C4FE ECONOMIC INSIGHTS

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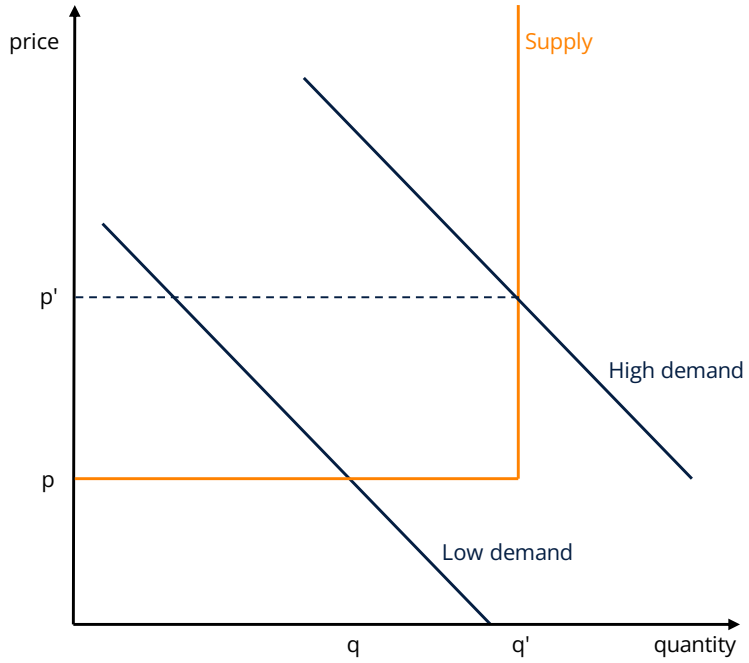
Heatwaves and High Demand: Dynamic Electricity Pricing is Not Your Enemy

The summer of 2023 was Texas' second hottest on record, with El Paso experiencing a relentless heatwave where temperatures soared over 100 degrees (F) for 40 consecutive days. This extreme weather in El Paso led to unprecedented electricity consumption levels in the region. El Paso Electric witnessed the highest demand rates last summer, largely due to the widespread adoption of refrigerated air conditioners in El Paso homes. With summer 2024 drawing nearer, it is crucial to reexamine electricity demand and pricing strategies in response to recent weather variations in El Paso. Such heat conditions underscore the necessity for efficient energy management and understanding dynamic pricing to maintain grid stability and promote efficient energy use for consumers.

Dynamic pricing adjusts electricity rates at different times of day and year to reflect the varying costs of electricity supply. This method is crucial because electricity must be used as soon as it is generated and cannot be easily stored, and demand fluctuates with lifestyle and weather conditions. Electric systems often maintain reserve 'peaking' generation capacity to handle sudden surges in demand. According to Benjamin Hobbs (Johns Hopkins Environment, Energy, Sustainability and Health Institute), using dynamic pricing to manage scarce capacity can reduce long-term costs. It discourages building unnecessary extra capacity and motivates consumers to adjust their usage times. This pricing strategy effectively incentivizes consumers to reduce their

energy consumption during peak periods, helping to stabilize the grid and lower overall energy costs.



Charging a higher price during demand peaks, and a lower price during off-peak seasons.

Dynamic pricing can take many forms, catering to diverse consumer needs and grid demands. For instance, El Paso Electric employs a Time-of-Day (TOD) pricing strategy to encourage residential customers to use electricity during off-peak hours by offering lower rates. This plan sets varying electricity prices throughout the day, with the highest rates during peak hours when demand surges, and lower rates during off-peak times. During summer, the TOD structure is adjusted to reflect changes in electricity demand patterns, ensuring that the rates mirror the higher energy costs and increased demand. This incentivizes consumers to shift significant energy consumption to more economical, off-peak times, even during the hotter months. In contrast, TXU Energy, one of Texas' largest energy providers, offers the "Free Nights and Solar Days" plan. This plan provides free electricity during nighttime hours and harnesses solar power for energy during the daytime. This strategy allows customers to save on costs by shifting significant energy usage to the night. Both models represent a proactive approach to energy management, balancing consumer needs with grid stability.

During peak demand periods, decision-making on electricity distribution becomes critically important. While random allocation might seem fair at first glance, it often leads to inefficiencies and dissatisfaction among consumers. Government intervention can ensure that essential services receive power but may also lead to bureaucratic overreach. Ideally, market-driven decisions, facilitated by dynamic pricing, allow the price mechanism to balance demand and supply efficiently. This system prioritizes electricity access for those with more urgent needs during peak times, naturally reducing consumption where it is least necessary.

However, if price controls are imposed and prices do not reflect the real-time scarcity of electricity, significant misallocations can occur. Essential services like hospitals, emergency services, and other utilities may be diverted to less critical applications, leading to inefficiencies and potential outages. Allowing prices to rise during peak demand not only prevents this misallocation but also signals to the market the value of investments in alternative energies and technologies that can alleviate the strain on the grid. This approach not only supports economic efficiency but also encourages a shift towards more sustainable energy practices, balancing affordability with necessity in a socially equitable manner.

As we approach another potentially intense summer, it is important to remember how dynamic pricing works and its contribution to efficient allocation of resources during periods of high demand. By allowing market-driven price adjustments during peak times, we can ensure that electricity is allocated efficiently, supporting both economic stability and environmental sustainability.

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