

Packaged CHP Accelerator

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



Customer Engagement
Partner Webinar

October 23, 2019

Agenda

- CHP Incentive Programs – Program Design, Analysis and Implementation
 - Motivations, Goals and Program Design Process
 - Phil Guster, DTE
 - Analysis of CHP Market and Incentive Options for DTE
 - David Jones, ICF
- Packaged CHP Accelerator Update
 - Bruce Hedman and Nick Posawatz

This Webinar Is Being Recorded

CHP Incentive Programs

DTE Energy Overview



70% - 75% Utility

DTE Electric

Electric generation and distribution

DTE Gas

Natural gas transmission, storage and distribution

25% - 30% Non-utility

Gas Storage & Pipelines (GSP)

Transport, store and gather natural gas

Power & Industrial Projects (P&I)

Own and operate energy related assets

Energy Trading

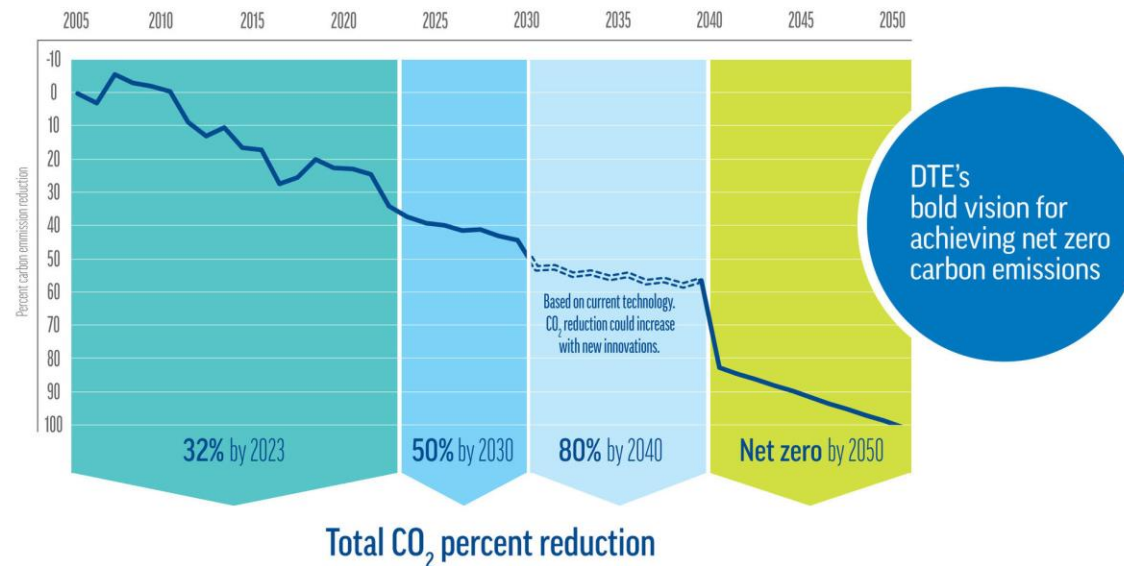
Gas, power and renewables marketing



Powering toward a net zero carbon future



Our goals and progress to date



Our goal builds on the commitments we've already made to reduce carbon emissions 50% by 2030 and 80% by 2040. All while providing our customers with power that is safe, reliable and affordable.

The pathway to net zero carbon emissions



Retiring coal-fired power plants



Adding thousands of megawatts of wind and solar power



Incorporating natural gas to balance more renewables



Investing in carbon capture, large-scale storage, and modular nuclear facilities



Expanding our voluntary renewable energy programs like MIGreenPower



Advocating for constructive public policy

Congratulations DTE Highest Ranked in Midwest Gas Business Satisfaction!



Two Years in a Row!

CHP deployment in Michigan has been increasing in recent years, coupled with positive spark spread movement¹



CHP is supported by the state², but it is not currently an EWR Resource³ which could count towards energy efficiency program savings

