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Thames Tunnel; A Critique of a Flawed Project

Conclusions

This is a European Union (EU) driven project that has snowballed into a Coalition Growth project, gathering costs as it rolls. The proposed solution, chosen by Ministers, is estimated to raise customers bills by £70 to £80 a year. Yet the engineering costs seem excessive and, as proposed, it could be both difficult and expensive to finance.

The UK is in breach of the EU Urban Waste Water Directive. Ministers have opted for a "tunnel only" solution, having brushed aside cheaper and more flexible solutions.

Thames Water has paid excessive dividends, yet argues that a government guarantee is necessary to cover potentially catastrophic risks. it is therefore proposed that a separate company would be formed to undertake this project that would then supply sewerage services to Thames Water.

There is evidence of increasing infiltration of ground water into the London sewers augmenting dry weather flows and increasing the frequency of storm water overflows. This deteriorating situation seems to have resulted from inadequate maintenance by Thames Water of its sewer system.[1] Rather than rewarding the company with a large increase in its Regulatory Capital Value (RCV), regulatory action should be directed to getting the company to step up its sewer maintenance programme.

The "tunnel-only" project could be more expensive for both customers and taxpayers than the adoption of a combination of smaller and more flexible solutions combined with conventional financing by Thames Water/and or its owner Macquarie. The allocation of risk could leave customers and/or taxpayers with large contingent liabilities.

[1] Thames Water has been slow in dealing with high leakage in water supply pipes, and had to be pressured by Ofwat to increase expenditure on reducing leakage. It now appears that similar situation has arisen with respect to the sewerage system, again requiring regulatory intervention.

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An **independent assessment** should be made, **before** final decisions are taken, that would cover

- the contribution that can be made by better sewer maintenance:
- the engineering solutions that can achieve the desired environmental objectives, without involving excessive costs:
- the financial options available to pay for these solutions:
- the interactions between the choice of scheme and method of financing: and
- the insertion of conditions that would prevent the recurrence of the payment of excessive dividends.

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The Issues

There has already been considerable study of options and various assessments of costs and benefits. Costings have shown wide variations. Estimates of benefits have been disputed. Cost: benefit estimates have varied widely; some have shown estimate of benefits that exceed cost, but most showing benefits that fall short of costs, particularly for Thames Water's customers.

There are issues concerning the definition of environmental objectives. The EU Wastewater Directive (UWWTD) does not specify any particular solution, and the European Commission (EC) is concerned with ends and not means. Small differences in the precise objectives to be met can lead to major differences in the cost of solutions.

The European Court of Justice (ECJ) has found the UK government to be in breach of the EU Urban Wastewater Directive. The UK government did not, however, make a BTKNEEC[2] argument when unsuccessfully arguing that it was delivering a scheme (the tunnel) that would meet the UWWTD. The EC has not yet indicated that it intends to apply to the European Court of Justice for a fines judgement.

[2] Best Technology Known Not Exceeding Economic Costs

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There are several schemes that could potentially meet EU objectives. The "tunnel only" solution, preferred by Thames Water and supported by Ministers, is at the high end of the range of possible costs. A study commissioned by Ofwat by Jacobs/Babtie shows that a mixed solution combining different elements in different areas could be carried out for half the cost of the tunnel only solution.

Since the original report SUDs /green infrastructure has become much more common place in other countries.

Because of its size and nature the tunnel only scheme **may** face special financing costs. Thames Water claim that, because of the high risks involved, it would need government support. The formation of a separate (monopoly) company to undertake the project could raise the cost of capital and/or expose taxpayers and customers to high risks.

Thames Water has paid £2 billion in dividends in the last six years, damaging its credit standing. Its owner, Macquarie, could be obliged to return money to Thames or face Special Administration. There is no shortage of investors to buy water companies, albeit at a discount to the RCV.

Since the work on options was conducted and Ministerial decisions made, there has been a big escalation (more than a doubling) of Thames Water 's cost estimates. Thames claim that this escalation results from a detailed bottom-up estimation of costs, contrasting this with earlier desk studies. But it may represent risk averse behaviour, gold-plating. or regulatory gaming.

There seems not to have been any critical investigation of this big increase in costs, although Defra revised its cost benefit assessment (which is subject to dispute) to show benefits exceeding costs.

