**Fuel and Purchased Power Assumptions Narrative**

There are two primary models that work in conjunction to develop fuel and purchased power cost projections.

The Fuel Purchase Optimization model (FUELPRO) is designed to determine the least cost fuel purchase plan to meet the projected fuel burn requirements provided by the Aurora model (described in the next paragraph). In mathematical modeling terms, the objective of the optimization process is to minimize the sum of fuel-related costs over the evaluation period while meeting a series of inventory, transportation quantity, fuel quantity, fuel quality, and emission-related constraints. FUELPRO is a mixed integer linear optimization model that evaluates fuel offers and determines the set of offers that minimizes total fuel-related purchase costs over a specified evaluation period while considering all relevant costs, penalties, bonuses, and constraints associated with the fuel purchases. The model was developed by Black & Veatch engineers using CPLEXTM, a third-party software product utilizing the AMPL modeling language.

Fuel burn requirements, used as inputs to FUELPRO as described above, are derived using AURORAxmp, a Chronological Production Modeling System, and a product of Energy Exemplar (http://www.energyexemplar.com/). AURORAxmp is a complete electric utility/regional market analysis system. The AURORAxmp model is designed for performing planning and operational studies. AURORAxmp is an hourly chronological production cost model, which has as its fundamental goal minimization of total production cost while providing detailed projections for fuel cost and pool accounting including individual generating unit information.

Fuel and purchased power costs for the test period are produced from the combined output of the AURORAxmp and FUELPRO models. These costs are derived from inputs in the models, which include load projections from the operating companies, fuel price projections and emission allowance price projections from SCS Fuel, generating unit characteristics and purchase power agreements, hydro energy schedule, nuclear operation, wholesale bilateral contracts, IRP, generating unit maintenance schedule, and economy purchases and sales.