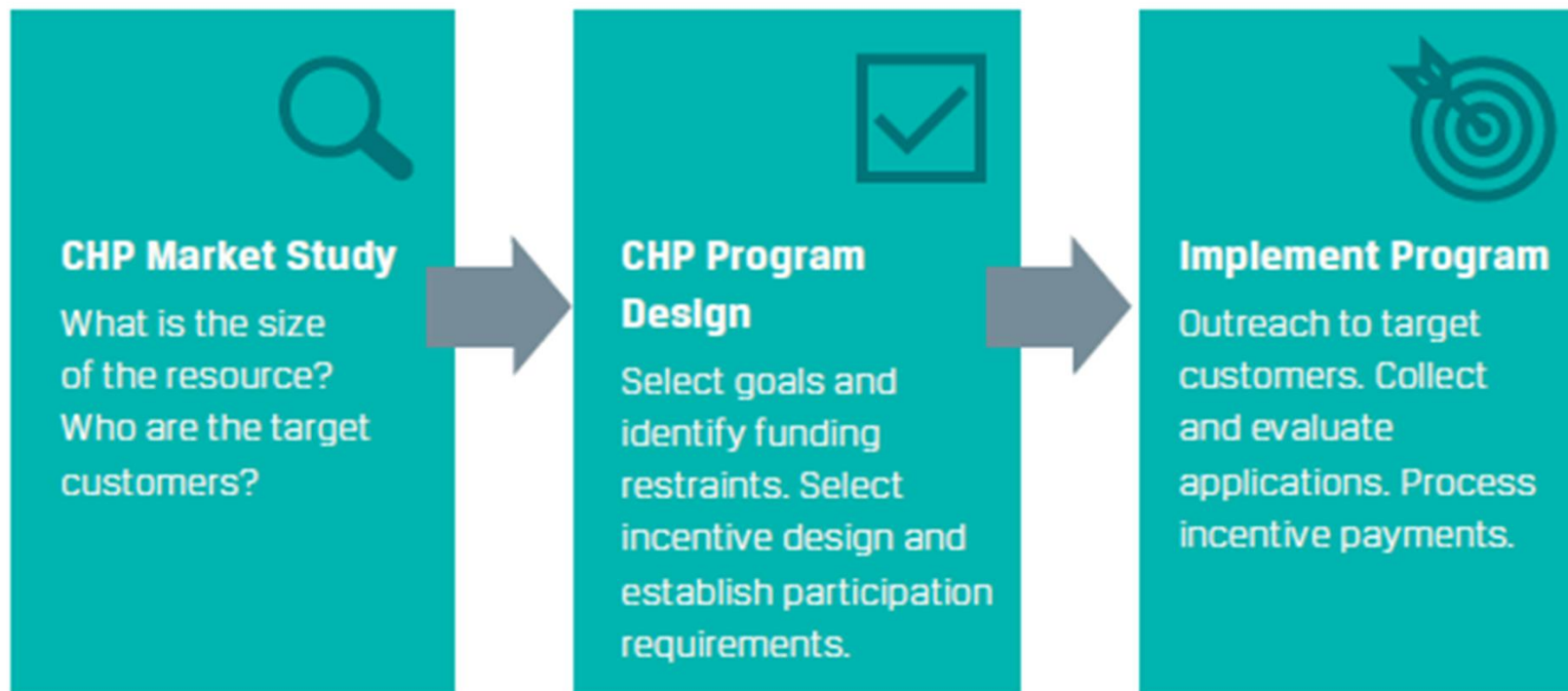


End Goal: Provide incentives that will make it more economically viable for business customers to use CHP to improve energy efficiency and reduce their energy (kWh) consumption and demand (KW)

¹ 300 MW from 26 CHP installations in 2012-2018

² Michigan Energy Office [roadmap](#) for CHP in Michigan, and [technical assistance pilot](#)

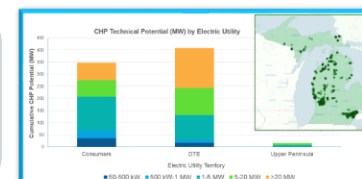
³ Energy Waste Reduction (EWR)



- **Objective:** Characterize the CHP market, potential, and expected deployment in DTE Gas Territory and identify and characterize potential incentives and their impact on CHP deployment.

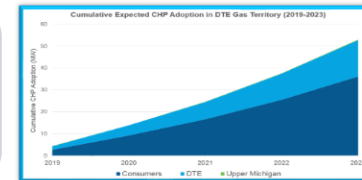
Task 1

- Determination of CHP Economic Potential and Expected Deployment in DTE Gas Territory



