## MAINTENANCE – IN HOUSE OR OUTSOURCE?

## BUT, IS *THAT* THE QUESTION?

# A Business Model for operating and maintaining above ground assets in the UK Water Industry

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*People · Processes · Performance*

# UK Water Industry

The question of whether maintenance should be an in-house or outsourced activity generally arises from a need to determine which option is the most cost effective way of carrying out the work.

However, which should take the lead?
Cost effective delivery of maintenance work ***or***
the overall performance of the assets?

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# Accountability For Performance

In our experience, the question should be
“Who is accountable for the performance of the assets – operator or maintainer?”
rather than whether maintenance work is in-house or outsourced.

Who carries the asset risk and accountability for a Water Treatment Works compared with a Sewage Pumping Station – the operator or the maintainer?

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# Asset Performance

| Asset Type | Asset performance accountability (%) | |
|---|---|---|
| | Operator | Maintainer |
| Water Treatment Works (WTW) | 100 | NIL |
| Waste Water Treatment Works (WWTW) | 50 | 50 |
| Waste Water Pumping Station (WWPS) | NIL | 100 |

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# Maintenance Role

| Asset Type | Operational Performance Responsibility | | |
|---|---|---|---|
| | Operator | ***Relationship*** | Maintainer |
| WTW | Asset Operation and Maintenance | ***Service Level Agreement*** ***or*** ***Schedule of Rates Based Contract*** | Service provision |
| WWTW | Process Operation and Maintenance | ***Asset Availability Agreement*** ***or*** ***Shared Risk Contract*** | Asset availability |
| WWPS | Asset Manager | ***Facilities Management Agreement*** ***or*** ***Asset Based Performance Contract*** | Asset Operation and Maintenance |

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# Maintenance Definitions

M & E - Mechanical & Electrical

ICA - Instrumentation, Control & Automation

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# MEICA Roles and Responsibilities

Mechanical – planned and reactive mechanical repair work including safe electrical working as competent persons.

Electrical – planned and reactive electrical repair work including diagnosis and first line repair of all ICA equipment.

ICA – management of central data acquisition systems, field technical development and support to M & E.

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# Financing Maintenance

Reactive OPEX - Reactive Operational Maintenance Expenditure

Planned OPEX - Planned Operational Maintenance Expenditure

CAPSTRAT - Capital Strategic Investment

CAPMAINT - Capital Maintenance Expenditure

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# Financial Definitions (1)

Reactive OPEX - Reactive Operational Maintenance Expenditure

Expenditure against a maintenance budget for resources, materials and spares, and hired and contracted services for carrying out predictable repair work on failed assets.

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# Financial Definitions (2)

Planned OPEX - Planned Operational Maintenance Expenditure

Expenditure against a maintenance budget for resources, materials and spares, and hired and contracted services for carrying out planned preventative maintenance & servicing on assets.

# Financial Definitions (3)

CAPSTRAT – Capital Strategic Investment

Capital investment which will either provide a new asset, refurbish an existing asset beyond its predicted life, or enhance an existing asset to achieve quality and/or volume demands.

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# Financial Definitions (4)

CAPMAINT- Capital Maintenance Expenditure

Planned and reactive capital investment to maintain an asset within its predictable life.

CAPMAINT is made up of two elements namely:

Reactive CAPMAINT– repair/replacement of failed assets outside the OPEX financial definition.

Planned CAPMAINT – planned repairs and improvements to maintain an asset within its predicted life.

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# Financial Accountability for Maintenance

| Asset Type | Financial Source | | | |
|---|---|---|---|---|
| | Planned OPEX | Reactive OPEX | Planned CAPMAINT | Reactive CAPMAINT |
| WTW | Operator | Operator | Operator | Operator |
| WWTW | Maintainer | Operator | Maintainer | Operator |
| WWPS | Maintainer | Maintainer | Maintainer | Operator |

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# Maintenance Supply Chain

The supply chain for maintenance is made up of three key components.

Strategic spares

Consumable spares

Routine spares

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# Supply Chain Definitions (1)

Spares Type: Strategic

Spares which must be held because there is

either

a) no available standby and a resulting process failure will lead to a volume/quality failure,

or

b) lead time for spares supply results in a significant increase in operating costs.

