# Staying Power: Senate Hearing Focuses On Energy Storage

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A battery used on the PJM regional grid to even out power operation.

Thursday's Senate Energy and Natural Resources Committee hearing featured testimony from experts about the power industry's need to develop systems capable of storing large amounts of electricity if the nation's power grid intends to utilize the expected increase of energy produced by renewable resources.

But electricity cannot be stored on a shelf until needed; it has to be manufactured fresh 60 times a second. Utility companies that need more power during peak usage times have to run additional generators that normally sit idle during times of low demand.

Expert testimony and questions by the members of the Senate Energy and Natural Resources Committee, chaired by Sen. Jeff Bingamon, D-N.M., established that a major motivation for developing stored energy

is that it acts as a complement for renewable energy. Electricity made by wind turbines or solar cells is valuable since it doesn't rely on pollution-producing fossil fuels. But the sun and wind are fickle and can disappear at a moment's notice. If electricity from these renewable sources could be stored when produced it could be extracted and later added to the electrical grid when needed to serve increased demands for power.

Storing electrical energy isn't new. For a century of more power has been stored by pumping water uphill into a reservoir during off hours and then letting the water descend again during peak hours, generating electricity as it did so. This pumped storage is still the main way of storing electricity. What's new is the need to store electrical energy not just for localities here and there, but for furnishing larger amounts of energy for the sprawling grids that extend hundreds of miles across many states. Many places are not suited for pumped storage, so there is a greater need than ever for efficient energy storage in megawatt-sized batteries, large flywheels, and in the form of compressed air.

Federal Energy Regulatory Commission chairman Jon Wellinghoff said that it is more common for regulatory hearings to feature energy-storage issues. He said that many rulings would stay at the state level and would not fall under federal jurisdiction. When asked about developing technologies, Wellinghoff said that he recently learned that more energy is stored within water heaters across the country than in all the pumped-storage facilities combined, and that somehow this energy might be usable in some way as a storage mechanism.

Steven Koonin, undersecretary for science at the Department of Energy, pointed out that federal funds, part of President Barack Obama's stimulus package, were allowing a 50-fold increase in government funding for energy storage research. This would allow government and industry to get a better grasp of what storage methods worked the best.

This wasn't fast enough for committee member Sen. Ron Wyden, D-Ore., who asked Koonin if the DOE couldn't prepare a specific plan for how to store some of the valuable wind energy that blows across the middle part of the country. Koonin promised to deliver such a plan within 60 days.

Ralph Masiello, an energy consultant from KEMA Inc. suggested that considerations for energy storage be made a factor in the licensing process whenever new transmission lines for carrying power are built.

Kenneth Huber, who works for PJM Interconnection, one of the largest U.S. regional grid operators, spoke about a 1-megawatt battery used to level out power delivery during the day. He intimated that his grid could accommodate hundreds of such units if the cost and efficiency improved. He also spoke warmly of the idea of employing the large fleet of plug-in hybrid-electric vehicles expected to build up over coming years as a dispersed, rolling storage medium. In an experiment, signals from PJM computers were sent to some stationary plug-in cars that delivered on command some of the electricity stored in the vehicle's batteries into the grid during peak demand.