



Risk Engineering Services: Utilities

Understanding new or aggravated exposures arising from the COVID-19 crisis for the Utilities Industry



The Utilities industry is being affected by the COVID-19 crisis, with the impact, consequences and effects felt globally.

As a cornerstone of modern society, the utilities industry is expected to continue operating to a large extent during the COVID-19 pandemic. In particular, non-power utilities, which include essential services for the population such as drinking water and sewage, must continue to operate with many people today spending extended periods of time at home. The focus for this loss prevention advisory however will be on the power generation utilities – impact, key risks and recommended mitigation measures.

Impact of COVID-19 on the power generation utilities industry

The effect of the current and coming restrictions are expected to differ by country, depending on the COVID-19 impact level and the varying extents of social distancing, quarantine and industry shutdown adopted by different governments.

Nevertheless, a general consequence is the significant reduction in industrial activity in the short and medium term, which results in an expected reduction in power demand accordingly. To date, a reduction of 20 to 30% or more in power demand has been observed in many countries following the implementation of stricter quarantine measures. Additionally, demand patterns and peaks are shifting towards a single peak during the evening.

This, together with the onset of summer in the northern hemisphere will certainly increase power demand again as temperatures rise and many homes require air conditioning. The effect on electricity prices is therefore difficult to predict. Also, seasonal changes in weather and sun height will increase the share of the renewables in the generation mix.

As always, the most inefficient plants in a grid are expected to run less or not at all. Cogeneration plants or those captive to specific industrial facilities would follow the fate of their specific clients and may end up shutting down for an extended period. Cycling or peaking plants could be faced with different operational regimes or longer downtime periods.



Loss control measures for aggravated exposures

Based on the current operating environment, we have identified new inherent hazard conditions leading to aggravated exposures for power plants. Power generation companies need to consider these risks and take all reasonable measures to mitigate losses in a considered way. In this document we intend to provide an overview of these risks along with mitigation and protection measures to reduce the likelihood of incidents.

Maintenance and other capital investment deferrals

In many cases, outages are scheduled during the spring season to prepare for the high demand period during summer or aiming to avoid periods of extreme heat or cold. Outstanding outages will likely face challenges in obtaining the necessary manpower or would shift the window of opportunity.

Larger plants requiring more outage manpower are expected to be the most affected.

When the situation recovers, attempts to catch up on maintenance will likely face shortages of manpower as all others will likely do the same.

Mitigation measures

- Securing the critical spare parts required for planned outages and the required manpower in advance of normalisation.
- Refer to Original Equipment Manufacturer (OEM) guidelines and obtain OEM approval for deviations from mandatory inspections.

Operators should consider the following

- Do you have any major outages planned for this year?
- Is any equipment overdue for major inspection/overhaul?
- Do you have enough spare parts for any planned outages?
- Are there other smaller projects being postponed?
- Have you considered securing manpower in advance of any large deferred outages/overhauls that are being postponed due to COVID-19?

Jurisdictional inspection

In certain jurisdictions, including the US, statutory inspections of boilers and other pressure vessels are undertaken by the lead insurer. As these are legal requirements, compliance is mandatory, otherwise penalties, fines or other legal consequences might ensue.

Generally, inspectors document their efforts directly in the jurisdictional system and authorities get notified of inspections not carried out.

Mitigation measures

While local jurisdictions may offer limited deviation potential, it should be highlighted that these are legal requirements that must be adhered to.

Plant managers need to ensure that the appropriate safety measures are implemented on site to guarantee that these legal requirements can still be fulfilled.



Extended shutdowns/Idling/Mothballing

Many power plants (except base loaders) are used to having some equipment idle over certain periods. Under the current situation, idle periods might extend, resulting in some plants potentially being mothballed, depending on how long the COVID-19 situation lasts.

Mitigation measures

Measures for idling (and later restarting) complex equipment can have many subtleties and variations depending manufacturer and model. Preservation measures vary greatly depending on the equipment involved and the length of the shutdown.

Original Equipment Manufacturers (OEMs) should be involved for longer than usual shutdowns. Their advice must be followed in order to secure a safe equipment idling and later restart.

The LMA Mothballing and Recommissioning Questionnaire 9142 provides a good base and is an insurance market-accepted clause.

Operators should consider the following

- Has an idling/mothballing procedure been put in place?
 - Does it include preservation and recommissioning activities?
 - Has the OEM been involved in the idling/mothballing of equipment?
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Expert availability

At least during 2020, international travel restrictions will affect the availability of technical experts from OEMs to reach sites should the need for troubleshooting arise. The same would apply to loss adjusters. OEMs offer different degrees of Long Term Service Agreement (LTSA) support, from very basic (critical spares only) to very comprehensive (dedicated engineer on site plus remote monitoring).

Mitigation measures

The more comprehensive the LTSA available at a plant, the easier will it be to deal with expert availability.

Operators should consider the following

- Does your LTSA include an expert on site or remote equipment monitoring?
 - Do you have a protocol in place for accepting foreign personnel at your facility?
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Spare parts availability

A further deterioration of the situation in different countries could force OEMs to shut down certain factories, which could compromise the availability of spares and new replacement equipment, with a consequential general increase in lead times. This is not limited to critical supplies, and some consumable parts might also become scarce. The ability to source spares and consumables from within the country vs international procurement will likely play a role too.

Mitigation measures

A good spare and consumable stock would allow plants to continue operating for longer periods without external dependence.

Operators should consider the following

- Do you have a Business Continuity Plan (BCP) for spares availability and alternative consumable suppliers?
 - How long will your consumables stocks last?
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Changes in operational regime

Due to the lower demand and shifting daily peaks, start and stop requirements for peaking units will also shift, while cycling or load-following patterns may also be altered. In addition, integrated production of steam and water might need to dump excess heat due to reduced industrial demand, which further reduces efficiency.

Mitigation measures

It should be assessed whether an altered operational regime would affect equipment stress and leading to different maintenance regimes, shorter component replacement, faster equipment ageing or others.

Operators should consider the following

- Have you altered your operational regime in recent weeks as the COVID-19 situation has developed?
 - Have you discussed this with the OEM?
 - Do you supply other services beyond power generation?
 - Have you adapted their maintenance schedule to consider the new situation?
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