

# ET Summit 2021

Presented by



# How Smart Can Homes Get?

A Short Summary of Technology & Market Trends



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## A Brief History

“Too efficient to meter”



E Source was founded in the 1980's by Amory Lovins and his team at the Rocky Mountain Institute (RMI)

- Amory has been a thought leader on energy issues since the 1970's
- His home (original RMI office) near Aspen has no heating system
- Grows bananas year round
- To meter it would be “wasteful”

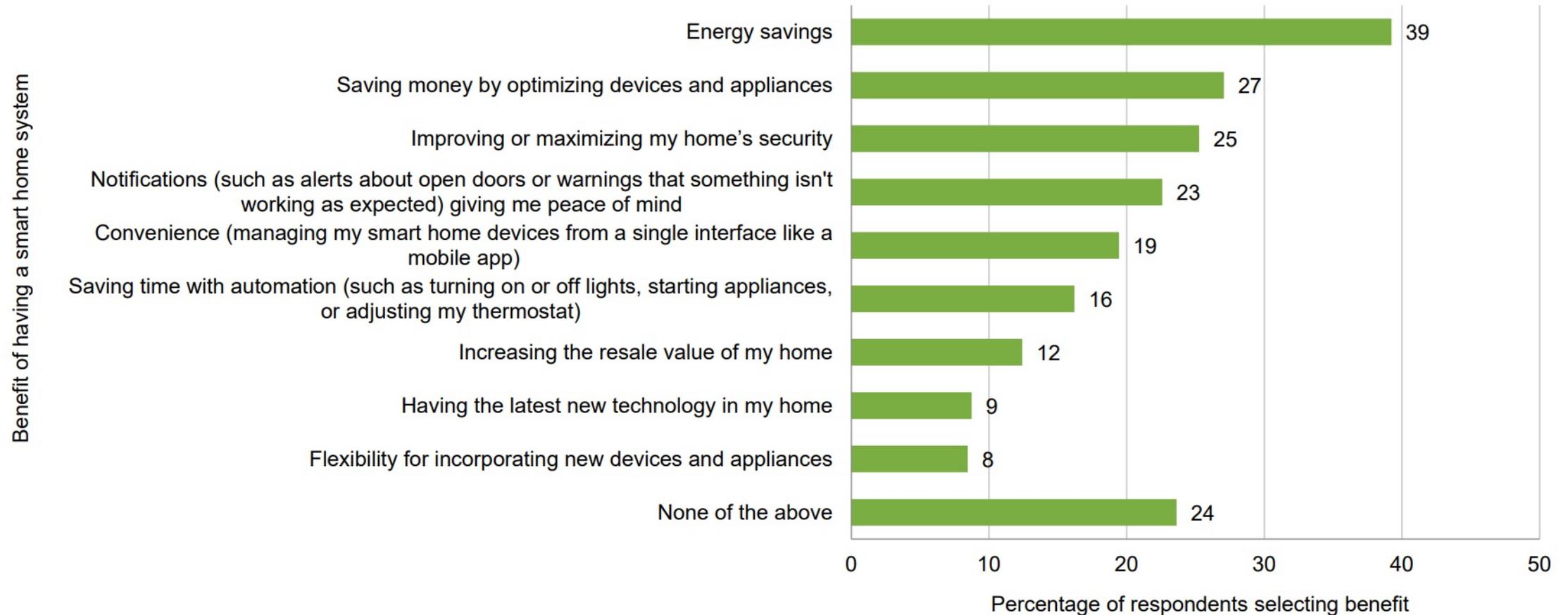
Source: Judy Hill Lovins

## What Customers Really Want

**"People don't want raw kilowatt-hours or lumps of coal or barrels of sticky black goo. They want hot showers, cold beer, comfort, mobility, illumination."**

