

Energy Efficiency: Seeing the Whole Picture

Every once in a while someone asks how the whole energy efficiency picture fits together. When you are up to your eyes in wood chips from the trees you are chopping, the forest seems like a distant concept. Several different activities are needed to have a complete energy efficiency portfolio. No single approach can create all of the savings over a long period of time by itself. We use them all to accomplish the same end goal, just get there by different approaches.

A balanced portfolio of energy efficiency initiatives includes infrastructure development, equity (or low-income) programs, research and development efforts, market transformation efforts, and resource acquisition programs. Infrastructure supports the education, reference, and support service needs of the acquisition, market transformation, and even low-income programs. Research and development (R&D) keeps the pipeline full of new ideas and new technologies for future market transformation and acquisition programs. Market transformation (MT) targets specific opportunities that have good leveraging potential and that, while risky, can have a very high pay-off. This usually means an emphasis on markets, profits, and long-term market changes. Resource acquisition programs accomplish energy efficiency through incentives that get the savings from individual sites. The pace, location, and direct effect can be controlled, unlike MT where the programs are only one tiny part of a dynamic market. Acquisition programs are usually more expensive, but the results are more certain than the impact of MT.

The most important concept is that all of these elements of a portfolio are targeted at the exact same result -- energy efficiency savings. They simply use different tactics to create the savings.

Fifteen years ago, BPA and other major utilities each funded most elements of the portfolio directly. For instance, most Puget Sound area utilities, BC Hydro, and Idaho Power contributed to the Lighting Design Lab; ConWeb, an energy conservation and renewables newsletter, was supported by multiple utilities around the region; and state energy agencies received funding from BPA. The Washington State Code Council was supported by most major utilities, as were code efforts in Oregon. Lane Community College (Oregon) and Edmunds Community College (Washington) ran energy management programs with support, respectively, from [Eugene Water and Electric Board](#) and [Snohomish County PUD](#), and also from BPA. R&D was actively supported through [Electric Power Research Institute \(EPRI\)](#) memberships. In the mid-1990s, with limited funding for conservation and the development of the theory of MT, funding for the elements of energy efficiency in the region changed. In 2003, most large utilities run their own local acquisition programs and some low-income programs. The utilities have pooled their resources into the Northwest Energy Efficiency Alliance to carry out the MT element of their portfolio and, in large part, the infrastructure and R&D fractions of their programs. The guiding principle has become: "do locally, what is best done locally; do regionally what is best done regionally."

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While BPA still supports some infrastructure such as the Regional Technical Forum and the Bright Way solar and Super Good Cents trademarks, most of the regional infrastructure is now supported through BPA's contributions to the Alliance. These include the Lighting Design Lab, ConWeb, Energy Ideas Clearinghouse, NW Energy Education Institute, and AgriMet, a satellite-based network of automated agricultural weather stations operated and maintained by the U.S. Bureau of Reclamation.

Nothing comparable has developed to match the R&D efforts that BPA used to fund, such as the OSU Motors Lab; Motor Master+, ASD Master, and AirMaster, software and tools available through the Department of Energy Office of Industrial Technologies; the Residential Standards Demonstration Program; and the Hood River Projects. Instead, the Alliance supports small efforts such as the development of BacGen for water and wastewater, MagnaDrive for variable speed drive applications, and the small commercial HVAC pilot for rooftop units.

Low-income programs are funded locally in some cases, but more and more through statewide delivery mechanisms. BPA and other utilities continue to support these efforts, just as other utilities support infrastructure and education like the Energy Outlet and the Lighting Design Lab outside of the Alliance.

Although the energy efficiency framework may have appeared to change over the years, the total portfolio has not changed. All the elements were there in 1985, and they are all here in 2003. The proportionate efforts may have shifted slightly among the elements, with R&D down a little and MT up a little, but there was and is a strong emphasis on resource acquisition and infrastructure. Who does some of it has changed, but the work is still being done. Each element is important, and with the new roles of the Alliance, we have increased efficiency, regionalized and lowered costs, and found clear paths so that acquisition programs contribute to MT and the infrastructure that is established serves both strategic approaches.

-- Ken Keating (503) 230-5857