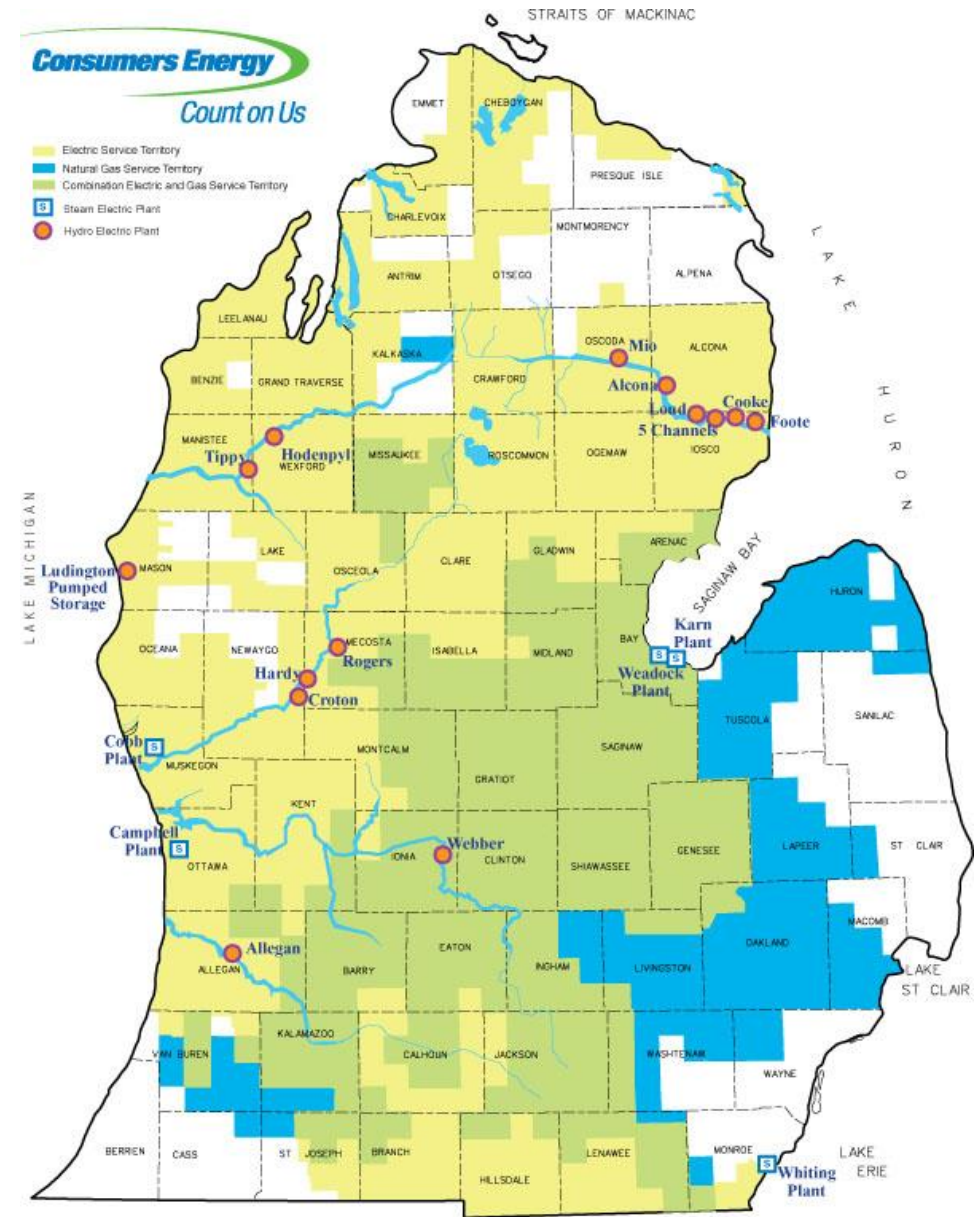


Consumers Energy Smart Outlet Pilot

Consumers Energy

- Serves 1.9M electric and 1.8M gas customers across Michigan's lower peninsula



2021 Clean Energy Plan - Leading Michigan's Clean Energy Transformation

Eliminate coal

All coal plants would be retired by 2025

More renewables

By 2040, more than 60 percent of our electric capacity will come from renewable sources

