

A battery company called [Coda Energy](#) says that a combination of solar photovoltaics and onsite storage can be cost-competitive with utility electric service for some larger customers. That is according to an online article on [greentechgrid](#). Solar is still a more expensive option for power production than fuels such as natural gas, and various energy storage options are considered to be overly expensive, as well. So how is it possible that Coda Energy has it right?

If Coda's economics work, it is because three factors serve to balance the scale. First, solar benefits from tax credits and storage can receive utility rebates - the result is that solar and storage become cheaper for the consumer than they would be, right now, based on market forces alone. Second, the utility's rates carry with them a lot of baggage. While the solar/storage customer is just paying for solar and storage, the utility charges for the cost of power from a full range of sources, for repair services and pickup trucks, for utility poles and corporate headquarters, for energy efficiency programs and utility-scale renewable energy generators, for meters and billing systems. Third (and this is seems to be the kicker for the larger customers), the biggest non-residential users face a fixed "customer" charge, based on the user's anticipated peak demand. With solar backed up with storage, the customer can fairly reliably shave its peak demand, and thereby reduce what it needs to pay the utility through those fixed charges.

Regulators allow the utility to recover the cost for some of that baggage through separate charges imposed on all customers. But on balance, a solar storage customer can avoid some of the baggage cost, and some of the customer charge. Combined with tax credits and rebates, solar-with-storage can start looking pretty good. This is great, if you want to encourage people to invest in solar and storage. But is this a smart thing to do?

Most economists would rather see the cost of a bad thing (such as fossil fuel) go up, through the imposition of a charge such as a carbon tax, than see the cost of a good thing (such as solar or storage) go down as a result of tax credits and rebates. This is in the name of economic efficiency, since a properly-set carbon tax should reflect the societal cost of pollution and global warming, and encourage the consumer to choose an option that represents the lowest overall cost to society. That's a nice idea, but it comes with several problems. First, have you seen any good carbon taxes lately? While governments on many levels have created tax benefits, rebates, mandates, research dollars, and loan guarantees for solar and other renewables, efforts to put a tax on carbon or establish a broad cap and trade program have been a nearly universal bust. Second, even a carbon charge that accurately reflects what people see as the societal cost of greenhouse gas emissions may not be enough to prompt a change in behavior. For instance, fossil fuel producers may respond to a carbon tax by lowering their prices. When it comes to carbon reductions, can

we risk relying on consumer choice when the need to reduce emissions is absolute?

Third, the various incentive mechanisms appear to have done a lot of good. The demand for solar has grown geometrically, and the cost has plummeted as production has scaled up. Would this have happened without mandates and tax credits? The evidence showing cause and effect is not in, but it is hard to believe that the growth in the industry is not related to the existence of these programs.

As important as it might be to put a proper cost on air pollution and carbon emissions, it is also important to put a proper value on other options. Regulators are willing to have a utility pay for energy efficiency improvements when it can spend less to reduce demand than it would cost to furnish more electricity. From the utility perspective, solar-with-storage ought to be just as valuable as an energy efficiency improvement if it leads to lower demand. And that lower demand can free-up space on transmission lines and distribution circuits, delaying the need for system upgrades. With storage in place, the new supply adds reliability to the grid, as well, since stored energy can serve the customer even when the sun doesn't shine. All of these potential benefits, and more ought to be understood and properly compensated before regulators or lawmakers tinker with the existing incentive programs.

There is a major challenge to understanding the true costs and benefits related to customer-site solar-with-storage: achieving broad agreement on the assumptions underlying that assessment. This is something I know that the U.S. Department of Energy would love to accomplish. In the meantime, individual states can take a serious stab at the problem by undertaking cost/benefit studies and putting them to the test of regulatory processes. California and several other states are doing just that.