
Presented to the Senate Energy & Technology Committee
June 11, 2019
Mike Byrne, Chief Operating Officer
Reka Holley, Legislative Liaison
Michigan Public Service Commission
What is Distributed Generation?

*Distributed Generation* (DG) is the term used when electricity is generated from sources, often renewable energy sources (i.e. wind or solar), near the point of use instead of centralized generation sources (typically coal, natural gas, or nuclear power plants).

DG Billing Mechanisms

• **Net Metering:**
  – Customer’s monthly bill is based on net usage (Inflow – Outflow). The customer receives a credit at full retail rate for any excess generation over course of month

• **Buy All/Sell All:**
  – Customer purchases all of their consumption from the utility at full retail rates. All generation from the customer’s system is sold to the utility.

• **Inflow/Outflow:**
  – Customer pays full retail rate for all deliveries from the utility (“Inflow”)
  – Customer receives credit for any generation not used on site and exported to the grid (“Outflow”)
Distributed Generation in Michigan

• **2004**: Docket No. U-14346 established statewide, voluntary net metering program

• **2008**: PA 295 codifies the statewide program and makes it mandatory for regulated utilities and alternative energy suppliers. At least 1% of a utility’s customers must be allowed to participate in the net metering program.

• **2016**: PA 341 and 342 phase out net metering and direct the establishment of a new Distributed Generation program
The 2016 Energy Law

• PA 342
  – Phase out net metering and replace with new “distributed generation” program
  – Grandfathered existing net metering customers for 10 years from date of enrollment

• PA 341
  – Directs the Commission to “conduct a study on an appropriate tariff reflecting equitable cost of service . . . for customers who participate in a net metering program or distributed generation program . . . .”
  – Apply new tariff in utility rate cases filed after June 1, 2018
“An appropriate tariff reflecting equitable cost of service . . .”

In Flow/Out Flow Tariff

• Defines how the customer will be charged for energy they use and credited for energy they send to the grid

• Advanced metering infrastructure allows these in flows and out flows to be measured separately

• Billing DG customers by the kWh used allows the utility to recover the cost the customer imposes on the system

• Crediting the DG customer at a different rate for the outflow allows for the recognition of benefits received and provided by the utility
DTE’s 2018 DG Proposal & Order

• DTE’s Proposal
  – Inflow billed at the customer’s retail rate
  – Outflow credited at ~ $0.0325/kWh
  – System Access Charge ~ $14.51/month

• Commission Order
  – Inflow billed at the customer’s retail rate
  – Outflow credited at ~ $0.07477 - $0.0911/kWh (power supply minus transmission)
  – No System Access Charge
DTE DG Rate Impacts

DTE Rider 18 Distributed Generation
Residential Rate D1 Annual-Bill Comparison
Solar PV Capacity 6.28 kW (DC) [Est. Annual Consumption 7,844 kWh]

- Rider 18 as approved: outflow credit @ power supply less transmission
- Rider 18, with DTE SAC charge: outflow credit @ MISO real time LMP
- Rider 16: net-zero customer bill only reflects D1 monthly customer charge @ $7.50/month
- **Inflow & Outflow [as approved, Rate D1]**
  - $427
  - $292
  - $215
- **Inflow & Outflow [with DTE SAC charge, and credits at LMP]**
  - $634
  - $414
  - $290
- AVG. RESIDENTIAL BILL [NO SOLAR]
  - $1,255

TRUE NET METERING (GRANDFATHERED)  |  *INFLOW & OUTFLOW [AS APPROVED, RATE D1]*  |  **INFLOW & OUTFLOW [WITH DTE SAC CHARGE, AND CREDITS AT LMP]**  |  AVG. RESIDENTIAL BILL [NO SOLAR]
--- | --- | --- | ---
No Battery  |  $90  |  $90  |  $90  |  $90  |  $90
With Tesla Powerwall 7 kWh Battery  |  $427  |  $292  |  $215  |  $414  |  $290
With Tesla Powerwall 14 kWh Battery  |  $427  |  $292  |  $215  |  $414  |  $290

*Outflow Credit @ power-supply less transmission: 7.477 cents/kWh for 1st 17 kWh per day; 9.111 cents/kWh > 17 kWh per day