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# Supply Chain Definitions (2)

Spares Type: Consumable

Spares carried by a mobile craftsman which

both

a) Support planned preventative maintenance

and

b) Form the routine imprest stock of a mobile craftsman by trade

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# Supply Chain Definitions (3)

Spares Type: Routine

Spares supplied through supply agreements or one-off purchases for repair of failed assets

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# Supply Chain Accountability

| Asset Type | Spares Type | | |
|---|---|---|---|
| | Strategic | Consumable | Routine |
| WTW | Operator | Operator | Maintainer |
| WWTW | Operator | Maintainer | Maintainer |
| WWPS | Maintainer | Maintainer | Maintainer |

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# Asset Based Performance Contracts

## Case Studies

1. Welsh Water.
   Sewerage Operating Contracts (SOC) &
   Sewage Pumping Station Contracts (SPS)

2. South West Water.
   Waste Water Pumping Station Contracts (WWPS)

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# Case Study 1

## Applying Asset Based Performance Contracts in Welsh Water

April 2000 – March 2005
Sewer Operating Contracts (Networks )
Waste Water Pumping Station Contracts (WWPS)

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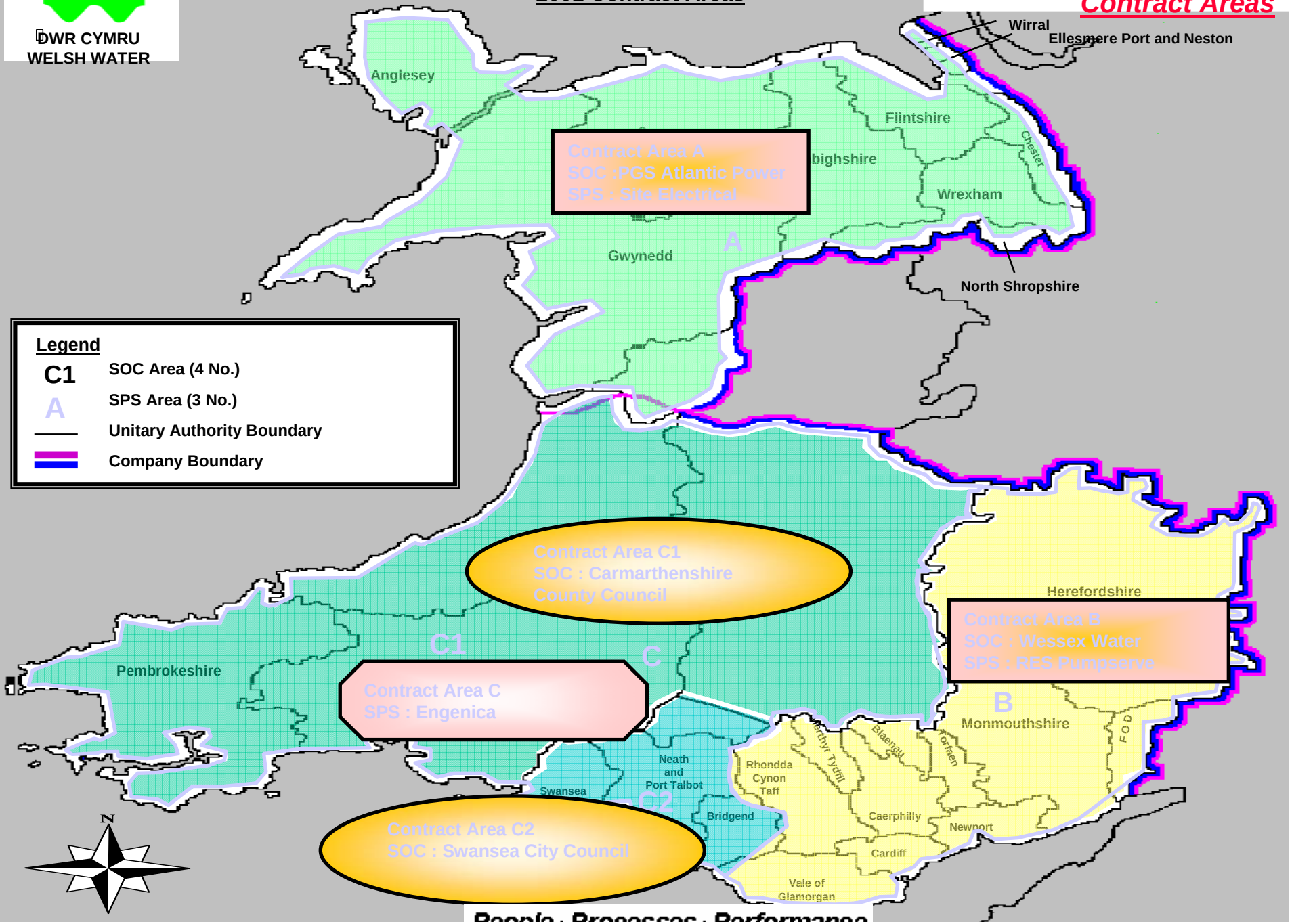
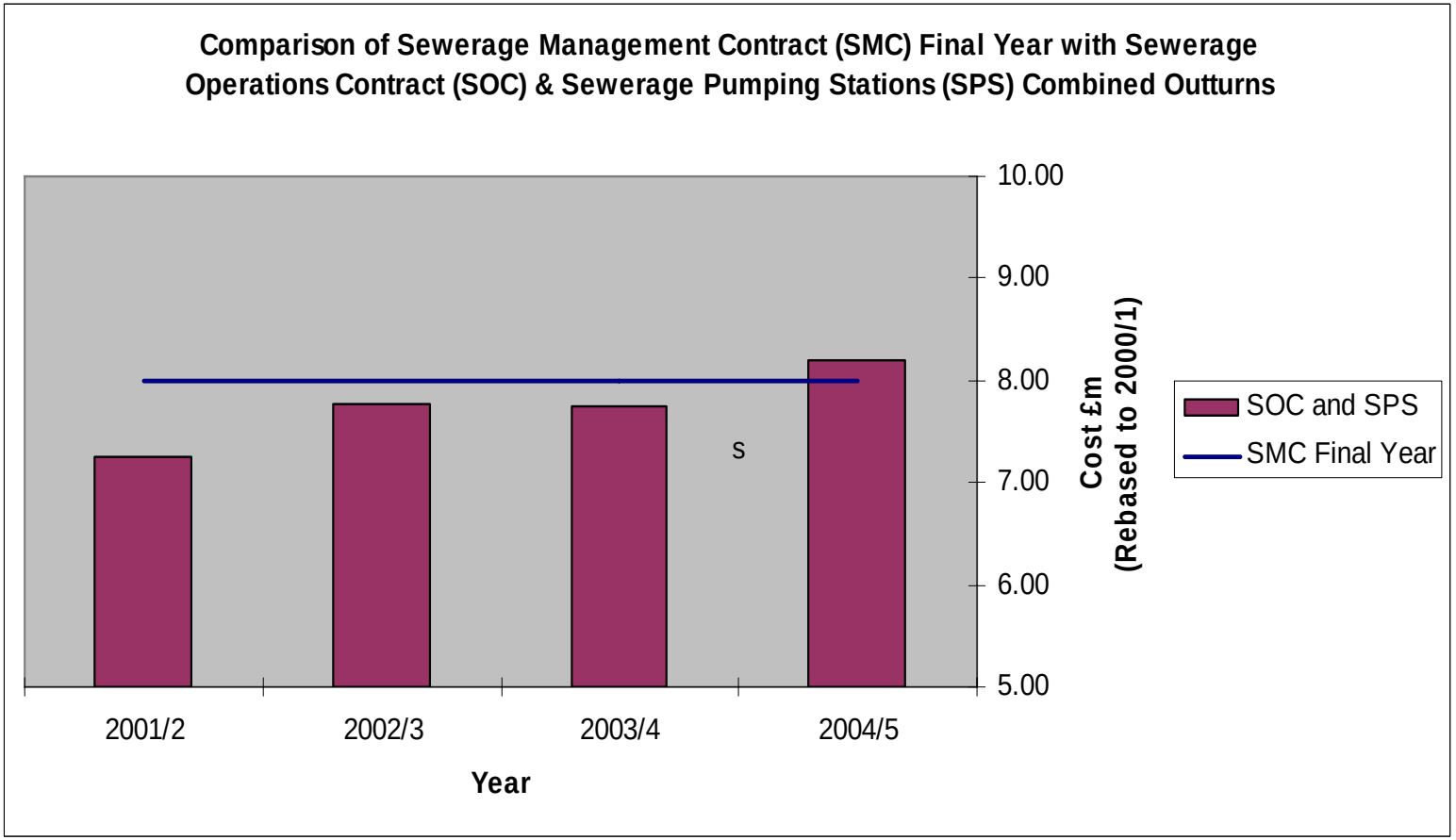
DWR CYMRU
WELSH WATER

