



DTE Energy®

Consumers Energy

Count on Us

***MPSC Solar Working Group:
A Utility Perspective***

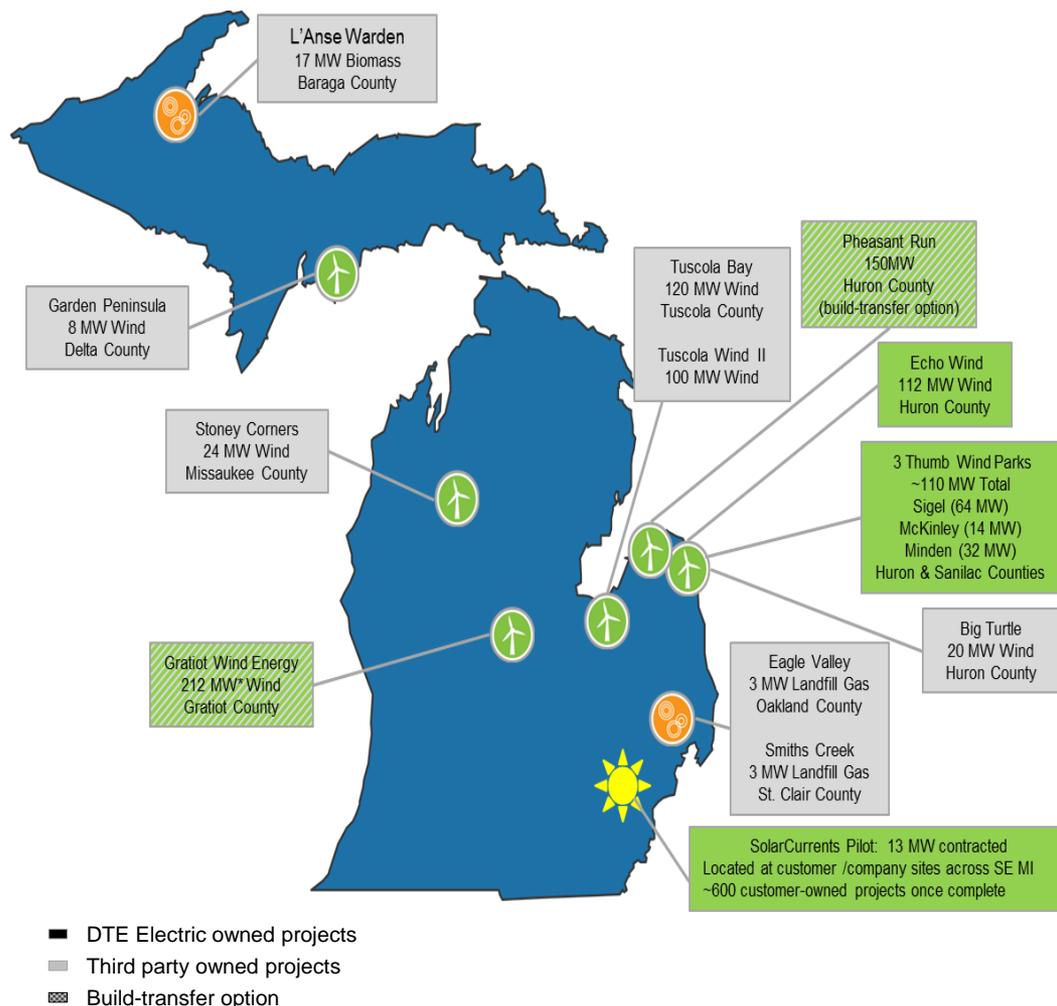
March 2014

Agenda

- Renewable Programs at DTE Energy & Consumers Energy
 - Renewable Energy Plan (REP) summary and status
 - Renewable Portfolio Standard (RPS) compliance
 - Voluntary renewable programs
 - SolarCurrents and Net metering funding mechanisms
- Value of Solar
- Solar Tariff
- Program Design

DTE Energy is committed to renewable energy and has invested more than \$2 billion in Michigan

- Since 2008, DTE Energy has invested and contracted for more than \$2 billion in renewable energy development in Michigan
- DTE Energy has built or contracted for ~900 MW of capacity, and currently stands at over 95% of the Renewable Portfolio Standard goal
- DTE Energy believes that renewable energy makes sense as a part of a diversified generation strategy
- DTE Energy supports good energy policy and continued development of renewable energy in a cost-effective and responsible manner that benefits all customers



