

# American Energy Market Regulator Case Study — SQL Overview

## Scenario Overview

The American Energy Market Regulator (AEMR) is responsible for looking after the United States of America's domestic energy network. The regulator's responsibility is to ensure that America's energy network remains reliable with minimal disruptions, which are known as outages. There are four key types of outages:

- **Consequential** – This outage is caused by an exogenous event or a consequence of work unrelated to the energy provider (i.e., A transmission line may be down, which means that a particular power provider may be unable to send energy to the network)
- **Forced** – This outage is caused by a situation that has forced the power-generating asset to be unavailable. In other words, it caught the AEMR by surprise and was not planned. (i.e., A cooling tower that supplies water to cool down a power-generating asset has broken down, which has now forced the power-generating asset offline as the temperature can no longer be regulated properly.)
- **Opportunistic** – This outage arises when an energy provider wishes to be proactive with the maintenance of their assets and believes that it can complete maintenance on its plant within a 48-hour window. If it takes longer than this, the outage is considered a PLANNED outage as it was planned in advance and will take longer than 48 hours.
- **Planned** – This outage arises when an energy provider reports to the AEMR that an energy-generating asset needs to be taken offline for routine or planned maintenance activities to ensure the reliability of the asset in the future.

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Recently, the AEMR management team has been increasingly aware of a large number of energy providers that submitted outages over the 2016 and 2017 calendar years. The management team has expressed a desire to have the following two areas of concern addressed:

**A. Energy Stability and Market Outages**

**B. Energy Stability and Market Outages**

As an analyst within the data and reporting team, I have been asked to address these two immediate areas of concern.