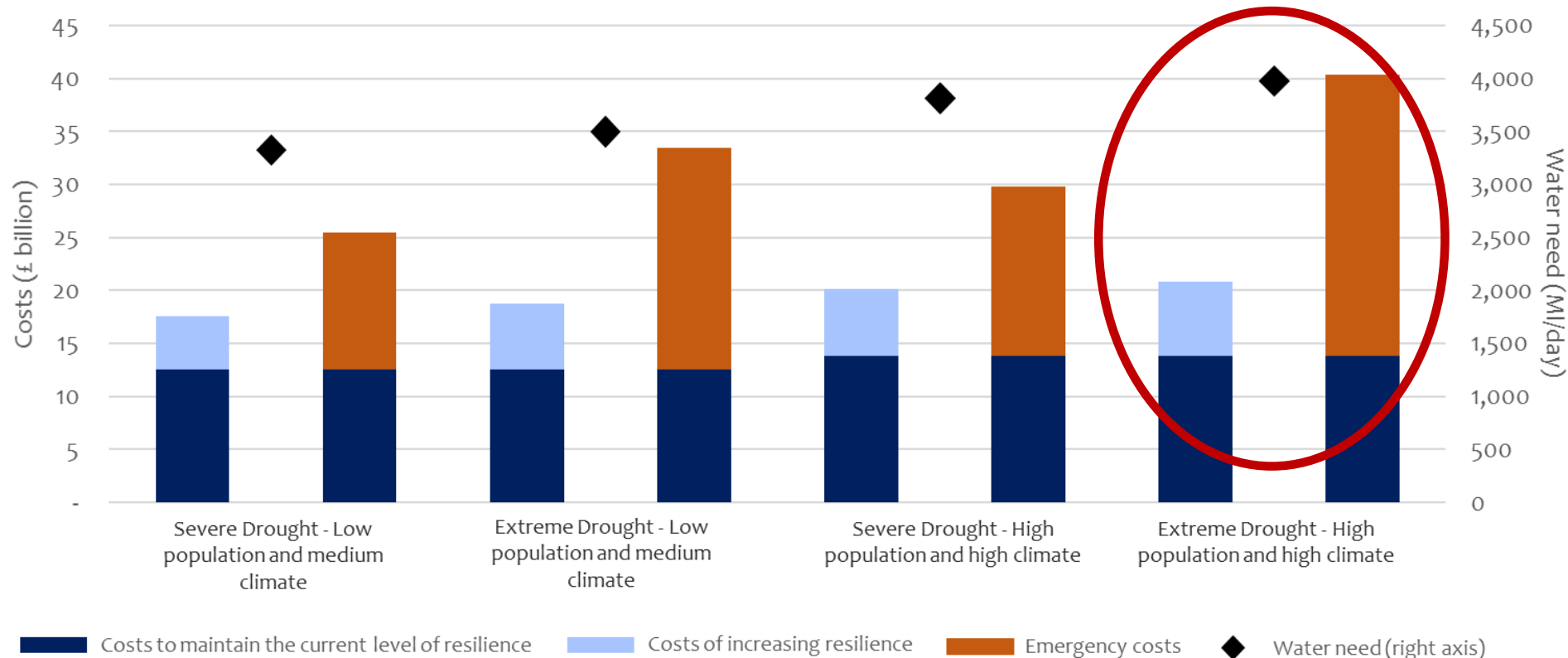
- Rather than limiting supplies, government and companies would take emergency measures to continue supplies for as long as possible
- Some measures, such as increasing abstraction, have limited potential and come with very high environmental costs
- Other measures, such as extreme pressure management and tankering, are very expensive and / or pose significant health risks