*DTE Electric's capacity equals 102.4 MW at Gratiot Wind Energy

DTE Energy currently stands at 9.6% of the Renewable Portfolio Standard goal

Project	Technology	Capacity (MW)	Status/COD	Renewable Portfolio as % of Sales
PURP/PA2 Agreements	Various	N/A	operating	1.4%
Renewable Energy Credit (REC)-Only	Various	N/A	operating	0.9%
Power Purchase Agreements				
Heritage - Stoney Corners	Wind	32	operating	0.2%
Invenergy - Gratiot	Wind	110	operating	0.7%
L'Anse Warden	Biomass	17	operating	0.3%
WM Renewables	Landfill Gas	3	operating	0.1%
Blue Water Renewable	Landfill Gas	3	operating	0.0%
NextEra - Tuscola Bay	Wind	120	operating	0.9%
NextEra - Tuscola Wind II	Wind	100	Q4 2013	0.9%
Pheasant Run Wind	Wind	150	Q1 2014	1.3%
Heritage - Big Turtle Wind Farm	Wind	20	Q4 2014	0.2%
DTE Electric Ownership				
Gratiot	Wind	102	operating	0.6%
Thumb Wind Project	Wind	110	operating	1.0%
Echo Wind Park	Wind	112	Q4 2013	1.0%
Solar				
Utility and Customer Owned (REC Only)	Solar	10.1	operating	0.08%
Utility and Customer Owned (REC Only)	Solar	3	contracted	0.03%
Total		894		9.60%

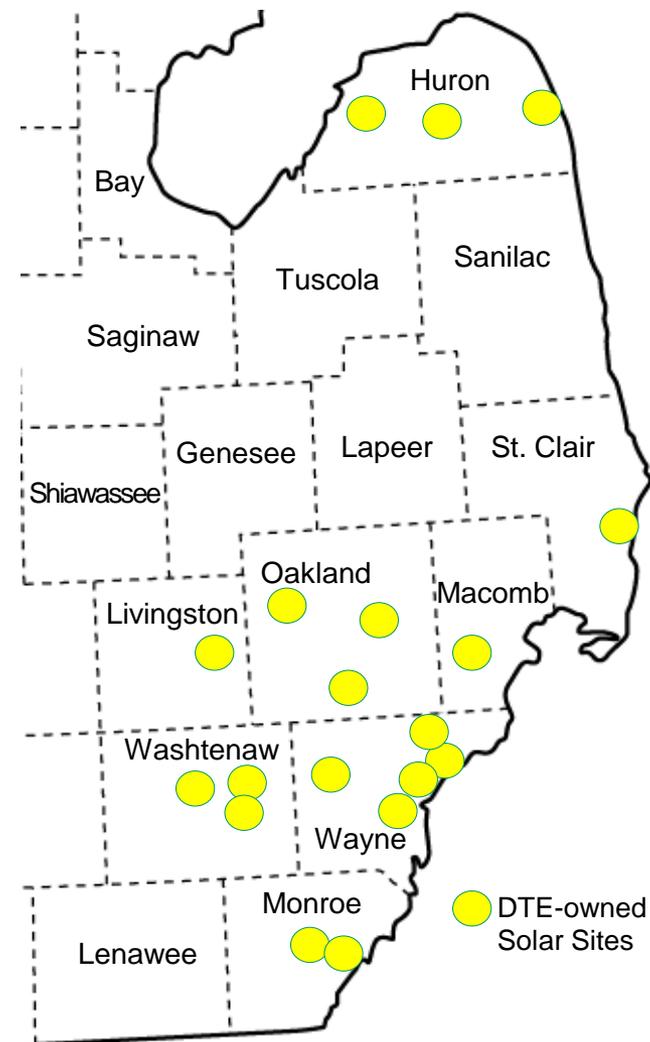
DTE Energy's Voluntary GreenCurrents Program

- **GreenCurrents** is DTE Energy's voluntary renewable energy program which supports the generation of electricity from Michigan-based renewable energy sources
- The GreenCurrents program is funded by customers who desire to pay a renewable resource premium to promote the development of renewable facilities
 - **100 Percent Match Option:** Residential and non-residential customers can match 100 percent of their monthly electric consumption for an additional 2 cents per kilowatt-hour (kWh)
 - **Kilowatt-Hour Block Enrollment Option:** Residential customers can purchase up to 10 individual "blocks" of 100 kilowatt-hours of renewable energy for \$2.50 each per month. A similar option is offered to non-residential customers on a larger scale
- More than 23,000 customers have enrolled in the GreenCurrents program since the program's inception in April 2007
- Over 56,000 MWh of renewable energy was generated as a result of the GreenCurrents program since 2012



