

BUILDING A WORLD OF DIFFERENCE®



BLACK & VEATCH



Water Utilities' Models

A comparison between the UK and the USA

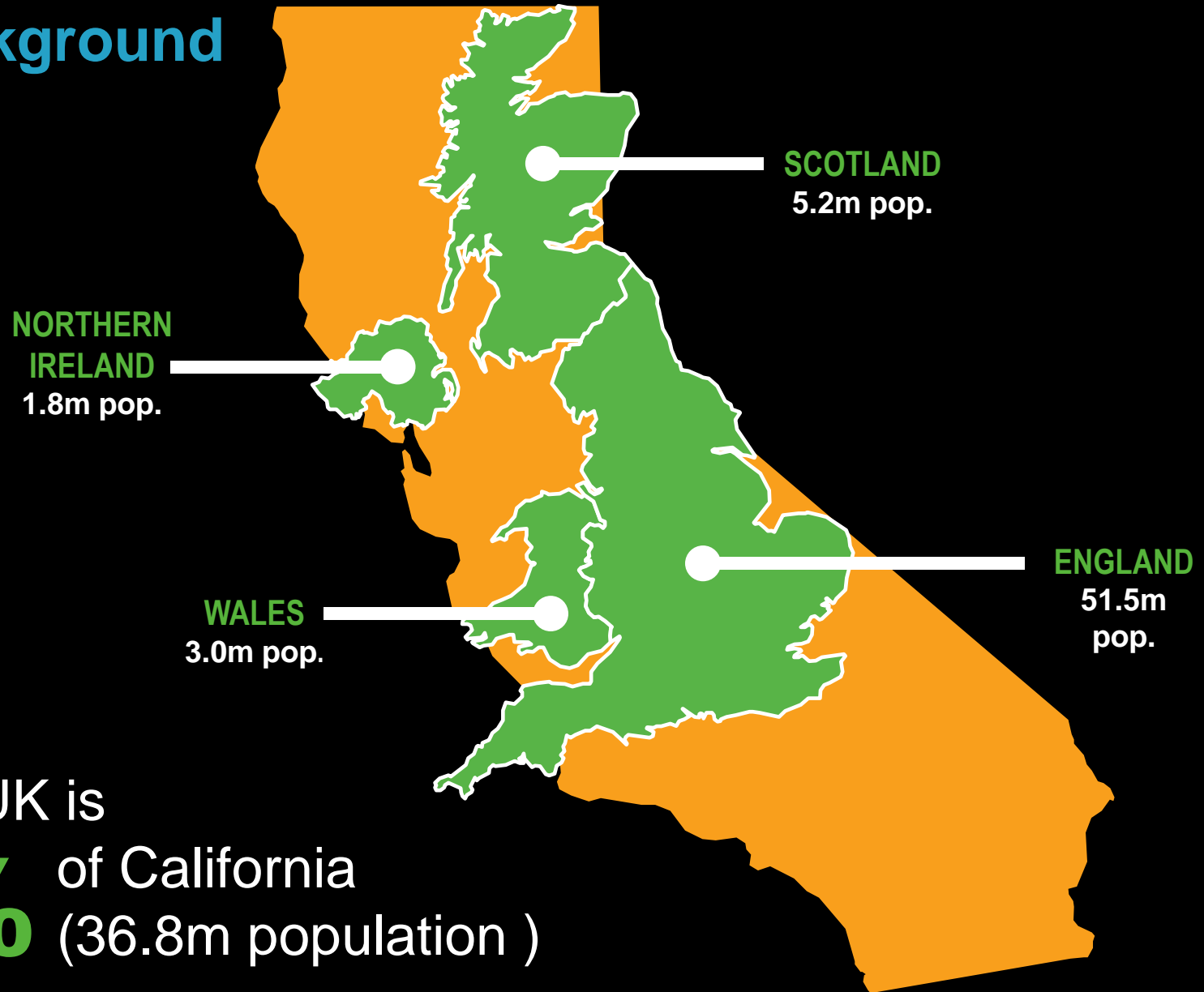
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UK background



Area of UK is
60% of California
(36.8m population)

