[Public Response]

November 13, 2017

Attention: Mario Bohorquez,
Planning and Procurement Bureau Chief
Via email: mario.bohorquez@illinois.gov

**RE: Draft Long-Term Renewable Resource Procurement Plan (Draft Plan) Comments**

Dear Mr. Bohorquez:

GRID Alternatives (GRID) appreciates the opportunity to respond to the September 29, 2017 Illinois Power Agency (Agency) Draft Long-Term Renewable Resources Procurement Plan (Draft Plan).[1]

GRID Alternatives is the nation's largest non-profit solar installer, exclusively serving low-income families (defined using the U.S. HUD definition of less than 80% of Area Median Income) and affordable housing owners through residential, multi-family, and community solar installations that target minimum 50% monthly electricity bill savings for each low-income participant. In addition to direct energy bill savings impacts, GRID also provides solar installation services to residents and managers of multifamily buildings, encouraging renters and building owners to realize the benefits of solar.

Using a "barn raising" installation model, GRID Alternatives' professional installation staff train and lead teams of local job trainees and other community members to install solar electric systems for our customers, in partnership with a national network of affordable housing developers, energy efficiency providers, local government agencies, workforce development programs, and solar industry partners. Since 2001, GRID has installed over 9,300 solar systems totaling over 39 Megawatts, saving low-income families over $318 million in lifetime electricity costs, and providing over 34,500 people with solar training. GRID works locally through twelve regional and affiliate offices to serve families in California, Colorado, and Mid-Atlantic regions. GRID Alternatives also has an international program serving Nicaragua, Nepal, and Mexico, a national multifamily affordable solar technical assistance program, and a tribal program serving families nationwide.

[1] https://www.illinois.gov/sites/ipa/Pages/Renewable_Resources.aspx

GRID is licensed in Illinois and participates in policy, regulatory, and program discussions with stakeholders nationwide to provide our expertise as leaders in low-income solar access and program design. GRID has been working with stakeholders in Illinois for the last three years via the Clean Jobs Coalition and more recently the Solar for All Working Group.

As GRID has expertise working across diverse markets, we understand **incentives are critical to a low-income solar program's success**. Therefore, we are providing feedback to the Agency solely focused on Section 8.6, Setting Incentive Levels.

Other important comments and recommendations from GRID are reflected in the response from the Illinois Solar for All Working Group and the joint response from GRID Alternatives and Elevate Energy. Importantly, the comments and recommendations related to access to the Adjustable Block Program incentives, requiring a savings goal in the low-income customer's cash-flow positive experience to ensure meaningful tangible economic benefit, multifamily eligibility in program design, expanding program administration to include income verification and other important consumer protection measures, and expanding the definition of job trainee.

## Section 8.6 Setting Incentive Levels

The economics of serving low-income clients are more challenging than general market participants, due to factors such as higher risk and zero capacity to contribute financeable revenue to projects. For low-income customers, participation in a viable solar project requires no upfront payment and near term significant economic savings (e.g. our programmatic goal is 50% monthly electric bill savings). The cost-based model accurately accounts for these higher costs of serving the income-eligible market. In short, organizations interested in serving low-income customers with solar need higher incentives to make an attractive offering that low-income customers will enthusiastically adopt. **An attractive solar offering for low-income customers means no upfront cost, no ongoing payments, and immediate and significant savings**. Without appropriate incentives for developers and installers to use to provide attractive offerings for low-income customers, the low-income solar market will not develop or scale.[2]

[2] E.g. The low-income incentives under the NY-Sun Affordable Solar program are too low and problematic because they declined alongside the non-low-income incentives, therefore disregarding the costs to market or build projects for this sector. To illustrate this point, during the second quarter of 2016 in New York State, only six solar installations were completed under the Affordable Solar program (which doubles the standard incentive), and applications for 16 installations were approved. During the same period, under the non-low income incentive program, 5,506 installations were completed and NYSERDA received applications for 4,108 projects. New York's beginning ranges were from $.60/watt to $1.40/watt (service territory

The Solar for All Renewable Energy Credits ("RECs") should be developed using the following cost-based approach:

[table reflected in GRID's Confidential Response]

As the Agency acknowledged in its Draft Plan Section 6.8.4, the solar industry is already experiencing price increases due to the potential tariffs on foreign photovoltaic modules and cells. It is critical that REC levels are adequate to weather the uncertainty and allow developers and installers to make attractive low-income solar offerings once the Solar for All Program is launched.

