Impacts to the Chemical, Petroleum, and LNG Industry from the Japanese Earthquake and Tsunami of 2011

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ABSTRACT

The Japanese earthquake and resulting tsunami of 2011 will stand as another significant test of the resilience of the global chemical and petroleum industry to maintain operations in light of substantial stress. In this case, a widespread initial and follow-on series of seismic events caused such disruptions as widespread loss of power, extreme ground shaking causing failures and fires and explosions, and later, lack of supply and personnel. Reminiscent of US refinery operations during Hurricane Katrina, over 25% of the refining capacity (1,000,000 bpd) were disrupted. LPG storage suffered fires and explosions at a refinery in Chiba prefecture. Based on an analysis of the industry experiences along with interviews and reports from operators, the author will overview the effects of the earthquake, tsunami, radionucleide fallout and subsequent disruptions the Japanese industry experienced. Included will be a discussion on the ways in which forward planning assisted them in recovery and resilience, and the impacts on the global value chain. The safety and security community can learn valuable lessons from these extreme experiences and apply them in design, emergency planning, resilency, operations, and risk management.