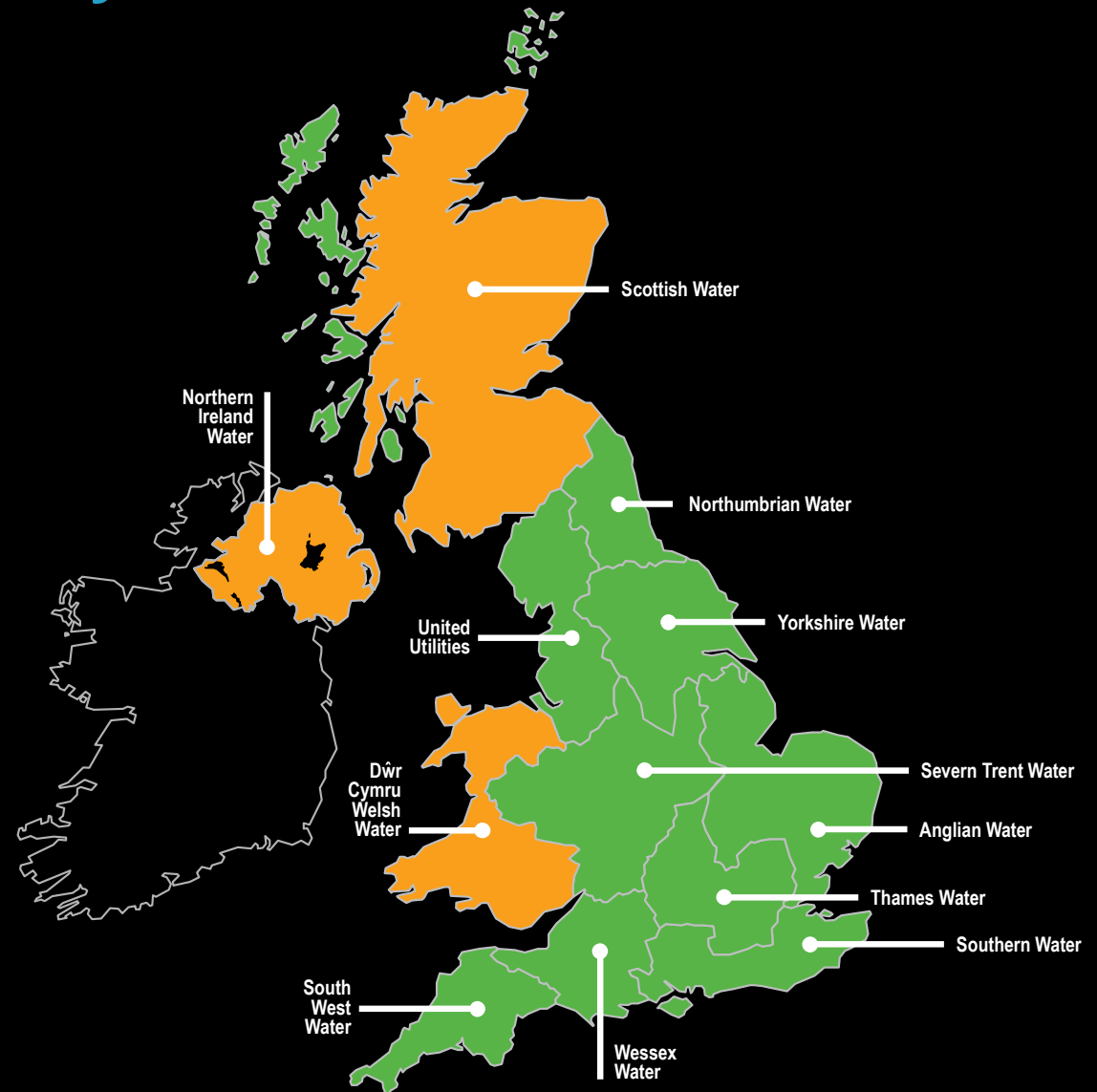
Current water industry structure in the UK

12 large water and wastewater companies (WASCS) supply the bulk of drinking water and all wastewater services



Current water industry structure in the UK

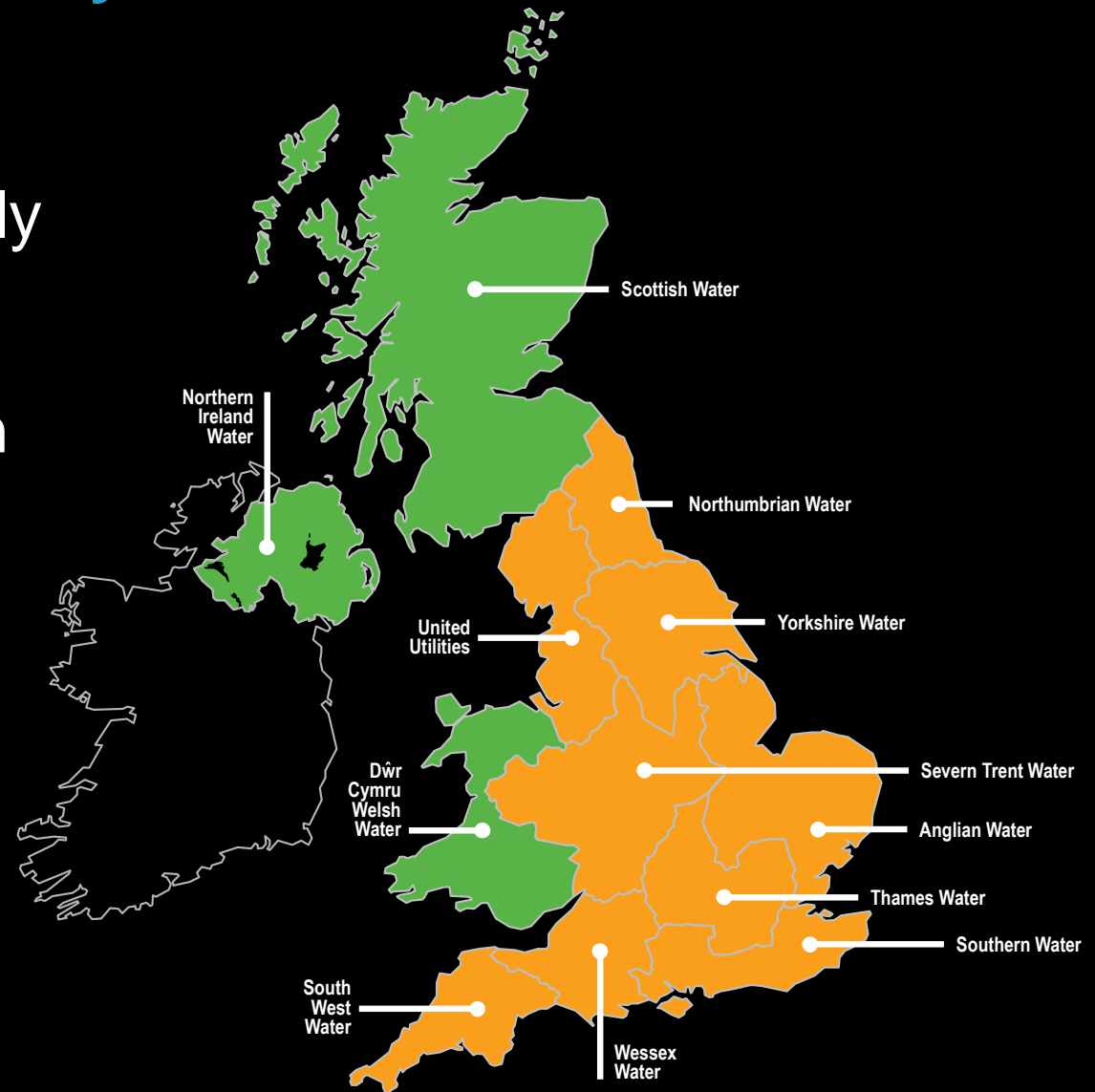
3 of these WASCs provide all the services in Scotland, Wales and Northern Ireland respectively



