

Creating tomorrow, together Consulting on our methodology for PR24
ABB UK Consultation Response

The ABB consultation response is based upon our position as a global manufacturer of key water industry machinery. ABB develop products specifically for the UK water industry and to continue our support we believe it is important that our opinion on this methodology is taken into consideration. We would welcome the opportunity to add further input to ensure the success of PR24 where appropriate.

Our response will only focus upon the items within the methodology where we believe our answers will prove insightful and welcome any feedback plus future engagement.

Although the consultation period for operational resilience has now closed, we have supplied a brief overview of our professional opinion immediately below. We feel that this is intrinsically linked to the methodology consultation and an important addition to be considered within the consultation process.

Operational Resilience (water treatment and network distribution)

It should be considered that to maximise operational resilience within the water treatment and wider network distribution, a clearer picture of asset health performance will be necessary as well as a well-defined long-term strategy based upon the true condition of the assets and infrastructure. Historically many sites have been overlooked for improvements due to known difficulties that would prove costly and time consuming to overhaul. Many of these sites are the oldest and extremely important to the wider network and a constant threat to operational resilience.

Asset condition – The water industry installed base is a serious issue with significant mechanical infrastructure decades old, in some cases up to 60 years. The likelihood of immediate failure is a constant threat with repair costs costing considerably more than upgrading the plant. These problem sites must be identified, and a programme of works created to upgrade without current financial restraints based upon TOTEX purchasing policies.

Any long-term strategy to improve operational resilience within water treatment and distribution will require a clear focus on the causes of operational and mechanical failure, how they can be minimized and by what means.

There are several actions that will make immediate improvements and actions not often considered that should be given further attention.

Predictive maintenance

- This is a strategy not new to the water industry but is being held back by security issues. Sensor technology designed to monitor temperature and vibration within rotating equipment have been used for a number of years, but technology now provides improved results not previously seen. Unfortunately, the successful operation of this technology often relies on Bluetooth connection and data sent and stored within the cloud that water companies cannot embrace for security reasons.

Preventative maintenance

- Again, this is not a new strategy but is still vitally important. Before considering preventative maintenance strategies it would be sensible to first contemplate how the replacement of standard equipment with modern resilient and more robust alternatives that will require less maintenance over the longer term.

Operational and mechanical failure

- What are the main causes of breakdowns and maintenance issues? Age, over usage, under usage, incorrect installation, weather? There are many and can often be unforeseen. Mechanical failure is a regular occurrence due to the demand placed upon the machinery used. Bearings fail on motors, seals split on pumps, pipes burst and valves and their actuators seize. If modern products can reduce the occurrence of these points of failure, they should be considered best practice.

What can be done?

- Products already exist that reduce failures and can target weak points within the network. Products such as variable speed inverters and variable speed actuation will lower stress on mechanical devices and can improve pressure and flow rates. These actions alone can reduce pipe bursts, improve efficiency and energy costs.
- The use of synchronous reluctance motors to drive pumps, fans and many other electromechanical devices are becoming more popular due to their best-in-class efficiency but it should also be considered that the design is far less likely to fail as often as standard induction motors due to their design features and reduced heat within the bearings. Synchronous reluctance motors are the future and now of electromechanical power and must be at the top of all water company lists for where instant resilience gains can be made, any hurdles should be cleared to make way for their full-time use. They reduce energy costs, reduce maintenance, less noise pollution and will help in the drive for NetZero. Synchronous reluctance motors also contain no rare earth materials.

Big picture thinking towards operational resilience

- Identifying the problem areas and how they can be resolved are the key questions to achieving operational resilience within water treatment and distribution, however there are further important issues that can affect the implementation of projects ahead of specification, many of which will have a direct impact on the overall resilience objectives.
- A reliable supply network that can provide good product availability, technical support and local knowledge is vitally important.
- Wider supply considerations to overall resilience. Global supply lines are becoming increasingly difficult to maintain due to material shortages, shipping costs and long delivery times. Quality issues are now arising to help cut costs. Further difficulties are currently being experienced due to the war in Ukraine and Brexit implications. Strategic purchasing of products manufactured within the UK and Europe will reduce some potential supply issues. Shipping costs will be lower, deliveries faster and local stock held.
- NetZero and environmental challenges are another important consideration that can be offset by targeting supply routes based upon a wide view of TOTEX purchasing strategy that positively impacts operation resilience. As well as reducing energy consumption and CO₂ within the network some water companies are requesting supplier CO₂ policies. Ultimately this policy can go further. Once again looking at long supply routes, there will be direct environmental consequences of unnecessary long supply routes when products can be sourced within the UK and Europe. Rare earth-based materials used within the manufacture of electric motors can have a direct impact on delivery schedules. We have many reports in the news of the delay of cars and other products reliant on such raw materials. As discussed previously, synchronous reluctance technology will negate this potential major effect on supply.

List of consultation questions

Ch2 – Regulating through the price review

Q2.1: Do you agree with the challenges facing the sector and the ambitions for PR24 we have identified?

ABB Response:

ABB UK welcome the efforts made by Ofwat and other related parties to continue improving our water network and the identified ambitions set out within PR24 appear realistic if collaborative relationships between Ofwat, water companies, contractors and key suppliers are improved. This is currently not the case.

Q2.4: Do you have any comments on our approach to evaluating progress? What specific evaluation questions (based within the four key ambitions) do you think an evaluation should look to answer?

ABB;

Evaluating progress between 1. long term focus, 2. Environmental issues and 4. Efficiency and innovation are intrinsically linked and can be achieved jointly with an engineered approach to improving plant efficiency and plant resilience using the most up to date operational equipment.

