Two-way instant communication, ever-changing electricity prices, lightning-fast micro-switches – the smart grid is all the rage. In fact, a report just issued by a firm called Pike Research contains the prediction that worldwide expenditure on smart grid stuff will exceed $200 billion over the next five years. The hope is that a smarter grid will save money by lowering peak electricity demand, improving reliability, and providing greater environmental protection.

Here is the challenge. It wouldn't be very smart to build the most sophisticated, computerized, whiz-bang, sparkling new electric transmission line in the world if it wasn't needed. And it is tough to know whether new infrastructure is necessary without taking a close look at all of the viable alternatives. Suppose there is a predicted increase in electric demand. New lines aren't needed to serve that demand if existing lines will do. New generation close to customers might reduce the transmission burden. Energy efficiency improvements could reduce the need for more power altogether.

Smart planning requires an integrated approach – Would it be less expensive to replace older appliances with more efficient ones than to furnish power to the older appliances over a "smartened-up" grid? We had better figure that out before we spend $200 billion on grid upgrades rather than efficiency upgrades. Would we be better off by installing as much solar electric capacity as possible right where customers need the power, or by building huge solar farms in remote desert locations? We ought to know that before committing billions to solar projects in the desert and new transmission lines to deliver the power.

One answer is that we probably need to do everything – maximize efficiency, build generation close to customers, acquire as much renewable power as possible, and spruce up the grid. In reality, we are unlikely to do everything with equal vigor, pursue everything with an equal sense of urgency, find the money required to go full-bore in all directions.

Someone will have to set priorities. Who should that be – the companies that want to develop and sell new technologies? Energy customers? Legislators? One promising approach would be for regulators and lawmakers to establish clear standards for integrated planning, and for customer-serving utilities to produce the plans subject to regulatory review. Although similar systems have been tried over the years, and versions of integrated planning are employed in various states, this is not something that most utility planners embrace. In addition, many states have been reticent to insist on meaningful analysis. Perhaps it is time to give these

plans some teeth – to insist on rigorous analysis and the full consideration of options – and to do so with some sense of urgency.