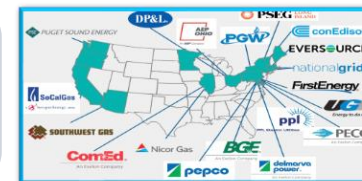
Task 2

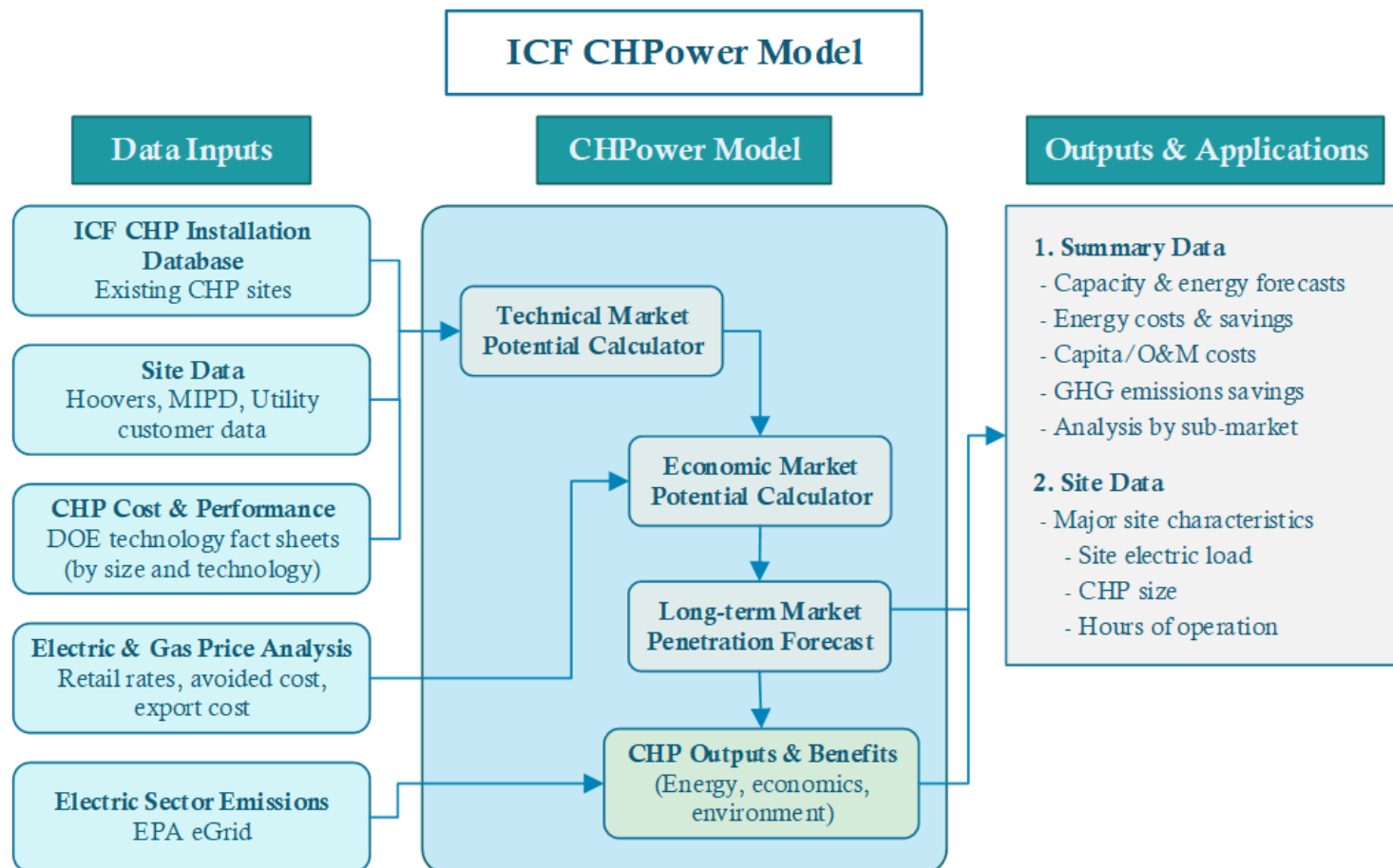
- Impact of Incentives on Expected CHP Deployment/Customer Adoption



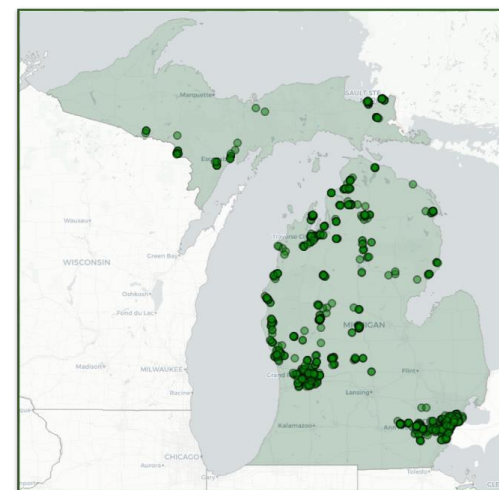
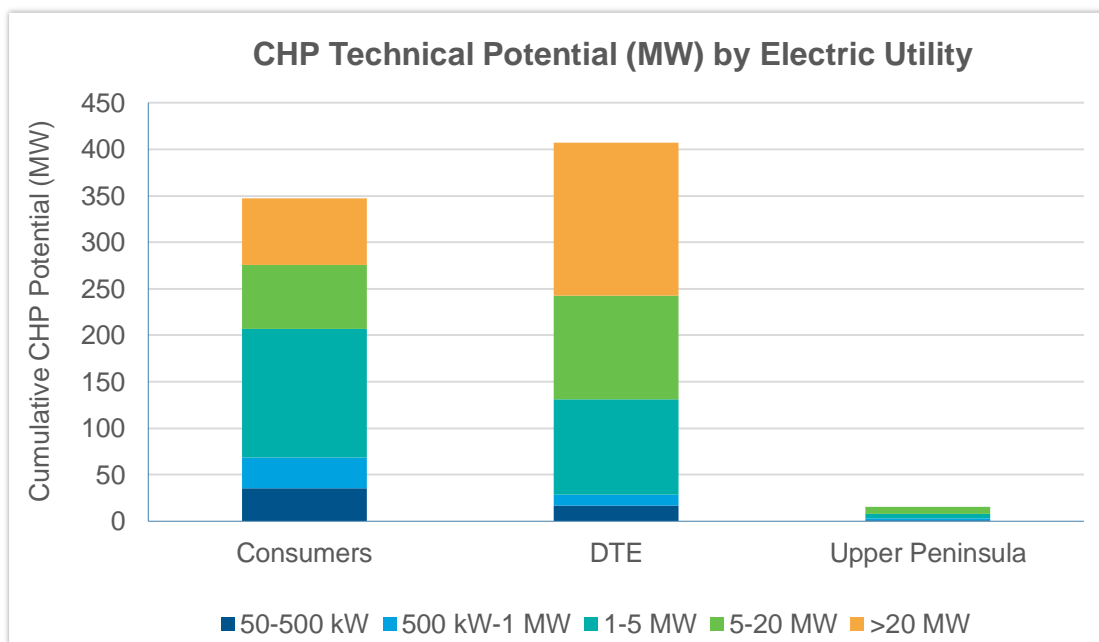
Task 3

