

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO**

**RE: IN THE MATTER OF THE)
APPLICATION OF PUBLIC SERVICE)
COMPANY OF COLORADO FOR) PROCEEDING NO. 16A-0055E
APPROVAL OF ITS SOLAR*CONNECT)
PROGRAM)**

**CONFIDENTIAL ANSWER TESTIMONY AND ATTACHMENTS OF JUSTIN R.
BARNES**

ON BEHALF OF

THE ENERGY FREEDOM COALITION OF AMERICA

NOTICE OF CONFIDENTIALITY

A PORTION OF THIS DOCKET HAS BEEN FILED UNDER SEAL

Confidential: Testimony pages 13, 14 and 21

May 27, 2016

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I. INTRODUCTION

1 **Q: PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A: My name is Justin Barnes and my business address is 401 Harrison Oaks Blvd., Suite
3 100, Cary, NC 27513.

4 **Q: BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?**

5 A: I am the Director of Research at EQ Research LLC. EQ Research provides policy
6 research, analysis, and incentive data services to businesses, non-profits and others active
7 in the clean energy sector. In my current position I manage and contribute to EQ
8 Research's various research projects for clients, directly manage and perform research for
9 a renewable energy and energy storage regulatory policy tracking service, contribute to
10 other standard policy service offerings, and perform customized research.

11 **Q: PLEASE STATE YOUR QUALIFICATIONS AND RELEVANT EXPERIENCE.**

12 A: I have been involved in renewable energy policy analysis for more than 10 years in both
13 the public and private sector. During that time I have authored numerous articles and
14 reports, and presentations delving into various details of state and national renewable
15 energy policy, contributed to and managed policy-related grant projects under the U.S.
16 DOE Sunshot Initiative, and testified before the regulatory commissions in Oklahoma,
17 South Carolina, and Texas on distributed generation (DG) policy and utility solar
18 program designs. My detailed qualifications are provided in Appendix A.

19 **Q: ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

20 A: I am testifying on behalf of the Energy Freedom Coalition of America (EFCA).

1 **Q: PLEASE SUMMARIZE YOUR RECOMMENDATIONS IN THIS PROCEEDING.**

2 **A:** I recommend that the Commission reject Public Service's application to implement its
3 proposed Solar*Connect program because it has failed to provide convincing evidence
4 that the program is justified for the purpose of serving customer needs that are unmet by
5 existing programs. To the extent that the Commission finds that Public Service has
6 reliably identified at least some potential unmet needs, large or small, and wishes to
7 explore how this demand could be met, I recommend that it direct Public Service to
8 pursue investments in community solar gardens (CSGs) and/or the development of a solar
9 purchase program modeled on the existing Windsource program. This approach would
10 have the benefit of preserving competition and a level playing field among all potential
11 providers of solar energy services while offering additional customer options for
12 purchasing solar energy.

II. KEY DIFFERENCES BETWEEN SOLAR*CONNECT AND OTHER SOLAR PROGRAMS

13 **Q: WHAT ARE PUBLIC SERVICE'S MAIN ARGUMENTS FOR WHY THE**
14 **SOLAR*CONNECT PROPOSAL SHOULD BE APPROVED BY THE**
15 **COMMISSION?**

16 **A:** Public Service Witness Jackson describes Solar*Connect as an alternative to existing
17 programs for customers that wish to purchase solar energy, and in some cases may be the
18 only option for some customers.¹ She goes on to argue that the program should be

¹ Direct Testimony of Alice K. Jackson, page 17.

1 approved because it would meet those needs and does not penalize non-participating
2 customers.²

3 **Q: DO YOU AGREE THAT SOLAR*CONNECT WILL BE ANOTHER CHOICE**
4 **FOR CUSTOMERS WHO WANT SOLAR ENERGY, IN ADDITION TO THE**
5 **EXISTING SOLAR*REWARDS AND SOLAR*REWARDS COMMUNITY**
6 **PROGRAMS?**

7 A: Yes, and it will also compete for some customers that might otherwise be served by
8 providers that must operate fully within the competitive marketplace, as explained in the
9 testimony of EFCA's other witness, Professor James Van Nostrand.

