

MI Power Grid New Technologies and Business Models Workgroup: Solar

Identified Barriers	Possible Solutions
<i>Community Solar</i>	
1. Lack of clarity on what constitutes a community solar program, subscribers, and eligible program administrators. ⁱ	<ul style="list-style-type: none"> • Detail what constitutes a community solar facility, how big it can be, where it can be located, and where it cannot be located. • Detail what constitutes a subscriber, any minimum subscriber requirements for a community solar facility, and the types of customers that may participate. • Detail the eligible entities to administer community solar facilities.
2. Lack of clarity on community solar participation rules.	<ul style="list-style-type: none"> • Detail how community solar entities register and fully participate in the program, ensure access to utility bill credit tariffs, and its interactions with the utility.ⁱⁱ
3. The current investor-owned utility business model drives utilities toward community solar ownership.	<ul style="list-style-type: none"> • Legislation needed to enable non-utility ownership?
4. Our investor-owned utilities do not offer on-bill financing for customers to use to purchase their portion of the community solar project.	<ul style="list-style-type: none"> • Offer on-bill financing programs.
5. Several bill credit barriers can exist for community solar: ⁱⁱⁱ <ul style="list-style-type: none"> ○ Authority to provide bill credit to customer when the system is not behind the customer’s meter ○ How and when a credit is applied to a customers’ bill and for how long ○ Consolidated billing or net crediting 	<ul style="list-style-type: none"> •
6. The details regarding the bill credit received by the customer can be barriers, such as: ^{iv} <ul style="list-style-type: none"> ○ Amount subscriber receives per kWh on bill ○ Whether value of renewable energy credit is included or not ○ Clarity of statutory guidance on the matter 	<ul style="list-style-type: none"> •
7. Customers can’t access the solar tax credit for community solar participation.	<ul style="list-style-type: none"> • Establish pay-as-you-go subscriptions to take advantage of the utility’s access to capital to enable participation by low-income customers.
8. Unclear who should pay the cost of utility billing system modifications to incorporate on-bill crediting for non-utility owned community solar projects.	<ul style="list-style-type: none"> •
9. Lack of clarity on customer acquisition such as: ^v <ul style="list-style-type: none"> ○ Restrictions or mandates on customer acquisition and management ○ Requirements for low or moderate income participation ○ Requirements for residential or commercial participation ○ Consumer protections 	<ul style="list-style-type: none"> • Detail any restrictions/mandates on customer acquisition and management, requirements for low or moderate income participation, and requirements for residential or commercial participation. • For consumer protections, include a standard disclosure form.

Identified Barriers	Possible Solutions
10. There may be qualification barriers and costs associated with low or moderate income customer recruitment to community solar projects. ^{vi}	<ul style="list-style-type: none"> Streamline or eliminate qualification barriers and costs. Simplify income verification^{vii}
11. Subscription fee for community solar is likely to cost more than the program credit resulting in a net cost for participants.	<ul style="list-style-type: none"> To ensure robust participation, the subscription credit may need to be as high or higher than the full retail rate, but this could result in non-participating customers subsidizing the program which is not allowed under Michigan law. Conduct an MPSC proceeding to examine and assign appropriate value to community solar.
12. Consumer protection concerns with third-party owned community solar.	<ul style="list-style-type: none"> May need legislation to allow the MPSC to require subscriber organization bonding in the event subscriber organization leaves the state and to ensure transparency in cost information presented to potential customers.
13. Land availability for project siting	<ul style="list-style-type: none"> Utilize brownfields to site community solar projects within communities.
8. Lack of understanding of community benefits.	<ul style="list-style-type: none"> Community solar developer should provide worker training options during construction. Increase benefits to community from community solar

Behind the Meter Solar

1. Distributed generation program cap limits investment.	<ul style="list-style-type: none"> Eliminate the distributed generation cap to provide market certainty through legislation.
2. Inflow/outflow billing mechanism is difficult to model because there is no way to know how much solar power will be used on-site offsetting the full retail rate and how much solar will be exported to the grid and credited at the lower distributed generation rate. This uncertainty prohibits solar installers from calculating future customer bill impacts when selling solar projects.	<ul style="list-style-type: none"> Figure out how to model inflow/outflow billing mechanism through additional research. Learn more about DTE's Rider 18 customer bill impact model.
3. Inaccurate estimates of future customer bill impacts from installing solar project	<ul style="list-style-type: none"> Incorporate daily, weekly, or monthly netting back into the distributed generation program billing mechanism to enable solar installers to more accurately estimate future customer bill impacts from installing a solar project. This may need a legislative or potentially a ballot initiative solution.
4. Investor-owned utility business model discourages utility support of customer or third-party owned behind the meter solar	<ul style="list-style-type: none"> Find a business model that benefits the utilities, solar industry, and customers.
5. Project size limited by distributed generation program.	<ul style="list-style-type: none"> Remove the project size limits for the distributed generation program through legislation. May require a standby charge for larger projects.
6. There are concerns about unfair market impacts if utilities are allowed to sell/own customer sited-solar located behind the meter.	<ul style="list-style-type: none"> Find a business model that benefits the utilities, solar industry, and customers.
7. Third-party leasing is not happening in Michigan.	<ul style="list-style-type: none">