DTE Energy has gained experience in developing solar in Michigan through its SolarCurrents programs

- Through the 22 MW SolarCurrents Pilot Program, DTE Energy has gained valuable experience in developing solar in Michigan
- DTE Energy's SolarCurrents Programs have led to:
 - 19 DTE Energy owned commercial sites producing 7.3 MW
 - 600 customer-owned residential sites producing 6 MW
 - An additional 1.5 MW is currently being offered
- In total, through the net metering program, DTE Energy has connected more than 6MW of capacity, which accounts for over two-thirds of all net metering installations in the state of Michigan
- DTE's experience in developing solar in Michigan has provided valuable learnings with regard to the true cost, benefits, and issues associated with utility and customer capacity



DTE Energy's SolarCurrents Pilot Program

- **SolarCurrents** is DTE Energy's customer-owned pilot program that enables customers to purchase and install solar photovoltaic (PV) systems at their home or business by offering financial incentives to offset the out-of-pocket cost
 - SolarCurrents (Phase 1) offered an up-front solar subsidy of \$2.40/W with an on-going renewable energy credit (REC) payment of \$0.11/kWh for residential customers
 - SolarCurrents (Phase 2) offered an up-front solar subsidy of \$0.20/W with an on-going renewable energy credit (REC) payment of \$0.03/kWh for residential customers
- DTE Energy's SolarCurrents Program has led to approximately 600 customer-owned sites producing 6MW
- DTE Energy has experience over a 50% drop rate in phase 2 of the pilot program
- SolarCurrents customers are expected to receive over \$25 million in subsidies in addition to net metering subsidies

SolarCurrentsTM



SolarCurrents and Net Metering funding mechanism for residential customers

	SolarCurrents (Phase 1)	SolarCurrents (Phase 2)	Funding Mechanism
Up-front solar subsidy	\$2.40/W	\$0.20/W	Renewable Surcharge
On-going solar subsidy	\$0.11/kWh	\$0.03/kWh	Renewable Surcharge
Net metering subsidy (unrecovered fixed cost)	\$0.09/kWh	\$0.09/kWh	*Unrecovered fixed costs are funded by non- solar customers
Total SolarCurrents and Net metering subsidy	\$0.20/kWh	0.12/kWh	



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Renewable Programs at Consumers Energy

Renewable Energy Plan Overview

- Consumers Energy's \$3 billion Renewable Energy Plan (REP) will result in 509 MW of new renewable energy by 2015.
 - \$250 million – Lake Winds Energy Park in Mason County
 - \$265 million – Cross Winds Energy Park in Tuscola County (4Q 2014 COD)
 - New power purchase agreements in place with 14 renewable energy systems, plus
 - ◆ Approximately 450 EARP-Solar generators
 - ◆ Additional 2.4 MW in EARP-AD

- Consumers Energy has been a renewable energy supplier for more than a century.
- In 2015, our renewable portfolio will make up 9.9% of annual retail sales.
- Consumers Energy is on track to meet the 10% Renewable Standard in 2015.

Renewable Energy Plan Overview (cont.)

REP Project Name	Generation Technology Type	Nameplate Capacity (MW)	Commercial Operation Date (May be forecast)
Scenic View Dairy – Freeport	Anaerobic Digester	0.9	Dec-09
Scenic View Dairy – Fennville	Anaerobic Digester	0.4	Oct-10
Fremont Community Digester	Anaerobic Digester	2.9	Dec-12
EARP Anaerobic Digestion	Anaerobic Digester	2.4	Jul-15
Elk Rapids Hydro	Hydroelectric	0.7	Oct-09
Zeeland Farm Services - Plant 2	Landfill Gas	1.6	Oct-09
WM Renewables - Northern Oaks	Landfill Gas	1.6	Nov-10
North American Natural Resources - Lennon	Landfill Gas	1.6	Dec-10
WM Renewables - Pine Tree Acres	Landfill Gas	12.8	Feb-12
EARP Solar Phases 1 & 2	Solar	2.0	2009 - 2011
EARP Solar Phases 3 - 25	Solar	4.0	2012 - 2016
Heritage Stoney Corners Wind Farm	Wind	12.3	Jan-12
Heritage Stoney Corners Wind Farm Phase 3	Wind	8.4	Jan-12
Michigan Wind 2	Wind	90.0	Jan-12
Heritage Garden Wind Farm I	Wind	20.0	Sep-12
Harvest II Windfarm	Wind	59.4	Nov-12
Lake Winds Energy Park	Wind	100.8	Nov-12
Beebe Wind (Formally know as Blissfield)	Wind	81.6	Dec-12
Cross Winds Energy Park	Wind	105.4	Nov-14
TOTAL		508.5	

Renewable Energy Plan Overview (cont.)

