The Colorado Community Solar Gardens Act and Implications for Minnesota Solar Gardens

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May 2013

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I. Introduction

The Colorado Legislature passed the Community Solar Gardens Act (CSGA) in 2010 with the intended purpose of spurring the development of community solar gardens (CSGs) in the territories of investor-owned utilities. Colorado's utility industry is traditionally regulated like that of Minnesota, and, also like Minnesota, Xcel Energy, Inc. (Xcel) is the primary

investor-owned utility.[1] Therefore, examining the CSGA is helpful when trying to project the impact similar legislation could have for community energy development in Minnesota. Part II of this memo is a basic overview of the CSGA and its provisions. Part III is an overview of the final implementing regulations for the CSGA published by the Colorado Public Utilities Commission. Part IV lays out some of the key issues that needed to be resolved in the rulemaking process, as well as important conflicts in the process. Part V relies on the previous sections to determine key issues to making a community solar garden program work, examines value judgments that must be made when defining and implementing a program, and examines how these issues can be addressed.

II. Overview of Colorado Community Solar Gardens Act (CSGA)[2]

The Colorado Community Solar Gardens Act, which became effective in June, 2010, outlines Colorado's approach to developing solar gardens throughout the state. The CSGA provides a basic outline to developing community solar, defines solar gardens, alters aspects of Colorado public utility law that had prevented solar garden development in Colorado, and enables the Colorado Public Utility Commission (PUC) to adopt rules for the development of the gardens. The PUC adopted final rules in September of 2012, which are outlined below as are the other relevant CSGA provisions.

The CSGA provides the key framework and definitions for developing CSGs in Colorado. It defines a CSG as "[A] solar electric generation facility with a nameplate rating of two megawatts or less that is located in or near a community served by a qualifying retail utility

[1] Throughout this document Xcel is generally referred to by this name, as this is the name it is generally referred to in both Colorado and Minnesota. It is important to note, however, that in many of the Colorado Public Utility Commission Filings it is referred to by the name of its Colorado subsidiary, the Public Service Corporation of Colorado (PSC). Any reference to the Public Service Company of Colorado, Public Service, or PSC in quotations or footnotes is referring to Xcel. Black Hills Energy is the other investor owned utility operating in Colorado. *See* Browse by Location, BLACK HILLS ENERGY (last accessed May 4, 2013), http://www.blackhillsenergy.com/node/448.

[2] COLO. REV. STAT. ANN. § 40-2-127 (West 2010).

where the beneficial use of the electricity generated by the facility belongs to the subscribers to the community solar garden."[3] Solar Gardens must have at least ten subscribers, may be owned by either the local utility or a for-profit or non-profit organization, and must sell their output to the local utility. In order to fit within Colorado Public Utility law, the solar garden is defined as being "located on the site of customer facilities."[4]

The CSGA outlines who may subscribe to solar gardens: subscribers must live in the county where the solar garden is located, with exceptions for counties with low populations.[5] It provides for a minimum subscription of 1 kW per subscriber, and a maximum of 120% of the subscriber's electricity use. Additionally, it prevents owners and subscribers to solar gardens from falling under Colorado's definition of a utility (unless they already would be a utility, such as the case where the utility is the owner of the solar garden).[6]

[3] § 40-2-127 (2)(b)(I)(A).

[4] § 40-2-127 (2)(b)(I)(A). This allows solar gardens to operate without acting as utilities under current Colorado law. The Colorado definition of a public utility is similar to Minnesota's current public utility definition, though more inclusive. Colorado defines a public utility as: "[E]very common carrier, pipeline corporation, gas corporation, electrical corporation, telephone corporation, water corporation, person, or municipality operating for the purpose of supplying the public for domestic, mechanical, or public uses and every corporation, or person declared by law to be affected with a public interest, and each of the preceding is hereby declared to be a public utility and to be subject to the jurisdiction, control, and regulation of the commission. . . ." COLO. REV. STAT. ANN. § 40-2-103(1)(a)(I) (West 2012). Additionally, "Every cooperative electric association, or nonprofit electric corporation or association, and every other supplier of electric energy, whether supplying electric energy for the use of the public or for the use of its own members, is hereby declared to be affected with a public interest and to be a public utility and to be subject to the jurisdiction, control, and regulation of the commission. . . ." This creates a very inclusive definition of what constitutes a utility. COLO. REV. STAT. ANN. § 40-2-103(2)(a). This problem is addressed by language stating that if solar voltaic or solar thermal equipment is located on a consumer's property, the consumer is not a utility as long as the solar does not provide more than 120% of the consumer's electricity consumption. § 40-2-103(2)(c). By defining a solar garden subscription as being on the consumer's property, utility classification is avoided. The primary difference between the Minnesota and Colorado definitions are the following exceptions: "No person shall be deemed to be a public utility if it furnishes its services only to tenants or cooperative or condominium owners in buildings owned, leased, or operated by such person. No person shall be deemed to be a public utility if it furnishes service to occupants of a manufactured home or trailer park owned, leased, or operated by such person. No person shall be deemed to be a public utility if it produces or furnishes service to less than 25 persons." MINN. STAT. §216B.02 Subd. 4 (2012). An exception similar to Colorado's for on-site generation could be added to Minnesota law relatively easily; any CSG legislation could rely on a legal fiction of being on-site as Colorado does, or it could simply be added into the rest of the Minnesota exceptions.

[5] § 40-2-127 (2)(b)(II).

[6] § 40-2-127 (4).