Current water industry structure in the UK

For historical reasons there are 12 water only companies (WOCS) that provide water supplies in England in addition to the water supplies from the **9** English WASCS

Largest WASC serves 8.6m people; smallest WOC serves 143,000 people



How did the UK get to the existing structure (1)?

10 publicly owned water authorities were formed in England and Wales based on river catchments.

Difficulties of public sector ownership remained

1974

Pre-1974 most services were organized by municipality

Dissimilar to the current situation in the USA

1990

In 1990 the 10 water authorities were privatized.

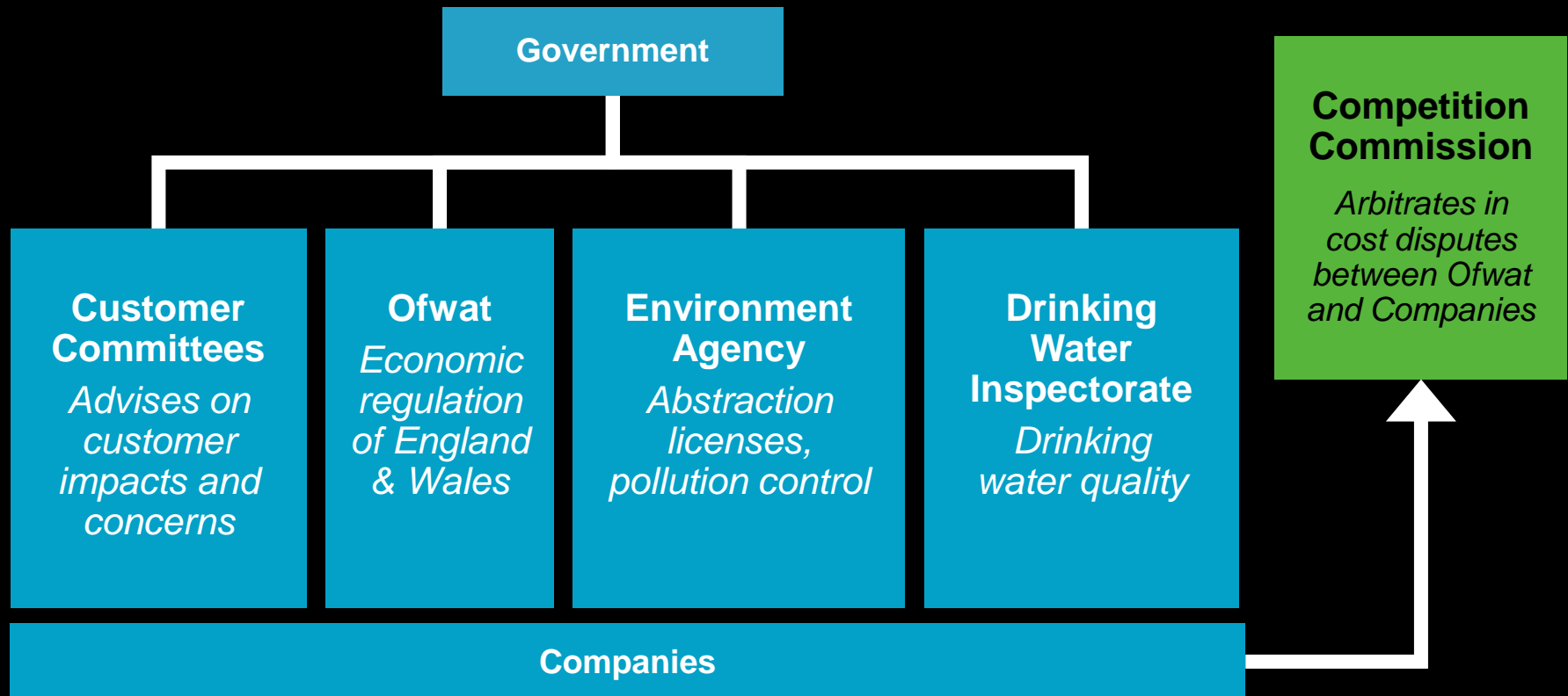
Scotland and Northern Ireland followed after 2000.