# Proposed Sewerage Management 2001 Contract Areas

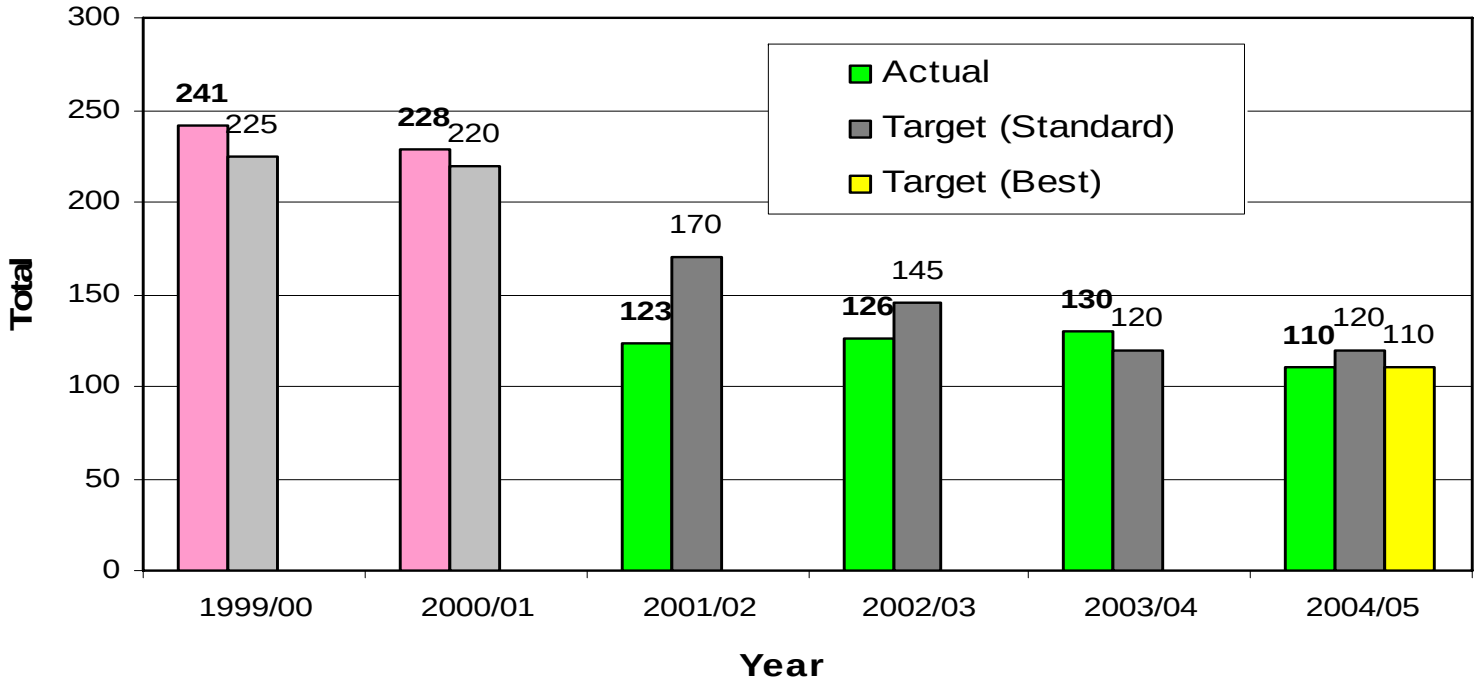
## DCWW SOC & SPS Contract Areas



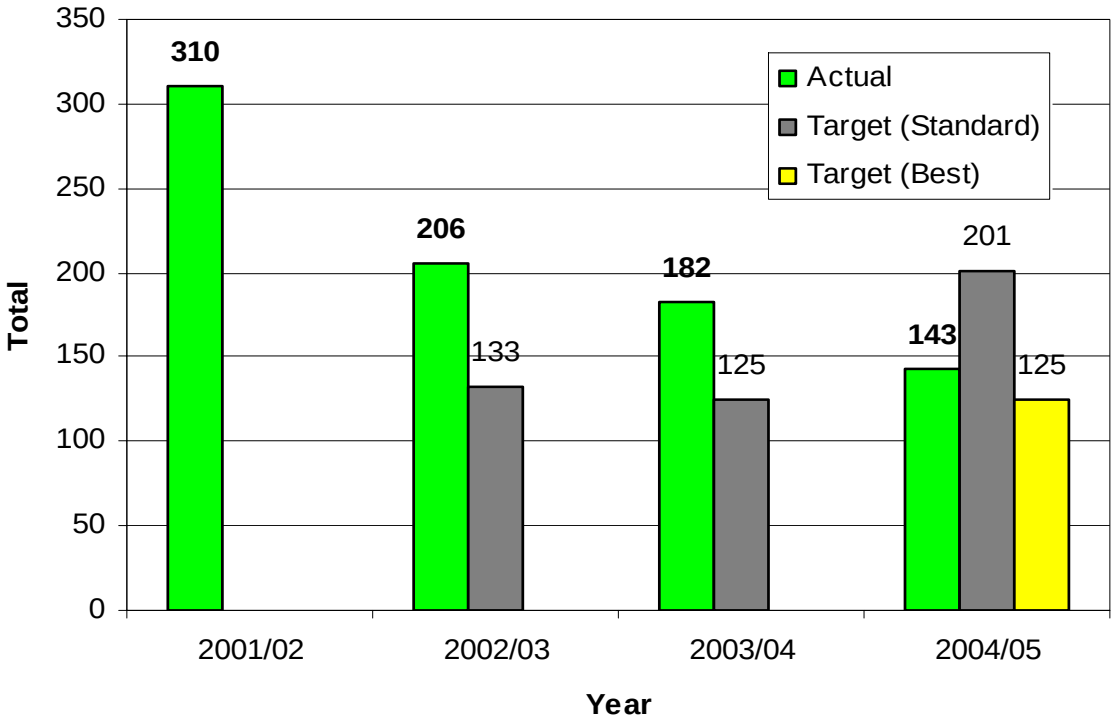