The CSGA requires retail utilities[7] to include purchases from at least one CSG in their resource acquisition plans.[8] Retail utilities must acquire at least half of the solar garden production they intend to acquire from gardens with a rating of less than 500kW of energy from solar gardens through 2014. Utilities are required to purchase the power from these smaller CSGs at prices similar to those they currently pay for on-site solar generation.[9] The CSGA limits the amount of electricity they are required to purchase through 2014 to 6 MW.[10] After this three year period, the PUC is responsible for determining the minimum and maximum purchases from newly installed solar required of the retail utilities.[11] Community solar gardens may only sell their electrical output to the local retail utility, and after the PUC approves the utility's acquisition plan for the garden,[12] the utility is required to purchase all of the unsubscribed electricity and renewable energy credits produced by the solar garden.[13] The utility provides a net metering credit to each customer's bill based on their share of ownership in the garden–the owner of the solar garden is required to provide real time production data as well as ownership/subscription information to the utility on a monthly basis.[14] Utilities are required to provide plans for incorporating low-income customers into solar gardens, and may give

[7] The CSGA generally refers to "qualifying retail utilities." A qualifying retail utility" is any utility in Colorado, except for municipally owned utilities serving less than 40,000 customers. § 40-2-124(1). However, this memo generally refers to qualifying retail utilities and investor-owned utilities interchangeably in the context of the CSGA, as cooperative and municipally-owned utilities are exempted from the CSGA. When the distinction is important (generally in the context of RES standards), this memo specifically refers to the requirements for municipally-owned and cooperative utilities. *See infra*, note 17.

[8] § 40-2-127 (4)(a)(I). These plans detail a utility's acquisition of new generation resources and ensure that utilities are on track to meet Colorado's RES goals.

[9] § 40-2-127 (4)(a)(II). This became an important issue of contention in the PUC rulemaking process surrounding the CSGA. The issues surrounding this provision, and a related change to the Colorado RES, some of which relate to protecting smaller installers, are discussed below.

[10] § 40-2-127 (4)(a)(II).

[11] § 40-2-127 (5)(a)(I-IV).

[12] A utility's resource plan or resource acquisition plan is a PUC approved plan which details a utility's acquisition of new generation resources, including renewable and distributed renewable generation. § 723-3-3604.

[13] § 40-2-127 (5)(b)(I).

[14] § 40-2-127 (5)(b)(II).

preference to solar gardens that include low income subscribers.[15] The CSGA also allows for utilities to recover a margin, determined by the PUC, on all electricity and RECs purchased form solar gardens.[16] The CSGA does not apply to municipally-owned or cooperative electric associations–it only applies to investor-owned utilities.[17]

III. Public Utility Commission's Implementing Regulations for the CSGA

The CSGA provides a relatively rough outline for the development of solar gardens in Colorado, and gives the Colorado PUC a significant amount of power in adopting the rules to implement it. The rules adopted by the PUC include several important clarifications and expansions of the statutory language. The rules outline four key actors in the development of community solar gardens: the subscribers,[18] the subscriber organization,[19] the owner of the solar garden,[20] and the retail utility. A subscriber organization is "any for-profit or nonprofit entity permitted under Colorado law . . . whose sole purpose shall be: (I) To beneficially own and operate the CSG; or (II) To operate a CSG that is built, owned, and operated by a third party under contract with such CSG subscriber organization."[21] The subscriber organization principally acts as the administrator/manger of the solar garden and subscriptions. It is important to note that these actors need not be completely distinct. The subscriber organization or the local retail utility may own the solar garden, or it may be owned by a third party.[22] However, for the

[15] § 40-2-127 (5)(e).
[16] § 40-2-127 (5)(f).
[17] § 40-2-127 (7).
[18] 4 COLO. CODE REGS. § 723-3-3652(h). A CSG subscriber is "[A] retail customer of an investor owned QRU who owns a subscription to a CSG and who has identified one or more premises served by the QRU to which the CSG subscription shall be attributed."
[19] § 723-3-3652(i).
[20] § 723-3-3652(g). A CSG owner is "[T]he owner of the solar generation facilities installed at a CSG that contracts to sell the unsubscribed renewable energy and RECs generated by the CSG to an investor owned QRU. . . . A CSG owner may be the QRU or any other for-profit or nonprofit entity or organization, including a CSG subscriber organization."
[21] § 723-3-3652(i).
[22] § 723-3-3652(g).

purposes of the rules, the subscriber organization is considered to be the owner of the solar garden, and therefore has all of the responsibilities and duties placed on the owner by the rules.[23]

A. **Solar Garden Subscription Limitations and Requirements**

The rules limit single subscriptions to 40% of the beneficial use of the electricity generated by the solar garden, place the minimum ownership requirement at 1 kW of nameplate generation rating (this minimum does not apply to low-income subscribers), and limit the maximum to 120% of a subscriber's average annual electricity consumption.[24] The solar garden must be in either the same municipality or county as the subscribers, unless the county has less than 20,000 residents and the solar garden is located in an adjacent county with less than 20,000 residents.[25] Finally the subscriber organization may not own more than a 40% interest in the beneficial use of the electricity within 18 months of the solar garden beginning operation. Essentially, the beneficial use requirement means subscribers must have subscribed to more than 60% of the production within eighteen months of the solar garden becoming commercially operational for the solar garden to receive the full benefits of being subscribed.[26]

B. **Location, Ownership, and Transferability of Subscriptions**

Solar garden subscriptions may be transferred to others within the eligible subscriber area or back to the subscriber organization. Subscribers may transfer the subscription to other qualified customers of the retail utility, but only according to the terms and conditions of their subscriptions.[27] Fully-subscribed CSGs must maintain waiting lists so that current subscribers may transfer or assign their subscription, on a first-come first-serve basis, to those on the waiting

[23] § 723-3-3652(g). "A CSG subscriber organization operating a CSG not owned by it will be deemed to be a CSG owner for purposes of these rules."
[24] § 723-3-3665(a)(I)(A)-(B) (2012).
[25] § 723-3-3665(a)(I)(C).
[26] § 723-3-3665(a)(I)(C). These benefits are the higher rate paid for subscribed potions of the solar garden than for unsubscribed portions. *See* §§ III.D-E, *supra*.
[27] § 723-3-3665(a)(II)(B-C).