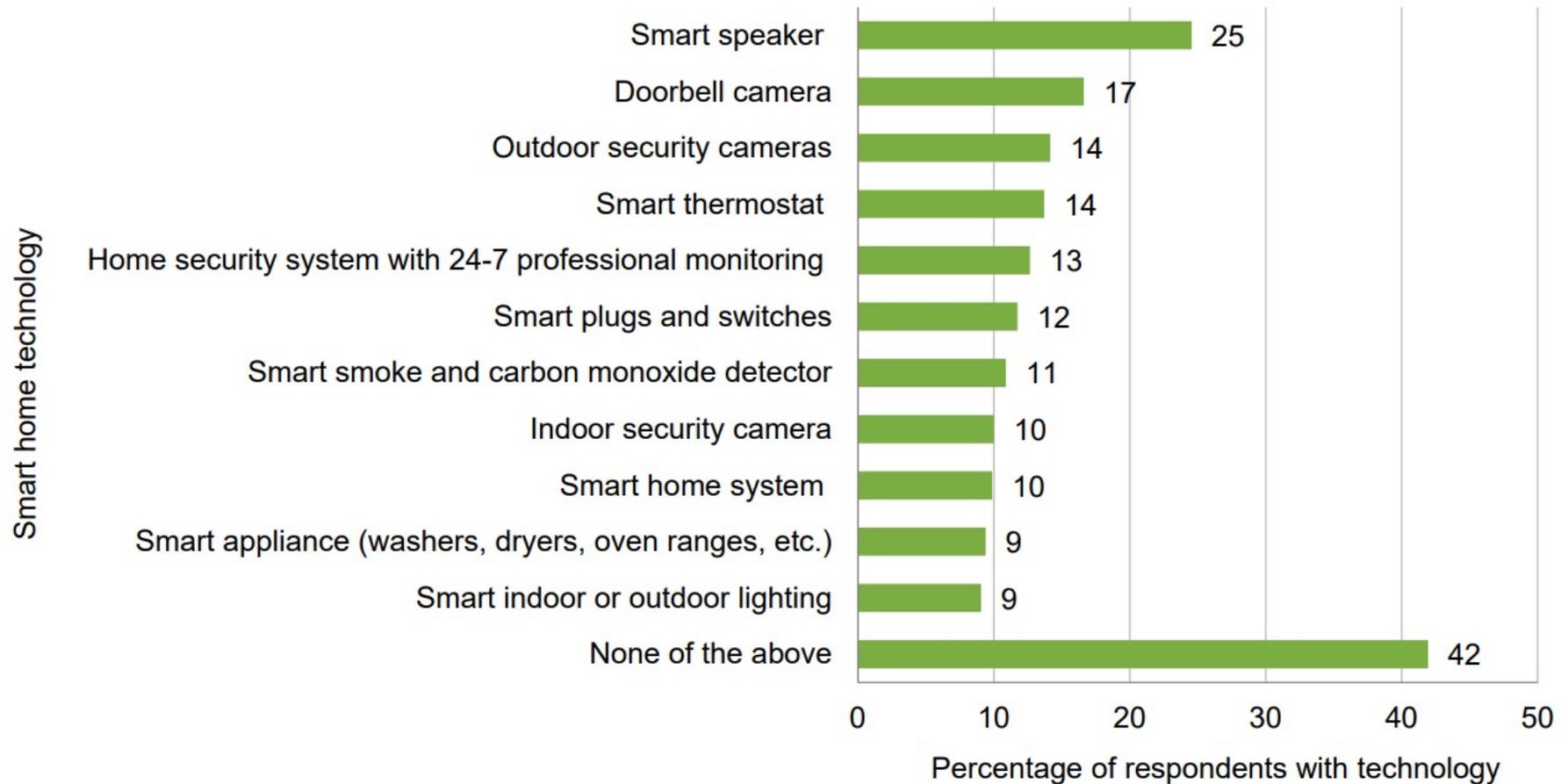
**- Amory Lovins**

# Customers Say that Saving Energy Is Important, BUT...



**Base:** All US respondents (n = 2,001). **Question S2\_5:** Whether or not you currently have a smart home system, which of the following benefits of having one are most appealing to you? Select up to three. **Note:** "Other" not shown as it accounted for less than 1% of respondents. © E Source (2020 Smart Home Consumer Survey)

# The Devices They Buy Don't Save Much/Any Energy



**Base:** All US respondents (n = 2,001). **Question 2\_1:** Which of the following systems or smart home technologies do you or someone in your household currently have? Select all that apply. **Note:** Only top 12 responses are shown.

© E Source (2020 Smart Home Consumer Survey)

## Where is The Real Savings Potential?

### Energy savings

- Smart thermostats
- Smart window coverings
- Smart plugs

### Demand management

- Smart thermostats
- Smart EV charging
- Smart water heating

# Innovative Pilot Example: BC Hydro

## HydroHome Program

- Partnered with Powerley
- App is free to utility customers
- View consumption, control devices
- Smart hub linked to smart meter
- Tailored advice, smart speaker control
- Ran a second smart speaker pilot in conjunction with this pilot

## Engagement

- Great smart speaker engagement
  - Use speaker skills “all the time”
- Extensive QPL
  - Amazon Alexa smart speakers
  - Aetoc energy monitor
  - Thermostats (eight different brands)
  - Smart light bulbs (six different brands)
  - Dimmers (GE, Jasco)
  - Lighting switches (three different brands)
  - Load controllers (GE, Jasco, Sinope)
  - Outlets and plugs (seven different brands)
  - First Alert smoke alarm
  - Smart door locks (Kwikset, Schlage, Yale)
  - Motion and door/window motion sensors (six different brands)
  - Water/moisture sensors (three different brands)

## Recent Evaluated Finding re: PV & EVs

### Smart Thermostat Eval in MA

*“Future evaluations might consider the interactive effects between thermostat behavior and customers with residential solar PV or EVs. Having rooftop solar or EV charging at home can change customer energy usage, biasing thermostat savings estimates if not properly accounted for. As solar PV and EVs become increasingly common among residential customers, it will be important to account for these factors to estimate thermostat savings accurately.” (emphasis added) – Guidehouse, Illume, and Cadeo*

