Word Power

Renewable Energy Terms

Volt—Unit of electromotive force

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Derivation: Named after Alessandro Volta, the Italian physicist who first invented the battery. The volt received official recognition as the unit of electrical potential in 1881.

Voltage is an electrical concept that is frequently misunderstood. In simple terms, it is electrical "pressure," analogous to pressure in a garden hose or a bicycle tire. It is also called "potential" or "potential difference."

If I said I might drop a piano on you from my 34th floor apartment, you'd know that it would hurt more when it hit you than if I only dropped it from my cousin's apartment on the 5th floor. However, knowing what floor I'm on would not tell you whether I have a concert grand, a spinet, or my child's toy plastic piano ready to drop. And you wouldn't even be sure that I would indeed drop it, only that it's possible. Likewise, voltage in itself tells us nothing about the flow rate (current) or the total quantity of electricity (though it does have a relationship to them). Voltage is roughly analogous to how many floors up my piano is, compared to a piano sitting on the sidewalk below.

Voltage is not flow rate, and it is not volume. We can measure high voltage when there is very little electricity available, and low voltage when there is a virtually unlimited supply. A capacitor the size of your fingernail can be charged to a potential of ten thousand volts, but the current flow when you discharge it will be minuscule. We can measure high pressure in a bicycle tire, but there is relatively little air there. On the other hand, a huge tractor tire can have a lot of air in it, but it may be at a fairly low pressure.

Let's not say that a PV module "produces" 17 volts, since having voltage doesn't necessarily mean you have electricity flowing. When you put your multimeter leads on the terminals of the PV, you are only reading the *potential* difference between the two points. Voltage alone doesn't give you the whole picture, and should not be confused with current, power, or energy. Current, which is measured in amperes, will be the topic for next time.

Access

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