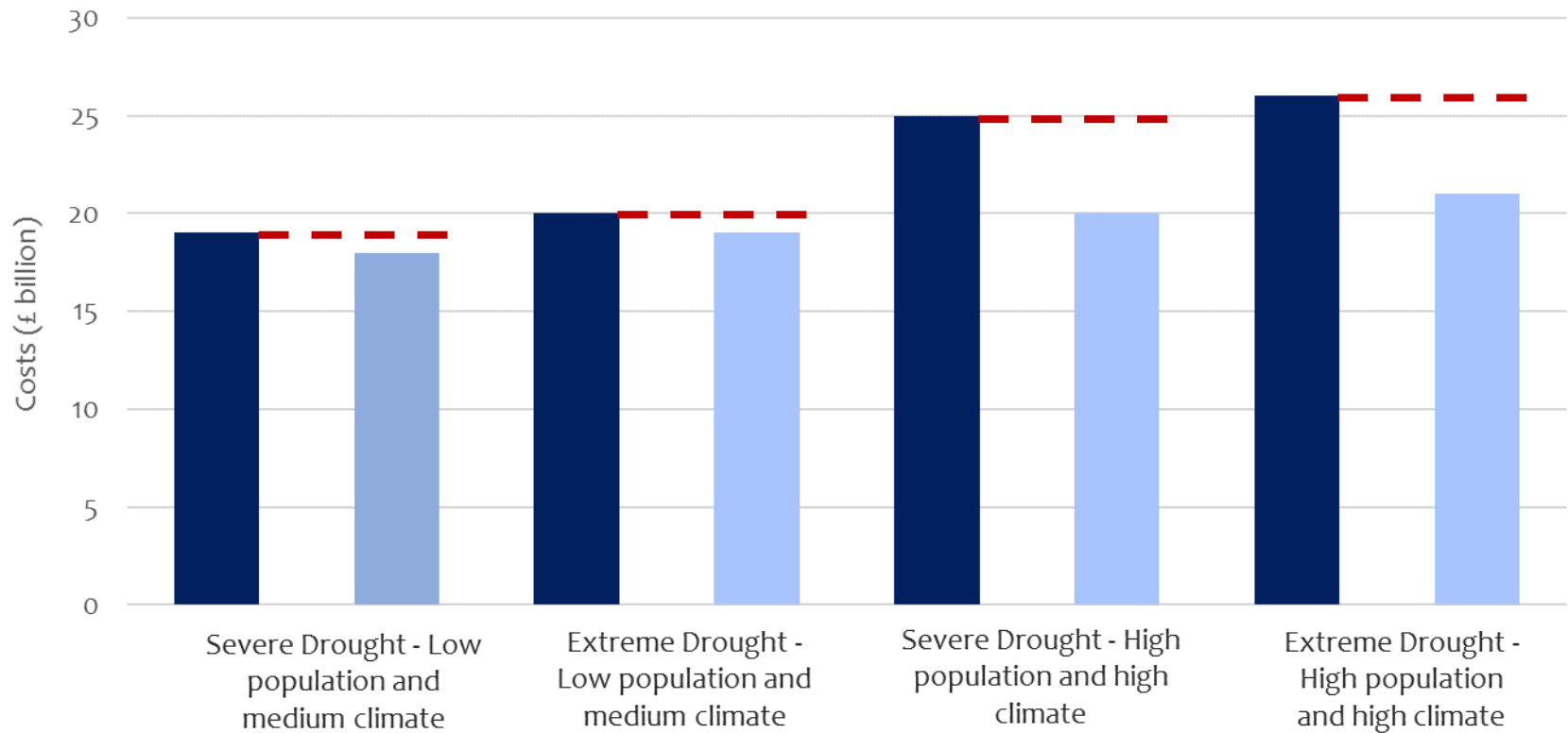
# The case for increasing resilience

- Building additional resilience to drought (£18 - £21 billion) is less costly than providing water during an emergency (£25 - £40 billion).
- The Commission recommended that government ensures additional supply and demand reduction of at least 4,000 Ml/day, roughly corresponding to resilience to extreme drought (0.2%)



# Cost effectiveness of a twin-track approach

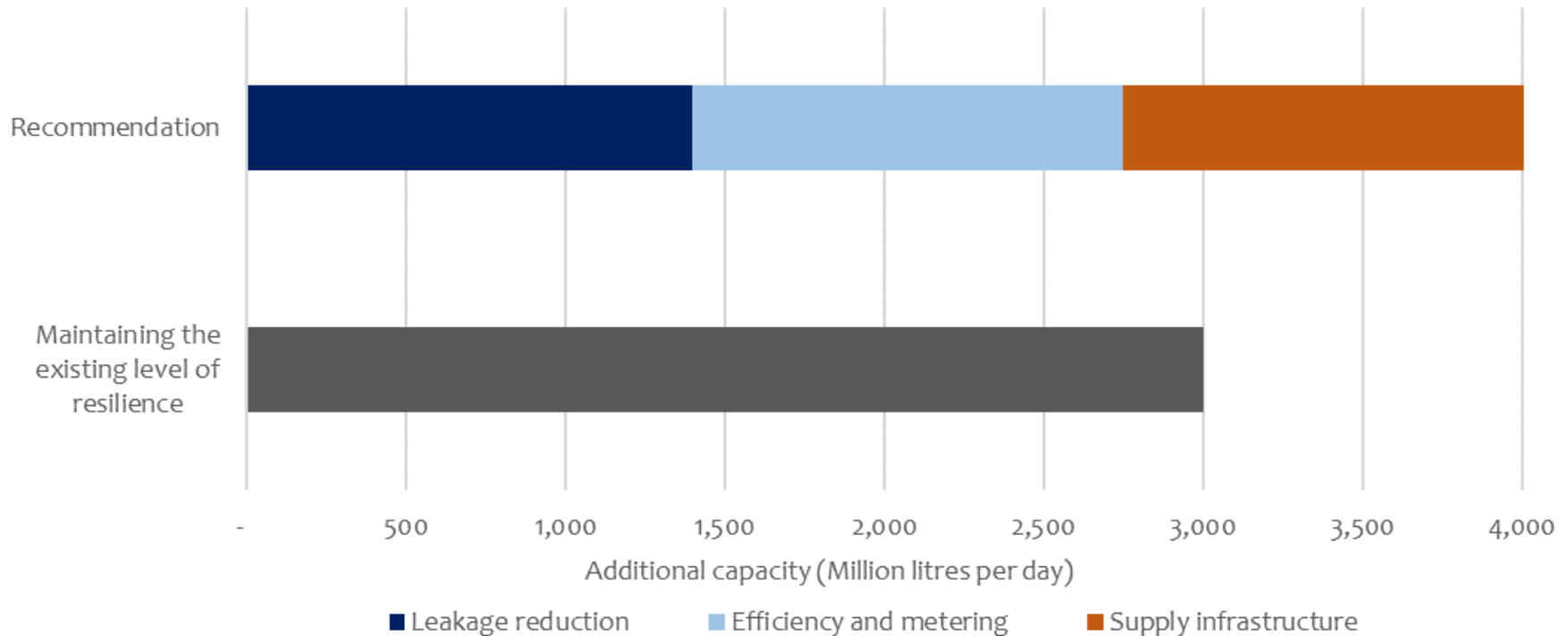
- The costs of providing resilience through business-as-usual demand and leakage policies are higher than the costs of a “twin track” approach.