# Cost Analysis



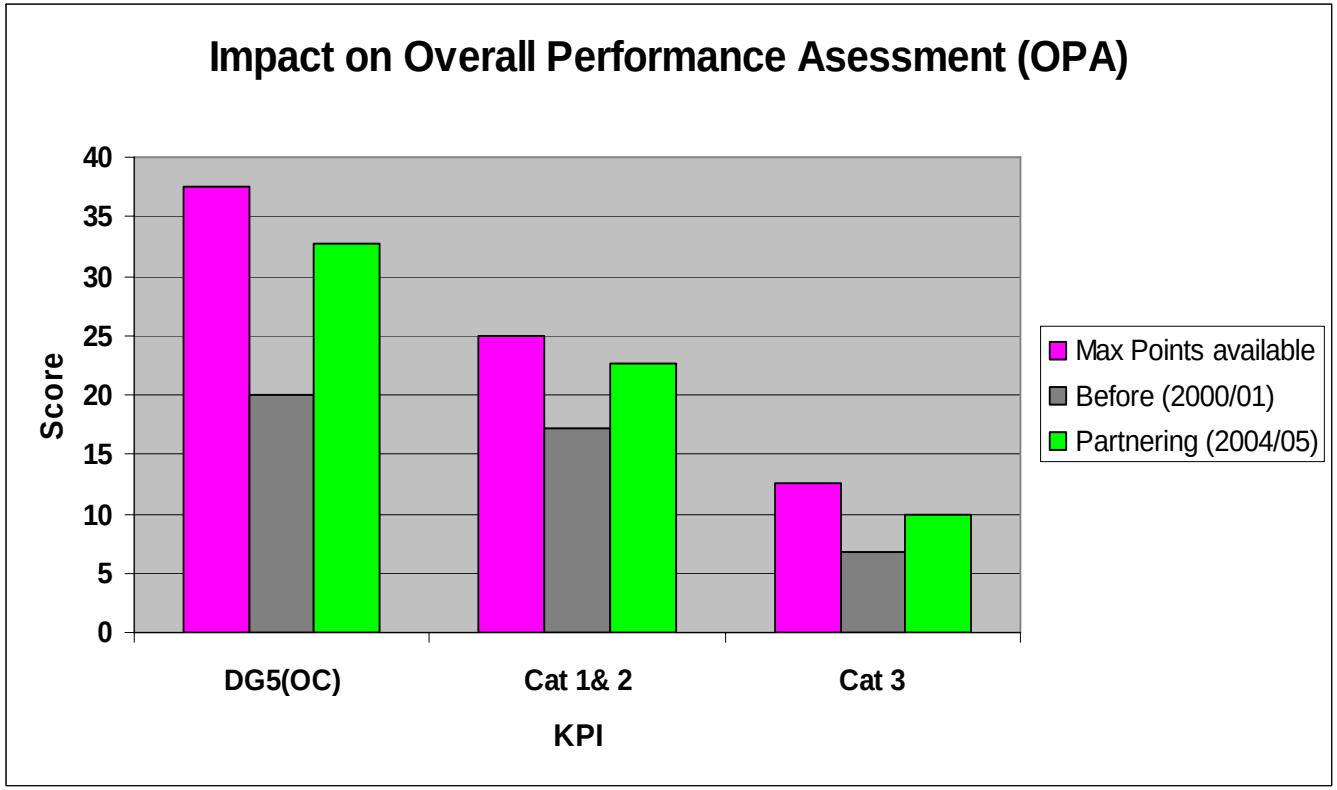
# Internal Flooding



# CAT 3 Incidents



# Overall Performance



# Case Study 2

Applying Asset Based Performance Contracts in South West Water