- State Policy Review and Recommendations on CHP Program Design Strategies

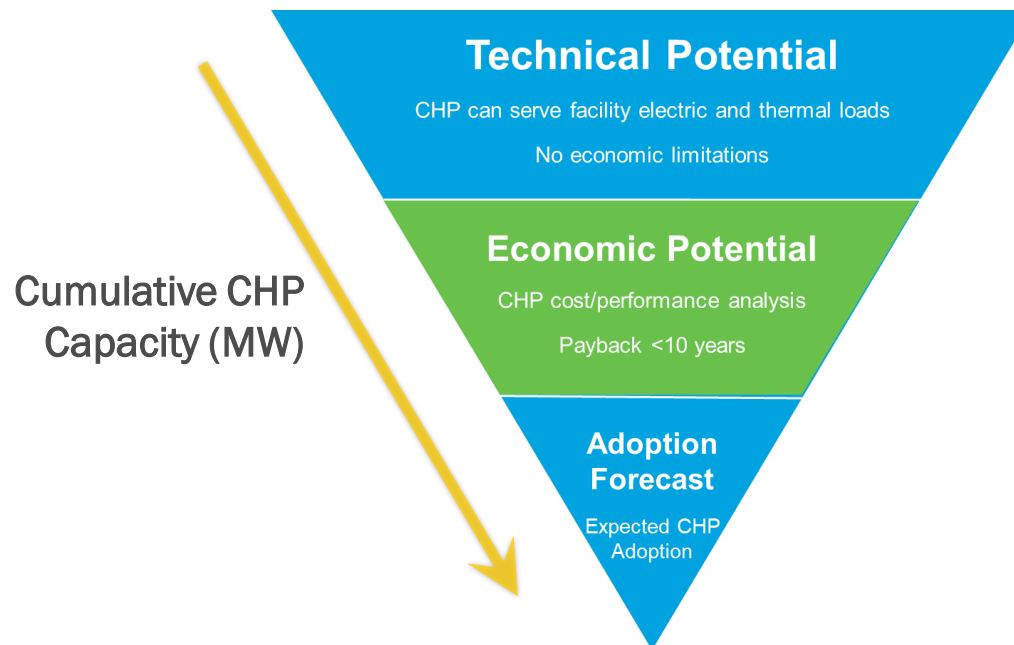


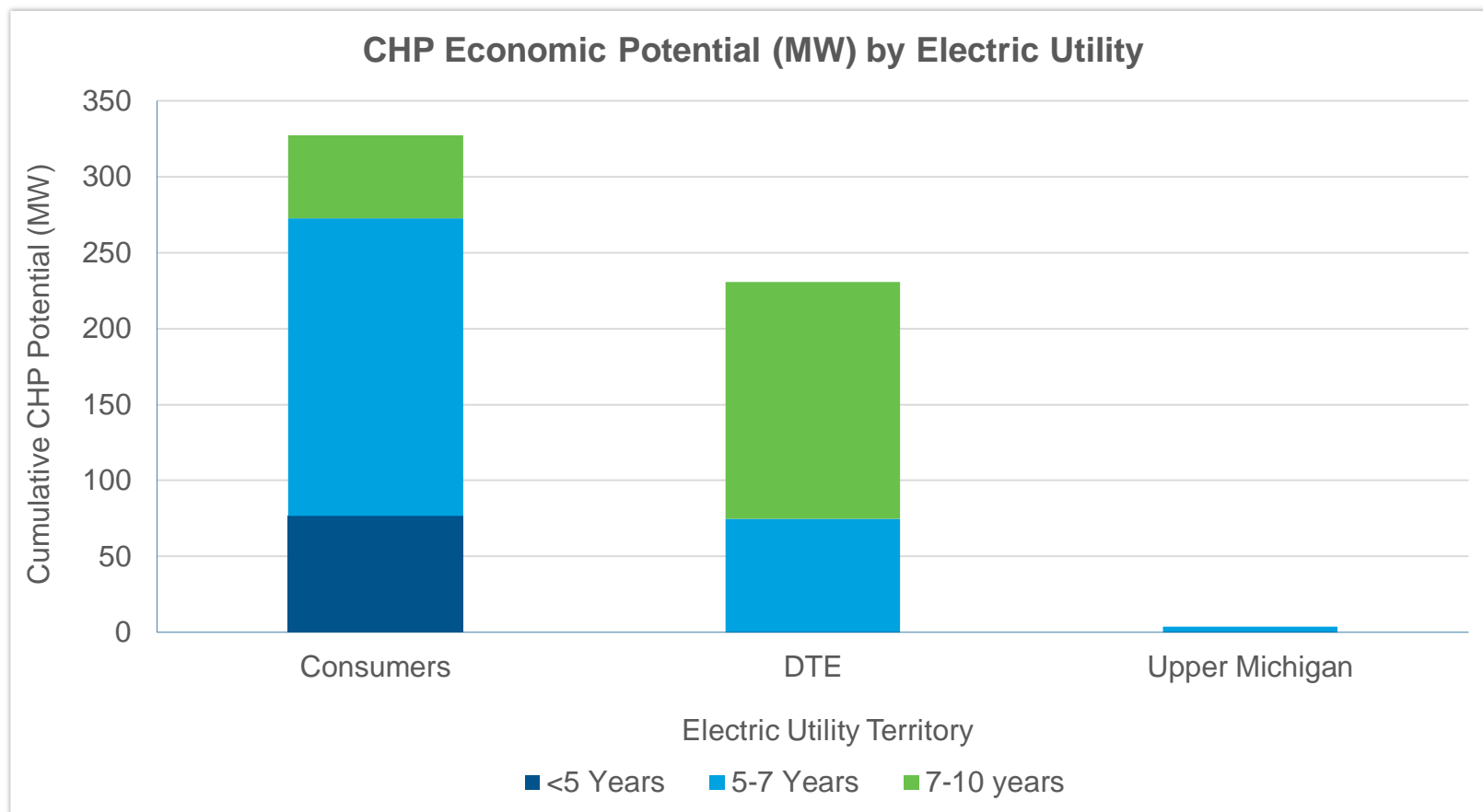


- CHP Technical Potential in DTE Gas Territory
456 Sites, 771 MW

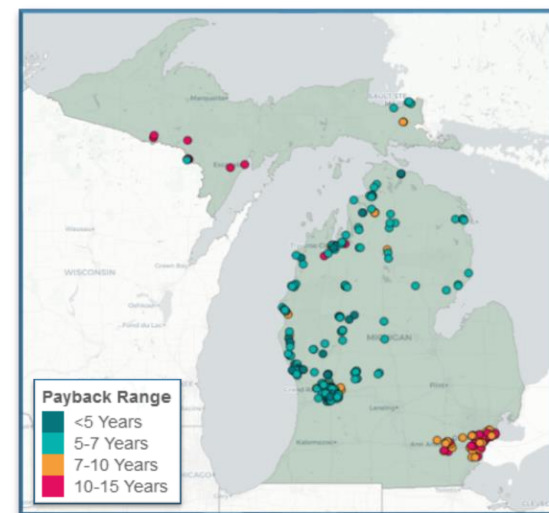
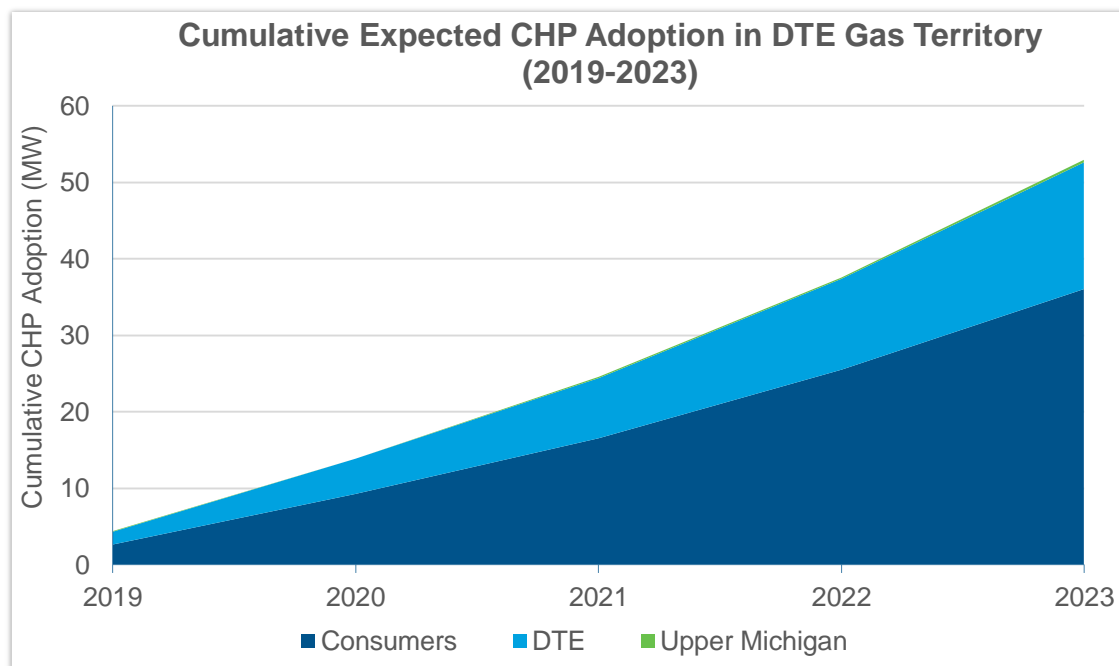


- For facilities with technical potential to install CHP, what is the return on investment?
- Facilities that can achieve a payback period of less than 10 years are said to have *economic potential* for CHP
 - Lower payback periods = more likely to adopt
 - Adoption forecast = expected adoption of CHP over time