10 **Q: DO YOU AGREE THAT SOLAR*CONNECT, IF APPROVED, WOULD BE THE**
11 **ONLY OPTION FOR SOME CUSTOMERS WHO WANT TO PURCHASE**
12 **ADDITIONAL SOLAR ENERGY?**

13 A: Partially, with the qualification that while this may currently be the case, it may not
14 always be so. Certainly, some customers may find the suite of current options unsuitable
15 or unavailable to them for a variety of reasons. However, that does not mean that this will
16 always be the case, since customer preferences can change over time, making existing
17 options more attractive, and the availability of some options such as CSG subscriptions is
18 not static.

19 Moreover, the simple fact that at the present time some customers desire an option
20 beyond those provided by existing programs and policies does not mean that
21 Solar*Connect is the only, or the best, possible program that Public Service could offer

² *Id.*, page 26.

1 that would meet the needs of those customers. The Commission should consider whether
2 there are other program designs that would meet the unmet needs of those customers
3 without creating an uneven playing field or providing anti-competitive advantages to
4 Public Service. These unfair advantages are also discussed by Professor Van Nostrand.

5 **Q: WHAT ARE THE CUSTOMER NEEDS THAT PUBLIC SERVICE HAS**
6 **IDENTIFIED THAT IT SAYS ARE NOT BEING MET OR CANNOT BE MET**
7 **BY THE EXISTING SOLAR PROGRAMS?**

8 **A:** Below I have summarized the needs identified by Public Service Witness Kevin Schwain
9 that could be served by the Solar*Connect program, but which are not met by the
10 Solar*Rewards and CSG programs:

- 11 • The desire among some customers for short duration contracts (e.g., 1 – 5 years).³
- 12 • The ability of the customer to retain renewable energy credits (RECs)
13 associated with solar energy purchases, in order to meet internal sustainability
14 goals.⁴
- 15 • No minimum creditworthiness requirements.⁵
- 16 • The desire for a convenient and hassle free solar power option.⁶

17 Mr. Schwain also identifies protection from future rate increases, no up-front
18 costs, and a preference among some customers for an option to purchase solar power
19 from an off-site (i.e., not on their own rooftop) facility as customer preferences that

³ Direct Testimony of Kevin D. Schwain, page 15, lines 1-3.

⁴ *Id.*, page 15, lines 12-15.

⁵ *Id.*, page 16.

⁶ *Id.*, page 17.

1 Solar*Connect will “deliver on.”⁷ I do not regard these preferences as unmet needs in
2 themselves because on-site generation and CSG options are clearly suitable for these
3 purposes.

4 **Q: WHY ARE THE EXISTING SOLAR PROGRAMS CURRENTLY UNABLE TO**
5 **RETIRE RECS ON CUSTOMERS’ BEHALF?**

6 A: Colorado’s Renewable Energy Standard (RES) requires RECs associated with
7 Solar*Rewards and Solar*Rewards Community to be transferred to Public Service for the
8 purpose of RES compliance because the programs are funded by the Renewable Energy
9 Standard Adjustment (RESA) charge. On-site generation is not wholly subject to this
10 limitation because customers with on-site solar generation are not obligated to participate
11 in the Solar*Rewards program. These customers can retain the RECs created by their on-
12 site solar generation if they choose, albeit for a “premium” in the form of a forgone
13 Solar*Rewards incentive. This “premium” would come with an opportunity to sell those
14 RECs to other parties, or retain them for their own reasons.

15 **Q: ARE YOU AWARE OF ANY REASONS WHY A CUSTOMER WOULD BE**
16 **RELUCTANT TO INSTALL ON-SITE GENERATION AND NOT**
17 **PARTICIPATE IN THE SOLAR*REWARDS PROGRAM?**

18 A: Yes. Public Service has created substantial uncertainty for residential and small
19 commercial customers that elect to forgo Solar*Rewards participation. Under its proposal
20 to establish a “grid use charge” for customers with on-site generation in its pending Phase
21 II rate case (Proceeding No. 16AL-0048E), these customers would not be grandfathered

⁷ *Id.*, page 17, line 17.

1 into existing rate structures, while current Solar*Rewards participants would be.⁸ In this
2 uncertain environment, it would be challenging for an independent source of local solar
3 REC supply to develop as an alternative to meeting the REC needs that Public Service
4 identifies.