Some measure of customer savings must be included in the model for all Solar for All Programs. SEIA suggests in their comments that a reasonable assumption is 20% of the estimated annual net metering credit value and suggests an appropriate way to capture this cost in the model is by reducing the net metering credit value by 20%. **The modeling for Solar for All Programs should reflect higher levels of savings - 100% savings for low-income distributed generation and 50% savings for low-income community solar is not unreasonable, based on experience in low-income solar programs in other markets**.

### Section 8.6.1.3 Low-Income Distributed Generation Incentive

The Low-Income Distributed Generation Incentive should allow the Program Administrator(s)/Approved Vendors to cover full the cost of the single-family rooftop project (i.e. maximize consumer protections, avoid credit requirements, maximize bill savings and tangible economic benefit (e.g. at least 50% monthly electric bill savings), easier outreach, etc.). Costs will be higher initially (e.g. including workforce development requirements, higher new market soft costs, and variable module pricing).

GRID reviewed the Illinois Solar for All Distributed Generation Incentive Pricing Model (Appendix E-3)[3] and has the following feedback:

1. The 17% AC capacity factor is too high. GRID recommends a **15.4% AC capacity factor**, which is more realistic **for residential solar installations** (i.e. fixed axis, non-ideal orientation, and some shading) with Illinois climate data.
2. The project useful life in the model is assumed to be 25 years. While that is certainly a reasonable assumption for equipment life, the model assumes projects are financed through a

dependent). From October 2015 through the end of 2016, only 102 projects were completed using the added Affordable Solar incentive, with an additional 66 projects in the pipeline.

[3] https://www.illinois.gov/sites/ipa/Pages/2018-Long-Term-Renewable-Appendices.aspx

power purchase agreement ("PPA") or prepaid PPA structure, which are typically 20 years, so it is not appropriate to assume the economics extrapolate out to 25 years. **Assume 20 years for a project useful life.**

3. The installed cost amount in the model is overly optimistic. With recent module price increases and the fact that this is a new market, soft costs are likely to be higher. Therefore, $2.93/W is too low. **We recommend using an average base cost of $3.50/W for installed cost.**

In order to offer a tangible economic benefit that is attractive to a low-income customer and results in immediate and ongoing *significant*[4] savings (e.g. 50% electric bill savings, as compared to standard utility rates), the RECs need to be higher. GRID Alternatives refers to its June 6, 2017 response[5] to the Agency's Request for Comments. In those comments we applied a cost based approach noting the total upfront incentive ("UFI") needed for the Low-Income Distributed Generation Incentive to ensure attractive offerings for low-income single-family households was $3.50/W-DC (equivalent to $0.194/kWh SREC or $194/REC) (this UFI assumes third party ownership ("TPO") for leveraging the Investment Tax Credit ("ITC")).

In order to result in tangible economic benefit for low-income customers and applying the same cost-based approach, and assuming the correct capacity factor (15.4%AC), project useful life (20 years), and installed costs ($3.50/W), we **recommend an UFI of $194/REC for serving single-family households in the Low-Income Distributed Generation Incentive Program**.

The Draft Plan indicates projects that receive a contract through Illinois Solar for All will not be eligible to also receive a contract through the Adjustable Block Program. GRID advocates for access to the Adjustable Block Program and refers to the comments submitted jointly by GRID Alternatives and