REP Power Purchase Agreement Expenses by Technology

Technology	Wind	Landfill Gas	Anaerobic Digestion	Solar	Hydro
Total Expense (\$)	\$1,255,793,495	\$ 232,955,187	\$ 67,130,405	\$ 26,825,341	\$ 2,145,711
PSCR Expense (\$)	\$1,211,243,219	\$ 229,828,456	\$ 54,154,428	\$ 12,681,277	\$ 1,961,394
PSCR Expense (%)	96.5%	98.7%	80.7%	47.3%	91.4%
ICC Expense (\$)	\$ 44,550,276	\$ 3,126,731	\$ 12,975,976	\$ 14,144,064	\$ 184,317
ICC Expense (%)	3.5%	1.3%	19.3%	52.7%	8.6%
Total Generation (MWh)	12,564,898	2,269,546	561,568	91,028	22,811
Payment Rate (\$/kWh)	\$ 0.100	\$ 0.103	\$ 0.120	\$ 0.295	\$ 0.094
ICC Rate (\$/kWh)	\$ 0.004	\$ 0.001	\$ 0.023	\$ 0.155	\$ 0.008

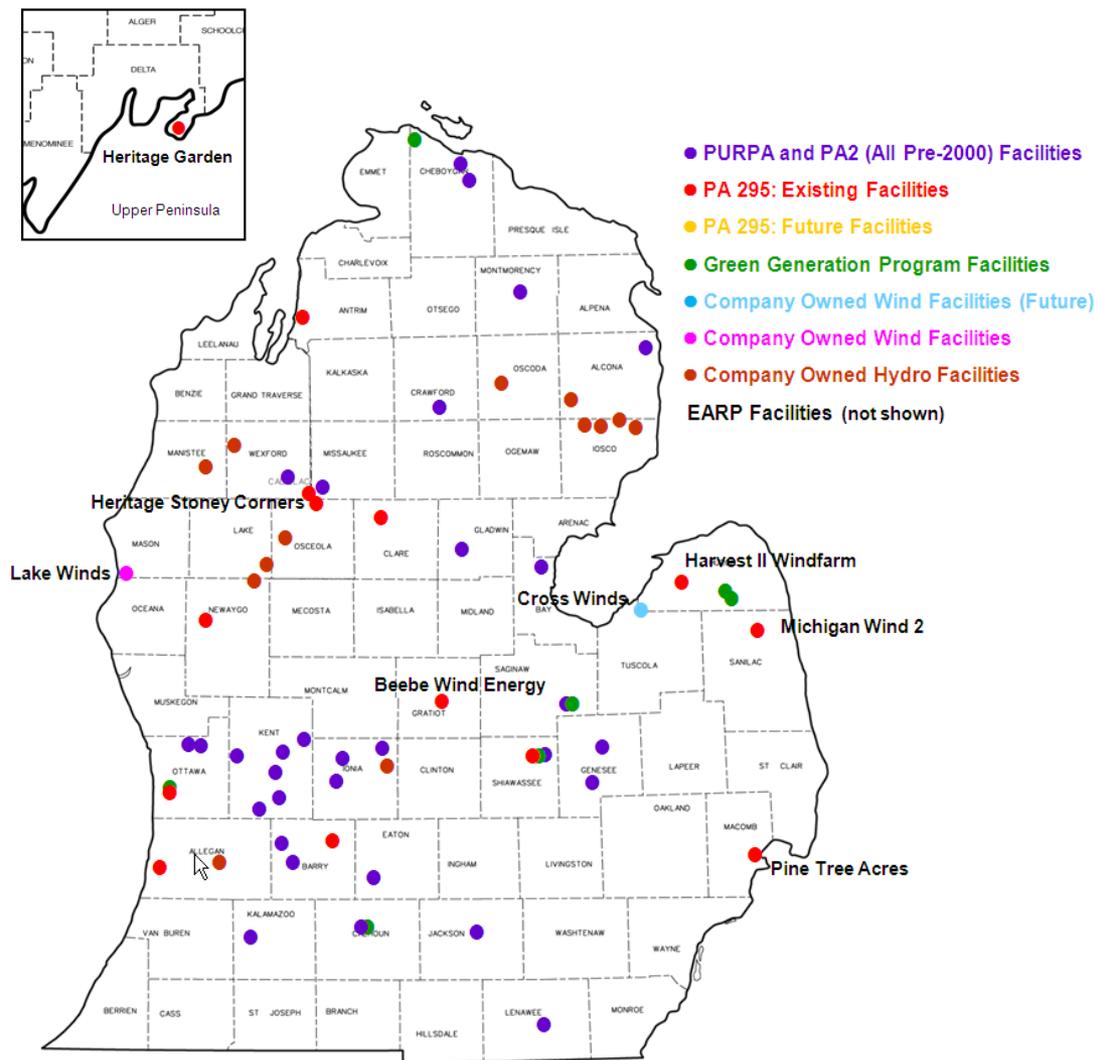
Payment Rate calculated by dividing Total Expense (\$) by Total Generation (MWh)