5 **Q: WHAT IS YOUR UNDERSTANDING OF WHY PARTICIPANTS IN THE**
6 **EXISTING SOLAR PROGRAMS DO NOT OFFER SHORT-TERM**
7 **CONTRACTS TO CUSTOMERS?**

8 **A:** For on-site generation projects that involve a third-party owner, short-term contracts are
9 simply impractical. For these providers, customer acquisition and installation costs are a
10 significant portion of a project's overall cost. Those costs are not reflected in the value of
11 the equipment if it is to be moved to another site, to say nothing of the actual costs of
12 removing and relocating the equipment itself. In order to make an attractive offer to
13 prospective customers those costs must be spread out over a long time period.

14 A contract's term also influences whether a solar provider is able to obtain
15 financing for a given project because lenders and investors are not typically willing to
16 provide financing in amounts sufficient to support an installation if future contracted
17 revenues are uncertain. CSG subscriptions are more transferable than rooftop
18 installations, but CSG developers may experience similar financing hurdles if they cannot
19 reliably demonstrate future revenues. In theory, an entity that can self-finance
20 installations and is comfortable with the risk of having stranded costs could offer short-

⁸ See response to EFCA3-2(b), included as Attachment JRB-1.

1 term contracts, but competitive solar providers do not typically have either of these
2 characteristics.

3 **Q: WHAT IS YOUR UNDERSTANDING OF WHY PARTICIPANTS IN THE**
4 **EXISTING SOLAR PROGRAMS RUN CREDIT CHECKS ON THEIR**
5 **CUSTOMERS AND HAVE MINIMUM CREDITWORTHINESS**
6 **REQUIREMENTS?**

7 **A:** In a manner of speaking, a contract is only as good as the counterparty to that contract.
8 Solar providers that enter into long-term contracts under leases or energy sales contracts
9 with customers are subject to the risk of non-payment by those customers. This risk in
10 turn affects a solar provider's ability to finance a solar installation based on the risk
11 tolerance of its financial backers and investors. Minimum creditworthiness requirements
12 mitigate this risk, though it cannot be eliminated completely. A customer's bank will
13 similarly have its own underwriting requirements for loans used to finance a customer-
14 owned installation. As I noted in response to the prior question, if outside financing and
15 risk tolerance are not at issue, credit checks are not, strictly speaking, necessary.

16 **Q: WHAT ARE THE LIMITATIONS A CUSTOMER FACES WITH REGARD TO**
17 **HOW MUCH SOLAR CAPACITY IT CAN PURCHASE THROUGH EXISTING**
18 **SOLAR PROGRAMS?**

19 **A:** Under § 40-2-124(1)(c)(II)(B), Colorado Revised Statutes (C.R.S.), customers with on-
20 site solar generation who participate in Solar*Rewards and net metering are permitted to
21 install a system capable of providing up to 120% of their annual on-site energy needs. For

1 a customer that desires only to meet his or her energy needs with self-generation, this
2 limit does not present a barrier.

3 This same capacity limit applies to CSG participants under § 40-2-127(2)(b)(III),
4 C.R.S. However, CSG participants are additionally limited. The maximum allowable
5 CSG capacity is set at 2 MW per § 40-2-127(2)(b)(I)(A), C.R.S. Individual subscribers
6 are limited to subscribing to 40% of the output of a single solar garden under 4 CCR 723-
7 3-3665(a)(I)(A). These restrictions together restrict participants to purchasing or
8 subscribing to 0.8 MW via a single CSG, assuming that the CSG is built to the maximum
9 allowable size. Some large customers may therefore not be able to fully supply
10 themselves with electricity from a single solar garden, though nothing prevents these
11 customers from increasing their total subscription beyond 0.8 MW by subscribing to
12 multiple CSGs.

13 **Q: PLEASE EXPLAIN WHY CUSTOMERS MUST ENTER INTO CONTRACTS**
14 **WITH THIRD PARTIES IF THEY PARTICIPATE IN ONE OF THE EXISTING**
15 **SOLAR PROGRAMS.**

16 **A:** The various contracts and paperwork, such as interconnection documents and incentive
17 contracts, are necessary to establish clear rules, obligations, and expectations for all
18 parties involved. Customers, solar providers, CSG subscriber organizations, and Public
19 Service all have distinct roles, rights, and responsibilities, so the associated contractual
20 arrangements and paperwork must involve all of them in some way. By logical necessity,
21 if a customer wishes to purchase solar energy services from a competitive provider, the
22 customer must engage with both the provider and Public Service.