list.[28] The rules require that the subscriber organization and the retail utility verify the eligibility of the subscribers, as well as their ownership shares.[29] The PUC will not regulate the prices paid for subscription to solar gardens.[30]

C. **Maintaining and Reporting Production Data**

Each community solar garden owner is responsible for paying for the installation of a production meter to determine the amount of electricity and RECs generated by a project. Each solar garden must provide real-time production data to the retail utility purchasing its electricity as specified by the utility. The solar garden subscriber organization must provide production data to its subscribers on at least a monthly basis, and is encouraged to create a website showing both real-time and historic production from the solar garden.[31]

D. **Bill Crediting**

Community solar garden subscribers are reimbursed for the energy their subscription generates through credits on their electricity bill from the retail utility.[32] The credits are determined by taking the percentage of the subscriber's share in the solar garden and multiplying it by the total electricity produced, and then multiplying that by the total aggregate retail rate (the rate including all billed components) charged to the subscriber.[33] For commercial and industrial consumers on demand tariffs, the rate is calculated differently. The rate is calculated by taking the total electric charges paid by the customer in the previous calendar year (including any/all demand charges paid by the customer) and dividing that by their total electricity consumption;

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[28] § 723-3-3665(a)(II)(D).
[29] § 723-3-3665(a)(II)(E). This includes determining how much of a solar garden each subscriber is subscribed to, where the meter the subscription is attributed to is located (to ensure it is within the allowed geographical area), and maintaining and reporting any changes to who is subscribed.
[30] § 723-3-3665(a)(II)(F).
[31] § 723-3-3665(b)(I-IIII) (sic).
[32] § 723-3-3665(c)(I). Here, the subscriber organization only acts to transfer information about ownership share and electricity production; the retail utility directly credits customer's bills.
[33] § 723-3-3665(c)(I)(A).

this is a separate calculation for each subscriber on a demand tariff.[34] Xcel was significantly opposed to this provision, as it requires calculating a separate rate for each customer.[35] Credits must be made on each subscriber's bill (whether residential or commercial) within 60 days of the utility receiving the information from the subscriber organization needed to calculate the credit.[36] Any excess credits beyond the subscriber's monthly electricity consumption are rolled over month to month, until the customer is no longer a subscriber. No payment is made to the customer for this excess.[37] The investor-owned utilities are able to assess fixed charges (approved yearly by the PUC) to the solar garden subscribers to cover the costs of delivering the solar garden energy to them, administration costs associated with the solar garden program, and integrating the solar garden into the grid.[38]

E. **Purchases of RECs and Electricity**

Investor-owned utilities are required to purchase all of the RECs generated by a solar garden if the garden is part of a PUC-approved compliance plan.[39] Utilities also must purchase all of the unsubscribed electricity generated by a solar garden. Energy from unsubscribed portions of the solar garden is purchased by the utility at a rate equal to its average hourly incremental cost of electricity.[40] The PUC is responsible for determining minimum and maximum purchases after the year 2014; until 2014 utilities may not be required to purchase more than 6 MW.[41] Utilities may not use the RECs from solar gardens to make up more than 20

[34] § 723-3-3665(c)(I)(B).
[35] For more information on Xcel's objections, see below.
[36] § 723-3-3665(c)(I)(C). This was another point of contention, and Xcel was successful in having the time to credit extended from 30 days to 60 days. For more information see §IV.A, *infra*.
[37] § 723-3-3665(c)(III).
[38] § 723-3-3665(c)(II).
[39] § 723-3-3665(c)(IV).
[40] § 723-3-3665(c)(V). This rate represents the utility's generation costs, and is likely to be significantly lower than the rate paid for subscribed portions (which is based on all components of the billed rate).
[41] § 723-3-3665(d)(I).

percent of their renewable distributed generation requirements under the RES.[42] For the years 2011, 2012, and 2013, investor-owned utilities are required to issue standard offers to purchase RECs from at least one solar garden of 500 kW or less at prices similar to those the utility already offered for on-site solar generation (e.g., distributed solar generation located on a residence or business).[43] The utility must acquire half of the solar garden generation capacity it plans to acquire during these years from gardens of 500 kW or less.[44] The utility is responsible for establishing a reservation system, or backlog, for offers to develop solar gardens, with deposits limited to $100 per kilowatt of nameplate capacity.[45]

F. **Low-Income Subscribers**

The PUC rules require that investor owned utilities reserve at least five percent of their purchases from solar gardens for low-income subscribers (as long as there is at least five percent demand from low-income subscribers). Low-income subscribers are those that qualify for Colorado's Low-Income Energy Assistance Program. Utilities may rely on low-income specific solar gardens or low-income set asides in solar gardens to meet this goal.[46]

G. **Financing and Financial Reporting Requirements**

The rules require that contracts signed between investor-owned utilities and solar garden owner's be filed with the utility commission and maintained as a matter of public record.[47] The subscriber organization is responsible for producing public, annual reports which include the

[42] § 723-3-3665(d)(I)(A). Retail distributed generation is renewable energy sources located on a customer's facilities and interconnected to the utility. COLO. REV. STAT. ANN. § 40-2-124(a)(V). Since Colorado uses a legal fiction to define CSG subscriptions as located on the site of the customer's facilities, CSG subscriptions would otherwise be completely applicable to this requirement. *See* Renewable Energy Standards and Solar Gardens, §III.H, *infra*.
[43] § 723-3-3665(d)(III).
[44] § 723-3-3665(d)(III)(A). Though the CSGA and PUC rules refer to the acquisition of solar garden capacity by utilities, this does not mean the purchase of solar gardens. It refers to long-term contracts (20 years or more for gardens of more than 1MW installed capacity, less for smaller gardens) for the purchase of electricity and RECs form solar gardens.
[45] § 723-3-3665(d)(III)(B).
[46] § 723-3-3665(d)(V)(A)-(B).
[47] § 723-3-3665(e)(I). Xcel was strongly opposed to this position–for more information see § IV.E, *infra*.