ICC Rate calculated by dividing ICC Expense (\$) by Total Generation (MWh)

- Of all the new renewable technologies in the REP, solar is the most expensive in Payment Rate and ICC Rate.
- The majority of EARP-Solar costs are funded through the Renewable Energy Surcharge as an Incremental Cost of Compliance (ICC) expense

Total Renewable Capacity

Renewable Technology	Capacity* (MW)
Wind	477.9
Biomass	205.8
Hydroelectric	138.9
Landfill Gas	43.8
Incinerator	18.0
Anaerobic Digestion	6.7
Solar Photovoltaic	6.3
Total	897.4



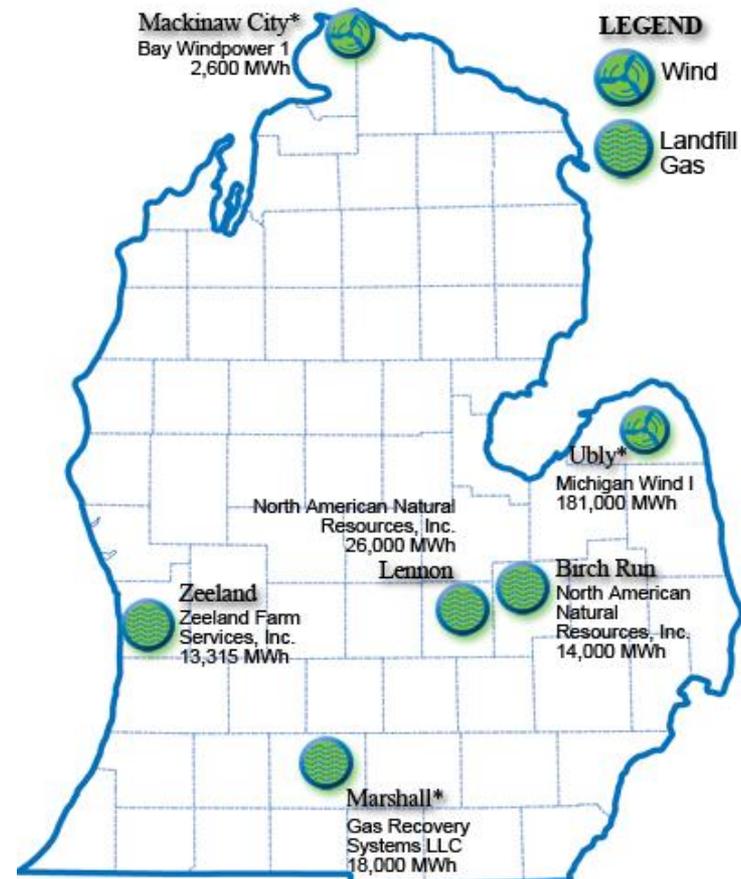
*Includes pre-enactment facilities and projects under development

