The idea behind energy disaggregation (also called non-intrusive load monitoring, or NILM) is a straightforward one: take a single source of data on energy use—such as a smart meter—and use software algorithms to identify the constituent components based on their unique energy-use signatures. This breakdown of data promises to help utilities and end users identify where and how energy is being consumed at a much lower cost than would be incurred with submetering. Unfortunately, the available tools on the market are highly variable when it comes to their accuracy in identifying end uses within the home.

If the tool is successfully implemented—and sufficiently accurate—the end-use energy information provided could offer many benefits to utilities, from improved customer education to less-costly measurement and verification. But no clear guidelines exist today that will help users quantify the level of accuracy needed when using disaggregation for a given application, and customers may not necessarily want to rely solely on vendor marketing when choosing a tool. With that in mind, I’ve summarized a variety of potential benefits of disaggregation and compiled some general suggestions on the minimum level of accuracy required to realize them.
To date, studies assessing multiple disaggregation tools have found that the accuracy of a given product in identifying the energy consumption associated with a particular end use (like a fridge or TV) can range from 0 to 90 percent. With that kind of variability, it’s unclear just how helpful these tools actually are for the applications shown above.

To learn more about this issue, members of the *E Source Technology Assessment Service* can check out *Is Accuracy the Achilles Heel of Residential Disaggregation?* In it, I provide a more in-depth overview of research done to date, take a look at other potential sources of this kind of end-use energy consumption data, and give advice for utilities looking to reap the benefits promised by these tools.