



FOCUS/ASIA

The burning exposures of EfW plants in Asia

Landfill: market for energy from waste is set to grow over next decade, especially in Asia

The exposures related to energy from waste facilities in the region, where large numbers of EfW plants are planned in the next 10 years, can be very different to those in the developed world



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Space for landfill is scarce in many parts of the world, especially around megacities. Landfill can be a source of contamination for soil, water and air, and can have serious negative impacts on people, animals and plants living around or downstream from a landfill site. With estimates that the level of waste generation globally is likely to reach in excess of six million tonnes per day by 2025, the market for energy from waste is set to maintain steady growth.

Waste calorific value (the amount of energy produced by the complete combustion of a material) is on average comparable with lignite (brown coal) and so favours incineration and conversion into electric and thermal power for process steam and district heating. As a result, energy from waste (EfW) technology is on the rise in the UK and in many megacities around the globe. In Asia in particular, large numbers of EfW plants are planned in the next 10 years.

The Asia-Pacific region is expected to register the fastest growth in EfW

generation supported by government-backed initiatives and the use of low-cost technologies. Asia is at the forefront of the market thanks to its heavy investment in waste combustion. Japan is a dominant player: according to the World Energy Council, it uses up to 60% of its solid waste for incineration. However, the fastest market growth has been witnessed in China, which more than doubled its waste-to-energy capacity between 2011 and 2015.

Against the backdrop of that growth in Asia, what lessons can insurers of EfW risks in the region learn from the experience of elsewhere on the globe managing inherent risk transfer characteristics of EfW during the erection and operational phase?

Peculiarity of risk

The majority of the risks associated with EfW are broadly the same as conventional power plants and Erection/Operational All Risks projects. Nevertheless, the diverse nature of waste, with a wide range of calorific values, moisture content and chemical composition as well as complex waste handling processes for sorting, shredding, storing and feeding into incinerators, adds a degree of complexity and creates exposures

which are particular to EfW plants.

Waste composition and incorrect operation or process design are a sources of high-frequency claims. They must be managed with adequate deductibles as they impact plant performance, emissions, interruptions of the processes by fouling, (wet) corrosion, erosion, fires and explosions in furnaces or flue gas treatment equipment.

Experience shows fires and explosions during the operational, commissioning and maintenance phases are by far the most common causes of damage in EfW plants and require adequate firefighting installations. The most susceptible area is the waste reception and storage area.

The breakdown challenges

Unfortunately, breakdown maintenance instead of preventative maintenance is common in EfW plants. Experience has shown inadequate maintenance is the main reason for about half of the machinery breakdown (MB) claims in many markets. Risk managers, underwriters and loss adjusters must therefore understand the maintenance strategy with repair and overhaul cycles and warehousing of key components. In addition, plants operated outside of their design specifications are a

main reason for MB claims in many markets. Engineering, procurement and construction contractors or operation and maintenance contractors may attempt to claim this so the definition of damage and demarcation from defect is key. Turbines in particular, followed by generator and boiler, cause the largest business interruption (BI) and delay in startup (DSU) claims. Lead-time for key process equipment (crane, boiler, turbine-generators) can be six to 15 months, putting up to 35% of total insured values at risk per event.

Costs and compliance

Per installed megawatt of electrical power, EfW plants require about double the capital investment compared with conventional power plants, which are more standardised and show economies of scale. The same is true for the average cost of electricity where EfW produces power at about the double the cost of conventional gas, coal, hydro power plants.

Especially outside Europe, EfW is less regulated and plants must compete with other fuels and power plant types. To cut costs, EfW plants in emerging countries and megacities outside Europe may be less sophisticated, may show lower levels of active or passive safety

measures or redundancies and may be equipped with machinery made by local, less experienced manufacturers. This will have an impact on assessments for probable maximum and maximum foreseeable loss. Long lead-times and congested plant layouts, which complicate replacement and repair, have to be taken into consideration for DSU and BI.

EfW plants are making an important contribution to solving the waste problems on our planet. Correctly assessed, these installations can be successfully underwritten, satisfying the needs of customers and contributing to robust portfolios. On the other hand, neglecting or ignoring the particular features of EfW plants could lead to completely inadequate terms and conditions and perverse incentives for policyholders to reduce costly operational and management expenses – something that is very close to the current market reality. ■

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IMIA introduced its new publication on EfW in September 2017 and is available at: www.imia.com/wp-content/uploads/2017/04/IMIA-Working-Group-Paper-10117-EfW_fin-23-7-17.pdf