

Understanding Your Utility Bill



Although a utility bill usually covers a single building, other arrangements are not uncommon. Large installations, such as educational facilities, generally have electric power provided to a few locations or to a substation. From a substation, the power is distributed to end-users by way of a facility owned transmission and distribution system. In such situations, end-users may have installed their own sub-metering devices to track energy use by building or other functional area.

For each metered service delivery point, utilities generally send out monthly statements. Each statement covers a billing cycle (typically between 20 and 40 days) and provides information such as the meter number, present and previous readings, monthly consumption, peak demand, and the total monthly cost to the customer. The utility bill, in conjunction with the rate schedule and applicable riders, should provide sufficient information for your team to recalculate the bill and ensure that it is accurate, if warranted. Below is information you may need to understand these statements.

Rate Schedules. Monthly bills are based on utility rate schedules corresponding to the class of service received by the customer. The rate schedule is a contract between the utility and the customer and includes provisions regarding the availability, applicability, and character of the service; a breakdown of rate charges; operating procedures; minimum billing charges; and terms and conditions for providing service. Several different rate schedules are available from the utilities, which do their best to match the needs of the customer to the most reliable and economical class of service.

Utility rate schedules may vary among utilities and even among buildings served by the same utility. As a rule, the electric utility rate schedules tend to be more complex than gas rate schedules. If you have any questions about your local rate schedule, you should direct them to your utility account representative. The same individual should be able to help you identify the specific rate schedules for your building stock and determine the cost benefits of many potential retrofit activities. Rate schedules are primarily based on energy consumption and demand. These key factors are discussed below, while other terms typically found in electric and gas rate schedules are defined in Exhibits 1 and 2, respectively.

Electrical Consumption. The cost for direct consumption is based on a \$/kWh charge, and may be adjusted seasonally. Other direct and indirect consumption charges such as the Fuel Cost Adjustment, the Purchased Power Cost Recovery Factor, and the Cogeneration Power Cost (as defined in Exhibit 4) may not always appear on the monthly utility bill, or may, for simplicity, be incorporated into the overall cost for consumption. The time of day of consumption may also influence utility costs: some electric utilities divide total consumption into peak and off-peak components and charge accordingly. Peak supply hours for a utility generally occur between the hours of 8 a.m. and 9 p.m., and the cost of energy to consumers during this time may be nearly double the off-peak cost.

Electrical Demand. Demand charges are also significant and should be clearly understood. Electrical demand is defined as the instantaneous need for electrical energy, or the rate at which energy is consumed, in kW. Demand costs are based on a \$/kW charge. The monthly peak demand is the highest demand level recorded, in time increments of 15 or 30 minutes, during the peak supply hours for the utility. Often, through a Ratchet Clause, utilities will penalize an unusually high monthly peak demand by applying that demand to the rate structure for 12 months after it occurs. Additional demand charges are applied when the building experiences a low Power Factor. This occurs when equipment inefficiently converts supplied power to other uses.

Gas Consumption and Demand. Gas utility rate schedules tend to involve fewer factors. Consumption charges will be found in all rate schedules, while demand charges may only apply to larger customers. Monthly consumption charges are applied in \$/CCF, or \$/therm, and may be adjusted seasonally. Demand charges are applied in dollars per maximum daily demand for the

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billing period, or \$/CCFday or \$/thermday. As with electrical demand charges, they may be subject to a Ratchet Clause. The Purchased Gas Cost Adjustment modifies monthly rates in response to changes in how much it costs the utility to purchase the gas. Finally, rental costs for pipeline space and pipeline recovery costs resulting from deregulation are incorporated into a Pipeline Charge.

A review of utility bills can be helpful in identifying potential opportunities for energy efficiency and associated cost reductions. Billing information can help determine (1) if power-factor correction is required (consult your local utility for solutions), (2) if power consumption could be rescheduled to off-peak periods, and (3) if there are suspect trends in energy demand and usage. A review of billing data might also indicate the potential for shifting to more economical rate schedules, depending on the nature of monthly energy use.

Exhibit 1: Terminology in a Typical Electricity Rate Schedule

Cogeneration Power Cost: Costs passed on to the customer for power purchased by the utility from cogenerators in \$/kWh-mo.

Contract Demand: Power level that the utility guarantees to supply to the building, usually the maximum demand level required for a building to operate.

Demand Charge: A charge for the maximum rate at which electricity is used during peak hours of the billing period (Peak Demand), in \$/kW-mo. May also have reduced charges for off-peak demand.

Energy Charge: A charge for the amount of electricity used in the billing period, in \$/kWh-mo. May be separated into peak- and offpeak components of consumption and may vary seasonally.

Fuel Cost Adjustment (FCA): Consumption cost adjustment used to reflect the varying market value of fuel, in \$/kWh-mo.

Late Charge: A fee applied to the entire monthly balance for overdue payment, usually 5% of the total monthly bill, in \$.

Peak Hours: Daily operating hours during which the highest level of demand for electricity from the utility exists. Electricity costs during these hours may be higher as the utility tries to encourage customers to reduce their demand.

Power Factor Charge: Penalty applied for use of inefficient equipment. It is applied to the monthly peak demand when the working energy (kW) of building equipment is less than 85% of energy (kiloVolt Amps) supplied by the utility, usually a result of industrial equipment inefficiently converting supplied power to other uses.

Purchased Power Cost Recovery Factor: Costs passed on to the customer for power purchased by the utility from other suppliers, in \$/kWh-mo.

Ratchet Clause: Penalty for an unusually high monthly peak demand. The ratchet demand will replace actual demand levels on bills for 12 months following the peaking incident.

Sales Tax: Tariff based on amount of energy consumed, in \$/kWh-mo.

Service Charge: An administrative charge fixed at a small flat rate, based on services provided.

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Exhibit 2: Terminology in a Typical Gas Rate Schedule

Allocation Charge: Charge for consumption in excess of monthly gas allocation as defined in the service contract, in \$/CCF-mo or \$/tTherm-mo. Usually only applied to larger customers.

Contract Demand: Maximum daily amount of gas that utility agrees to supply to the building, usually the maximum daily amount of gas that a building requires to operate.

Demand Charge: A charge for the maximum daily consumption of gas during the billing period, in \$/CCFday or \$/thermday.

Energy Charge: A charge for the amount of gas consumed during the billing period, in \$/CCF-mo or \$/therm-mo. This charge may fluctuate seasonally.

Late Charge: A fee applied to the entire monthly balance for overdue payment, usually 5% of the total monthly bill, in dollars.

Pipeline Charge: Utility costs for rental of pipeline space and recovery fees for financial losses resulting from deregulation, \$/CCF-mo or \$/therm-mo.

Purchase Gas Cost Adjustment: Costs passed on to the customer that reflect the fluctuations in the market value of gas, in \$/CCFmo or \$/therm-mo.

Ratchet Clause: Penalty for an unusually high monthly demand. The ratchet demand will replace the actual demand levels on bills for 12 months following the peaking incident.

Sales Tax: Tariff based on amount of gas consumed, in \$/CCF-mo or \$/therm-mo.

Service Charge: An administration charge fixed at a small flat rate, based on services provided, in dollars.

For more information contact the Rebuild America Clearinghouse at 252-459-4664 or visit www.rebuild.gov