2000

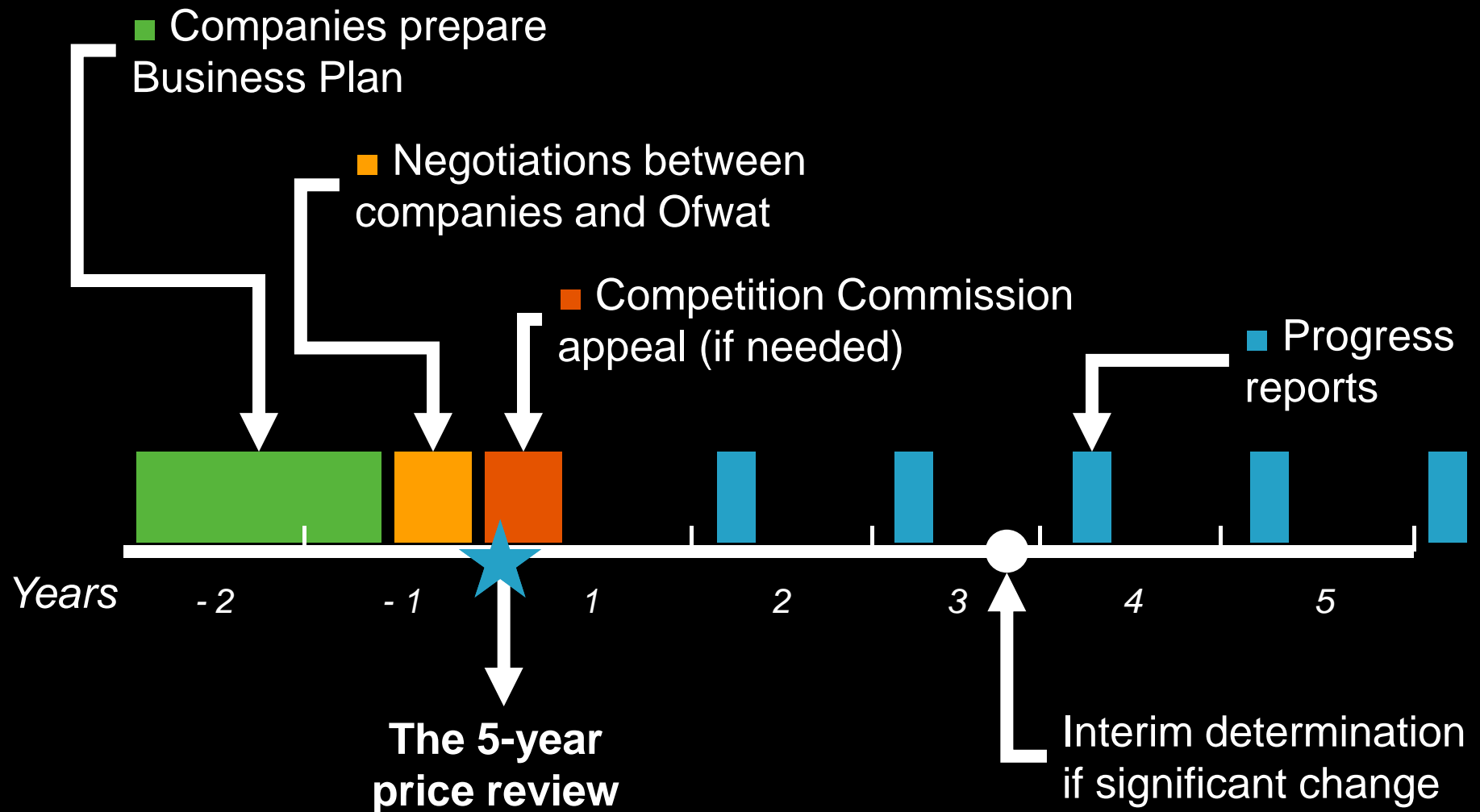
Privatization

- Water Act – 1990
 - Set up a regulatory system
 - Set up companies
 - Each company has a licence with a number of conditions which are periodically updated
 - Licences run for a fixed period but the Regulator gives notice if it is dissatisfied with a company's performance