Identified Barriers	Possible Solutions
8. Homeownership impacts BTM solar capability.	<ul style="list-style-type: none"> Investigate the appropriateness of setting the community solar subscriber credit equal to the distributed generation program credit based on equity between customers who are able to install rooftop solar and those who cannot. Develop a formal tariff to enable the anchor-tenant community solar model. This model allows the anchor tenant to offer fully or partially subsidized subscriptions to low-income customers. Find ways to do BTM solar at rental homes and communities.
9. Houses are not oriented with south facing roofs. ^{viii}	<ul style="list-style-type: none"> Builders should be encouraged to design homes with south-facing roof orientations. This may need a legislative action.
10. Integration with electric vehicles	<ul style="list-style-type: none"> Solar plus EV charging/home backup – F150 Lightning model
<i>Either</i>	
1. Lack of interconnection process clarity.	<ul style="list-style-type: none"> Provide clear interconnection rules that detail how projects are studied as well as management of the queue.^{ix}
2. Current utility tariffs require separate meters for each residential housing unit in multi-family residential buildings.	<ul style="list-style-type: none"> A relatively new waiver process may be used to provide for a single meter option for certain low-income multi-family residential buildings and can be used to enable one solar project to serve all residential units behind the meter. HOPE Village is using this waiver option to build community solar projects on three rehabilitated low-income apartment buildings. Pursuant to Case No. U-20646, DTE Electric Company was authorized to amend the Standard Contract Rider No. 4 tariff within the Electric Rate Book to assist the housing needs of low-income residents. Applicable Owners or its authorized agents of a newly constructed or rehabilitated multifamily dwelling, shall have the opportunity to avoid the requirement of metering each residential housing unit separately. Potentially extend to all residents of multi-family residences regardless of income
2. No method to value resiliency.	<ul style="list-style-type: none"> More studies on how to value resiliency in regulatory processes. Utilize community solar projects to provide resilience in emergency situations like powering emergency shelters and charging devices.
3. Lack of available and accurate grid information to optimize project locations.	<ul style="list-style-type: none"> Provide access to hosting capacity information. Accurate hosting capacity information will help community solar and behind the meter projects locate where there is most capacity^x and the potential to provide a non-wires alternative to a distribution grid issue.
4. The full array and value of grid services undetermined currently.	<ul style="list-style-type: none"> Develop grid services programs and tariffs for behind the meter solar and storage.
5. Low or moderate income subscribers may be hard to attract due to ill designed programs.	<ul style="list-style-type: none"> Understand low and moderate customer and subscriber needs^{xi} when developing the program.

Identified Barriers	Possible Solutions
6. Distribution system benefits are unclear and unquantified.	<ul style="list-style-type: none"> • Conduct pilots using the solar projects to determine/identify distribution system benefits.
7. In addition to grid services, solar can provide an array of ancillary benefits such as resiliency, workforce development, and community engagement. ^{xii} However, the values of these ancillary services are not clearly identified.	<ul style="list-style-type: none"> • Develop methodology to consistently value ancillary services for community solar projects.

Applicable and Emerging Business and Ownership Models

Community Solar

- Some stakeholders are requesting non-utility owned community solar.
- Anchor tenant model (whether utility or non-utility owned)
- Can be owned by utilities, third-parties, non-profits, and building owners.^{xiii}
- Various subscription structures:^{xiv}
 - Upfront payment
 - Large payment at beginning of subscription period
 - Hybrid contract
 - Upfront payment followed by multiple payments.
 - Multiple payments
 - Usually monthly bill
 - Fixed discount
 - Offer fixed discount on customer's electricity rate instead of payment.

Behind the Meter Solar

- Utility-owned BTM business models
 - Rooftop leasing – utility owned rooftop solar PV^{xv}
 - Utility led community solar – utility owned system to offset multiple households' use^{xvi}
 - BTM facilitator model – Utility led platform to connect DG market participants^{xvii}
 - Utility owns/leases customer solar projects (allows for bulk purchase and standardized projects) and works with solar installers who facilitate the installation.
- Third-party leasing of solar projects
- Range of PV and storage use cases^{xviii}
 - Off grid PV and storage
 - Grid connected PV and storage

- Grid connected PV and storage with microgrid
- PV and storage for large-scale power generation

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- ⁱ Wochos. 03/10/2021 workgroup presentation, slide 8.
 - ⁱⁱ Solutions taken from barriers listed by Wochos. 03/10/2021 workgroup presentation, slide 9.
 - ⁱⁱⁱ Wochos. 03/10/2021 workgroup presentation, slide 8.
 - ^{iv} Wochos. 03/10/2021 workgroup presentation, slide 8.
 - ^v Wochos. 03/10/2021 workgroup presentation, slide 9.
 - ^{vi} Heeter. 03/10/2021 workgroup presentation, slide 18.
 - ^{vii} Thomas. 03/10/2021 workgroup presentation, slide 5.
 - ^{viii} Panel discussion. Veridian?
 - ^{ix} Wochos. 03/10/2021 workgroup presentation, slide 9.
 - ^x Heeter. 03/10/2021 workgroup presentation, slide 19.
 - ^{xi} Thomas. 03/10/2021 workgroup presentation, slide 5.
 - ^{xii} Heeter. 03/10/2021 workgroup presentation, slide 19.
 - ^{xiii} Heeter. 03/10/2021 workgroup presentation, slide 14.
 - ^{xiv} Heeter. 03/10/2021 workgroup presentation, slide 17.
 - ^{xv} Gagne. 03/10/2021 workgroup presentation, slide 19.
 - ^{xvi} Gagne. 03/10/2021 workgroup presentation, slide 19.
 - ^{xvii} Gagne. 03/10/2021 workgroup presentation, slide 19.
 - ^{xviii} Gagne. 03/10/2021 workgroup presentation, slide 8.