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## **Thames Water and Water Infrastructure (South East Strategic Reservoir Option and water transfers)**

### **Executive Summary**

- Water companies have repeatedly attempted to sidestep National Infrastructure Commission (NIC) recommendations for crucial new water infrastructure over commercial concerns, including in latest plans.
- NIC key recommendation is for a **water transfer network** (National Water Grid) to move existing supply from where it is plentiful to where it is needed. This would be the least costly and disruptive outcome, achievable in short term (within 1-2 parliamentary terms) and most effective, resilient, and flexible option. Creation of a central **Water Transfer Authority** with authority to direct inter-regional transfers would overcome commercial risk issues.
- Thames Water (TW) are worst of all with their plan focusing on a gargantuan reservoir (South East Strategic Reservoir Option – SESRO) with massive unavoidable issues, project risks, lengthy and certain to be delayed timeline, disruption, and environmental damage. SESRO would also impair other infrastructure development, including but not limited to housing construction in the area.
- Water companies as a whole, and TW in particular, submit technical-first solutions based on commercial risk aversion; these end up far less capable, more expensive, more damaging, riskier, and lengthier than ideal solutions. The political-first solution of a Water Transfer Authority to oversee a National Water Grid is outside their capacity; the country would be best served by Government leadership to do this.

### **Background**

- There has been a chronic lack of development of water infrastructure over recent decades. Such infrastructure is usually seen as “reservoirs” but these are just a small component of water infrastructure. Privatised water company responses over the years have not been helpful.
- The 2018 National Infrastructure Commission (NIC) report<sup>1</sup> recommended:
  - o Provision of at least 1300 Ml/day of water through a national water network and additional supply infrastructure (smaller scale dispersed reservoirs, re-use, desalination schemes) by the 2030s
  - o Halving of leakage between 2018 and 2050
  - o Compulsory water metering.
- The RAPID process was intended to address these issues in a coherent and nationwide manner but has been largely water company-driven.
- TW’s plan has had the worst record. The RAPID Gate 1 had to be delayed to allow them to resubmit their unacceptably redacted Environmental Assessments. The Environment Agency (EA) has since recommended against acceptance of their plan in its current form.
- TW’s issues with their plan showcase wider water company issues with infrastructure planning: they (rationally) prioritise their own commercial concerns.

### **Water Transfers**

- Water transfers were recommended by the NIC as the first and foremost solution to the incipient water crisis. Of the four possibilities considered: water transfers, reservoirs, desalination, and re-use, the latter three always had potentially significant drawbacks, but they noted:

*“The exception is water transfers. A range of studies have all found a positive cost-benefit case for greater transfers and water trading (see Annex 3). However, transfers currently only make up a small proportion of total supply (about 4%). This is likely to be because the incentives in the current system make developing a strategic transfer network difficult, meaning that the decision needs to be made at a different level.”*

- Water companies (and Thames Water (TW) in particular) have often shied away from water transfers and downplayed them as options. From off-the-record personal consultations with members of TW, the key issue is the commercial risk of reliance upon another water company to source water when needed.
- TW has minimised options for the South West that would involve water transfers coming in to the region (specifically the Severn-Thames Transfer (STT) option; a key link in the mooted Water Grid) by using unsupportable assumptions on cost to try to make it look less attractive whilst using different assumptions for their preferred SESRO outcome.

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<sup>1</sup> <https://nic.org.uk/app/uploads/NIC-Preparing-for-a-Drier-Future-26-April-2018.pdf>

- Water stress is unevenly distributed – some regions experience six times the rainfall of others. Droughts in the UK are usually single-region specific; occasionally two regions at once. North West of England, Wales, and Scotland have water surpluses; South East of England and Anglia have water deficits. National Water Grid would allow transfer of water from where it is plentiful to where it is needed, escaping “the jaws of death” water demand/supply mismatch described by a former EA chief executive coming within 25 years.
- Water transfers enhance resilience by increasing options around further supply options; crucial in potentially uncertain climate scenarios.
- Scale of water made available by inter-regional water transfers is greater than combination of any projected reservoir projects. Severn-Thames Transfer (STT) alone could make 300-500 Ml/day of water available to South East from plentiful existing reservoirs in North West and Wales and be available in under a decade.

## **TW and SESRO**

- SESRO has massive and unavoidable issues due to it being an order of magnitude beyond the “normal” reservoir size. Context: Havant Thicket reservoir (recently approved) will hold 8.7 megatonnes of water; Farmoor reservoir in Oxfordshire holds in its two parts 4.5 megatonnes and 9.3 megatonnes respectively.
- SESRO would hold 150 megatonnes of water. Maximum output would be under 270 Ml/day (less than the 300-500 Ml/day from STT). As a banded reservoir, it would be built up by walls 30m high and cover an area larger than the town of Abingdon itself. The issues from a banded reservoir of this magnitude include:
  - o Project risks: it would be highly susceptible to the “Iron Law of Megaprojects” –over-budget, over-time, and under-delivering.
  - o Lengthy schedule: even should it implausibly come in on schedule, it would take until the 2040s to be operational (assuming all goes perfectly). In reality, delays to the 2050s should be seen as likely. Reservoirs to augment the water grid should instead be smaller and more dispersed – far faster and less disruptive to build.
  - o It would cause irreversible and widespread environmental damage and give considerable safety risks from both accident and potential terrorist targeting.
  - o There would be unavoidable interruption of groundwater flow into the Thames and associated frequent flooding of Abingdon and the surrounding area following storms.
  - o The prolonged (decades-long) disruption during construction would not just be local, but to the arterial A34 route and mainline railway between London and Bristol. This disruption would also impair housebuilding (e.g. Dalton Barracks redevelopment) and other infrastructure projects.
  - o It would have total dependence on the most water-stressed major river in the country (TW frequently cannot abstract enough water to fill up Farmoor, which is 9% of the capacity of SESRO)
- During a prolonged drought from extreme climate change (the only scenario to justify SESRO), it would likely run dry part-way through and refilling would be impossible due to the dry winters of that 1:500 year drought scenario. That is: if needed, it would not be usable; if usable, it would not be needed.
- Should SESRO be approved, TW will have to return to request STT construction anyway (as STT would be so much quicker to construct, this could be done after SESRO construction becomes politically uncancellable). However, STT makes SESRO redundant, other than providing a “stash” of water for TW to remove the commercial risk of reliance on other water companies.

## **Summary**

- Water companies in general, and TW in particular, have responded to the RAPID process with plans optimized for their own commercial benefit and to minimize commercial risk, ignoring NIC recommendations in favour of more expensive, disruptive, inflexible, and less effective options.
- SESRO is the epitome of those – not just “a reservoir” but an order of magnitude greater than most and with associated massive project risks (overrun in time and money), lengthy timelines, genuine dangers to those in the region, irreversible and unavoidable environmental damage, disruption extending wider than the local area for decades, and ineffective for its touted purpose.
- Transfers (including STT) to inaugurate a National Water Grid would be far quicker to bring into operation, much more flexible, modular, suffer much less project risk, cheaper, much less disruptive, and much less unpopular. This solution could be on-line within 1-2 parliamentary terms.
- The key commercial risk for water companies is dependence on each other to release water; this could be resolved by setting up a central Water Transfer Authority, linked with a strengthened EA or OfWAT.