The customer's representative body, CCWater, does not believe that the scheme is in the interest of customers. The economic regulator, Ofwat did not believe that the schemes were cost effective, even at the pre-escalation costs. But after Ministers had decided that the tunnel was needed to comply with the UWWTD, Ofwat concentrated on driving value for money to ensure that customers only pay for economic and efficient costs.

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The various cost;benefit analyses produce varying results and the research on customer willingness to pay is subject to challenge.

These issues are set out in more detail below.

Additionally, the economic crisis may have materially changed the cost of financing this and other enhancement projects. This is considered in a section at the end of this paper.

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Views of CCWater

The Consumer Council for Water (**CCWater**) has longstanding concerns over the Thames Tideway project and has expressed these repeatedly to successive Ministers, Thames Water, Ofwat and numerous reviews and inquiries. [3]

In summary its concerns are:

- The bills impact of the scheme far exceeds the customers' willingness to pay – and estimates of cost have risen sharply.
    - The projected cost of the Tunnel has escalated over the years that it has been in development, and is now more than double the original estimate. Even at the original figure of £1.7 billion for the combined Lee and Thames Tideway tunnels, it far exceeded customers' then willingness to pay (around £40) for the specified improvements. With the current estimate now £4.1 billion (or around £70 - 80 annually on the bill) for the Thames Tideway Tunnel alone, [CCWater] continue[s] to question the acceptability of such a proposal, especially in the current economic climate, and given the risk of further cost escalation.
    - In terms of financing the scheme, the contractual and financial arrangements put in place must be the best possible deal for customers, rather than for shareholders and investors.

[3] **Consumer Council for Water January 2013**

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- There are significant questions about the case for this scheme:
    - The costs of the proposed Thames Tunnel seem disproportionate to the benefits available which are slight in terms of measurable public health impact and uncertain as to the effect on the sustainability of fish species in the longer term.
    - The Urban Waste Water Treatment Directive recognises that measures must be consistent with the 'best technical knowledge not entailing excessive costs (BTKNEEC)'.
    - If there are less expensive alternatives that meet legal requirements, they deserve close attention.

    CCWater[4] has pointed out that Ofwat has not signed off an economic appraisal

View of Ofwat and its contribution to the analysis

Ofwat has been concerned with this proposal for several years. It commissioned its own study by consulting engineers, Jacobs/Babtie (JB). This study also examined alternative strategies to mitigate the impact of CSO discharges. Four potential strategies were identified in the earlier Thames Tideway Strategic Study (TTSS), **but considered only as stand-alone solutions.** JB identified a number of number of potential solutions to produce cost effective schemes that, collectively form an Integrated Storm Management Strategy.

Such a strategy could be applied as a series of staged measures, giving greater emphasis to locally beneficial solutions and to progressive optimisation, i.e., the opportunity to fine-tune subsequent stages based on the performance of stages already implemented. It would also allow more conventional funding arrangements.

JB calculated that their suggested solution would cost only 50% of the cost of the solution proposed by Thames Water. JBs options included SUDS, the use of storm tanks rather than the construction of a deep

[4] Consumer Council for Water *Thames Tunnel Commission. Response to the invitation to submit evidence.* August 2011

tunnel, retrospective separation of storm and foul sewerage, improvements to existing sewage treatment plants and selective skimming of the Thames.

On the basis of the first stage of this report, Ofwat advised Ministers that further study, on lines indicated, should be carried out before any commitment is made to the proposal for a 35 kilometre interceptor tunnel on the lines proposed in the Thames Tideway Strategic Study's Steering Group report.[5]

In a further letter, Ofwat[6] said that "As Jacobs Babtie had anticipated, the changes to the Supplementary Report have not materially affected the principal conclusion of their initial report ie that there is scope for improvement options that offer better value for money than the 35km storage and transfer tunnel proposed by the TTSS team.

"These improvements would be supplemented by the measures already funded in price limits for AMP4 (upgrades to three large sewage treatment works, skimmer vessels and peroxide dosing plant) and in the long term by the implementation of SUDS where appropriate in the suburban fringes. Jacobs Babtie also suggest a phased approach.

"Key to all this would be a modification of the TTSS objectives, which Jacobs Babtie believe to be unduly onerous. They have recommended that further work be instigated to inform such a decision and to refine the proposed partial solution."