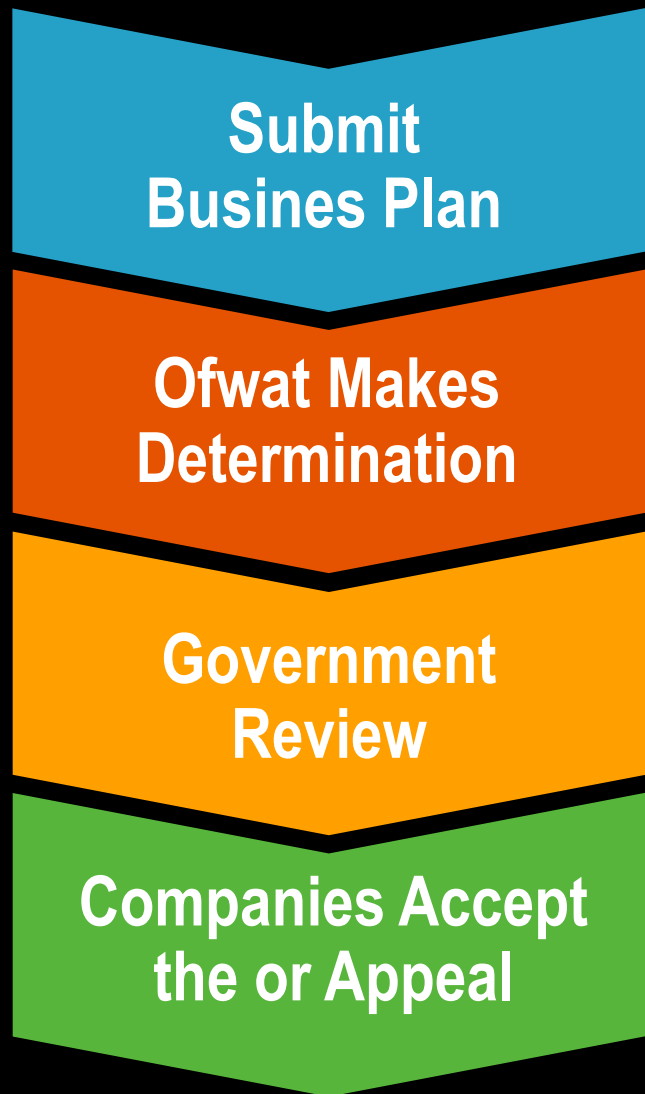
Regulation in the UK



Regulatory cycle in the UK



Price determination



- Determination takes the form of a “price cap” {“rpi (inflation index based on retail prices) +/- K”} and is fixed for 5 years
- Companies can “beat” the price cap and make more profit which they can keep for 5 years

Ofwat's methods (1)

- Imposes consistent reporting of information
- Comparative competition
- Undertakes audits:
 - Technical auditing using “reporters”
 - Financial auditing using companies’ auditors

Ofwat's methods (2)

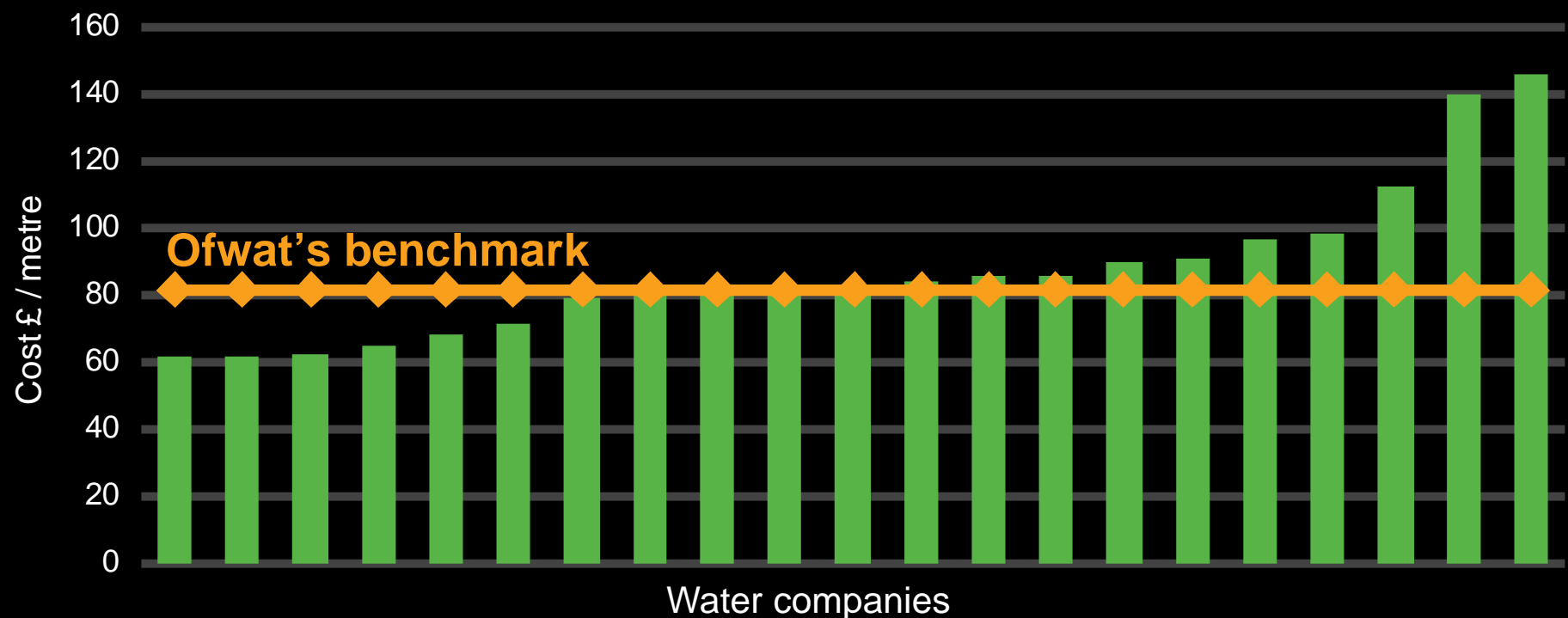
- Monitors:
 - levels of service
 - outputs (km of mains laid)
 - activities
 - expenditure
 - asset serviceability