April 2003 – March 2006
Waste Water Pumping Station Contracts (WWPS)

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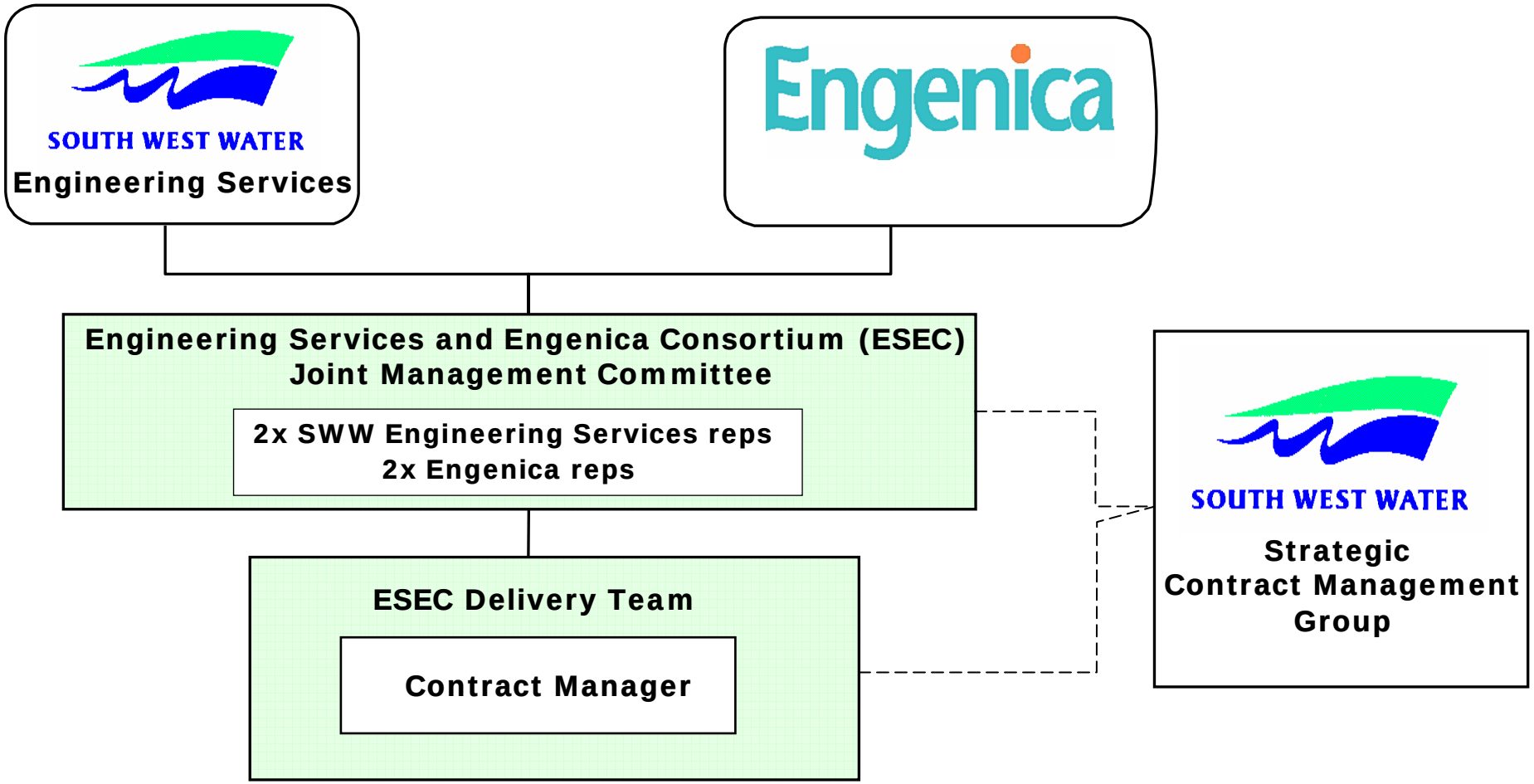
# The partnership structure