amount of energy produced by the solar garden, balance sheets, income statements, and other financial documents. The subscriber organization is also responsible for providing reports to subscribers to the solar garden which outline power produced, retail rates, and bill credits to each customer's account.[48] Additionally, the rules require utilities to investigate the financial soundness of groups applying to build solar gardens. The local utility is responsible for investigating whether the proposed solar garden owners have resources and funding to complete the proposed projects; this includes requiring $100 per kilowatt to be placed in escrow. If the owners of the proposed solar garden are able to meet this escrow requirement, the utility may not deny their proposal for lacking resources.[49]

H. **Renewable Energy Standards and Solar Gardens**

Several important changes that affect solar gardens were made to the Renewable Distributed Generation requirements of Colorado's RES.[50] These rules require investor-owned utilities to generate increasing amounts of their retail electricity sales through distributed generation projects.[51] The Rules require that at least one-half of the renewable distributed generation come from retail renewable distributed generation.[52] However, the Rules limit the amount of RECs from community solar gardens which may be used to meet this requirement to 20% for the years 2011, 2012, and 2013.[53] Though the legislative history on this issue is missing, it appears from PUC testimony and filings that these restrictions were put in place in order to

[48] § 723-3-3665(e)(II).
[49] § 723-3-3665(d)(IV)(A)-(B).
[50] COLO. REV. STAT. ANN. § 40-2-127 (5)(a)(II) (West 2010); § 723-3-3665(g).
[51] § 723-3-3655(a)(I-V). The requirements begin at 1% of retail sales for 2011-2012, and slowly increase to a total of three percent of a utility's electricity sales for the year 2020 and continuing into the future.
[52] § 723-3-3655(b).
[53] § 723-3-3655(g). *See also* COLO. REV. STAT. ANN. § 40-2-127(5)(a)(II) (West 2010).

protect installers of smaller on-site solar from being pushed out of business by solar garden developers.[54]

The adoption of these final rules was not without conflict. The rulemaking process at the PUC took over two years of hearings, proposed rules, and compromise. Examining key areas where there were conflicts over the rules help to illustrate both areas where the law was unclear and the differing arguments presented by solar advocates and utilities, and who prevailed in those arguments before the PUC. Some of these conflicts were minor and focused on the technical and administrative feasibility and efficiency of parts of the rules, such as the length of time utilities were given to credit consumer bills. Other issues involved more significant conflict over fundamental aspects of the CSGA, such as ownership of renewable energy credits, incentive/subsidy structures, and balancing the access to solar gardens with maximizing subscriptions to the solar gardens.

IV. Conflicts over the Proposed and Final Rules

A. Time to Determine Net Metering Credits

One of the smaller issues Xcel had with the original Commission rules was the timeframe in which utilities were required to credit customer's bills. The original language required the utilities to credit bills within 30 days of receiving generation and ownership information from solar garden subscriber organizations.[55] Xcel argued that due to billing on a monthly cycle, the 30 day requirement would be very difficult to meet, and they requested that 60 days be allowed to better allow them to fit credits within their billing cycle.[56] The 60 day requirement was adopted in the final rules.[57]

[54] Public Service Company of Colorado, Brief on Exceptions, Docket No. 10R-674E, at 11 (Aug. 15, 2011).
[55] Redlined Adopted Rules, Decision No. R11-0784 § 3665(c)(III).
[56] Public Service Company of Colorado, Brief on Exceptions, Docket No. 10R-674E, at 10 (Aug. 15, 2011).
[57] § 723-3-3665(c)(I)(C).

B. **Ownership of RECs**

A significant issue of contention in the proposed rules involved the ownership of the RECs generated by community solar gardens, as well as the obligations of the retail utilities to purchase them. Xcel argued that it had no obligation to purchase electricity from a facility that was not part of its approved acquisition plan and which did not sell its renewable energy credits to Xcel.[58] In the original proposed rules, solar garden subscribers were given the option to waive compensation for the RECs and keep them, as long as the RECs were not part of a PUC approved acquisition plan.[59] When solar gardens sign contracts with utilities for the purchase of the energy and RECs they generate they become part of the utilities' resource acquisition plan, as long as the amount of energy contracted for does not exceed the PUC set maximum.[60] According to Xcel, the rule proposed by the Administrative Law Judge would have required retail utilities to purchase the power from community solar gardens in their area even if they were not part of an acquisition plan, but would allow the subscribers to retain ownership of the RECs generated by the facility.[61]

Members of the solar industry strongly disagreed with Xcel's argument that RECs constituted output of a solar garden and that subscribers were required to sell them to the retail utility in all situations. The Colorado Solar Energy Industries Association (COSEIA) argued that if a solar garden was outside of a utility's acquisition plan, the utility would not have room in its budget under the RES or Renewable Energy Standard Adjustment[62] funds to acquire the RECs.

