

Consumers Energy Non-Wires Solution Pilots: Results from a Consumers Energy/NRDC Collaboration

2019 ACEEE Efficiency as a Resource Conference

October 16, 2019



Presentation Outline

Context

Pilot #1: Swartz Creek Substation

- Substation summary
- Phase 1: community-based marketing
- Phase 2: incentives
- Lessons Learned

Pilot #2: 4 Mile Substation

- Selection process
- Phase 1: quick start programs
- Phase 2 plan

- Field test of concepts
- Time limited
- Not designed for deferral

- Multi-year
- Designed for deferral



Consumers Energy

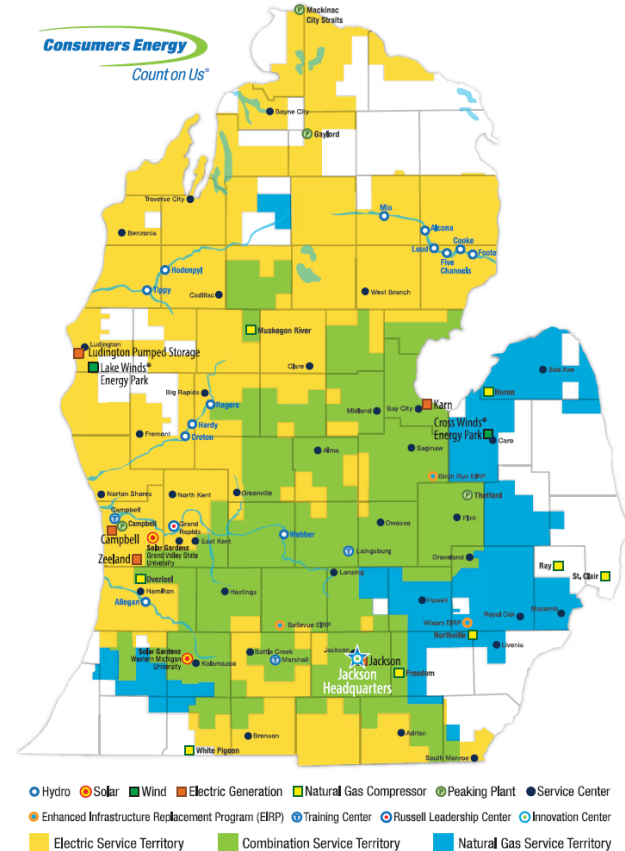
Michigan IOU

- 1.8 million electric customers
- 1.7 million gas customers
- Only partial overlap