Ministers responded by commissioning (July 2006) Thames Water to undertake a further report that was published in December 2006. [7] It concluded that "Option 1 variants [the tunnel only scheme] achieve a higher proportion of the objectives, and score more highly in the cost benefit ranking." But to achieve this result, the benefit assessment covered all England households (most of whom would not be paying for the scheme). The cost; benefit assessments showed large negative net benefits for Thames Water's households, who are. the paying customers.

[5] Letter from Philip Fletcher to Elliot Morley 7th December 2005
[6] Letter from Philip Fletcher to Elliot Morley 14 February 2006
[7] T*ackling London.s Sewer Overflows; Thames Tideway Tunnel and Treatment - Option Development Summary Report* December 2006

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The report estimated that customers bills would rise by up to £45 a year to pay for the tunnel option - before taking account of the subsequent escalation of cost estimates.

In response, Ofwat advised Ministers in 2007[8], of cost that the project was not cost-effective and that other options should be explored,

"All the work done to consider yet further improvements to the Tideway demonstrates that it would not achieve value for money. Indeed, the evidence strongly suggests that the benefits would be very limited from the proposed sewer interceptor, whether in terms of health improvement, nuisance reduction, or environmental improvements. .Any such improvements would not in any way be proportionate to the very high cost – well over £2 billion."

Since the publication of the first JB report, Thames's cost estimates have doubled. Detailed "bottom-up" estimates recently made by the company have suggested much higher costs than were initially estimated by Thames Water. It is, however, not clear how much of the increase is the result of hard analysis and how much is the result of adding contingencies, gold-plating, and regulatory gaming.

Coalition Ministers have followed their Labour predecessors by continuing to support the Thames Water proposals, despite the continuing increases in cost estimates. In 2011, the then minister, Richard Benyon[9], reported to Parliament that:

- "My statement today reaffirms the Government's support for Thames Water's plans and reports on progress we have made since my last update. In particular, it provides an updated estimate for the overall cost and the likely completion date for a project of this size and complexity.
- The need to upgrade the sewerage system in London which in places is running out of capacity even in dry weather, and for a solution to the resulting environmental challenges in the Thames Tideway remains persuasive.

[8] letter from Philip Fletcher to Ian Pearson 31st January 2007
[9] Hansard. **Thames Tunnel See footnote below**

- Last year I also reported that the estimated average peak impact on annual customer bills was likely to be £60 to £65 in 2008 prices... the estimates for the project costs are now £4.1 billion. They include £0.9 billion of risk allowance and optimism bias.
- Since then, Thames Water has with Ofwat and my Department, made progress in developing the delivery route, risk management processes, and likely financing costs... This gives a central range for an average maximum annual customer bill impact of £70 to £80 at 2011 prices....At this stage some uncertainties remain and the estimates will continue to be refined going forward.
- DEFRA, with Ofwat, IUK, EA and Treasury, has been working closely with Thames Water to ensure that the engineering costs are minimised through value engineering, and that the project is delivered efficiently with a structure and financing mechanism that delivers value for money for customers.
- The Government believe that the private sector can and should finance this project but accept that there are some risks that are not likely to be borne by the private sector at an acceptable cost. It is willing in principle to provide contingent financial support for exceptional project risks where this offers best value for money for customers and taxpayers."

Ofwat now expects the cost estimate to remain stable. The Minister did not, however, speculate on the scale of the cost of capital.

Is there a reliable economic appraisal?

In a cost-benefit study carried out by NERA, in 2006, none of the tunnel options showed a benefit;cost ratio of above 0.76. A later NERA study, in 2007, showed higher cost;benefit ratios for the tunnel options, including ratios above unity. There is clearly very considerable uncertainty and since then cost estimates have more than doubled.

In November 2011, Defra published further estimates, including estimates of higher costs and then indicated that if the estimates of benefit were extended from 60 to 100 years and if (optimistic)

projections were made of population and income growth, using a low - and one subject to challenge - rate of discount, the estimates of benefits could be put at a range of ££3.0 billion to £5.1 billion, compared with an estimate of costs of £4.1 billion.

However, the consulting engineer, Chris Binnie (see below) has subsequently re-assessed work and found many oddities, and arithmetical error of £1/2bn, and assumptions which he had good reason to consider were wrong". His assessment using the same basic methodology was a benefit of £275m. There must be some doubt about the true independence of the current Defra review. In any case it cannot, given all the uncertainties in the calculations over a very long time-scale, be regarded as a robust result.