■ Costs of increasing resilience assuming business as usual demand and leakage  
■ Costs of increasing resilience assuming 50% leakage and widespread smart metering

# Recommended package

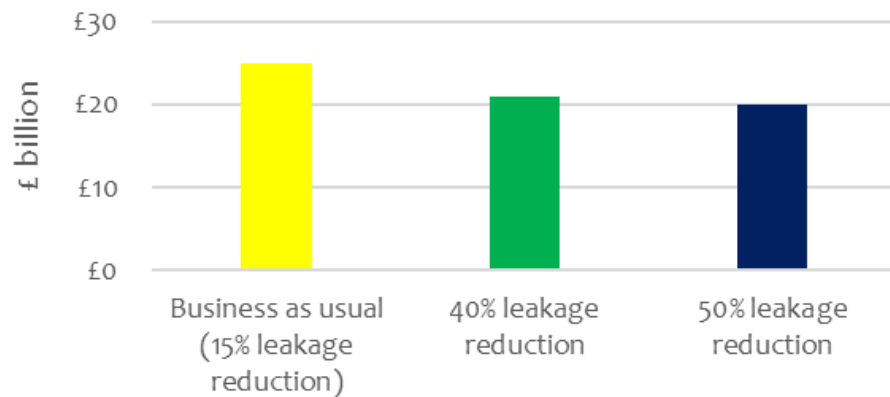
- Thus recommended a twin-track demand and supply package that breaks down 4,000 M/l day needed into:
  - 1,400 MI/day from leakage reduction
  - 1,300 MI/day from demand management and
  - 1,300 MI/day from new infrastructure.



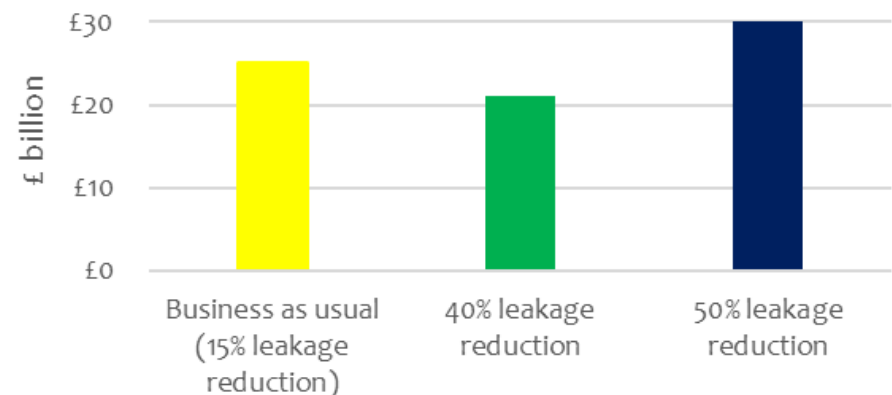
# Leakage reduction costs and benefits

- Reducing leakage provides wider benefits, improving reliability and customer attitudes to reducing consumption
- Costs are highly uncertain, especially for the greatest reduction
- However, a clear target should incentivise technological innovation, which in turn should drive down costs
- The government should adopt this target and Ofwat should agree 5 year commitments for each company as part of the regulatory cycle