Example:

- Specifying synchronous reluctance motors equipped with variable speed drives and predictive maintenance sensors on to all treatment and distribution equipment where possible. - #Innovation, #Efficiency, #Environment*
- Synchronous reluctance motors are currently the most efficient motors providing IE5 efficiency. – #TOTEX, #Environment*
- They must be used with variable speed drives therefore potentially further reducing energy usage. - #TOTEX, #Efficiency, #Environment, #Innovation*
- Energy costs will be quickly reduced with the expenditure of the equipment recovered within a very short period. - #TOTEX*
- Synchronous motors require less maintenance and reduce operational failures improving resilience. #Resilience, #Innovation*

By incentivizing water companies to specify IE5 synchronous reluctance technology and when this is not possible IE4 induction motors for new projects, upgrades and failure replacements, three of the four key ambitions can be achieved with one solution. This solution is easily achieved by each water company creating an electric motor policy outlining the requirements to prospective suppliers. Where OEM capital purchasing is in place for plant such as pumps this must be considered at framework tendering stages to include the minimum motor standards.

Q3.5. Do you agree with our proposals:

- a) **To raise the size threshold above which companies should deliver schemes through DPC to around £200m lifetime TOTEX?**

ABB;

Any opportunity to improve TOTEX must be given priority over CAPEX and potentially OPEX where possible. We would support an increase to the threshold.

Ch4 - Reflecting an understanding of customers and communities

Q4.1. Do you agree with our approach to making sure that companies' price review submissions and our determinations reflect an understanding of customers', communities' and environmental concerns?

ABB;

ABB wholeheartedly agree that this should be mandatory.

Q4.2. Do you agree with our proposal to conduct open challenge sessions?

ABB;

Partly – We would be concerned by any sessions being open to all and diluting objectives. Sessions based upon needs and requirements independently and approaching solution providers will be more productive.

Q4.3. Do you have views on open challenge sessions can align with the collaborative approach in Wales?

ABB;

We would expect all water companies to regularly engage to share ideas of best practice but also include external solution providers.

Q4.4. Do you have views on how the outcome of collaborative customer research can contribute in the context of the collaborative approach in Wales?

ABB;

We would not expect this to be successful. Ongoing relationships and frequent discussions how to problem solve and provide solutions with key stakeholders will prove a better use of time and resources.

Ch5 – Delivering outcomes for customers

Performance commitments

Q5.1. Do you agree with our proposed package of common performance commitments? Is water demand best incentivised through separate performance commitments on household and domestic consumption and leakage or through a performance commitment measuring total demand?

ABB;

It must be a combination of both. Household and Industrial consumption is only viewed on pricing commitments by the end user. Overall performance is the key measurement for Ofwat if the four key messages are to be achieved. The optimization and improvement of the aging network deserves seriously more attention and a dedicated Ofwat team that understands the challenges and technology that will provide instant success ahead of any long-term innovation focus.

Q5.6. Do you agree with our proposed approach to incentivising asset health performance?

ABB;

In theory yes, more can still be achieved.

Enhanced incentives

Q5.7. Do you agree with our proposal to retain, expand and streamline enhanced incentives?

ABB;

In theory yes, more can still be achieved.

Q5.8. Do you agree with our proposed approach to selecting performance commitments for enhanced incentives?

ABB;

In theory yes, more can still be achieved.

Q5.9. Do you agree with our proposed approach to setting enhanced thresholds, rates and caps?

ABB;

N/A

Q5.10. Do you agree with our proposed approach to knowledge sharing?

In theory yes, more can still be achieved. We would like to see more collaboration with industrial suppliers and manufacturers at board level rather than only the current large contractor framework holders.

Q5.12. Do you agree with our proposal to not set dead bands on any performance commitment?

Absolutely not. All water companies must be substantially regulated including non-negotiable performance commitments. It is vital that the bill paying public have complete trust in UK utilities.

Ch6 – Setting expenditure allowances

Providing companies with an efficient cost allowance

Q6.1. Do you agree with our proposed approach to setting efficient expenditure allowances at PR24?

ABB;

Partially. In line with TOTEX strategies, expenditure allowances must be flexible to adapt to potential new solutions that will improve the network and not be constrained by limited funding.

Q6.2. What are your views on how we can best align the treatment of third-party costs and revenues?

ABB;

Impose fines on water companies that show evidence of improper use of funds. Any fines are distributed to other water companies that can improve assets and resilience.

Q6.3. Do you agree that companies that submit the most stretching and well evidenced business plans should receive the most favourable cost sharing rates at PR24? Funding for water companies to maintain good asset health and resilience

ABB;

We do not agree. There is evidence to suggest that by not having the funding some water companies use this an excuse to not improve efficiency and resilience for several reasons. Many companies do not have the skills and enough trained engineers to maintain their assets. By not submitting well evidenced business plans they will hope to avoid expected upgrades due lack of funding reducing pressure on management and maintaining current profits. Water companies should be asked to provide full details on what skills they will need to maintain good skills and resilience.

Q6.4. Do you agree that resilience enhancement should be used to fund companies to manage increasing risks to specific hazards that are beyond their control and not covered by base expenditure and other enhancement areas?

ABB;

Absolutely, we also believe that this policy should be expanded to include opportunities to upgrade further resilience issues such as unforeseen mechanical failures. This would allow engineers, energy teams and purchasing departments the ability to upgrade plant with more resilient infrastructure without the expenditure restraints currently in place.

ABB is a leading global technology company that energizes the transformation of society and industry to achieve a more productive, sustainable future. By connecting software to its electrification, robotics, automation and motion portfolio, ABB pushes the boundaries of technology to drive performance to new levels. With a history of excellence stretching back more than 130 years, ABB's success is driven by about 105,000 talented employees in over 100 countries. www.abb.com <https://www.fiaformulae.com/en/discover/partners/abb>