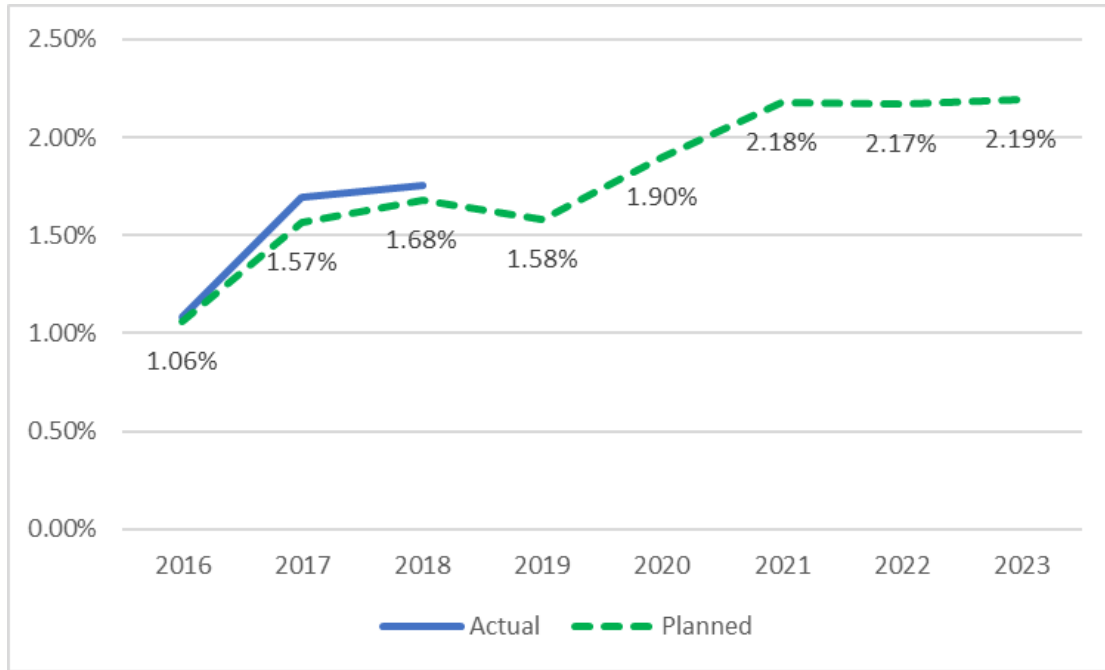
Recently approved IRP

- 80% CO2 reduction by 2040
- Coal plant retirements
- Capacity replaced w/EE, DR, renewables

Increasing and aggressive EE targets



Energy Efficiency Savings as % of Sales



Natural Resources Defense Council

Non-profit environmental advocacy group

- Offices in NY, Washington, San Fran, LA, Bozeman, New Delhi & Beijing
- 3 million members; ~600 Staff
- working on climate, energy, water, land, and wildlife issues.

Midwest Office opened in Chicago in 2007

- Importance of Midwest to clean energy future
- 400,000 members in the region

Extensive energy work in Michigan

- Efficiency planning
 - Demand response planning
 - Integrated resource planning
 - Distribution system planning
- *Regulatory proceedings*
 - *Legislation*
 - *Stakeholder processes*
 - *Direct utility engagement*



Genesis of Pilots

NRDC-Consumers Energy voluntary collaboration

- MOU in December 2014
- Initial planning through Summer 2015
- Put on hold - AMI Deployment/DR Programs
- Re-initiated Spring 2017

Re-Initiated through EE plans/budgets

Focus limited – for now – to EE and DR

- DR Bonus Incentive – Tied in part to NWA

Growing interest in state

- Michigan PSC initiated distribution system planning processes
 - Evolving distribution planning at Consumers Energy



Pilot #1: Swartz Creek



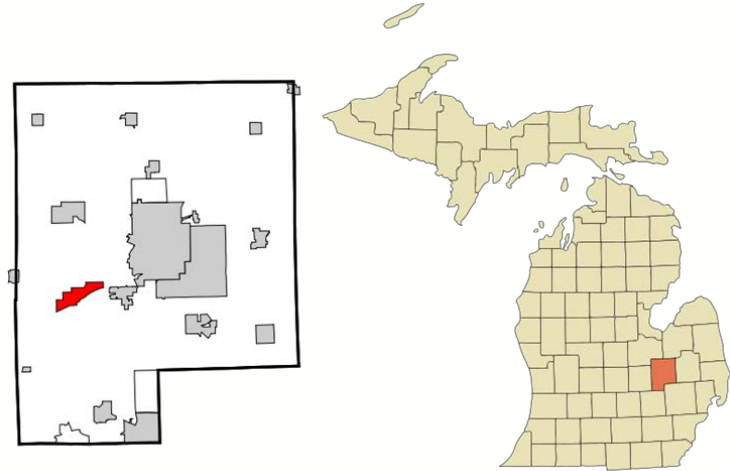
Swartz Creek Overview

~4500 residential accounts

- 63% of total kWh
- ~6200 average kWh/year
- Lower than average income

~300 C&I accounts

- 37% total kWh
- ~50,000 average kWh/year
- No industrial load
- 2 largest customers ~50% of kWh
 - School System
 - New grocery store - Opted out of EE programs



Swartz Creek - Approach

C&I EE

- Small business assessments & direct install
- Schools/municipal engagement
- Bonus incentives

