

RATE SETTING IN NORTH CAROLINA

OVERVIEW AND KEY PRINCIPLES



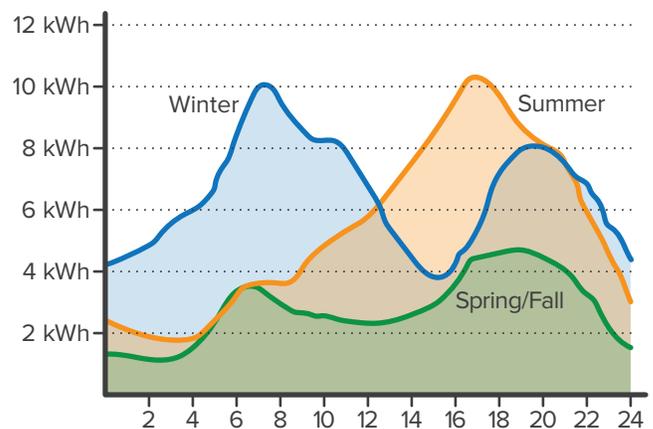
Traditionally, electric utility customers have expected to receive reliable and safe service at a reasonable price. In today's world, however, information travels quickly, and customers are expecting more from their utility. From a service standpoint, they want faster response times for disruptions and constant updates about fixes or delays. They also want more insight into their electricity usage and bill, which would allow them to have more control over their charges. To understand an electric bill, it is important to first learn how rates are calculated.

Electric Energy versus Demand

Utilities rely on generating facilities to produce instant and stable electric service for their customers. The type of facility used depends on the amount of demand, and each facility has certain characteristics and costs to produce energy. A main objective for utilities is to be able to meet peak demand, or to have electricity available when demand is highest. Customer electricity demand changes throughout the year, being higher in the winter and summer months, and throughout an individual day. For example, consider a late summer afternoon in which the washing machine and dryer are running, someone is taking a shower, dinner is on the stove, and air conditioning is being used to keep cool. Peak demand increases every year, and operating peak generating facilities is expensive. When utilities make spending decisions to upgrade systems and better meet customer needs, they are legally entitled to recover these investments through electric rates. Therefore, they can file rate cases to propose changes to what they are charging customers to make up for the costs they are incurring.

Charges to the customer must account for both the demand and the energy used. The charges include a base rate and riders, such as adjustments to cover the change in fuel cost. The electric rate here refers to the price a customer pays for one unit of electricity – per kilowatt-hour (kWh) for energy or per kilowatt (kW) for demand.

Raleigh Time of Day Electricity Demand



Source: U.S. Energy Information Administration, "Residential Energy Plus Output: Raleigh, NC," accessed June 2015



Setting Electric Rates in North Carolina

In North Carolina, electric rates are determined by regulators at the North Carolina Utilities Commission (NCUC). The NCUC is a government agency that oversees the rates of all public utilities in the state, ensuring they are fair and appropriate for customers and utilities. It also must approve new generating plants prior to construction.

The Public Staff of the NCUC is an independent agency that represents the using and consuming public in any proceedings of the NCUC, including rate cases. The Public Staff has a number of different roles, but primarily acts as an economic regulator and advocate on behalf of utility customers. It is not involved in NCUC decision-making.

The NCUC seeks to balance the needs of the customer with the needs of the utility, but its main goal is to benefit ratepayers and ensure the rate they pay is **least cost**. In fact, North Carolina General Statute § 62-2(3a) requires that energy planning and rate setting result in least cost outcomes. At the same time, the utility wants to ensure the rate is sufficient to recover its capital investment and expenses. The rate not only helps with operating costs and providing service, but also allows a fair return for investors and shareholders.

North Carolina Utility Commission Base Ratemaking Principles

The NCUC and utilities agree to a regulatory compact that gives the utilities a monopoly in a specific service area, but requires that they serve every customer in that area at rates that are regulated to reflect the cost of providing service. Therefore, before any rate changes go into effect, the NCUC must review and approve them, keeping certain criteria in mind.