Green Generation Program

- Green Generation is Consumers Energy's voluntary renewable program for electric retail customers
- Participation options
 - GreenBlocks allows the customer to choose their level of participation
 - GreenTeam matches the customers usage with 100% renewable energy supply
- Green-e certified energy is supplied from 6 contracts in the lower peninsula of Michigan.
 - 76% Wind
 - 24% Landfill Gas
- Alternative to owning onsite renewable generation equipment

green generationSM

Renewable Energy program

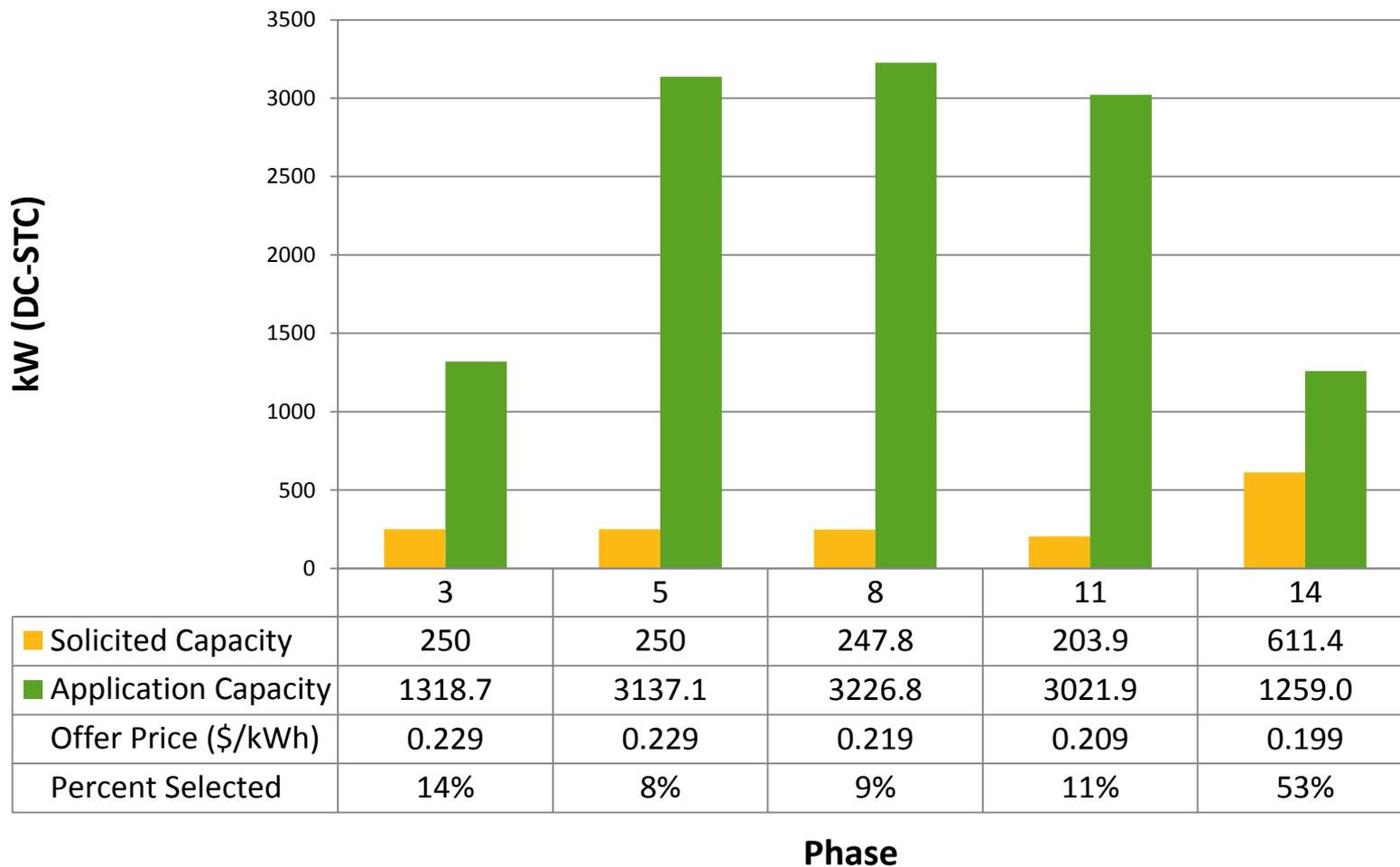


What is EARP?

- Consumers Energy provides a long term contract to participants for purchase of the output of customer-owned PV generators
- Premium Fixed Rate for Solar PV output
- 15 year Contract Term
- Consumers Energy is purchasing Energy, Capacity and RECs
- \approx 1 MW per year in Phases through 2014
 - 750 kW Non-Residential - Semi-Annually
 - 175 kW Residential – Quarterly
 - 75 kW Developer – Semi-Annually

EARP-Solar Interest (cont.)