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[4] District of Columbia Solar for All Program: D. C. Act A21-0466, Renewable Portfolio Standard Expansion Amendment Act of 2016, Section 216(a)# ensures seniors, small local businesses, non-profits, and **low-income households receive at least 50% of the savings**, as compared to standard utility rates, from the solar generating equipment.
California Single-family Affordable Solar Homes (SASH) Program: The statewide program administrator for SASH ensures that all systems are cash-flow positive for a low-income household from day one. Incentives are deliberately set at a level to cover a significant percentage of the system cost. Any gaps in financing between the available incentive and the system cost are filled by the program administrator, a non-profit organization that contributes proceeds from a third-party ownership (TPO) arrangement and its own philanthropic fundraising to projects. Under the SASH TPO offering, participating households have no financial liability to the system owner. The SASH program's TPO model must meet 12 baseline consumer protection minimum standards, including **ensuring customers receive at least 50% of the savings, as compared to standard utility rates**, from the solar generating equipment.# In practice, the minimum 50% savings is a "floor," as most SASH households participating in the TPO model realize 80% savings or higher.

[5] https://www.illinois.gov/sites/ipa/Documents/Grid-Alternatives-20170627-Public-Response.pdf

Elevate Energy, Environmental Law and Policy Center's comments, and the comments submitted by the Illinois Solar for All Working Group. No matter where the money for RECs comes from (Solar for All and / or Adjustable Block Program), the end value needs to total $3.50/W-DC in the Low-Income Distributed Generation Incentive program in order to make attractive offerings to low-income single-family households.

**Multifamily Affordable Housing**

GRID Alternatives supports Elevate Energy's and the Solar for All Working Group's recommendation that multifamily be a separate and distinct program. Assuming the Agency adopts this important recommendation, incentives for larger distributed generation projects are not applicable in the Low-Income Distributed Generation Incentive Program.

Regarding incentives for multifamily affordable housing solar, GRID again refers to its June 6, 2017 response to the Agency's Request for Comments. Applying a cost based approach and noting the total UFI needed for a multifamily common meter project where multifamily affordable housing providers realize 50% savings, we recommend **$0.15/kWh (equivalent to $150/REC)**. And for multifamily tenant meter projects where tenants are served through virtual net metering, we recommend **$0.20/kWh (equivalent to $200/REC)**.

### Section 8.6.2 Low-Income Community Solar Project Initiative

Generally, the model used does not reflect realities of financing Solar for All community solar projects, which will have higher startup and transaction costs, especially in a new market like Illinois. Low-income customers face unique barriers to solar access, especially financial, and require targeted policies and incentives to support their participation in community solar.

**REC incentives need to be structured, at least initially, at no cost for participation for low-income residential customers (not just no up-front cost, but no cost), and can step down from there as necessary.** Even if low-income customers are willing to pay for subscriptions, they still cannot be included in the financial modeling because of the perceived high risk profile of these customers. This should be addressed through the residential adder approach, and adjusted as necessary; supporting the argument the Solar for All incentives should be an adder to Adjustable Block Program. What works for the general market is a baseline; the Solar for All adder would actually ensure low-income participation and a tangible economic benefit (e.g. savings goal of at least 50% monthly electric bill savings).

The Low-Income Community Solar Project Initiative should assume and ensure that all of the credit benefit goes to income-eligible offtakers (low-income households or multifamily affordable housing

direct or pass-through benefits), and the Approved Vendor gets a higher incentive to replace the subscriber revenue they would get in a general market project. The Agency should also assume the Approved Vendor has additional costs for serving a harder to reach client that requires longer lead-time and more resources for customer acquisition. Note the credit benefit to offtakers is approximately 50% of equivalent NEM benefit.

GRID is in agreement with SEIA's comments suggesting improvement to the Agency's modeling assumptions, and offers important feedback specific to low-income project economics, based on our decade plus of experience serving low-income customers with solar across the country. GRID reviewed the Illinois Solar for All Community Solar Pricing Model (Appendix E-4)[6] and has the following feedback:

**Project Useful Life**

1. The project useful life in the model is assumed to be 25 years, but should be **20 years to match typical financing structures**.