Net zero emissions

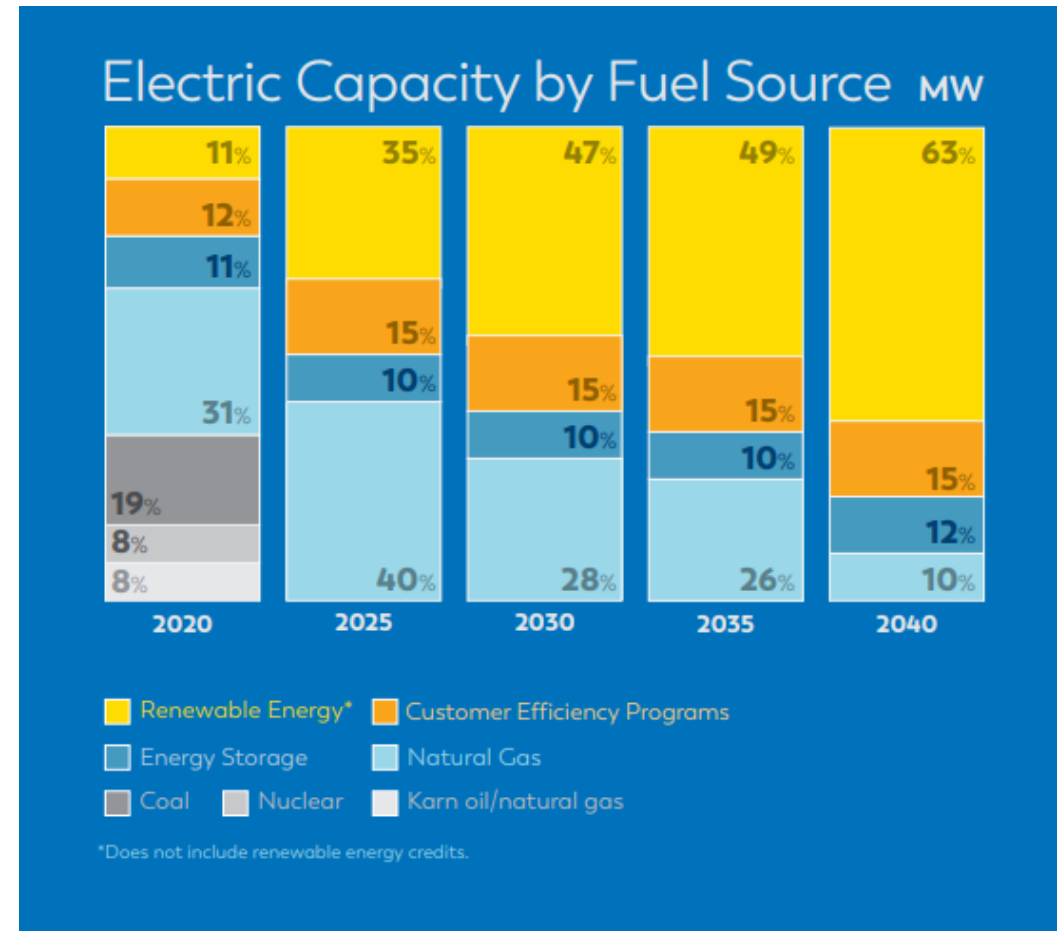
Our plan would achieve 60 percent emissions reductions by 2025

A smarter grid

Energy efficiency, demand response and emerging technologies such as grid modernization and battery storage will help us lower peak customer demand

More control and savings for customers

Provide customers with the power to reduce energy waste and lower bills through energy efficiency and demand response programs



Residential Demand Response

Existing Residential DR Programs

AC, WH, & Smart T-Stat Control



Pilot Concept

- Utilize Eaton's Wi-Fi Receptacle and Brightlayer Home App with Alexa and Google Homes compatibility to extend residential DR capability



Smart Outlet Introductory Video

<https://vimeo.com/810543409>

Smart Outlet Pilot - Approach

The Smart Outlet Pilot aims to test smart devices as an avenue to engage customers to deliver load shift.

The test plan included two phases; behavioral component via smart outlet to start followed by a direct control phase utilizing cloud-based software and a DRMS to dispatch events to the smart outlet.

The initial plan was modified in 2021 and Phase 1 tested the use of smart plugs as a supplemental tool for behavioral demand response.

Smart Outlet Pilot Approach (continued)

In 2022, Phase 2, a direct control effort was launched in July.

DR Events - On initiation by Consumers Energy, Eaton will signal the outlet via the Cloud through the participants Wi-Fi network to shutoff power to the controlled receptacle.

Customers can use the Brightlayer App to control the smart outlet.