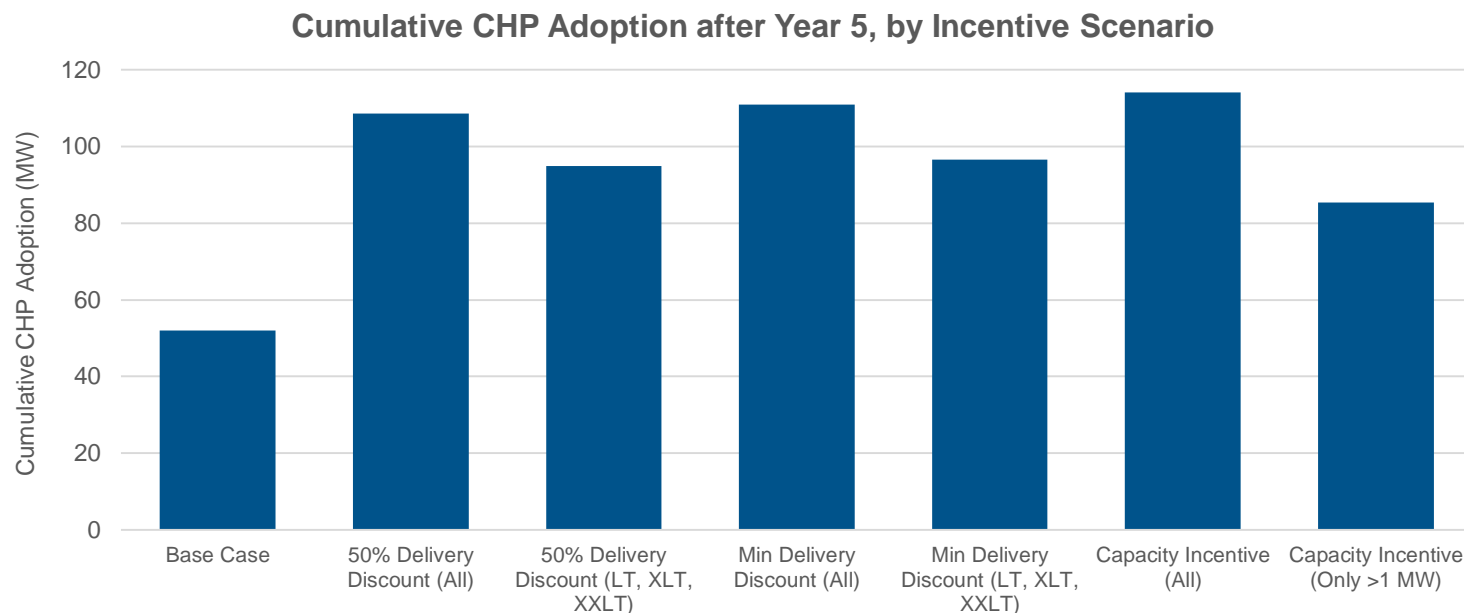




- Expect ~53 MW of new CHP Deployments over next five years
 - High compared to installations in the previous 5 years
 - Increasing spark spread & Growing interest in clean energy and resilience



Modeling Scenario	Description
Incentive Scenario 1	Basic capacity incentive (range from \$100/kW to \$1000/kW) Project caps (\$0.5M, \$1M, and \$2M)
Incentive Scenario 2	<i>Gas Rate Discount:</i> 50% delivery discount and Minimum rate for ALL potential CHP customers (see rates below)
Incentive Scenario 3	<i>Gas Rate Discount targeted at large customers:</i> 50% delivery discount and Minimum rate for select rate class customers only
Incentive Scenario 4	EWR-Type Incentive: <i>Tiered Capacity Incentive with Performance Payment:</i> \$300/kW up to 1 MW, \$200/kW for next 1-5 MW, \$100/kW for all capacity >5 MW, with \$2 million project cap
Incentive Scenario 5	<i>Tiered Incentive targeted at large customers:</i> only projects 1-20 MW are applicable - \$200/kW for first 1-5 MW, \$100/kW for all capacity >5 MW, with \$2 million project cap

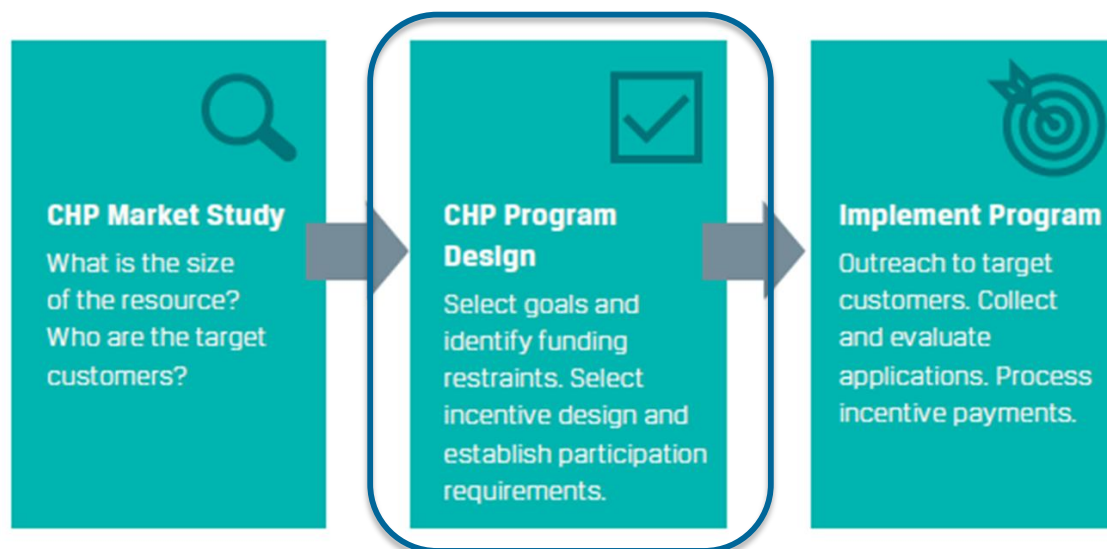


Further breakdowns for each incentive scenario:

CHP gas consumption; incremental gas consumption increase; energy savings; GHG reductions; incentive paid; incentive value; total revenue increase

Recommendations:

1. Start with 50% gas delivery discounts, targeted education/outreach/guidance
2. Request PSC approval to include CHP as an EWR incentive in order to provide benefits to both DTE Gas and DTE Electric



1. Discounted Gas Distribution Rate

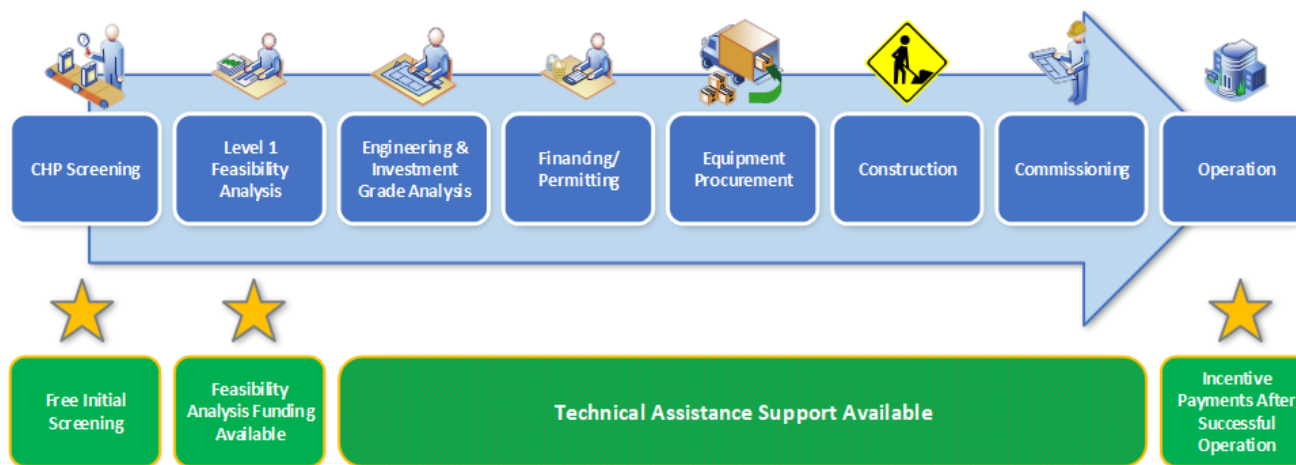
- Offered to qualified DTE Gas customers that install onsite CHP systems (≥ 1 MW)
- Combined with marketing efforts to increase customer awareness regarding CHP
- Providing technical assistance to customers interested in installing CHP

2. Energy Waste Reduction through Combined Heat and Power (CHP)

- Production (\$/kWh) and capacity (\$/kW) incentives offered at multiple stages of project development for CHP systems (≥ 1 MW)
- Part of DTE Energy's portfolio of Energy Waste Reduction (EWR) measures
- Additional component under DTE's Energy Efficiency Program for Business
- Facilitate the implementation of cost-effective energy efficiency improvements for business customers

Program Goals

1. Improve energy efficiency, reduce emissions, achieve energy cost savings, and enhance onsite resilience for critical facilities
2. Provides customers with solutions that meet their business needs through energy efficiency, and provides economic development opportunities for customers that are looking to improve overall business operations



- Customers can qualify for a distribution rate discount after results of initial screening and feasibility analysis
- Service Contract, Standard Agreement Form, and sub-metering required

Program Goals

1. Encourage the use of CHP to support DTE's energy efficiency goals by reducing grid-sourced electricity
2. Provide customer incentives that will make it more economically viable for business customers to use CHP to reduce their energy (kWh) consumption and demand (KW)

Incentive Structure

Production

- \$/kWh for projects >1 MW, based on a 12-month measurement and verification (M&V) period