The design of the project

The project is designed to deal with discharge of foul sewage into the Thames resulting from the flow of storm water in a combined system. It involves a 35km storage and transfer tunnel, which is 7.2 metres in diameter , principally below the River Thames to intercept the key Combined Sewer Overflow (CSO) discharges and convey them downstream for treatment and subsequent discharge.

The, the original study, the Thames Tideway Strategic Study (TTSS), chaired by Chris Binnie, working from 2000 to 2005, looked at the alternatives which it believed were available at that time and chose the tunnel as the only alternative which would be certain to meet the requirements of the UWWTD..

Meanwhile, Ofwat commissioned Jacobs Babtie (JB) to study the issues.[10] The 2006 JB report concluded that:-

- that sewage-derived material account for about 10% of the total litter load causing aesthetic pollution of the Tideway,
- the arguments presented by the TTSS and in the cost-benefit study are centred round the issue of reducing significant fish kills,

[10] Jacobs Babtie I*ndependent Review to assess whether there are Economic Partial Solutions to Problems caused by Intermittent Storm Discharges to the Thames Tideway*. Final Report February 2006

most of which will be resolved by already funded improvements to existing sewage treatment works

- no cost-benefit analysis had been carried out on the sustainability issue that is the principal ecological objective of the Tideway scheme, and
- the background water quality in the Thames under dry weather flow conditions is not as good as implied by the TTSS and that in consequence the benefits in the cost benefit analysis have been overstated.

The JB study also examined alternative strategies to mitigate the impact of CSO discharges. Four potential strategies were identified in the TTSS, **but considered only as stand-alone solutions.** JB identified a number of potential solutions to produce cost effective schemes that, collectively form an Integrated Storm Management Strategy. Such a strategy could be applied as a series of staged measures, giving greater emphasis to locally beneficial solutions and to progressive optimisation, i.e., the opportunity to fine-tune subsequent stages based on the performance of stages already implemented.

The JB preferred solution in 2006 was a combination of several schemes already identified under the TTSS, including a tunnel running from Hammersmith to Heathwall Pumping station and enhanced primary treatment at Abbey Mills .

JB calculated that their suggested solution would cost only 50% of the cost of the solution proposed by Thames Water. Their options included SUDS, the use of storm tanks rather than the construction of a deep tunnel, retrospective separation of storm and foul sewerage, , improvements to existing sewage treatment plants and selective skimming of the Thames. Since the original report SUDs /green infrastructure has become much more common place in other countries.

A further contribution would be to reduce the considerable infiltration of ground water into sewers. The cause of the problem may have been wrongly attributed to population growth, together with the changing nature of storm events. We appear to have a situation where Bazalgette's intercepting sewers are running dangerously close to

overflow levels even during dry weather. That was not the situation at Thames in the immediate pre-privatisation period,

What seems to have happened in the intervening 24 years is an accelerated deterioration in the smaller feeder sewer network that, coupled with continuing high urban leakage, is exacerbating infiltration into the sewerage system. As much as one third of dry weather flows could be derived from leakage and infiltration. I know of no evidence that Thames has investigated this or that sewer infiltration is seen to be a problem. It would be perverse to reward Thames with a major increase to RCV as a consequence of the decision to improve profitability by neglecting maintenance of the sewerage network.

Thames has spent precious little in the investigation of possible alternatives. Albion Water will be promoting a system of discrete, self-contained semi-submersible treatment units that can be floated into place along the river banks and discharge acceptable quality water to river plus organic residues to barge for downstream processing. The technology is well tested (albeit not in this form) and a pilot could be in operation within six months at a cost of less than £3 million. It is not clear that Thames will be at all receptive. Thames have shown little interest in buying other services.

All these options could be combined in ways that would facilitate the division of a huge project into a series of smaller ones that could be programmed to produce earlier outcomes - and be easier to finance.

There are many options available and these need to be applied in various combinations to determine the most economic alternatives to the Tunnel scheme.[11] This may require the use of a computerised approach to complex multi option appraisals using models such as that developed by Professor Dragan Savic using Genetric Algorithms to generate options within defined limits and iterate towards the optimum solutions. This approach has been used extensively for both water and sewerage networks, and has often yielded large financial savings.

