Microgrid economics dushanbe

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The aim of this study is formulated is as follows:

Pi is the power of the ith unit. While xi, yi, and zi are the ith generator’s cost coefficients, mi and ni are the valve point effect coefficients.

The uncertainty of wind production is characterized by Wdut, while the divergence of wind output is represented by dWi, n2 represents the standard distribution function. Wdfct represents the projected wind energy production at time t.

Fluctuations in the price of electrical power will elicit one of the following responses in demand. Certain loads, like lighting loads, are not adjustable between periods and may only be activated or deactivated. Consequently, these loads exhibit sensitivity only at a certain moment, known as “self-elasticity”, which is negative consistently. Consumption may be moved from high-demand to low-demand times, such as process loads. Multi-period sensitivity refers to this phenomenon and is quantified by “cross elasticity”, which is consistently positive [47].

x2, mΔ term categories clients by means of Δ.

As Δ grows, slightly the cost drops. The client with the utmost willingness to pay (Δ = 1) has the lowest increment of cost and hence the highest marginal benefit, while the clients with the lowest willingness to pay (Δ = 0) have the highest increments in cost and therefore the lowest marginal benefit.

∂c∂m=2x1m+x2-x2Δ.

Non-negative/positive change in cost.

The marginal cost is inverse to cost function.

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