Residential EE

- Events
- Community Challenge
- School program
- Bonus incentives

*Primarily community engagement/marketing
- "Energy Savers Club"*

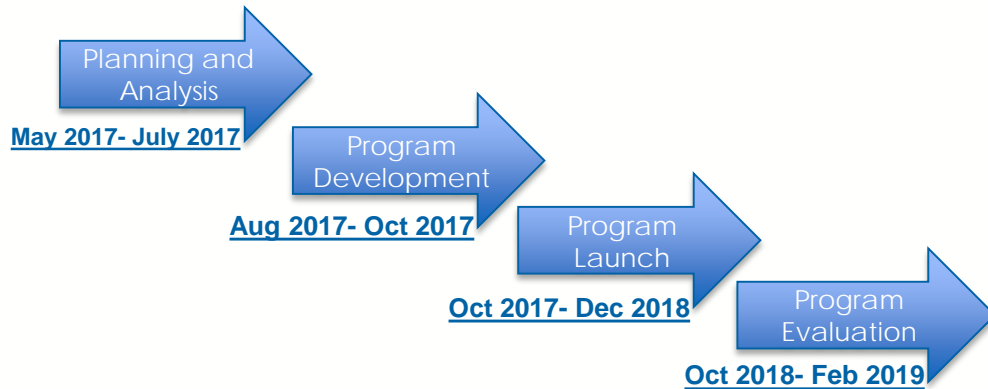
Bonus incentives (EE) Aug.- Oct. 2018 Only

Residential DR

- Community events
- Door to door campaign
- Bonus Incentives



Swartz Creek Timeline



Oct 2017 – Pilot Kick-off

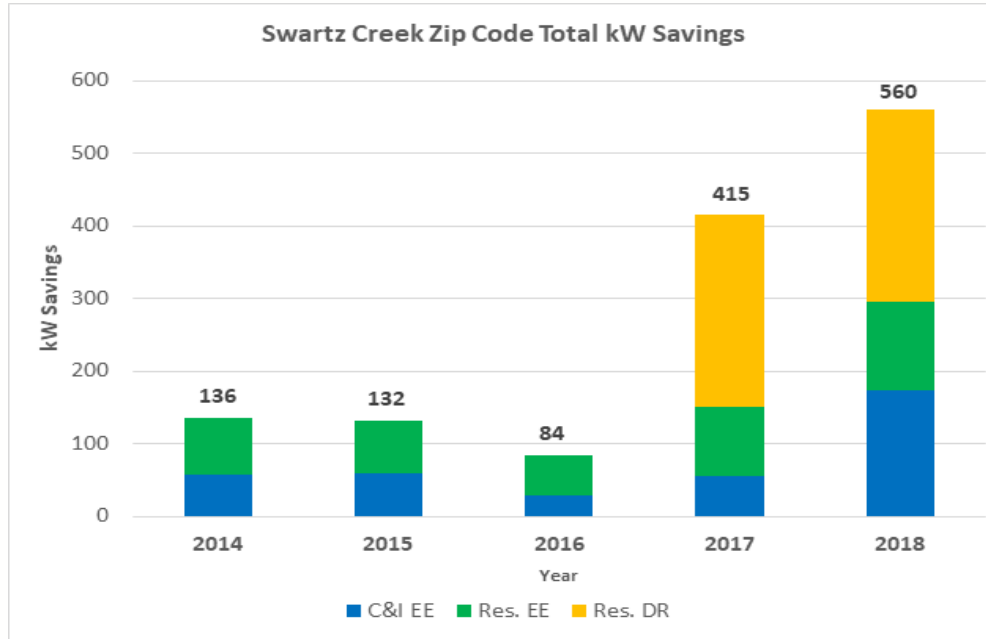
Mar 2018 - Oct 2018 - DR
Bonus Incentives

Jul 2018 – Aug 2018 DR Door
to Door

Jul 2018 – Sept 2018 - C&I EE
Bonus Incentives

Aug 2018 – Oct 2018 – Res EE
Bonus Incentives

Impacts on Savings



kW Savings are measure savings



Lessons Learned

- Use field analysis, cross referenced with DERs analysis to establish realistic goals, strategies, and tactics
- Enable bonus incentives early on
- Target more a “diverse” community
 - Range of customers for both residential and C&I
- Use assessment team to educate C&I customers
- One-on-one interactions with C&I customers are most effective
- System peaks occur outside of DR program windows



Pilot #2: Four Mile



Selection Process

- Primary Criteria
- Potential Projects
- 12 Candidates



Top 5
(based on primary & secondary criteria)



Top Choice
(based on additional, deeper analysis)

