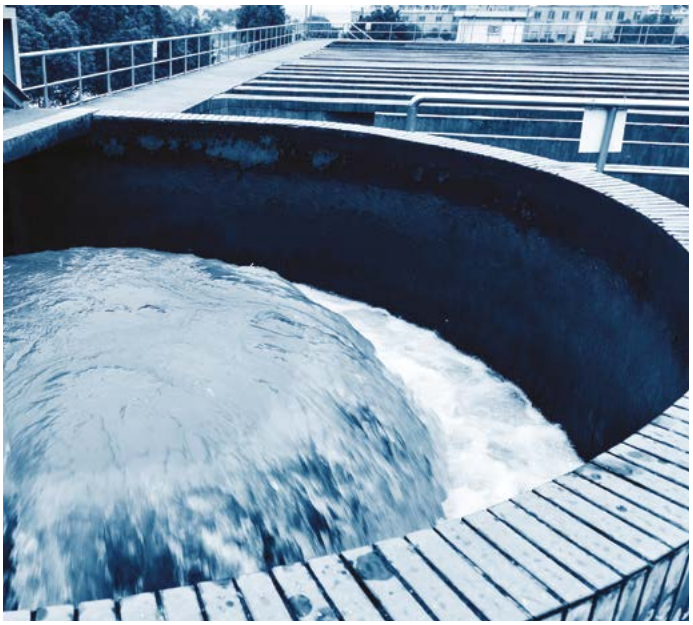
Water and wastewater

Resilience
Building trust and confidence

Delivering positive outcomes
yesterday › today › tomorrow

Building resilience into the UK's water treatment and distribution system is one of the cornerstones of AMP6 – and for very good reason. Water is our most important resource, yet it is impossible to think of any other time when water services have been under so much pressure. This is due to a number of social and environmental challenges such as climate change, population growth, increasing demand, as well as expectation of ever better levels of customer service.



Defining resilience

Designing and building systems that stand the test of time while delivering the greatest outcomes for customers relies on fostering trust and confidence with customers, within water companies and with external partners. Water suppliers will argue this is something they have been striving to do since the privatisation of the industry. The challenge now, however, is to understand what resilience means in the context of TOTEX.

Resilience means different things to different people and organisations. For consumers, resilience tends to mean 'reliability'. So the steps water companies take to make systems more resilient will result in the delivery of a reliable service for customers. That might mean instigating a programme of proactive maintenance in order to safeguard productivity or building closer relations with customers to identify ways to reduce water consumption. Or it might mean embracing new energy-saving technology.

It is interesting that OFWAT has not established national measures or standards for resilience. It recognises that resilience issues will vary from area to area and so will customer expectations and priorities. This places responsibility squarely on the shoulders of water companies to identify and maximise opportunities for improving the resilience of water systems.

The most successful operators will be those who work closely with their customers to realise the potential of demand-side measures. Making customers part of the conversation means they become more engaged, more empowered and better incentivised to change the level and pattern of their demand – how 'much' of the services they will require.

Improving efficiency

Of course, services will only be resilient if the systems that underpin them are resilient. Water companies must look at their operations and examine the infrastructure and networks they own, maintain and operate in order to identify opportunities to improve efficiency. They must plan beyond the more obvious pressures such as droughts, floods or rising demand. Asking a series of 'what if?' questions and formulating responses for different circumstances will enable risks to be identified, understood and managed in a cost-effective way.

Resilience in the water infrastructure is not only the ability of the system to deal with extreme events, but how the system recovers from unplanned failures. This means the speed in which the system is up and running again and also how the system is then configured to ensure the conditions that caused the failure are not met again. This could be provision of on-hand replacement equipment, access to fast response repair services or hire equipment (such as drives) or upgrading the existing system.

Best practice tips
Resilience in pump systems

The secret to running a resilient pump system is to make sure that its electric motor and variable-speed drive are well looked after throughout their life cycle so as to:
– Ensure maximum uptime
– Lower energy use
– Minimise maintenance costs
– Assist with condition monitoring of the wider plant

Here are three ideas that will go a long way to ensuring the resilience of your pump system.

1. Life cycle management model

Make sure that the motor and drive supplier recognises the four phases that all products pass through during their life. These include:
– **Active** – During this phase products are released for sale and have all life cycle services (see below) available
– **Classic** – During this phase volume production ceases, but the supplier still guarantees support and offers the complete life cycle services
– **Limited** - Here the manufacturer starts to ramp down production. Only limited life cycle services will be offered
– **Obsolete** - The product has ceased production and support is no longer possible.

The four-phase life cycle management model provides customers with a transparent method for managing their investment in the drive-train. In each phase, customers clearly see what life cycle services are available, and more importantly, what services are not available. Decisions on upgrading, retrofitting or replacing the component parts can be made with confidence.

2. Life cycle value chain

A reputable supplier will offer a series of services at each of the following life cycle stages of a product:
– Pre-purchase
– Order and delivery
– Installation and commissioning
– Operation and maintenance
– Replacement and recycling

Available at each of these stages is technical advice and training.

Among the services available include energy assessments, preventive maintenance schedules, drive exchange, replacement and disposal and recycling.

3. Reliability assessment

One service that is of particular benefit is a reliability assessment that is available during the operation and maintenance life cycle stage.

A reliability assessment considers all aspects of your drive-train installation and gives you powerful knowledge to determine the most effective maintenance strategy for your plant.

A reliability assessment combines drives' and motors' maintenance status with their criticality to processes or applications. This provides key information to determine the current state of your plant and how it will evolve over time. Service budgeting can be optimised as the total plant's maintenance actions can be planned in advance, thus reducing unexpected interruptions. The uptime of critical applications, in particular, will improve dramatically.
ABB offers reliability assessments for all drives, no matter what their brand or life cycle stage.