**Includes System Acess Charge (SAC) @ $14.51/month, and Outflow Credit @ MISO 2018 monthly average real-time LMP 3.25 Cents/kWh]
DTE Electric Case No. U-20162
Residential DG Payback-Comparison (Yrs)
Gross Installed Cost $15,700 ($2.50/Watt)
Net Installed Cost (@ 30% ITC) $10,990
6.28 kW Solar PV [Est. Annual Consumption 7,844 kWh]

Expected Useful Life
25 Years

TRUE NET METERING (GRANDFATHERED) *INFLOW/OUTFLOW [RATE D1 AS APPROVED] **DTE INFLOW/OUTFLOW [RATE D1 WITH SAC & OUTFLOW @ LMP]

9.4 13.3 17.7

*Outflow Credit @ power-supply less transmission:
7.477 cents/kWh for 1st 17 kWh per day;
9.111 cents/kWh > 17 kWh per day

**Includes System Access Charge (SAC) @ $14.51/month, and Outflow Credit @ MISO 2018 monthly average real-time LMP 3.25 Cents/kWh
UPPCO’s 2019 DG settlement

• Increases DG program cap from 1% of UPPCO customers to 2%
• Adopts Inflow/Outflow tariff
• Sets Inflow rate at the full retail rate
• Sets the Outflow credit at $0.08043/kWh (full power supply component of the retail rate)
UPPCO DG Rate Impacts

UPPCO DG Rider Distributed Generation
Residential Rate D1 Annual-Bill Comparison
Solar PV Capacity 6.28 kW (DC) [Est. Annual Consumption 7,844 kWh]
Rates As Approved

Rider DG as approved: outflow credit @ power supply

Rider NEM: net-zero customer bill only reflects A-1 monthly customer charge @ $15.00/month

TRUE NET METERING (GRANDFATHERED)  |  *INFLOW & OUTFLOW [AS APPROVED, RATE A-1]  |  AVG. RESIDENTIAL BILL [NO SOLAR]
$180  |  $698  |  $1,855
$180  |  $490  |  
$180  |  $371  |  

*Outflow Credit @ Power Supply charge 8.043 cents/kWh
UPPCO Electric Case No. U-20276
Residential DG Payback-Comparison (Yrs)
Gross Installed Cost $15,700 ($2.50/Watt)
Net Installed Cost (@ 30% ITC) $10,990
6.28 kW Solar PV; Est. Annual Consumption 7,844 kWh; Rate A-1

**Expected Useful Life 25 years**

<table>
<thead>
<tr>
<th>Years to Payback</th>
<th>TRUE NET METERING [GRANDFATHERED]</th>
<th><em>INFLOW/OUTFLOW</em> [AS APPROVED]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7.9</td>
<td>11.8</td>
</tr>
</tbody>
</table>

*Outflow Credit @ Power Supply charge 8.043 cents/kWh
DG Next Steps

• Utility specific DG programs will continue to be finalized in the respective utility rate cases
• Updating rules relating to interconnections, DG, and legacy net metering
• DG Education and outreach
• Continued evaluation
An Integrated Resource Plan (IRP) is a comprehensive plan developed by an electric utility which outlines its future resource strategy – how the electric utility will provide reliable, cost effective electric service to its customers while addressing the risks and uncertainties inherent in the utility industry.
• **Sec. 6t of 2016 PA 341** governs the IRP process.

• Commission is directed to develop modeling scenarios using a collaborative process for purposes of guiding the utility IRP filings. These must be updated every 5 years.

• All rate regulated utilities must file an IRP with the Commission every 5 years. The filing schedule is set by Commission order.
IRP Implementation: by the numbers

In developing the IRP modeling scenarios and assumptions, MPSC staff conducted. . .