Ofwat's methods – Cost Base for capital expenditure

Application of audited unit costs to standard projects

Unit cost of water mains

100mm rural / suburban highway



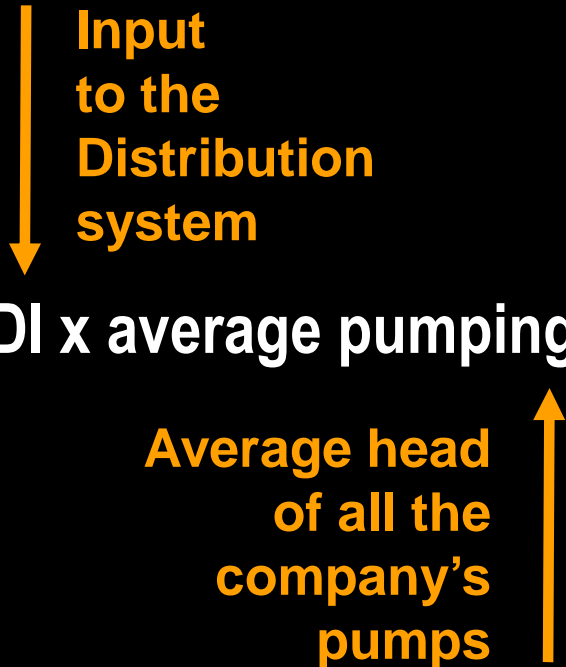
Ofwat's methods – econometric modelling for operating expenditure

- Used to compare actual operating costs to modelled “expected” costs
- Example: Water power model

Modeled cost = $-8.562 + 0.954 \times \ln (\text{DI} \times \text{average pumping head})$

Input to the Distribution system

Average head of all the company's pumps



Ofwat's methods – the Overall Performance Assessment (OPA)

- A weighted “index” of 15 service parameters.
- Companies with a “good” OPA get an additional “bonus” at their determination
- Example parameters:

Time to
Answer
Customer
Queries

Number of
Complaints

Number of
Interruptions
To Supply
Caused
By the
Company

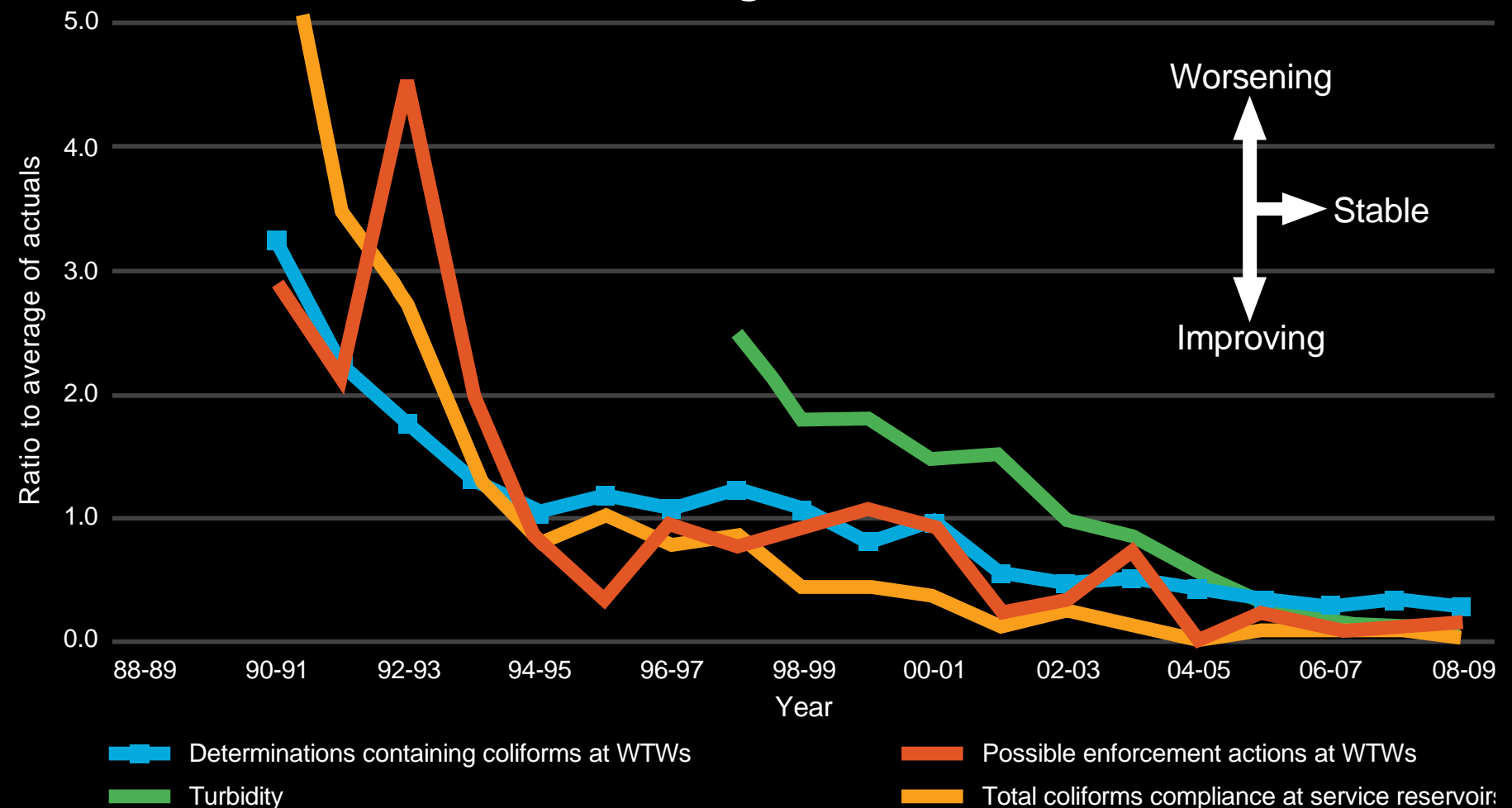
Leakage
Levels

Efficiency targets

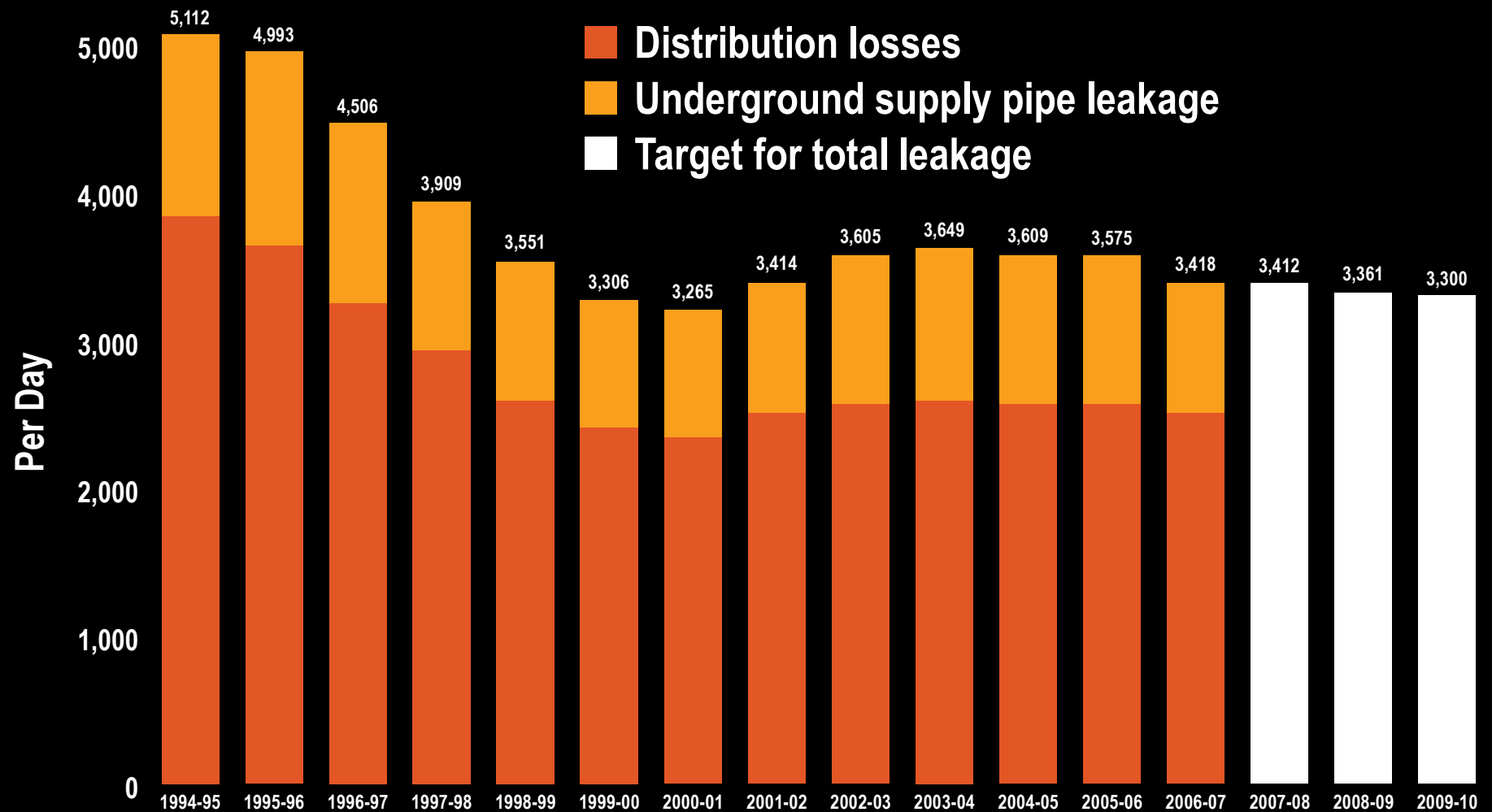
- Two types: general and catch-up (by lower efficiency companies following benchmarking)
- Operating costs typically $>1.5\%$ per annum
- Capital expenditures
 - two types: maintenance of existing assets and enhancement programmes
 - typically total of 10 to 15% over 5 years
- Up to now these targets have been exceeded

