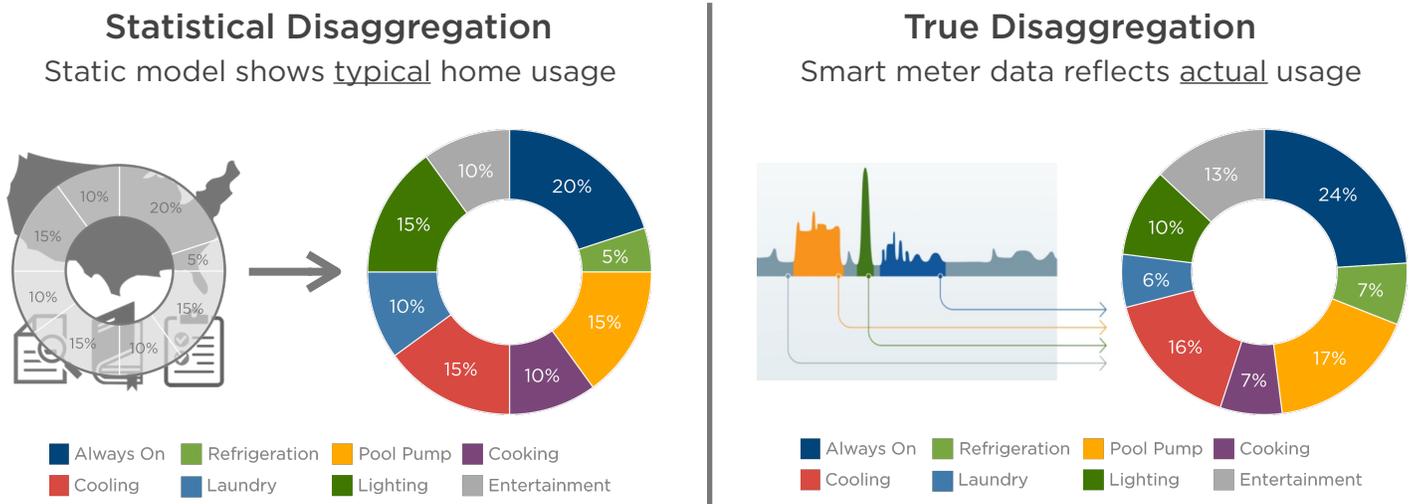


BACKGROUND

Today's customers have high expectations for their service providers. One way utilities can meet (or even exceed) those customer expectations is by offering energy disaggregation. Not only can disaggregation engage customers by helping them identify what appliances are using the most energy in the home, a more knowledgeable and engaged customer base also benefits the utility in the form of better program participation, higher customer satisfaction scores, and fewer call center complaints.

However, when choosing a disaggregation vendor, it's important for utilities to understand the difference between true disaggregation and statistical disaggregation. With true disaggregation, appliance itemization is based on data from each home's smart meter and reflects *actual monthly usage* of the home. Statistical disaggregation, on the other hand, relies on a static model which is created via research and survey data on *typical monthly usage* for a geographic region and climate.



USE CASE EXAMPLES

The use case examples on the following pages highlight some of the important differences between true disaggregation and statistical disaggregation, and the resulting differences in customer experience, engagement, and satisfaction.