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[58] Public Service Company of Colorado, Brief on Exceptions, Docket No. 10R-674E, at 10 (Aug. 15, 2011).
[59] Redlined Adopted Rules, Decision No. R11-0784 § 3665(c)(IV).
[60] § 723-3-3665(d)(II).
[61] Public Service Company of Colorado, Brief on Exceptions, Docket No. 10R-674E, at 11 (Aug. 15, 2011).
[62] The Renewable Energy Standard Adjustment (RESA) is a 2% charge on each Xcel customer's bill in Colorado which is used to pay for programs such as Solar*Rewards; recently the program began assessing fees on solar owners as well in order to make up for decreasing revenues as more Colorado customers began using solar. These fees are: $1.30 a month for solar systems up to 5kW, $2.05 a month for systems between 5 and 10kW, and $4.11 a month for systems over 10kW. Chris Meehan, Colorado RESA Fee Upsets Some Solar Owners, CLEAN ENERGY

They argued that allowing subscribers and subscriber organizations to retain the RECs from projects that are not utility-subsidized would incentivize more solar garden development.[63] COSEIA argued that this private ownership of RECs could help to develop a more vibrant market for RECs, as they would be able to trade or sell them in the Western Renewable Energy Generation System REC Market. COSEIA argued that this increased market activity could help raise the cost of RECs in the Western market closer to the higher prices in the Eastern market.[64]

The Administrative Law Judge stated that output does not include both energy and RECs, as the statute distinguishes methods of payment for output (through net-metering) and RECs (through other payment structures). Therefore, the judge found the interpretation advocated by Xcel was incorrect.[65] Xcel argued that the interpretation of the Administrative Law Judge was contrary to the statute, as it required that the output from a solar garden be sold only to the retail utility, and that the framework and legislative history of the statute showed that output meant both the electricity produced and the associated renewable energy credits.[66] The judge ruled that when a portion of a solar garden outside of an acquisition plan is unsubscribed, the garden must sell the RECs to the utility along with the unsubscribed power, but when a section of a garden becomes subscribed, the subscriber owns the REC.[67] Despite this, the language in the section Xcel objected to was removed between the proposed rulemaking and the final rulemaking. The current rules do not include language allowing customers to maintain control of the RECs

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AUTHORITY (May 9, 2011) http://www.cleanenergyauthority.com/solar-energy-news/solar-owners-in-colorado-upset-over-fee-050911/.

[63] Final Comments of Colorado Solar Energy Industries Association Regarding Proposed Rules for Community Solar Gardens, Docket No. 10R-674E, at 2-3 (April 8, 2011).

[64] Final Comments of Colorado Solar Energy Industries Association Regarding Proposed Rules for Community Solar Gardens, Docket No. 10R-674E, at 4-5 (April 8, 2011).

[65] Recommended Decision of Administrative Law Judge G. Harris Adams Adopting Rules, Decision no. R11-0784, ¶173-188 (July 25, 2011).

[66] Public Service Company of Colorado, Brief on Exceptions, Docket No. 10R-674E, at 11-12 (Aug. 15, 2011).

[67] Recommended Decision of Administrative Law Judge G. Harris Adams Adopting Rules, Decision no. R11-0784, ¶187-188 (July 25, 2011).

relating to unsubscribed portions of community solar gardens. The rules do require utilities to purchase the unsubscribed energy and RECs from community solar gardens.[68] Despite this, the final language is not clear on the purchase of unsubscribed energy or RECs for solar gardens outside of the utility acquisition plan. In fact, though the debate before the Administrative Law Judge seems to indicate that solar gardens could exist outside of a utility resource acquisition plan, neither the statute nor rules seem to provide a way for such a project to be approved, nor how it would be connected with customers meters or how bills would be credited under Colorado's net metering statute.[69]

C. **Payment for RECs**

Another important REC issue that came up in the hearings for the Community Solar Gardens Act was the rate at which solar would be subsidized through REC purchases by utilities. Xcel sought to have the rate at which it compensated on-site solar systems through its Solar*Rewards rebate program reduced from $2.00 to $0.25 per watt.[70] The CSGA specified that a subscription to a solar garden is defined as being on the subscriber's premises; so this rate would apply to purchases of RECs from solar gardens.[71] Though Colorado statute set the rate at $2.00 per watt, it also gave the PUC the authority to change it as circumstances changed.[72] Xcel wanted the program to be changed to allow it to pay a smaller rebate per watt, and to purchase

[68] § 723-3-3661(c).
[69] It is possible that the parties were contemplating that solar gardens could be net-metered as any other on-site solar generation would be under Colorado's net metering rules. These rules require interconnection for facilities which are located on a consumer's premises and which do not generate more than 120 percent of the consumer's electricity production. § 723-3-3664(a). This could be possible, as Colorado defines a solar garden subscription as being located on a consumer's premises for purposes of bill-crediting. § 723-3-3652(d).
[70] Order Approving Settlement Agreement, Decision No. C11-0304, ¶ 2 (Mar. 18, 2011).
[71] This would be true only for the gardens under 500kW capacity. Larger gardens negotiate the price with the utility. COLO. REV. STAT. ANN. § 40-2-127 (2)(b)(I)(A) (West 2010).
[72] COLO. REV. STAT. ANN. § 40-2-124(1)(e) (West 2010).

the RECs generated by facilities at a rate of approximately $1.00 per watt based on the size of the facility.[73]

Initially, this change was heavily disputed between groups supporting the public, solar industry groups, and Xcel. The parties, however, were able to come to a settlement. The settlement agreement changes the structure of solar incentives in Colorado. Instead of a large up-front payment to those putting solar on their property, the settlement relied on a much smaller up-front payment combined with production-based payments for RECs over the life of the project.[74] There was a significant amount of debate over the level of these incentive payments. Based on estimated production, Xcel will pay less over the life of the project than it did with the $2.00 per watt payment. However, it will pay more than it had originally proposed, and the parties agreed that market forces driving the price of solar downward would make this lesser payment acceptable.[75]

These changes set Xcel's spending to $97.3 million for incentives for both Solar*Rewards and solar gardens for its 2012 compliance plan.[76] Under the terms of the agreement the up-front rebate paid by Xcel will gradually decrease for small solar systems as more applications for on-site solar installations are accepted, while the price Xcel pays for RECs will increase.[77] The parties to the settlement agreement also agreed that the rebate payments for larger systems and for systems that are owned by third parties could immediately end, as they are not as necessary for the financial success of these developments. A major reason solar industry advocates were willing to accept the settlement was that longer term payments would allow for the development of more financed systems in the long run. The settlement would require Xcel to