[11] Phil Stride *Thames Tideway Tunnel Debate: Is a mixed solution the answer?* WEM March 2013 Richard Ashley and Sue Illman *Thames Tideway: Real Value or just Market value? The Environment May 2013*

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Under a TTSS supplementary report to Government, a similar option to the JB Babtie solution was assessed. This included the western tunnel, primary treatment at Abbey Mills and additional screening at some pumping stations. The TTSS assessed this option as not cost effective because it only provided 50% of the benefits for 80-90% of the cost of a full tunnel solution. The Defra Regulatory Impact assessment (RIA) published in 2007states that "Jacobs Babtie didn't fully agree with the TTSS , and considered their proposal would provide lesser but still adequate benefits at lower cost".[12]

Despite the differences in cost between the reports by JB and TTSS, Ian Pearson (the then Minister of State for Climate Change & Environment) wrote to Thames Water in July 2006 directing it to carry out more detailed assessments and costing of a full tunnel solution and a solution comprised of two shorter tunnels. In the letter, the Minister requested that a number of factors were taken into account. These included:

- Thames Water with the Environment Agency, should assess and optimise the level of treatment required, and the preferred location for the provision of additional treatment.
- Achievement of environmental objectives developed by the TTSS, taking into account planned capacity increases and treatment improvements at Beckton, Crossness, Mogden and Riverside sewage treatment works and in-river measures.
- Wider issues such as likely requirements of the water framework directive, climate change, sewer flooding and flexibility and robustness.

On 7 September 2010, the Minister, Richard Benyon, outlined the Government's support for Thames Water's plans for a tunnel to reduce the amount of untreated waste water being discharged into the River Thames. ", indicating that he was " was minded to consider development consent for the tunnel under the regime for nationally significant infrastructure projects established by the Planning Act 2008." As noted above he subsequently 2011, he

[12] Department for Environment, Food & Rural Affairs *Regulatory Impact Assessment - sewage collection and treatment for London* March 2007

> reaffirmed the Government's support for Thames Water's plans and provided " an updated estimate for the overall cost and the likely completion date for a project of this size and complexity." [13]

[13] Hansard. **Thames Tunnel**
The Parliamentary Under-Secretary of State for Environment, Food and Rural Affairs (Richard Benyon): On 7 September 2010, I outlined in a written statement, *Official Report*, column 9WS the Government's support for Thames Water's plans for a tunnel to reduce the amount of untreated waste water being discharged into the River Thames. I presented an estimate of the costs and impact on customers' bills, which I said we would continue to scrutinise with Ofwat to ensure value for money. I said DEFRA would update the 2007 impact assessment and that I was minded to consider development consent for the tunnel under the regime for nationally significant infrastructure projects established by the Planning Act 2008.
My statement today reaffirms the Government's support for Thames Water's plans and reports on progress we have made since my last update. In particular, it provides an updated estimate for the overall cost and the likely completion date for a project of this size and complexity.
The need to upgrade the sewerage system in London which in places is running out of capacity even in dry weather, and for a solution to the resulting environmental challenges in the Thames Tideway remains persuasive. I will today place in the Libraries of both Houses a paper "Creating a River Thames fit for our future" summarising the strategic and economic case for the Thames tunnel. This builds on the impact assessment produced in 2007. It explains why we continue to believe that a tunnel represents the preferred solution for dealing with the untreated sewage that is polluting the River Thames.
Last year I reported the project costs for the Thames tunnel as £3.6 billion at 2008 prices. This was the cost of the project reported at what is known as the P80 level—that is, there is an 80% probability the project costs will be less than this figure based on probability modelling of cost risks. This figure excluded financing costs. Since then development of the construction plans has continued, more allowance has been made for a later completion date and in response to the first phase of public consultation
3 Nov 2011 : Column 42WS
by Thames Water, greater use of brown-field sites and river transport have been allowed for. The cost base has also been updated to 2011 prices and on this basis the estimates for the project costs are now £4.1 billion. They include £0.9 billion of risk allowance and optimism bias. These estimates have been examined by independent advisers on behalf of Ofwat and confirmed to reflect best practice in the industry. At this stage some uncertainties remain and the estimates will continue to be refined going forward.
Last year I also reported that the estimated average peak impact on annual customer bills was likely to be £60 to £65 in 2008 prices. This figure was based on the then estimate of project costs plus modelling of likely financing costs. Since then, in addition to the revised project cost outlined above, Thames Water has with Ofwat and my Department, made progress in developing the delivery route, risk management processes, and likely financing costs. They have also developed the modelling of the likely impacts on customer bills. This gives a central range for an average maximum annual customer bill impact of £70 to £80 at 2011 prices. The considerably uncertainty in this range reflects the impact that financing costs will have on bills and the difficulty in estimating these for a project of this nature and duration. Relatively small changes in the cost of capital for the project could have a significant impact on bills.
I understand the concern that Thames Water customers may have over this increase in their bills. DEFRA, with Ofwat, IUK, EA and Treasury, has been working closely with Thames Water to ensure that the engineering costs are minimised through value engineering, and that the project is delivered efficiently with a structure and financing mechanism that delivers value for money for customers. We will continue to do this and to ensure that there are no better value solutions that meet the need.
Financing a tunnel of this size at a cost that is value for money for customers is a challenge. The Government believe that the private sector can and should finance this project but accept that there are some risks that are not likely to be borne by the private sector at an acceptable cost. It is willing in principle to provide contingent financial support for exceptional project risks where this offers best value for money for customers and taxpayers. However, I will want to be assured that when offering