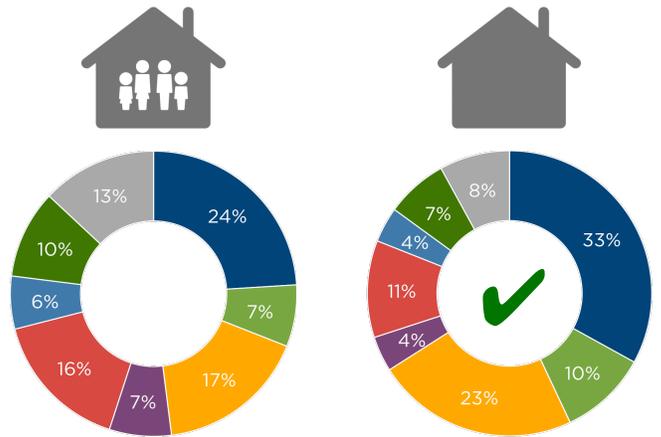


Vacation Scenario

Statistical Disaggregation



True Disaggregation



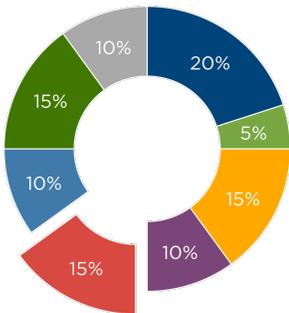
When a family goes on vacation, the energy usage profile of the home changes drastically. Some appliances, like Refrigeration, Always On, and Pool Pump, will continue running at the same rate, while others, including Laundry, Cooking, and Cooling, will not run at all. Unfortunately, the utility providing statistical disaggregation will miss the mark quite significantly: by using generic averages to model monthly appliance consumption, the occupied and vacation profiles of the home won't change at all, providing no insights or value to the customer.

The utility using true disaggregation, however, will show a great deal of change. Because true disaggregation is based on data from each home's smart meter, when a family goes on vacation, their itemized monthly usage reflects what's actually going on in the home, and the appliances that haven't been used - Laundry, Cooking, Cooling, etc. - will be reduced in scale accordingly.



Life Change

Statistical Disaggregation

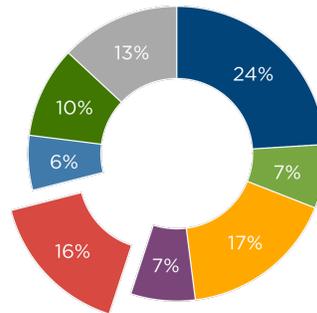


Cooling

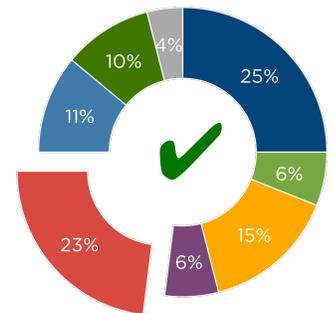


Cooling

True Disaggregation



Cooling



Cooling

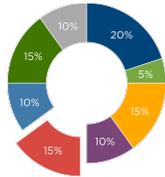
What if there's a permanent change in a household, like the birth of a child? In such a case, the energy usage in the home can change as well. No doubt there is more laundry being done, less time for TV, and in the summer, keeping the baby cool requires more Air Conditioning. The only way to identify these changes as they happen is by using true disaggregation, and for a family that's busier than ever, receiving accurate insights and information is the best way for a utility to keep them engaged.



Appliance Change

Statistical Disaggregation

Week 1:
Utility offers discount on a new AC



5% off an EnergyStar air conditioner!

Week 2:
Customer purchases a new AC



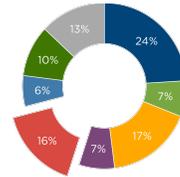
Week 3:
kWh usage reduces but % doesn't change



TIP: Upgrade your air conditioner

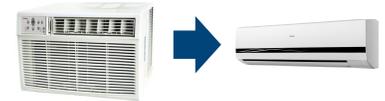
True Disaggregation

Week 1:
Utility offers discount on a new AC



5% off an EnergyStar air conditioner!

Week 2:
Customer purchases a new AC



Week 3:
kWh usage reduces and % changes



Congrats! You reduced your AC energy!