2022 Smart Outlet Pilot Program Overview



OFFER

Residential customers who sign up receive **two free Eaton smart outlets** and a complimentary **direct installation** service by a technician



TARGET AUDIENCE

Residential customers who currently participate in a demand response program and those in a targeted geographic area



HOW IT WORKS

Customers schedule an installation appointment

Technician installs the smart outlets and connects them to **medium- to high-load products** (e.g., room/window air conditioners and dehumidifiers)

Technician sets up the app for customers and **educates** them on what happens during a direct load control event (i.e., the socket labelled CONTROLLED will turn off the connected product during the event and turn it back on after the event)

Customers receive an event notification in advance via email

Customers receive a \$25 e-gift card after the summer season ends

2022 Smart Outlet Pilot Program Overview (continued)



PILOT OBJECTIVES

Enroll 2,000 smart outlets (~1000 participants) by end of the 2022 summer season

Call at least two Demand Response events

Demonstrate significant reductions in demand during event hours



EVENT

Due to starting recruitment in late July, only one event conducted, Wednesday, Sept. 21, 2022, from 2-6 p.m. to test the process



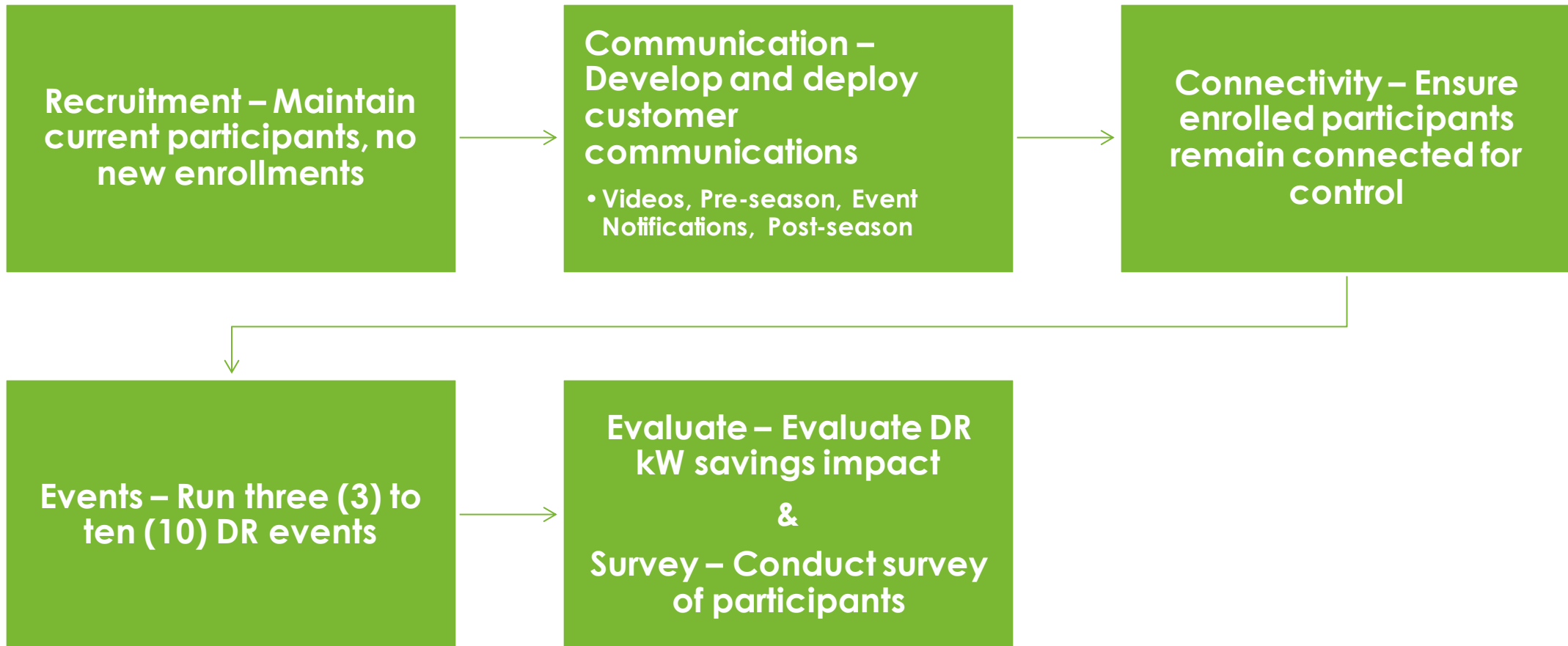
PARTICIPATION OUTCOME

572 customers were recruited, and 1127 outlets installed by 12/31/22

169 were ready for and participated in the Sept. 21, 2022, event

Event impacts were not statistically significant

2023 Smart Outlet Pilot Plans



Smart Outlet – Possibilities Beyond 2023

With approximately 680,000 room and portable AC units within the service territory, the Smart Outlet has the potential to support the DR portfolio by tapping into customers that don't have central AC.

The Smart Outlets could lend itself to a specific opportunity for low/moderate income customers.

The ability to schedule the controlled outlet gives all customers a tool to reduce their energy use and costs, specifically during TOU peak hours.

Questions

MARK LUOMA

MARK.LUOMA@CMSENERGY.COM