EDRP & Scarcity Pricing

Background

Under normal market conditions there is sufficient generation to meet all demand requirements with the market price set at the cost of the marginal generator. In the NYISO markets this is accomplished by setting the market clearing price at the bid of the last generator required to serve load. Under economic theory, when there is insufficient supply to serve all the load that is willing to purchase at the cost of the marginal generator, the supply is rationed by delivering it to the customers that value it the most and the price is set based upon the amount that the marginal purchaser is willing to pay for supply. The spread between the marginal supply bid and the market-clearing price is known as scarcity value or scarcity rent. There currently is no ability to represent scarcity pricing in the NYISO real-time price because this price is based upon the marginal generation bid during both normal operating conditions and during times that the NYISO has insufficient generation resources to meet its energy and reserve requirements.

Relationship to EDRP

The electricity markets in New York has no comprehensive system established to allocate scarce resources based on a price willing to be paid by consumers. However, considerable effort has been expended to establish demand side management programs that provide opportunities for load to reduce consumption under specific circumstances The Demand Side Management proponents have consistently asked that demand side resources be allowed to participate in the market in the same manner as supply side resources. The NYISO has three programs for demand side reductions: Emergency Demand Reduction Program (EDRP), Day Ahead Demand Reduction Program (DADRP) and Price Capped Load Bidding. DADRP and Price Capped Load Bidding are rightly both able to set market clearing prices in the Day-Ahead Market. EDRP is not allowed to set the market clearing price in the Real-Time Market even though the program currently has a $500 price established as the minimum level of payment to EDRP participants.

Precluding EDRP from setting the market clearing price is particularly problematic because EDRP is triggered when supply is scarce and when prices should include the scarcity signal. The NYISO tariff states that EDRP Resources will be called "The ISO shall have discretion to activate the Emergency Demand Response Program in response to: (i) a Real-Time Locational or statewide Operating Reserve shortage or an ISO peak forecast of a locational or system-wide Operating Reserve shortage; or (ii) an ISO declared Major Emergency State." (FERC Services Tariff Original Sheet No. 461-462). The calling of EDRP resources is the epitome of a scarcity conditions. When EDRP resources are called, load is reduced so that the total load can attempt to equal that amount of available resources.

Under the current pricing, the NYISO could have scarcity conditions, be setting the market clearing price based upon the marginal generator bid and be paying the EDRP resources a price that exceeds the marginal generator bid. This is a form of price

discrimination that could not exist in an efficient market and one that will provide distorted peak pricing signals to both generators and loads.

Incorporating EDRP Into Pricing

In order to properly estimate prices under conditions of scarcity, we need to incorporate EDRP resources into the market-clearing price. This can be accomplished by incorporating the EDRP resources and load into the NYISO Hybrid pricing whenever the EDRP resources are called. Through the Hybrid pricing methodology, block loaded resources set prices whenever they are needed to meet load but cease to set prices when they are no longer required but continue to run due to constraints such as minimum run times.

Preliminary Design for Including EDRP in Hybrid Pricing

1. The NYISO will track the expected response from EDRP resources. (The NYISO analysis has shown approximately a 60% reduction rate.)
2. When EDRP resources are called the NYISO will include the expected EDRP response in the demand that is used for the Hybrid pricing and will include the expected EDRP Supply as being bid at its minimum guaranteed payment. (For example, if the NYISO called 500 MW of EDRP resources with an expected 60% reduction rate, then the NYISO would include 300 MW of EDRP Reduction in the demand for the Hybrid pricing and would include 300 MW of supply in the supply curve.)
3. The Hybrid pricing will result in the EDRP resources being included in the load when they are needed and will ensure that do are not included in price determination when they are no longer required.