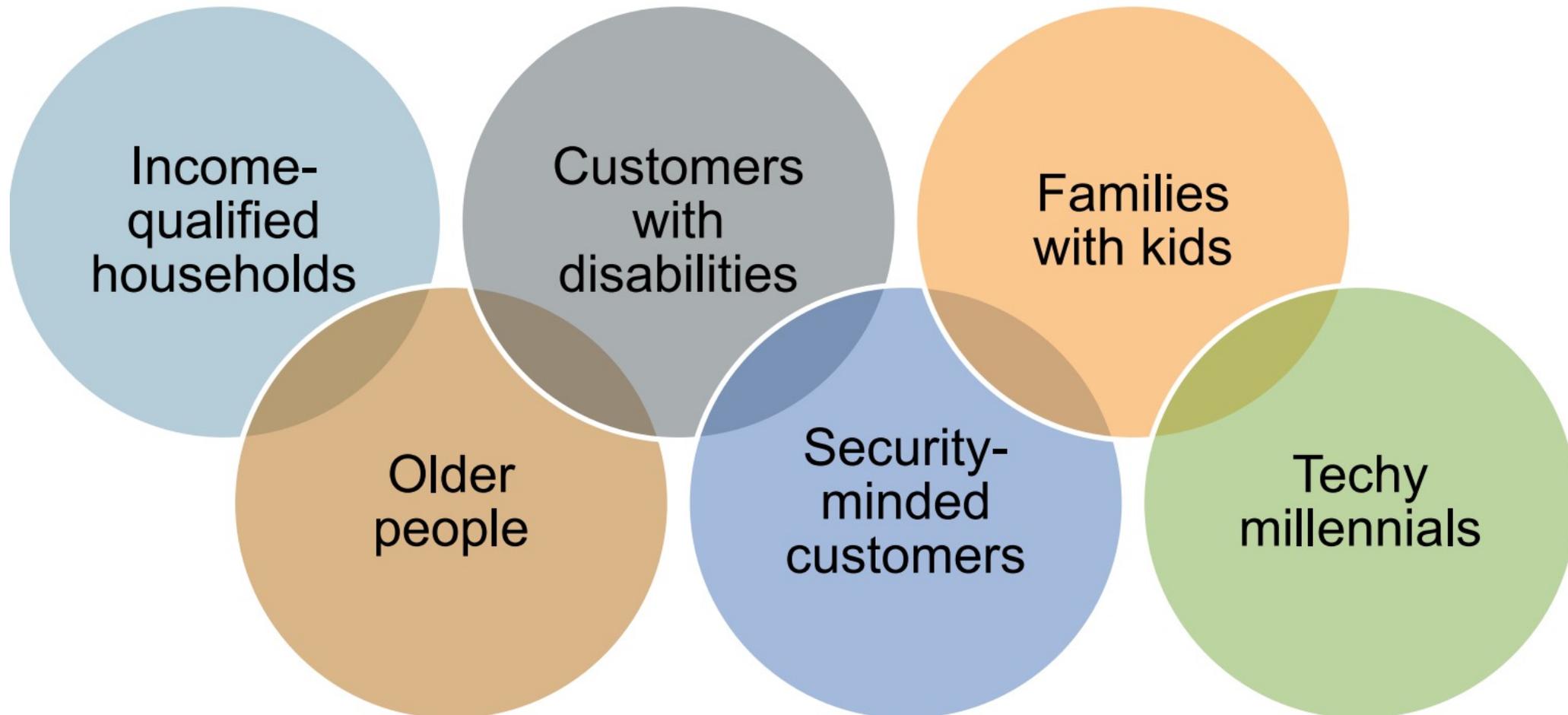
Source: Residential Wi-Fi and Programmable Thermostat Impacts

## SHEMS Continue to Evolve

- ENERGY STAR defines a Smart Home Energy Management System (SHEMS) as (at minimum) the combination of:
  - An ENERGY STAR certified smart thermostat
  - Two ENERGY STAR smart lights or smart switches that measure energy use
  - Plug load monitor/control (e.g., smart plug/strip, circuit monitor)

*“The vast majority of savings potential was driven by the smart thermostat, followed by the Tier 2 APS [advanced power strip]. Savings for smart lighting was very small given the baseline assumption of energy-efficient LEDs with no standby power. In modern homes it is difficult to achieve significant savings in the lighting category unless occupants operate the lights more than a few hours per day.”*

## Expand Benefits With Targeted Offerings



## Support from Recent Research

“Our survey, which interrogated all age groups indicated a high preference for items associated with health care, and emergency and safety response items. Second. In particular, there was a high interest in daily health and body change management, yet, contrary to expectations, the preference for health-related services and items was in the more senior group. It is also notable that reference scores were high for items corresponding to automatic sensing, that is, services and items that respond to daily behavior.” (*emphasis added*)

## Key Takeaways

- Customers want energy savings, but need help achieving them.
- Careful pilot/program design can drive significant engagement.
- More consumer education, instruction still very much needed.
- Targeting low-income, disadvantaged, and underserved customers may hold the greatest potential to deliver benefits.

# Thank You!

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