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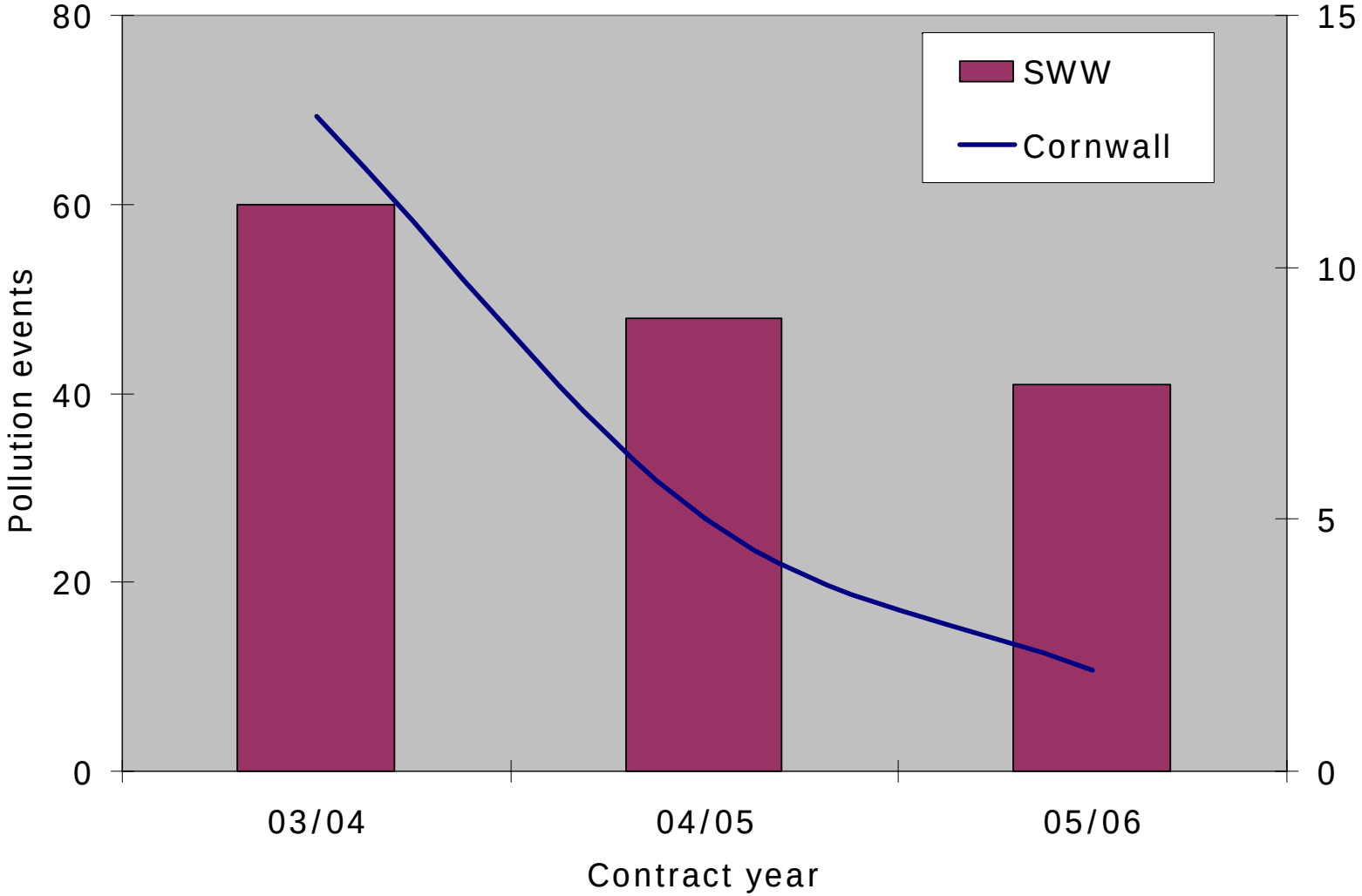