[73] Order Approving Settlement Agreement, Decision No. C11-0304, ¶ 3 (Mar. 18, 2011).
[74] Order Approving Settlement Agreement, Decision No. C11-0304, ¶ 13 (Mar. 18, 2011).
[75] Order Approving Settlement Agreement, Decision No. C11-0304, ¶ 13 (Mar. 18, 2011).
[76] Order Approving Settlement Agreement, Decision No. C11-0304, ¶ 14 (Mar. 18, 2011).
[77] Order Approving Settlement Agreement, Decision No. C11-0304, ¶ 21(Mar. 18, 2011).

spend around $10 million per year for the next ten years on incentives, and $7 million a year for the next ten years. COSEIA representatives testified that this would be beneficial to small solar projects, as smaller projects often rely on ten-year financing schedules, rather than the longer-term financing schedules of larger projects.[78]

D. **Subscriber Size Limitation**

Another important issue that was a matter of debate in the rulemaking process was the 40% limit on the size of a subscriber to a community solar garden. Some argued that there should be no limitation on subscription size, while others argued that the limitation should only apply to the subscriber organizations having a beneficial interest in the solar garden in their own name.[79]

Both the Interstate Renewable Energy Council and New Energy argued that the 40% limitation should only apply to subscriber organizations, not to individual subscribers. Their argument focused on the advantage of having large "anchor" subscribers which could help fund more solar development. They also argued that restrictions already in the statute, such as the limitation on subscriptions to 120% of the user's load and the requirement for a minimum of 10 subscribers to a solar garden are enough to ensure access to solar gardens.[80]

Other commenters, as well as members of the solar industry, also argued that the 40% limitation on ownership for subscriber organizations was unnecessary. They argued that the limitation would make it difficult for solar gardens to be successful in their early phases as they were seeking subscribers. They also argued that subscriber organizations already have financial

[78] Order Approving Settlement Agreement, Decision No. C11-0304, ¶ 22(Mar. 18, 2011).
[79] Recommended Decision of Administrative Law Judge G. Harris Adams Adopting Rules, Decision no. R11-0784, ¶37-61 (July 25, 2011).
[80] Recommended Decision of Administrative Law Judge G. Harris Adams Adopting Rules, Decision no. R11-0784, ¶40-44 (July 25, 2011).

incentives to have their gardens fully subscribed by others, so the limitation in the rules is unnecessary.[81]

Two key issues underlie this debate: the statutory policy of maximizing participation of solar gardens, and the difference in compensation between subscribed and unsubscribed portions of solar gardens. Unsubscribed electricity and RECs must be purchased by the retail utility at its average hourly incremental cost of electricity. For subscribed portions of solar gardens, the utility is required to pay customers based on its total aggregate retail rate and the price it contracted for the purchase of RECs. Under this payment structure, utilities end up paying significantly more for the subscribed portions of solar gardens than for the unsubscribed portions.[82]

The Colorado Department of Regulatory Agencies Office of Consumer Council (OCC) proposed that the 40% limitation be waived while the solar garden was under development, but that the waiver expire after 1 to 1 ½ years to give the subscriber organization a chance to attract more subscribers.[83] The judge agreed with the assessment of the OCC. Waiving the 40% limitation initially would ensure adequate funding for solar garden development, while ensuring that there is still an opportunity for broader participation in solar garden development. This is especially important in the early years of the program, where the amount utilities must purchase is limited to 6MW.[84] In the final language of the adopted rules, both subscribers and subscriber

[81] Recommended Decision of Administrative Law Judge G. Harris Adams Adopting Rules, Decision no. R11-0784, ¶45-46 (July 25, 2011).
[82] § 723-3-3665(c).
[83] Recommended Decision of Administrative Law Judge G. Harris Adams Adopting Rules, Decision no. R11-0784, ¶ 48 (July 25, 2011).
[84] Recommended Decision of Administrative Law Judge G. Harris Adams Adopting Rules, Decision no. R11-0784, ¶57-61 (July 25, 2011).

organizations are limited to 40% shares of any one solar garden, with a waiver for subscriber organizations until the solar garden has been commercially operational for 18 months.[85]

E. **Opposition to Publication of Contracts**

Xcel opposed the presence of language in the rules requiring that the contracts between retail utilities and community solar garden owners be a matter of public record. Xcel felt that these documents should be confidential, as they are the result of a competitive bidding process.[86] Solar proponents argued that the contracts for winning bids to build solar gardens should be made a matter of public record in order to ensure that the process of awarding contracts was transparent and fair, as well as to encourage competition.[87] Though the administrative law judge seemed to agree with Xcel in his order, as bid information has traditionally been maintained as highly confidential by the PUC,[88] the language requiring the power purchase contracts to be in the public record remains in the Final Rules adopted by the commission.[89]

V. Important Issues to Address in Developing a Solar Garden Program

A variety of important issues came to light in the hearings surrounding the rule-making process for the CSGA which should inform any proposed solar garden legislation in Minnesota. Several aspects of the Colorado CSGA and associated rulemaking focused on important value judgments which need to be made in developing a community solar garden program, which do not necessarily have a single best answer. Some key aspects of the program that would need to be addressed in any solar garden plan in Minnesota include:

- Determining the appropriate timeline for implementation of the program;

[85] § 723-3-3665(a)(I)(D).
[86] Public Service Company of Colorado, Brief on Exceptions, Docket No. 10R-674E, at 15 (Aug. 15, 2011).
[87] Recommended Decision of Administrative Law Judge G. Harris Adams Adopting Rules, Decision no. R11-0784, ¶259(July 25, 2011).
[88] Recommended Decision of Administrative Law Judge G. Harris Adams Adopting Rules, Decision no. R11-0784, ¶260 (July 25, 2011).
[89] § 723-3-3654(e).