Neither Ministers nor regulators have set out the underlying analysis behind the Ministerial decision to opt for this solution. In the absence of this information, it looks as though alternatives have been brushed aside by Ministers, and that regulators have accepted this as a fait accompli. [14]

There is a suggestion that only Thames Water has a suitable model to judge the environmental impact of various solutions on the Thames; if so, that would indicate a lack of independence in the assessment and reveal regulatory inadequacy.

Financing the project

Thames Water claims that borrowing would not be possible without a government guarantee. Moody's have said that further borrowing on top of a highly geared capital structure would damage Thames's credit standing. But this takes no account of the self-inflicted damage that Thames have caused themselves by the payment of very large dividends.[15]

Thames and its owners, Macquarie, have known about this project for many years and, indeed, Macquarie should have examined the

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this contingent support taxpayers interests remain a top priority and that the taxpayer is appropriately protected by measures that minimise the likelihood and impact of these exceptional risks.
On planning, we have completed a 12-week public consultation on proposed secondary legislation (Section 14 Order) which would classify proposed major sewer projects such as the Thames tunnel as nationally significant infrastructure projects (NSIPs). We are currently analysing responses. It will then undergo parliamentary scrutiny and an affirmative approval process. Following such approval, I would anticipate that a Section 14 Order could come into effect in the spring of 2012.
We have revised the draft waste water national policy statement in the light of responses to the public consultation and recommendations from the EFRA Committee. The NPS is to be used by the Infrastructure Planning Commission, or its successor, to guide its examination of development consent applications for waste water

[14] See EFRA Committee Oral evidence from Regina Finn and Keith Mason, 18 Jan 2011, especially Qns 3.4. "It was a policy decision that this particular project was needed to avoid infraction risk or infraction costs, given that our role is to make sure that it's delivered as cost effectively as is absolutely possible, and we will do everything we can to do that", Regina Finn at Qn 3; "there have been discussions about whether this project was needed or was the only solution to this particular problem. The conclusion has been that there aren't alternatives and therefore this project needs to go ahead"" Fourth Report Session 2010-11, Oral evidence, Qn 168.

[15] Thames apparently took account of the prospects of a government guarantee for the tunnel when settling its dividend policy. Otherwise it could have been in default of condition F of its License that requires it to maintain investment grade rating on its bonds.

implications of the project when doing its due diligence prior to its acquisition of Thames Water from RWE. As the need to deal with London's wastewater system has been known for many years, a responsible company would have accumulated - or preserved within the utility - sufficient funds to undertake the investments required to fulfil its obligations.[16]

In the 12 years from 2000 to 2012, since it was acquired by Macquarie, Thames Water has paid £3.4 billion in dividends to its owners, £2.2 billion has been paid out in the last 6 years. Priority seems to be being given to repatriating the money, apparently to unknown off-shore destinations rather than dealing economically with London's problem. The prospect of a governmental contribution to financing the tunnel has enabled, and may have encouraged, Thames Water to pay high dividends. [17]

The regulator, Ofwat, when setting future price limits that included a return necessary to finance the tunnel could require Macquarie to return some or all of these dividends to Thames Water or to raise further equity in order to improve its gearing and ability to borrow on the necessary scale.[18] [19]

Were price limits to be set on this basis, Macquarie could be obliged to return funds to its subsidiary, Thames Water, or to allow its subsidiary go into Special Administration. The Special Administrator would have an obligation to ensure continuation of water and sewerage services to customers, while a new operator was found to take over the Licence.