**Customer Savings, Residential Participation, and Subscriber Acquisition and Management**

2. Some degree of customer savings must be reflected in the modeling, which for low-income should be greater than market-rate assumptions. **GRID recommends 50% savings as an appropriate target for customer savings.**
3. The Draft Plan incentive structure does not enable high low-income residential participation in projects (i.e. projects will need to rely heavily on affordable housing, non-profit or other anchor partners for financing). A residential adder will help address this issue and ensure that low-income residential customers are not left out of program benefits. In order to ensure residential inclusion in Solar for All community solar projects and savings attractive to low-income customers, **GRID recommends at least a $.03 kWh residential adder.** The Agency should importantly assume Solar for All community solar projects will have additional costs for serving a harder to reach client that requires longer lead-time and more resources for customer acquisition, so at least a $0.03 kWh adder is needed.
4. The model is unclear in what the Agency assumes for customer acquisition. The Agency should **assume $0.50/W for customer acquisition and $0.05/W for ongoing subscriber maintenance.**

[6] https://www.illinois.gov/sites/ipa/Pages/2018-Long-Term-Renewable-Appendices.aspx

**Tax Assumptions**

5. **The model should not assume Solar for All projects will have owners with tax appetite and be financeable.** Low-income households and non-profits do not have personal tax liability. Third party financing requires significant transaction costs.
6. It's unclear if the Agency assumes tax equity for smaller Solar for All projects, but unlikely (transaction costs are typically not justified under 500 kW). This can be overcome by an aggregated portfolio, but new Solar for All projects must assume the market is starting from scratch and cannot assume a single developer will have such an appetite.
7. The depreciation assumption is too aggressive. Often investors do not want depreciation because it must be reported as losses. Refer to the cost-based table on page 3 of our comments.

**Other Financial Inputs**

8. NREL's cost assumption for a 2 MW project at $1.75 / per watt is aggressive. **GRID recommends $2.25/W.**
9. It's unclear what the Agency assumes for land costs for a 2 MW ground mount project, but it can be very high especially close to Chicago (can easily exceed over $200,000 over 20 years). Per the SEIA comments, the current land lease options being secured in Illinois range from $800 to $1,200 per acre. We agree with these cost per acre assumptions for a 2 MW project.
10. Key ongoing costs are not reflected in the model (insurance, property taxes, asset management fees, collateral). **For a 2 MW project, assume $20,000/year insurance, $20,000/year for asset management / property taxes.**

In order to offer a tangible economic benefit that is attractive to a low-income customer and results in immediate and ongoing *significant* savings for projects that include low-income residential participation, the RECs need to be higher. GRID Alternatives refers to its June 6, 2017 confidential response[7] to the Agency's Request for Comments. In those comments we applied a cost based approach noting the total UFI[8] needed for a 500 kW to 2 MW project was $0.110/kWh SREC ($110/REC) for Group B (assuming the $0.25/W UFI for the community solar smart inverter rebate). GRID recommends the Low-Income Community Solar Project Initiative RECs should be set at the following (Draft Plan p 149 and Errata p 3):

[7] https://www.illinois.gov/sites/ipa/Documents/Grid-Alternatives-20170627-Public-Response.pdf

[8] For projects with mixed income participation, GRID recommends the incentive amount be high enough to enable a no payment model to apply to the income-eligible portion of the project.

| System Size | Group A (Ameren Illinois, Rural Electric Coops, Mt. Carmel) | | Group B (ComEd, MidAmerican, Municipal Utilities) | |
|---|---|---|---|---|
| < = 10 kW | ~~$148.46~~ | $232.99 | ~~$122.72~~ | $192.60 |
| > 10 - 100 kW | ~~$126.75~~ | $198.92 | ~~$100.16~~ | $157.19 |
| > 100 - 200 kW | ~~$105.05~~ | $164.87 | ~~$77.59~~ | $121.77 |
| > 200 - 500 kW | ~~$100.05~~ | $157.02 | ~~$72.59~~ | $113.92 |
| > 500 - 2000 kW | ~~$97.55~~ | $153.10 | ~~$70.09~~ | $110.00 |

In closing, Illinois' Solar for All market needs to provide adequate incentives to support solar product offerings that are actually attractive to low-income customers - those solar products include no upfront and no ongoing costs, and immediate and significant savings for low-income households. More low-income customers participating in Solar for All means more projects will be built. More built projects means more opportunities for job training and growing Illinois' workforce from the communities that stand to benefit most from Illinois' clean energy transition.

Thank you for the opportunity to provide comments.

Respectfully Submitted,

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