Selection Criteria

Primary

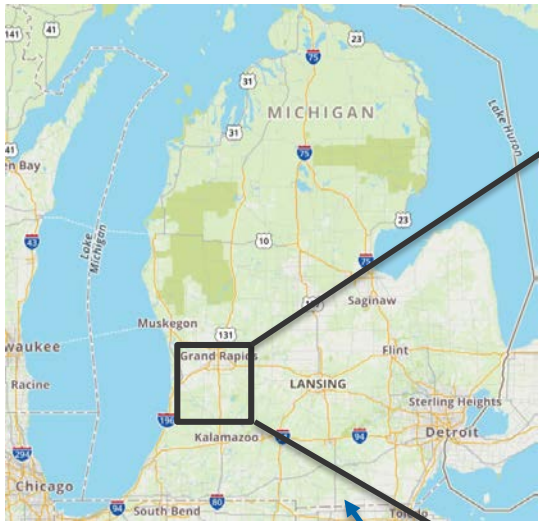
- 5-20% estimated load relief needed
- \$1 to \$3 million project cost
- 3 to 5 years until project needed

Secondary

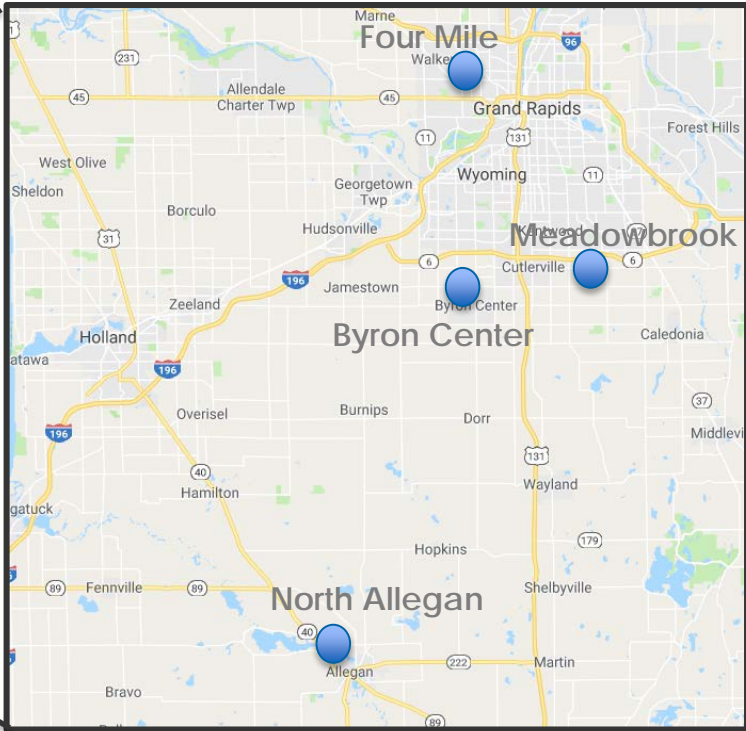
- DSCADA data for substation available
- Mix of customers
 - At least 60% business load
 - Not dominated by lower income