Experience in the water sector, and the recent bid for Severn Trent Water, has shown that such investors are available, albeit, as in the case of Welsh Water, paying less that the RCV for the License.

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[16] The relevant financial history is well-documented in **T. Martin Blaiklock** ***Thames Tideway Tunnel An Analysis: 2000 – 2012*** October 22, 2012 [updated Jan 20, 2013]

[17] Payment of high dividends is echoed in another Macquarie project, the M6 Toll road, where the operator, Midland Expressway Ltd (MEL), having paid a dividend of £392million, is snow pleading inability to meet capital obligations of over £100million to provide a promised link to the M54,. *Financial Times* 24-06-13

[18] Simon Hughes and Ian Byatt *Why should Londoners pour money down the drain* Times 05-11-12 See also Danny Forton *Enter the Vampire* Sunday Times 10-02-13

[19] See *Sewer problems* FT leader 06-11-12

The suggestion that the Government should assist the financing of this project under the Water Industry Assistance Act(2012) and Flood and Water Management Act (2010) would relieve Thames Water of its obligations and protect its RCV to the benefit of its owner - who has already taken out a significant part of its investment through the payment of very large dividends.

Moreover, the suggestion of the creation of a separate company to carry out the scheme, with or without a government guarantee, that would be a monopoly supplier of sewerage service to Thames Water seems a poor alternative to conventional funding by Thames. It would provide a market test, but such a test would be critically dependent on the allocation of risk between the new company, Thames, Government and Thames's customers. This is an area where, as shown by some PFI schemes, it is very difficult for officials and regulators to strike a deal that adequately protects customers and taxpayers.

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The rate of return and the cost of capital in current conditions

There is considerable uncertainty concerning the cost of capital in current economic conditions. The prolonged recession in Europe and the recession in the US, combined with an expansionary monetary policy has reduced interest rates to unprecedentedly low levels.

If the techniques traditionally applied by regulators, notably the Capital Asset Pricing Model (CAPM) and also the Dividend Growth Model (DGM) were used to analyse the return needed by regulated companies to finance projects, whose returns came from increased customer bills rather than from cost saving or new demand, they would show very low returns.

And the concept of a risk-free rate has been badly damaged by the sharp increase in yields on sovereign debt in many countries, especially in the Eurozone. Currently the risk free/indexed linked gilts rate is broadly zero in real terms and the overall real cost of capital for a highly (e.g. 80%) geared company is likely to remain very low. But this also depends on the ability of the UK government to continue to attract

capital flows from the markets. A continuation of very low interest rates could imply that a regulated company should only get a small return, in addition to inflation proofing on an expanded RCV.

Government policy is, however, developing. The new Bank Governor, Mike Carney, has said that interest rates will remain low until employment revives Quantitative easing has reduced interest rates, but seems to be producing new bubbles in the prices of some assets rather than reviving the economy.

Conditions are different in different parts of the world economies differ. While the Chinese current account surplus has fallen, there are still substantial flows of capital from Asia. In the West, pension funds continue to need to invest, in part to deal with pension deficits. While bond markets suffered a hiccup in the early stages of the financial crisis in 2008they quickly recovered, with yields only 1 or 2% above gilts.

If companies are to invest, they need sufficient financial incentives. But if returns turn out to be too high, and companies walk away with very high dividends, customers will complain and companies will lose legitimacy. In these circumstances, it would be wise to explore gain sharing techniques.

There is a strong case for strengthening regulation by limiting dividends - a return to Victorian times. It would be counter-productive to freeze dividends, but there is merit in a sliding scale, whereby payments in excess of the regulator's estimate of the cost of capital were accompanied by a reduction in tariffs. It would be well worth exploring the potential consequences of various sliding scales, with different provider incentive/customer protection properties.[20]

If the Government were to wish to proceed under the Water Industry Assistance Act(2012) and Flood and Water Management Act (2010) this would provide a good opportunity of inserting such a condition in the contract. Otherwise, it could be inserted as a Licence condition.

Finally, it is worth noting that the more capital intensive the project the more difficult may be the financing. Prestige projects are unlikely to

[20] See Burns, Turvey & Weyman-Jones *The behaviour of the Firm under alternative regulatory constraints* Scottish Journal of Political Economy may 1998

represent a good use of resources and financing them through higher customer charges will damage overall consumer demand.

08-08-13 Ian Byatt