- Determining which utilities are required to participate in the program;
- Ensuring that smaller solar installers are able to compete as solar gardens are developed;
- Determining how and at what level incentives are to be paid to solar gardens;
- Balancing participation and ensuring solar gardens are fully subscribed;
- Determining ownership of RECs in solar gardens and appropriate incentive structures.

A. **Solar Garden Rulemaking and Development Timetable**

Solar garden legislation in Minnesota should also reflect likely delays in the rulemaking and implementation of the statute. Though passed in 2010, the final rules implementing the statute were not issued by the Colorado PUC until late in 2012. Most solar gardens are still under development. Despite this, the statute makes references to compliance points that shift over the years 2011, 2012, and 2013.[90] As such, the statute's assumption that gardens would already be under development and producing energy by this point seems to have been too optimistic. Allowing sufficient time for the rulemaking process to take place (though learning from Colorado could certainly speed the process) will be an important aspect of any community solar development in Minnesota. Several important issues regarding timing should be addressed in any community solar garden program in Minnesota: the desired speed of solar development, the effects of increased or decreased speed on the costs and availability of that development to subscribers, and a recognition that developing and implementing solar garden legislation and solar gardens themselves will be a time-consuming process.

B. **Determining Appropriate Level of Utility Participation**

Another important issue is what level of participation should be required of non-investor owned utilities (i.e. municipal and cooperative utilities). Colorado utility law requires municipal

[90] *See, e.g.*, § 40-2-127 (4) (requiring utilities to acquire 50% of their solar garden capacity from gardens smaller than 500kW); § 723-3-3655(g) (requiring that utilities only use solar gardens to achieve 20% of their distributed generation goals through the use of community solar gardens for the years, 2011, 2012, and 2013).

and cooperative utilities to conform to significantly less-strict standards than investor-owned utilities with respect to their RES requirements. For example, investor-owned utilities are required to generate or purchase 30% of their electricity from renewable sources (including distributed generation) by 2020; municipal utilities and cooperatives are only required to generate or purchase 10% of their electricity from renewable sources.[91] Under the Colorado act, essentially no participation is required of these utilities in renewable distributed generation standards (of which solar gardens are a part).[92] Though cooperatives and municipally-owned utilities are not required to participate in these programs, there are incentives to promote rural renewable development projects.[93]

Several key issues need to be considered when determining the level of participation of municipal and cooperative utilities, regarding both the ability of legislation to pass and of these utilities to comply with it. Smaller utilities generally have more limited resources than larger investor owned utilities, and these utilities generally serve smaller and more geographically dispersed populations than investor owned utilities.[94] These populations may not be the best suited to supporting the concentrated solar development of large-scale solar gardens.[95] However, if these utilities are not required to participate in some sort of solar generation program, there will be significantly less ability for rural residents to participate in solar programs if they wish to, and there would likely be less overall solar development in Minnesota. Any solar garden

[91] § 723-3-3654(a)-(c). For example, the RES for cooperatives in Colorado begins at 1% for the year 2008, and caps at 10% in the year 2020. § 723-3-3654(b).
[92] § 723-3-3655(a).
[93] § 723-3-3654(g) ("For purposes of compliance with the renewable energy standard, each kilowatt-hour of eligible energy generated from a rural renewable project may be counted as two-kilowatt hours.").
[94] *See, e.g.*, Index of Company's Service Area, XCEL ENERGY, http://www.xcelenergy.com/staticfiles/xe/Corporate/Corporate%20PDFs/Me_Section_3.pdf (providing a list of communities served by Xcel in Minnesota, which primarily, though not exclusively, include the most densely populated portions of the state).
[95] This certainly does not preclude any other sort of solar program, such as requiring varying levels of incentives for small-scale solar (such as panels on homes) based on a utility's size or resources, or incentivizing utility participation by giving distributed generation a greater weight towards meeting RES requirements as is done in Colorado. *See* § 723-3-3654(g).

legislation in Minnesota should carefully balance the financial and technical capacity of municipal and cooperative utilities and the need of rural utilities for additional generation, as well as the negative effects on residents' ability to participate, and incentives structures as alternatives to requirements on municipal utilities and cooperatives, before requiring their participation by legislative mandate.

C. **Ensuring Small Solar Installers and Minnesota Companies Can Compete**

Solar gardens legislation should try to ensure that small solar installers are able to benefit from distributed generation standards and solar gardens programs. For instance, the Colorado Act and rules have several ways of helping these groups to adapt to the changing business environment created by the CSGA in Colorado. First, as mentioned before, the amount of generation which can come from solar gardens to meet Colorado's distributed generation requirements is limited to 20% for the years 2011, 2012, and 2013.[96] This ensures that smaller installers are given time to adapt to the changing market environment created by the CSGA. Another important factor is the differential treatment for solar installations of 500 kW or less. For the years 2011, 2012, and 2013, utilities are required to acquire half of their solar garden capacity through standard offers to projects of 500 kW or less. These smaller projects receive more beneficial treatment than larger solar gardens–utilities are required to make standard offers for purchasing the RECs from these projects that are comparable to prices the utility pays for RECs from traditional on-site solar generation.[97] The settlement agreement shifting payments from Solar*Rewards towards purchases of RECs–from up-front incentives towards payments

[96] § 723-3-3655(g).
[97] § 723-3-3665(d)(III). This benefit is not solely for smaller installers. It is also intended to encourage solar garden growth in general by ensuring high levels of funding for smaller and easier to finance solar gardens.