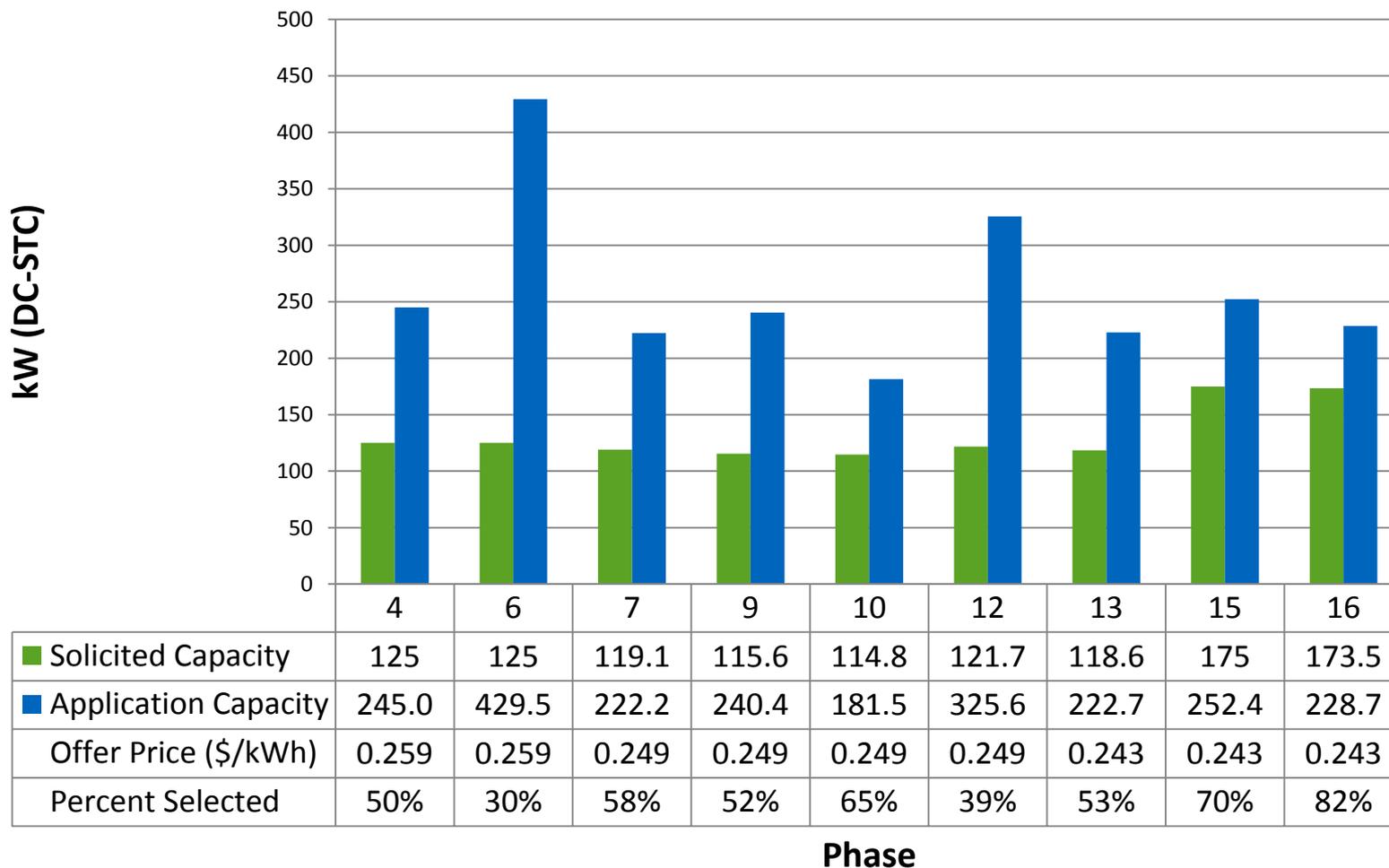
Non-Residential Interest



There remains a large amount of interest from non-residential customers

EARP-Solar Interest (cont.)

Residential Interest



Interest has remained relatively consistent throughout the EARP-Solar Expansion

EARP-Solar Funding (cont.)