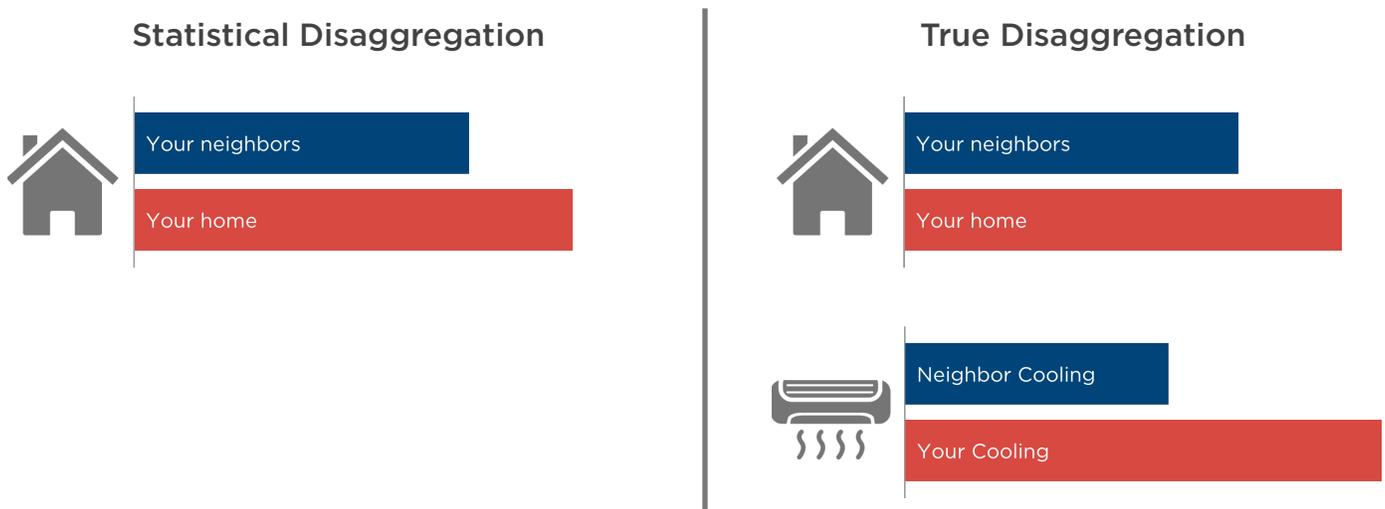
Customer data derived from disaggregation can also benefit utilities. Targeted marketing programs, for example, represent an opportunity for a utility to build engagement with their customers by providing relevant product and service offers. However, if the offer doesn't resonate, or the utility doesn't close the loop in a timely and effective manner, that credibility can be lost.

In the example above, the utility using statistical disaggregation has no way of identifying that the customer's AC usage has reduced, and by sending an additional AC-related marketing message in week 3, the utility loses credibility.

The utility using true disaggregation, on the other hand, is in a much better position on a number of levels. They can use true disaggregation to identify the homes with the most inefficient AC usage, reaching out with very targeted messaging. And in the case that a customer does purchase a new AC, true disaggregation will detect the improved efficiency, and in week 3, can close the loop with the customer, reinforcing their positive energy-saving habits.



Energy Usage Comparisons



Comparing energy usage across neighbors or similar homes is becoming a much more common feature provided by utilities. That said, there are distinct benefits to the depth of comparative insights true disaggregation can provide.

In addition to comparing the standard whole-home energy usage across similar homes, true disaggregation can carry out the same comparative analysis for specific appliances in the home. And based on these analyses, true disaggregation can provide personalized insights and relevant money-saving recommendations to each customer.

As mentioned earlier in the Appliance Change example, these appliance-level usage comparisons are an example of how the most inefficient AC users can be identified and targeted.

SUMMARY

Households are not static environments; the activities in the home - and the corresponding energy usage - are changing all the time.

The two types of disaggregation solutions - statistical disaggregation and true disaggregation - take different approaches in itemizing appliance usage in the home. Statistical disaggregation creates monthly usage models based on research and survey data, and applies those models to typical homes.

True disaggregation identifies actual monthly appliance usage by analyzing the data from each home's smart meter, creating a more insightful, accurate and personalized experience for each customer. In turn, a more knowledgeable and engaged customer base will benefit the utility in the form of better program participation, higher customer satisfaction scores, and fewer call center complaints.