over time–has more of a mixed effect for smaller installers.[98] As long as the program is able to adequately incentivize smaller installations by ensuring that they are attractive prospects for financing–as it is hoped it will do, it will help to ensure that installers of small-scale solar systems will still have a place in Colorado. A variety of approaches in Minnesota could be taken to ensure that smaller members of the solar industry are not overwhelmed by large installers of solar gardens. These approaches could include, but are certainly not limited to, a made in Minnesota incentive for solar equipment,[99] incentives to ensure that rooftop solar and other solar systems are still a financially viable option for consumers who wish to use them,[100] or a requirement that utilities meet a portion of their RES requirements through small-scale, distributed generation.[101]

D. **Solar Garden Approval and Utility Acquisition Plans**

Another important issue to consider is how solar gardens should be approved. The Colorado Act places solar gardens as a part of a utility's resource acquisition plan. It requires utilities to purchase the energy of solar gardens in their service area, limits the amount of solar-garden produced energy they are required to purchase, and allows the PUC to set a maximum on the amount utility's may purchase as a part of their acquisition plans.[102] This approach gives utilities a significant level of control over solar garden development. It prevents communities which may wish to develop additional solar gardens beyond the required utility purchases, or solar gardens outside of utility control, very little ability to do so. It does, however, also have its

[98] *See* § IV.C, *supra*. As explained above, these changes to solar incentives for projects in Colorado maintain a small up-front subsidy for smaller projects, while eliminating the up-front subsidy for large solar installations.
[99] Xcel currently offers an additional rebate for use of equipment made in Minnesota in addition to its Solar*Rewards program. *See* Minnesota Incentives/Policies for Renewables & Efficiency, DSIRE (last updated Oct. 15, 2012), http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MN138F&re=0&ee=0.
[100] This could be especially helpful in rural and less-densely populated areas where larger community solar gardens may not be as financially advantageous.
[101] Or, like Colorado, a distributed generation requirement could be added, with a limit on the amount solar gardens may be used to achieve for a certain amount of time. *See* § 723-3-3655(g).
[102] *See* § IV.B, *supra*.

advantages. It ensures that an appropriate amount of new generation capacity is being developed, and it guarantees a certain level of funding for solar gardens through required utility purchases of electricity and RECs. The current Colorado statute is not particularly clear on how or when solar gardens could be developed outside of the utility acquisition plan system, if it is possible at all. Any solar garden legislation in Minnesota should take into account the advantages and disadvantages of allowing solar gardens outside of a resource acquisition plan, be explicit in whether or not community solar gardens may developed outside of utility control, and if such gardens are allowed, be explicit how they would be approved and interconnected to customers.

E. **Balancing Participation and Funding**

Ensuring a balance between promoting broad participation in solar garden projects and ensuring that they are adequately funded should be a part of Minnesota solar garden legislation. The Colorado Act and rules do this through its subscriber size limitations,[103] lack of PUC regulation on solar garden subscription prices,[104] and low-income subscriber carve-out.[105] A low income carve out should be included in any Minnesota legislation to ensure broader access to the benefits of solar gardens, which can have a high up-front cost. If solar gardens are required to be a part of utility resource acquisition plans, and if there is a maximum allowable limit to the amount of solar garden capacity which can be acquired under these plans (as there is in Colorado),[106] then limiting subscriber size to ensure broader access to a limited amount of solar garden capacity is a good policy option. If solar gardens are allowed outside of utility resource acquisition plans, and they can be developed as long as there is a demand and financing available for them, allowing large subscribers to act as financial anchors would be a better policy choice.

[103] *See* § IV.D, *supra*.
[104] § 723-3-3665(a)(II)(F).
[105] § 723-3-3665(d)(V)(A)-(B).
[106] § 723-3-3665(d)(II).

F. **Incentivizing Solar Gardens to Ensure Development Goals**

Finally, how community solar gardens are incentivized and how the RECs they generate are allocated need to be addressed by any community solar garden legislation. These policy choices impact a variety of other aspects of a solar program, such how small installers may be impacted and how community solar gardens could be developed outside of acquisition plan-based/PUC controlled model. As discussed above, Colorado has chosen to begin shifting incentives away from a Solar*Rewards up-front subsidy system toward a model based on payments for the RECs from solar as they are generated.[107] Though this could help to create more solar generation in the long term, as the solar installers hoped, it could also make small solar systems somewhat less attractive to consumers when they are considering the up-front cost of a system. Another important issue to consider is ownership of RECs, especially if solar gardens were allowed to develop outside of the utility-acquisition plan model. Solar groups argued that giving these RECs to subscribers could help to create a more viable REC market in Colorado, which could incentivize solar development outside of a utility/state funded incentive model, and allow for higher overall levels of solar installation.[108] Any solar garden legislation in Minnesota should consider the long-term effects of balancing up-front subsidies and subsidies paid over time in its solar development goals. It should also address of how REC ownership is allocated under a solar garden program, when customers may retain RECs, and the desirability of developing a broader REC market.

VI. Conclusion

The Colorado Community Solar Gardens Act provides an excellent starting point for development of community solar garden legislation in Minnesota. Both the basic provisions of

[107] *See* §§ III.D-E, *supra*.
[108] *See* § IV.D, *supra*.

the CSGA and the way it was implemented through the Colorado PUC's rulemaking can help provide useful information to Minnesota, both are states which consider renewable energy development an important goal, follow the traditional model of utility regulation, and are served by Xcel Energy as one of their primary investor owned utilities. The Rules developed by the PUC were released after months of deliberation, conflict, and hearings. The conflicts in the rulemaking process outline key areas where any statue and its implementing rules will need to be carefully crafted and where solar proponents should expect opposition from the utility industry. Conflicts in Colorado focused not only on the expected disputes over subsidy levels and economic interests, but also focused on value judgments such as how to ensure broad participation in a limited program. A variety of difficult value judgments will need to be made in any solar garden legislation in Minnesota, and these often have no single, best answer. Colorado's experience with its Community Solar Gardens Act provides an excellent starting point for informing any community solar legislation in Minnesota, and the compromises, conflict, and policy balancing it will require.