- Total Funding: \$26,825,341
- Total PSCR Expense: \$12,681,277
- Total ICC Expense: \$14,144,064
- Total Generation: 91,028,099 kWh

- Subsidy (ICC/Generation): \$0.155 per kWh
 - Original EARP-Solar: \$0.321 per kWh
 - **EARP-Solar Expansion: \$0.087 per kWh**

- The lower offer-price of the EARP-Solar Expansion has aided in reducing the subsidy attributed to solar in our Renewable Energy Plan

• **Source: Exhibits in U-17301. Totals from 2009 through August 2029**

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Rates paid to solar customers should be consistent with the methodologies used to develop rates for other utility customers

- Historically, electric rates have been based on the actual costs incurred by utilities that are then fairly allocated to customers
- Rates paid to solar customers must be developed in a way that is consistent with the methodologies used to develop rates for utility services
- To remain fair and equitable for all utility customers, rates should be based on the cost of service, not the value of service
- Each utility customer should pay for services that electric utilities provide them
- Solar customers should pay their fair share of generation, transmission, and distribution costs while being compensated for solar generation based on directly measurable avoided costs
- Grid security, reliability, environmental benefits and social externalities should not be included in rates
- Equitable recovery of costs from all customers is essential to fair ratemaking and the avoidance of shifting costs to non-solar customers
- These factors should be considered in developing a process and methodology used to develop rates for distributed generation and net metering tariffs

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Solar Tariff

- Solar as part of a Renewable Energy Plan
 - Forecasted avoided cost recovered as PSCR (a/k/a Transfer Price) using one of the following methodologies
 - ◆ Wholesale Energy and Capacity Prices
 - ◆ Levelized cost of a new natural gas combined cycle plant
 - Additional Cost recovered as Incremental Cost of Compliance (ICC) through the Renewable Energy Surcharge
 - ◆ $\text{Total Cost} - \text{PSCR Cost} = \text{ICC}$

- Rate Based Tariff
 - Variable Rate
 - ◆ Annual re-evaluation of solar tariff rate
 - ◆ Future solar rate not guaranteed to maintain the current level
 - ◆ Solar rate will tend to follow market
 - Fixed Rate or Scheduled Rate
 - ◆ Provides price certainty to participant
 - ◆ Rate dependent on participation date

Solar Tariff (cont.)

- Voluntary Participation
 - Provides opportunity for customers to choose generation source
 - Protects non-participants from program expenses
 - Participation level needs to be determined prior to investment in generation technology or execution of a purchase agreement
 - Adaptable program size to meet demand
 - Requirement for long term commitments of participants could become a concern

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Program Design

- Utility-owned community solar
 - Utility control of project siting can mitigate interconnection costs
 - Utility billing system can be utilized to provide customer credits for system production
 - O&M expenses will need to be addressed

- Third party-owned community solar
 - Currently possible through a self generation project
 - Tax implications for participants
 - Tax benefit for hosting entity

- Green-e certified community solar
 - Volunteer program similar to GreenCurrents or Green Generation
 - RECs used for compliance as a Green-e program

Program Design (cont.)

- Existing program modifications
 - Solar programs have been modified from their original designs based on experiences of participants, installers, and the utilities
 - Reducing inefficiencies in program processes has led to more effective management by utilities
 - Improving communications and reducing complexities has led to more consistent customer experiences

Program Design (cont.)

- Consumers Energy supports ongoing discussions and idea-sharing through stakeholder meetings.
 - In 2011 a stakeholder discussion was held to share experiences and make improvements to the EARP-Solar Expansion
 - In 2013, as part of the 2011 Renewable Reconciliation Settlement, changes were made to EARP-Solar
 - Improvements to project selection process
 - Increased sensitivity of pricing mechanism

- Consumers Energy values differing points of view in utility-related topics
 - Customer satisfaction is an important driver in our decision-making
 - We look forward to open communication in the upcoming sessions

***DTE is supportive of the development of a cost based
voluntary renewable energy offering***

- DTE Energy is focused on enhancing our renewable energy product offerings to deliver options that are valuable to our customers. Many of our customers are seeking solutions to achieve corporate and community targets for renewable energy procurement.

- DTE Energy's goal is to:
 - Advance the development of renewable energy in Michigan in ways that are fair and equitable to all customers
 - Provide products to meet the sustainability and energy price stability goals of our customers

- To achieve this goal, DTE is considering adding a new voluntary renewable energy product offering for large scale utility-owned wind and/or solar:
 - Available to residential and business customers
 - Partial or full load alternatives
 - Cost based tariff