• 9 subcommittee workgroups
• 13 full group meetings
• 2 formal stakeholder meetings with Lawrence Berkeley National Lab
• 20 conference calls
• 3 public comment forums across the state of Michigan
IRP Application Requirements

- RENEWABLE ENERGY
- SALES FORECAST
- ENERGY WASTE REDUCTION
- ENVIRONMENTAL REGULATIONS
- TRANSMISSION
- EXISTING GENERATION
- DEMAND RESPONSE
IRP Modeling

MODELING SCENARIOS

Business as Usual
• Future supply assuming status quo

Emerging Technologies
• Potential impact from emerging technologies (e.g. Demand Response (DR), Energy Waste Reduction (EWR) large & small-scale storage, solar)

High Market Price Variant
• Upper Peninsula utilities only
• High natural gas prices

Environmental Policy
• MI Lower Peninsula utilities only
• Hard cap on carbon for 20-yr horizon
IRP Process

Company files IRP → Staff and Intervenor Testimony → Proposal for Decision (Judge)

Commission Order
300 days

Approved IRP → Pre-approved cost recovery of the PCA

Changes → 30 Days to submit with changes → Final Order 360 days

Deny → Utility may resubmit within 60 days → 90 Days to Approve or Deny
The MPSC must determine whether an electric utility’s IRP is the most reasonable and prudent means of meeting energy and capacity needs by considering whether the plan appropriately balances all of the following:

- Resource adequacy
- Compliance with applicable environmental regulations
- Competitive pricing
- Reliability
- Commodity price risks
- Diversity of generation supply
- Whether the proposed levels of peak load reduction and energy waste reduction are reasonable and cost effective
The Proposed Course of Action (PCA)

• Incremental increase in Energy Waste Reduction (EWR), Renewable Energy, Demand Response (DR), and Conservation Voltage Reduction (CVR)

• Retiring Karn Units 1 & 2 by 2023, continued operation of Campbell Units 1 & 2 until 2031
  – Karn replaced by EWR, DR, and CVR
  – Other retirements and large PPA termination in 2013 replaced with EWR, DR, CVR, and Solar

• Competitive bidding for future capacity needs and determination of PURPA avoided cost rates

• Financial Compensation Mechanism (FCM) for all new Power Purchase Agreements entered into through the competitive bidding mechanism and used to address future capacity needs
Consumers IRP – Docket No. U-20165

Procedural History

• **June 15, 2018** – Company files application for approval of its IRP

• 21 parties granted intervener status – **23 total parties** to the case

• Motions and testimony filed

• **November 2018** – Cross-Examination

• Briefs and Reply Briefs

• **Feb. 20, 2019** – Proposal for Decision

• Exceptions and replies to exceptions

• **March 23, 2019** – Contested Settlement Agreement Submitted

• Additional testimony and briefs submitted regarding the contested settlement agreement

• **June 7, 2019** – Commission order approving the contested settlement agreement
The agreement approves Consumers’ plan with several modifications.

- Retiring Karn 1 & 2 (coal units) in 2023, unamortized book value to be recovered through securitization
- Approval of EWR, CVR, and DR programs
- Annual competitive bidding under the oversight of an independent 3rd party administrator for new capacity including 1,200 MW of solar for big in 2019 – 2021. Consumers may own no more than 50% of the capacity procured through the bidding process.
- Approval of the FCM
- Consumers will conduct a retirement analysis of Campbell 1 & 2 (coal units) for potential retirement at 2025
- Modifies the avoided cost rates and terms for PURPA
- Consumers will file their next IRP in 2021
# Ongoing IRP Activities

<table>
<thead>
<tr>
<th>Utility Company</th>
<th>IRP Filing Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumers Energy Company</td>
<td>June 15, 2018</td>
</tr>
<tr>
<td>Alpena Power Company</td>
<td>January 25, 2019</td>
</tr>
<tr>
<td>Upper Peninsula Power Company</td>
<td>February 12, 2019</td>
</tr>
<tr>
<td>DTE Electric Company</td>
<td>March 29, 2019</td>
</tr>
<tr>
<td>Wisconsin Electric Power Company</td>
<td>April 19, 2019</td>
</tr>
<tr>
<td>Upper Michigan Energy Resources Corporation</td>
<td>April 19, 2019</td>
</tr>
<tr>
<td>Northern States Power Company</td>
<td>July 31, 2019</td>
</tr>
<tr>
<td>Indiana Michigan Power Company</td>
<td>August 14, 2019</td>
</tr>
<tr>
<td>Consumers Energy Company</td>
<td>TBD, 2021</td>
</tr>
</tbody>
</table>
Thank you!

Michigan.gov/MPSC
Follow us on Twitter: @MichiganPSC