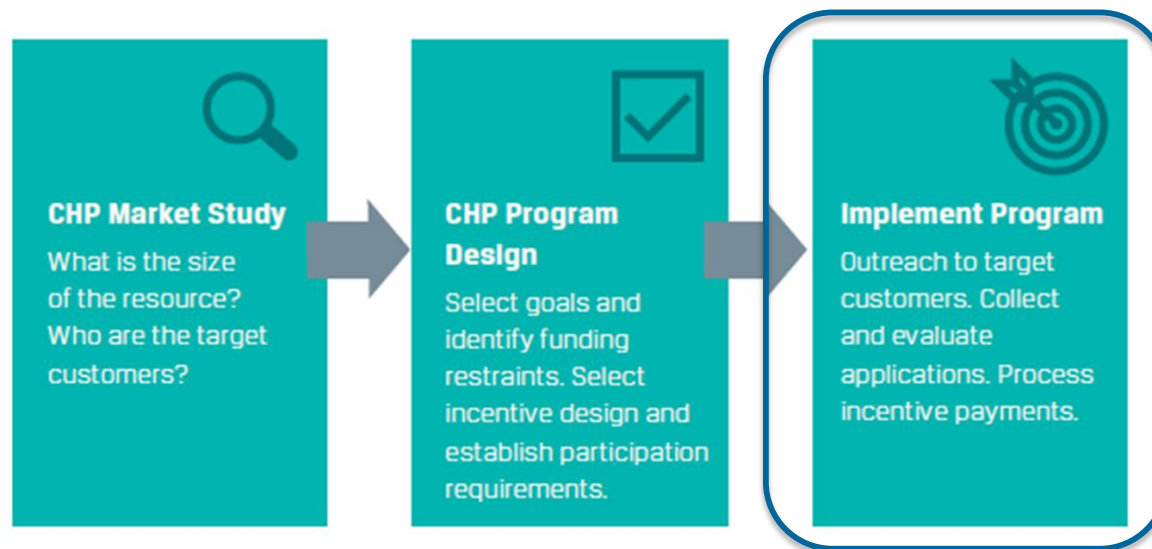
Capacity

- Pre-payment of a portion of the incentive (\$/kW or project cap) for projects >1 MW
- Disbursed after at least one month of successful system operation
- Certification of construction completion, capacity, and efficiency of the installation required

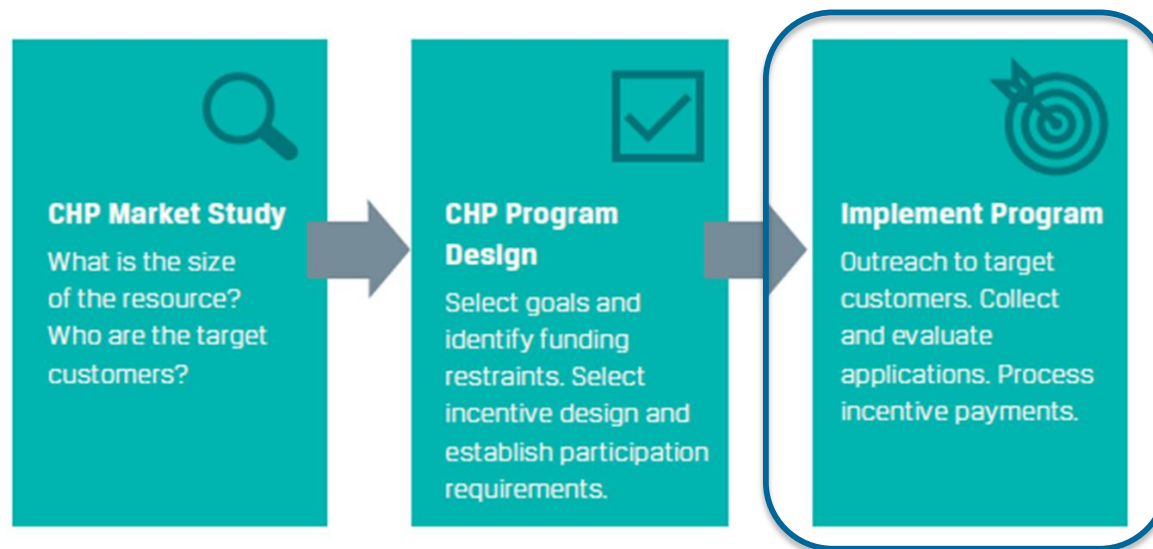
- Status of EWR CHP program: *Currently TBD*
- Discussions w/management on cost-effectiveness evaluated as part of the project approval process
- Eligible projects must demonstrate a pre-determined simple payback
- Service Contract, Standard Agreement Form, and sub-metering required
- Teaming with certified vendors/developers that have demonstrated expertise with CHP projects
- CHP project development process similar to *Discounted Gas Distribution Rate* program
 - Technical assistance throughout project engineering/construction/commissioning
 - No feasibility analysis funding provided by DTE

Activities to assist with overall program goals and targets:

- Having a dedicated CHP staff
- Education and awareness workshops with customers and vendors
- Coordinating with the Midwest DOE CHP Technical Assistance Partners (TAP) and the Energy Resources Center (ERC) for outreach activities
 - Site visits and end-user expos
- Analyzing possible alternatives
 - Inclusion of CHP in Non-wires-alternatives (NWA) pilot if EWR will not support CHP



- Beneficial to partner with a 3rd party that can complete market analysis, program design documents, and related work
- Being a combo utility is difficult in implementing these types of programs
 - Balancing interests of both gas and electric business
- Continued support and work is required – it is difficult to get to the implementation phase
 - Stakeholders involved, marketing and messaging, etc.



Packaged CHP Accelerator Update

DOE Packaged CHP eCatalog

Version 1.0 was Launched April 1, 2019

Overall Registrations



Packaged CHP Accelerator Update

- eCatalog Update
 - Work with current eCatalog suppliers to fill out product lines
 - Identify key national/regional suppliers to recruit
- Engagement Partner Actions
 - Enroll in the eCatalog
 - ✓ Review Packager/Solution Providers and “accept” for program recognition
 - Partner Roadmap Development – Complete interview for draft roadmap
- Continued webinar series
 - Next webinar on **December 4th**, CHP Programs – Application Review and EM&V Best Practices
- CHP Supplier Partner Meeting
 - PowerGen 2019, New Orleans, LA – November 18, 2019
 - <https://www.power-gen.com/index.html>

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