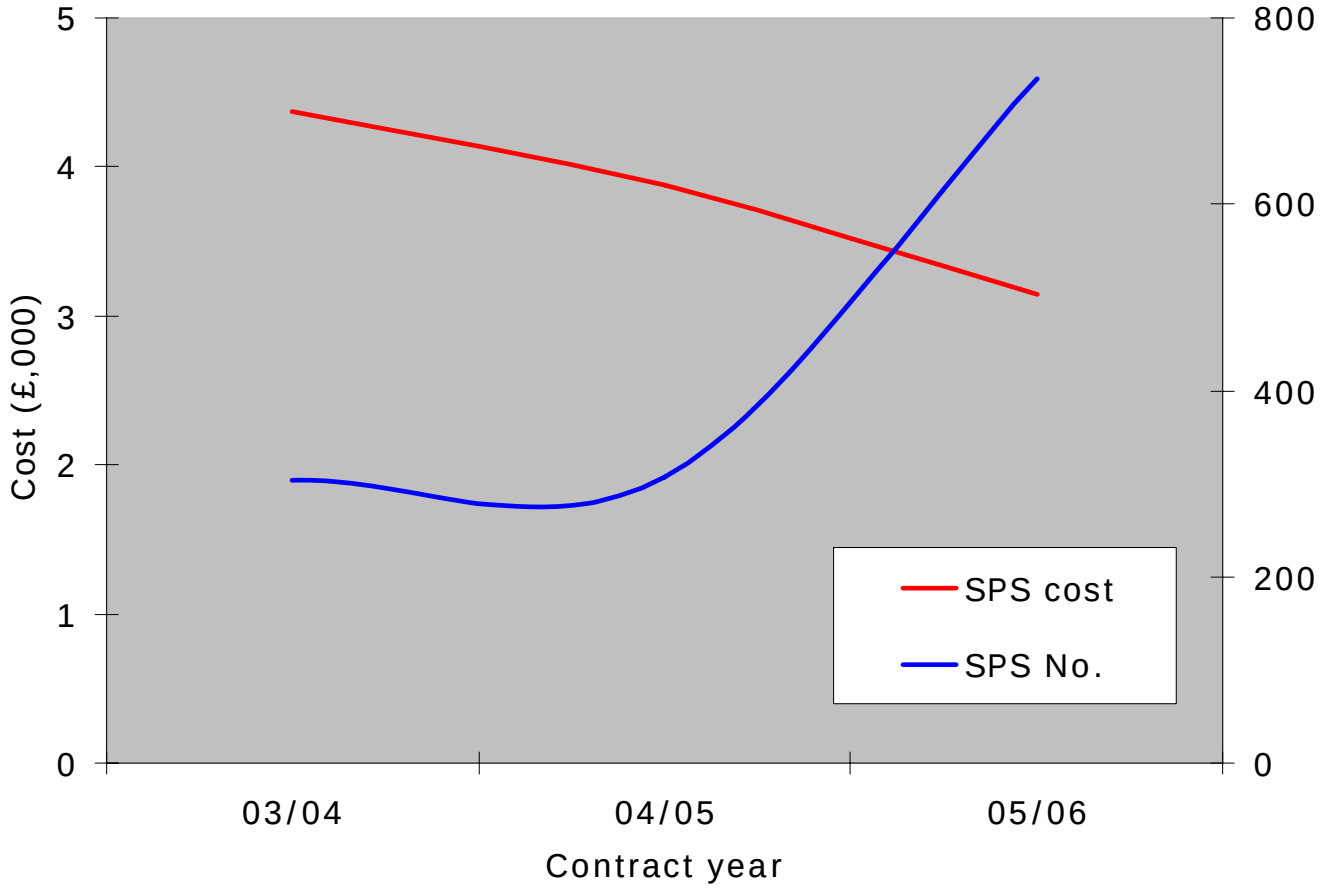
# ESEC pollution performance



# ESEC SPS cost performance