Energy Efficiency

Residential Appliances
The World in 2030

BASF Video: Energy efficiency -- The World in 2030
https://youtu.be/QG3HNQiEaTM
Appliance Efficiency Gains – Last 25 years
Dishwashers – Average Energy Consumption and Price Over Time

> 50% Improvement in Energy Efficiency since 1990’s with improved functionality.

DOE Standard & ENERGY STAR played key role in shaping product and Technology configurations.
Appliance Efficiency Gains – Last 25 years
Clothes Washers – Average Energy Consumption, Price, and Volume Over Time

> 80% Improvement in Energy Efficiency since 1990’s with improved functionality.

DOE Standard & ENERGY STAR played key role in shaping product and Technology configurations.
Appliance Efficiency Gains – Last 25 years
Refrigerators – Average Energy Consumption, Price, and Volume Over Time

> 50% Improvement in Energy Efficiency since 1990’s with improved functionality.

DOE Standard & ENERGY STAR played key role in shaping product and Technology configurations.
Energy Efficiency:

Are we at an Inflection Point?

Are we at a point of Diminishing Returns?
Using the Correct Tool (or Test Procedure) for the Job

For Example, brooms were the correct tool for cleaning the floor until carpet became popular. With Carpet, came Vacuums, and more recently Robot Vacuums!
Appliance Efficiency – Next 25 years
Adaptive Technologies focused on real world Energy Consumption

Optimizing to Individualized usage conditions:

Sensor enabled appliances

source: IoT infographic Postscapes and Harbor Research – CC
Appliance Efficiency – Next 25 years
Adaptive Technologies focused on real world Energy Consumption

Optimizing to Individualized usage conditions:

Smart Appliances

Source: Smart Things
Appliance Efficiency – Next 25 years
Adaptive Technologies focused on real world Energy Consumption

Optimizing to Individualized usage conditions:

Inverter technologies & More

Source: Daikin
Adaptive Technologies – One Example
Focused on Real World Energy Consumption

Inverter Compressor Technology

Source: bijlibachao.com
For accelerated energy savings in the next 25 years

Test Procedures must reflect

➢ Representative of use conditions

➢ Recognize technologies which adapt to use conditions.
Test Procedures must adapt to new technologies otherwise, energy savings from innovative technologies are being swept under the rug!

Thank You.