Increasing efficiency – asset serviceability

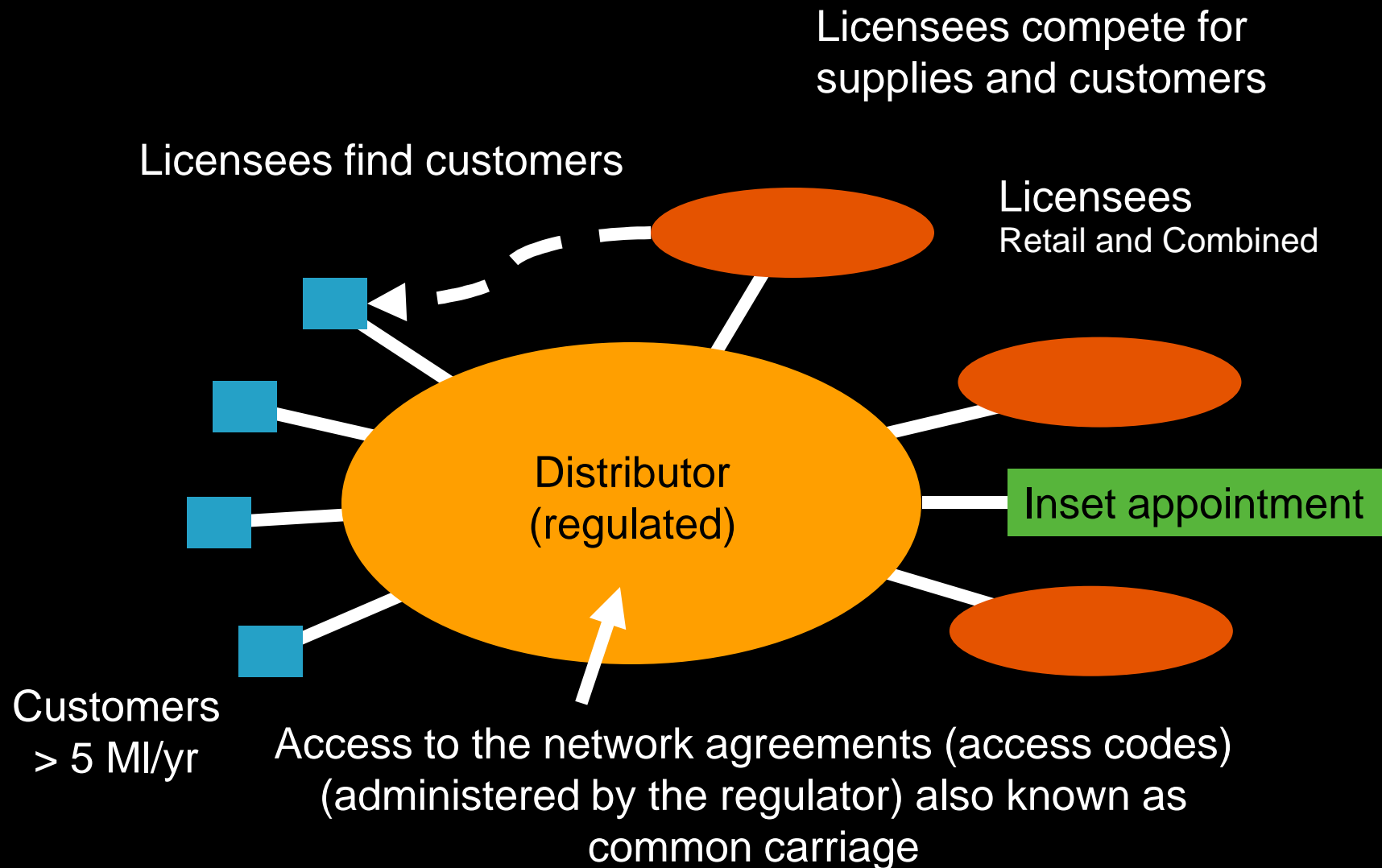
Water – overground assets



Increasing efficiency: Leakage reduced by 37% since 1994-5



Future trends - Competition



Competition and the Cave Review

- Cave review is a recent review by UK Government
- Recommendations
 - Bring retail competition to smaller business users
 - Bring competition to water resources by allowing bidding for abstraction licences
 - Allow mergers between small water companies (currently resisted by Ofwat)
 - Encourage new entrants by making common carriage easier

Walker Review on charging for water and wastewater services

- Introduce a scarcity charge for water resources where water resources are under pressure. Method to be developed
- Introduce metered supplies to high discretionary groups and where water resources are inadequate
- Charge using a high volumetric rate and consider seasonal tariffs. Noted that rising block tariffs should not be a general tool due to a lack of data on household occupancy

Strengths and weaknesses of the UK system

● Strengths

- Good quality data in a common format
- Benchmarking, auditing and mandatory target setting promotes efficiency
- Ability to beat the price cap promotes efficiency
- Customers have a direct voice
- Greater consistency of medium and long term objectives

● Weaknesses

- Regulation is very intrusive
- Regulation is a blunt instrument
- The 5 year cycle has a very detrimental impact on the supply chain

Evidence from the UK (1)

- The pursuit of cost efficiency can be compatible with increasing service standards provided that service standards are actively regulated
- Presentation of data to a common format when coupled with benchmarking can be a powerful driver to efficiency
- In certain circumstances the amalgamation of very small utilities can lead to efficiencies (currently the UK is considering allowing further consolidation by allowing takeovers of water companies with a turnover of < \$110m per annum without referral to competition authorities)

Evidence from the UK (2)

- The evidence from Scotland (public owned utility) and Wales (“not for profit” company) is that the UK model can be applied to publicly owned utilities
- The UK model is not perfect and current thoughts on promoting competition may not be desirable

Thank You