Top 5 Candidate Project Locations



Morenci



Top 5 Project Attributes

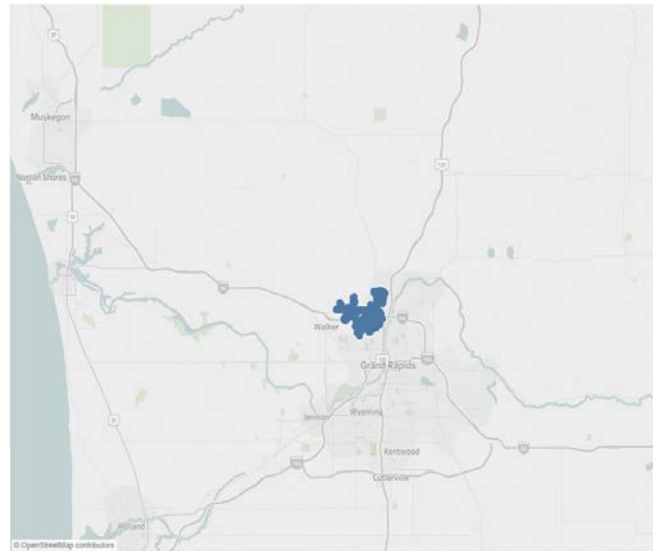
Non-Wires Alternative - Site Selection

Project		Primary Criteria			Secondary Criteria		Deeper Dive		
Substation	Planned Project	Load Relief Needed (5%-20%)	Est. Project Cost (\$1M - \$3M)	Project Need Date (3-5 Years)	DSCADA (Available)	% Res Load (~40% Max)	Historic Participation EE / DR	DER Potential	\$/kW Value per Year of Deferral
Four Mile	New substation	10%	\$2.5M - \$3M	3-5 Years	Yes	Residential - 18% C&I - 82 %	Good	High	\$193
Byron Center	New larger transformer	5%	\$1M	May be 1-2 Years	Yes	Residential -55 % C&I - 45 %	Good	Medium	\$59
North Allegan	New substation	6%	\$2.5M - \$3M	3-5 Years	Yes	Residential - 34% C&I - 66%	Poor	Low	\$113
Morenci	New substation	20%	\$7M - \$8M	3-5 Years	No	Residential - 63% C&I - 37%	Poor	Low	\$583
Meadowbrook	New substation or expand existing	10%	\$3M - \$4M	2-3 Years	No	Residential - 11% C&I - 89%	Good	Medium	\$226

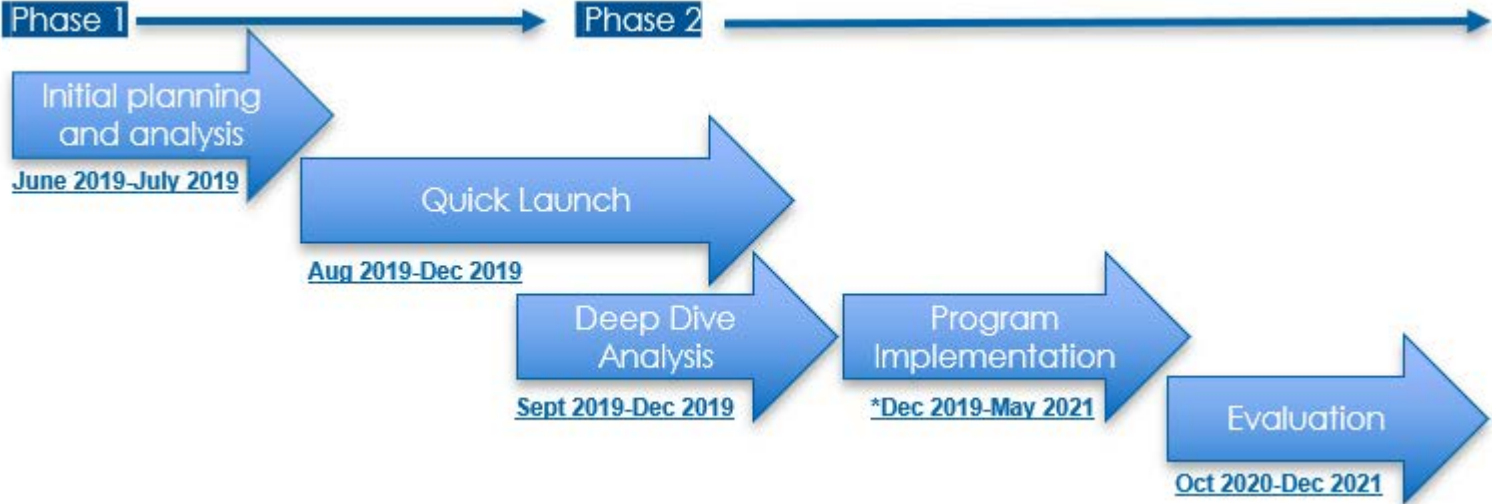
Four Mile Substation

Four Mile Substation located in Grand Rapids, MI. Approximately 4,250 customers.

- Approximately 3,500 Residential Accounts - 18% of total kWh
- Approximately 245 Medium and Large C&I Accounts and 500 Small C&I Accounts - 82% of total kWh



Four Mile Timeline



Four Mile Quick Launch Programs

Engaging Residential and C&I Trade Allies

Communicating with Corporate and Business Account Managers

- C&I EWR incentives will be doubled up to \$1,000 amount for:
 - Air Conditioning
 - Chiller Tune-ups
 - Interior Lighting
- Residential bonuses

Residential Bonus Incentives		
Measure	Typical Incentive	NWS Total Incentive
HVAC- 14.5-14.99 SEER	\$50	\$100
HVAC- 15.0-15.99 SEER	\$150	\$300
HVAC- 16.0-16.99 SEER	\$200	\$400
HVAC- 17.0 - 18.99 SEER	\$400	\$800
HVAC- 19.0-20.99 SEER	\$450	\$900
HVAC- 21.0 SEER or Higher	\$500	\$1,000
AC Peak Cycling	\$25	\$50
Appliance Recycling	\$50	\$75





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