# Load Analysis and Load Forecasting
# 2016 IRP Variance Requests

**Subject: Forecast by Major Class**

**IRP Provision(s)**

4 CSR 240-22.020 (37)
(37) Major class is a cost-of-service class of the utility.

4 CSR 240-22.030(7)(A)

The utility shall produce forecasts of monthly energy usage and demands at the time of the summer and winter system peaks by major class for each year of the planning horizon

**Issue:**

Various rules in 4 CSR 240-22 identify the data and forecast should be performed by "major class". 4 CSR 240-22.020 (37) defines "major class" as a cost-of-service class for the utility.

**Justification:**

Empire is requesting a variance from the requirement to forecast by cost-of-service class. Instead, Empire requests that the IRP forecast be developed by the following revenue classes.

- Residential
- Commercial
- Industrial
- Wholesale
- Street & Highway
- Interdepartmental
- Public Authority

The revenue class approach aggregates similar customers into larger groups that offer data stability and align with economic drivers. These two factors are important as statistical models are used to identify correlations between historical sales, economic drivers, and end-use information. Unstable data generally results in a weaker model fit and difficulty in identifying the correct economic drivers. In 2013, Empire filed its IRP using revenue class data.

**Subject: End-Use Information for the Industrial Class**

**IRP Provision(s)**

4 CSR 240-22.030 (4)(A)(1)

(4) Analysis of Use Per Unit. For each major class, the utility shall describe and document its analysis of historical use per unit by end use.

(A) End-Use Load Detail. For each major class, use per unit shall be disaggregated, where information permits, by end-uses that contribute significantly to energy use or peak demand.
1. The utility shall consider developing information on at least the following end-use loads:

4 CSR 240-22.030 (4)(A)(1)(C)

C. For the industrial sector: machine drives, space heat, space cooling, ventilation, lighting, process heating, and other uses.

**Issue:**

4 CSR 240-22.030 (4)(A)(1) requires that analysis for each major class include information by end-use to the extent possible. While Empire plans to use the Statistically Adjusted End-Use (SAE) method for the Residential and Commercial classes, no end-use information is available for the Industrial class.

**Justification:**

Empire is requesting a variance from the requirement to use end-use information for the Industrial class. In 2013, Empire developed the IRP forecasts using the Statistically Adjusted End-Use (SAE) method for the Residential and Commercial classes to include end-use information. For 2016, Empire intends to use the same method. This method is applicable to the Residential and Commercial classes because end-use data developed by the Energy Information Administration (EIA) and Itron exist for these classes. However, EIA and Itron do not maintain end-use information for the Industrial class. Likewise, Empire does not maintain end-use data for the Industrial class.