*a) Low leakage reduction costs*

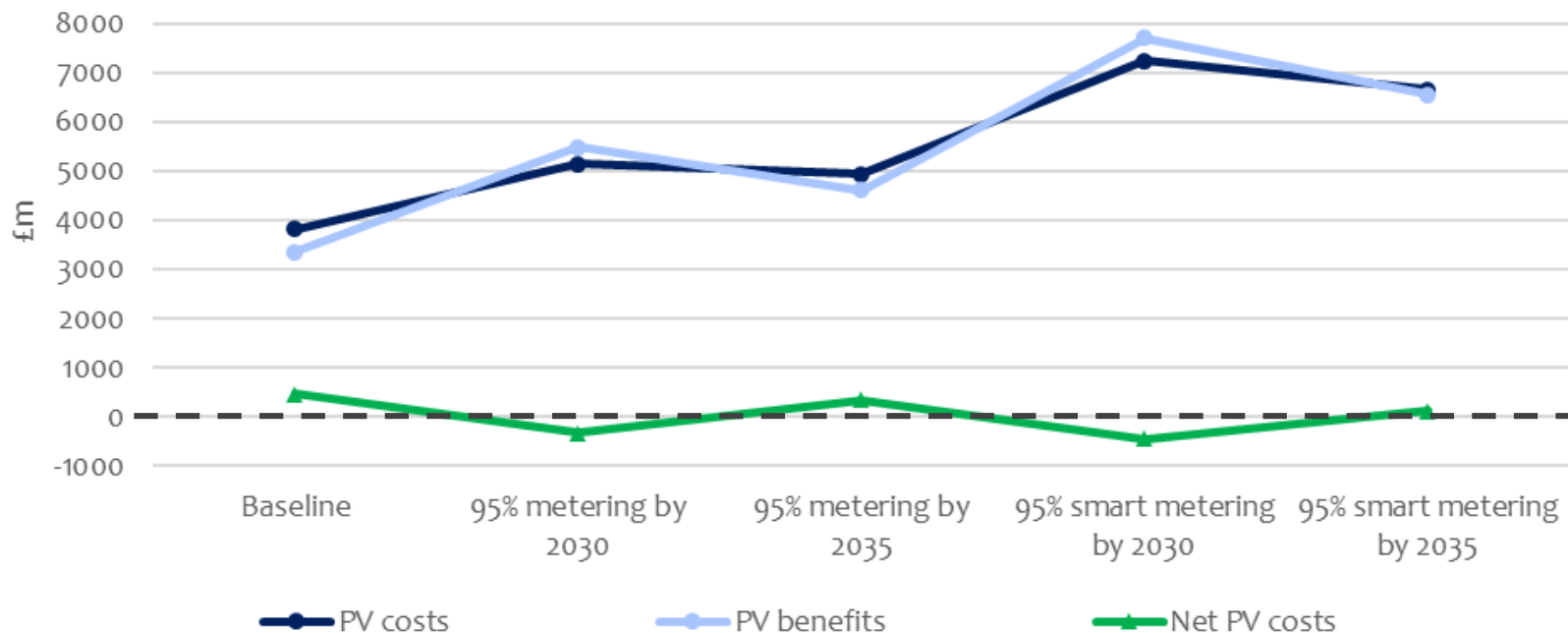


*b) High leakage reduction costs*



# Smart metering is cost-effective and helps target those in need

- There is a good economic case for enabling widespread smart metering by the 2030s
- Smart meters help reduce consumption, leakage and target assistance to those who need it most
- Defra should enable all companies to implement compulsory metering and request them to consider systematic roll out of smart meters as a first step in a concerted campaign to improve efficiency





# Ambitious demand and leakage reduction are not sufficient

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- Even with very ambitious demand management and leakage reduction, additional supply infrastructure would be needed as early as the 2030s
- Companies are best placed to define the exact infrastructure mix, however water transfers have not been fully exploited
- The Commission recommended that Ofwat facilitates the delivery of 1,300 MI/day by the 2030s, maximising the potential for transfers

# Next steps

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- The government will have to respond formally to our recommendations in the coming months, but we have seen positive signals:
  - Draft water companies' plans shown increase ambition on drought resilience and leakage reduction.
  - The National Policy Statement for water resources states that companies are expected to deliver resilience to at least 0.5% drought, and that resilience to 0.2% drought will be explored in future planning rounds.
  - The Environment SoS stated that will set a target for halving leakage.
  - The government has expressed expectations to move to regional water resource planning, and the National Framework should improve coordination across government, regulators and regional groups.
  - We look forward to the announced report on water conservation.
- The government has formally tasked us to carry out studies on resilience as well as economic regulation.
- NIC work ongoing on the link between infrastructure and housing.

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