First, the NCUC evaluates how much it will cost the utility to provide the service, or the cost of service. Cost of service is determined by looking at a 12-month historical test year, which provides the prior spending of the utility and helps determine rates that will recover the expected future costs. When evaluating cost of service, regulators ensure that the least cost requirement is met.

North Carolina Rate Setting Key Points

Rates should be based on least cost of providing service

Capital investment must be used and useful

Spending decisions should be prudent and reasonable

Utility rates are based on an annual revenue requirement, which is the amount of money a utility needs to recover the depreciated costs of its capital investments (also known as the rate base), including an authorized rate of return, and its expenses in a given year. A capital investment refers to an expense that will provide a long-term benefit to the utility, such as the building of a new power plant, transformer, or transmission lines. An operating expense, on the other hand, is an expense required for the daily functioning of the utility. When considering whether a capital investment ought to be recovered through the electric rate, the NCUC assesses whether that property was both **used** and **useful**. In other words, was the additional property actually used in providing service to customers, and did it benefit them? The utility will be able to fully recover its capital investment only when the property is used and useful.

$$\text{Revenue Requirement} = (\text{Rate Base} \times \text{Rate of Return}) + \text{Expenses}$$

The NCUC also decides whether property spending decisions were both **prudent** and **reasonable**. For prudent, the NCUC looks at whether the initial decision itself was careful and practical. Was that new investment necessary to help meet customer demand? After the NCUC determines that the decision was appropriate, it assesses whether the cost spent on that property was reasonable. Was the cost incurred sensible, or were cheaper solutions available? Taking these ideas into account – the use and usefulness of the investment and the prudence and rationale of the decision – the NCUC decides whether the costs, and how much of the costs, are allowed to be recovered through rates. The NCUC uses these same principles when evaluating a utility's operating expenses.



Cost Allocation and Rate Scheduling

Utilities group customers based on certain characteristics, such as the amount of power needed, voltage requirements, and overall energy demand. These groups are called customer classes or market segments. The three primary market segments are residential, which includes houses and apartments, commercial, consisting of businesses, and industrial, which contains manufacturers and other large users. Additional subclasses also exist. Once a utility's revenue requirement is determined and it knows the amount of money that must be earned, the utility allocates the cost across its various customers.

The next step is to design the rate schedule. Rate schedules are attributed to the different market segments to reflect the cost of service to those segments. For example, the cost of service for industrial customers tends to be lower than for commercial and residential customers, which require more distribution. Therefore, the rate to industrial customers will likewise be lower.



Rate designing includes both fixed and variable costs. Fixed costs reflect expenses such as salaries and operations, while variable costs reflect power purchases, maintenance, and more. Fixed cost of service, however, does not directly map on to a fixed charge on an electric bill. Because fixed charges remain constant from month to month, they help contribute to revenue requirements. However, these charges tend to be lower than the actual fixed costs, and variable charges are also used to recover fixed costs. This rate design is used to reduce the fixed aspect of a bill, which may otherwise hinder low-income customers, and increase incentives to conserve energy, giving customers more control.

Customers can often choose different rate structures and pricing options for their electric bills. For example, they may pay a stable rate per kWh or kW, regardless of when it is used. Alternatively, time-variant pricing reflects the cost for providing service at different points of the year or day. As noted above, electricity can be more expensive for peak periods, so certain rate structures charge more per kWh and kW during these times to encourage customers to use electricity during off-peak hours.

Other Aspects of an Electric Bill

In addition to the utility rate, riders or charges are added to customers' electric bills as well. These riders are updated yearly and must also be approved by the NCUC. They are included to help account for additional demands that utilities face. For example, the fuel rider allows utilities to adjust their rates based on the cost of fuel burned to power their property, of chemicals used for treatment, of energy purchases, and more. Other riders include the Renewable Energy/Energy Efficiency Portfolio Standard Rider and the Demand Side Management/Energy Efficiency Rider, which allow adjustments to help recover costs for complying with energy efficiency standards and adopting new energy programs.



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