

Electrical Cost Analysis of Deepened Well

It is impossible to know the exact cost for the difference in electrical costs due to having to deepen a well until the well is drilled. The reasons for this are the variables listed below:

Factors Affecting Electricity Usage:

Horsepower: We don't know the details of the current pumps, In general, higher horsepower pumps require more power. However, newer pumps will be more efficient than the older pumps, so the overall net electric usage may be close to zero

Well Depth: With depth comes larger horsepower pumps. Again, this could result in higher energy consumption. However, newer pumps with newer technology may offset any increase in power consumption.

Water Table: Fluctuations in the water table can also affect how much energy the pump uses. Seasonal water table fluctuations are going to occur.

Pump Efficiency: More efficient pumps use less energy to deliver the same amount of water.

Frequency of Use: Pumps used more often will naturally consume more electricity.

Variations in electric supplier costs (Pennsylvania allows you to choose your energy provider).

HP/Wattage of pump before replacement.

Daily runtimes can vary significantly based on factors such as:

Household water usage: The more water you use (e.g., for showers, laundry, irrigation), the more often the pump will need to turn on to maintain pressure in the system.

Pressure tank size and settings: A properly sized pressure tank allows the pump to run for a longer duration each time, reducing the frequency of cycles. A larger tank with a greater drawdown (the volume of water delivered before the pump restarts) minimizes cycling.

Well depth and pump capacity: Deeper wells require pumps with more horsepower, which might affect the runtime.

System leaks: Even small leaks can cause the pump to run more frequently as it tries to maintain pressure.

Water sediment: Sediment in the water can cause wear and tear on the pump, potentially leading to increased runtime or reduced efficiency. We know that sediment is a problem in many homes in this area. A filtration system may help in many cases.

We have used the following assumption in Estimating Power Consumption:

Watts (W): This is a measure of power, indicating how much electricity the pump uses at any given moment.

Kilowatt-hours (kWh): This is a measure of energy consumption over time (e.g., per month).

Approximate Existing

Assuming the current pump is using 733 watts (Gould M05411 115 V)

0.5 HP 5 GPM pump with adequately sized pressure tank and *\$0.12490 per kwh
electrical costs for 150 Gallons per day.

30 min/day run time x 30 days = 15 hours per month run time.

15 (hours) x 0.733 kW x *\$0.12490 (\$/kWh) = \$1.37/month in electric costs.

Approximate after Deepening

Assuming the current pump is using 1530 watts (Gould M10412 230 V)

1.0 HP 5 GPM pump with adequately sized pressure tank and *\$0.12490 per kwh
electrical costs.

30 min/day run time x 30 days = 7.5 hours per month run time.

15 (hours) x 1.53 kW x *\$0.12490 (\$/kWh) = \$2.87/month in electric costs for 150 gallons per day.

\$1.37 – \$2.87 = increased costs \$1.50/month or \$18/year

(Gould M10412 230 V) Total Dynamic Head @ 10 GPM = 380 feet

(Gould M05411 115 V) Total Dynamic Head @ 5 GPM = 280 feet

*Current Price to Compare for 17570 from PApowerswitch.com

PPL Electric Utilities

RS - Regular Residential Service

\$0.12490 per kwh

*Estimate based on monthly usage, the supplier's price per kWh hour and monthly fees listed under this offer. Price displayed is for generation service only and does not include the utility's distribution charges.

Rate last updated on May 09, 2025