III. A UTILITY-OWNED CSG WOULD SATISFY MOST OF THE NEEDS OF CUSTOMERS THAT CANNOT BE MET THROUGH EXISTING SOLAR PROGRAMS

1 Q: WOULD PUBLIC SERVICE BE ABLE TO MEET THE UNMET CUSTOMER
2 NEEDS THAT PUBLIC SERVICE HAS IDENTIFIED BY DEVELOPING AND
3 OWNING ITS OWN CSG?

4 A: For the most part, yes. I address each customer need described by Public Service and how
5 a utility-owned CSG could address them below.

6 • Short-term contracts: Nothing in Colorado statutes or the Commission's rules
7 limits the contract terms that a CSG owner may offer to customers. Public Service could
8 offer short-term contracts to customers if it chose to do so, as it has proposed to do for
9 Solar*Connect.

10 • Creditworthiness requirements: Nothing compels a CSG owner to establish credit
11 requirements for participants. Public Service could forgo credit checks or other customer
12 requirements for its own CSG subscribers if it chose to do so, as it has proposed to do for
13 Solar*Connect.

14 • Simpler contracting: A Public Service-owned CSG (or multiple CSGs) would not
15 necessitate the involvement of a third-party beyond the customer and Public Service.

16 • Customer purchase limitations: While a single customer is only permitted to
17 contract for the output of up to 0.8 MW from a single CSG, nothing prevents a customer
18 from subscribing to multiple CSGs. In fact, such a multi-CSG model would likely be
19 simpler for a single large customer than attempting to subscribe to multiple CSGs with
20 different owners.

1 • REC retirement of behalf of the customer: CSG RECs must used for compliance
2 with the renewable energy standard so they cannot be retired on behalf of customers to,
3 for instance, support “green power” claims. However, it is plausible that Public Service
4 could develop a program that offers replacement RECs to subscribers from a different
5 resource or resources as an additional customer option.

6 **Q: IS PUBLIC SERVICE PERMITTED TO DEVELOP AND OWN A CSG?**

7 A: Yes, under § 40-2-127(2)(b)(I)(A), C.R.S., which states, “[t]he owner of the CSG may be
8 the qualifying retail utility or any other for-profit or nonprofit entity or organization,”
9 Public Service is permitted to develop and own its own CSG.

10 **Q: DOES PUBLIC SERVICE OWN ANY CSGS?**

11 A: No.

12 **Q: TO YOUR KNOWLEDGE, HAS PUBLIC SERVICE EVER PROPOSED TO**
13 **DEVELOP AND/OR OWN A CSG THAT WOULD BE OFFERED TO ALL OF**
14 **ITS CUSTOMERS?**

15 A: No.

16 **Q: YOU MENTIONED THAT PUBLIC SERVICE WOULD NOT BE ABLE TO**
17 **RETIRE RECS FOR SUBSCRIBERS OF A UTILITY-OWNED CSG. HAS**
18 **PUBLIC SERVICE PROVIDED ANY CONVINCING EVIDENCE IN ITS**
19 **APPLICATION DEMONSTRATING THAT THERE IS SIGNIFICANT**
20 **CUSTOMER DEMAND FOR A VOLUNTARY SOLAR ENERGY PROGRAM IN**
21 **WHICH CUSTOMERS WOULD HAVE THE RECS RETIRED ON THEIR**
22 **BEHALF?**

█ [REDACTED]

█ [REDACTED]

3 **Q: HAS PUBLIC SERVICE ATTEMPTED TO OFFER ANY OTHER EVIDENCE**
4 **SHOWING A DEMAND FOR RENEWABLE ENERGY PROGRAM IN WHICH**
5 **RECS ARE RETIRED ON BEHALF OF PARTICIPANTS?**

6 A: In a manner of speaking, it has. Witness Jackson has attached a series of letters of support
7 from different types of organizations throughout Colorado to her testimony.¹³

8 **Q: ARE THESE LETTERS A RELIABLE INDICATION OF DEMAND FOR THE**
9 **SOLAR*CONNECT PROPOSAL?**

10 A: No. They are an indication that at least several organizations in Colorado desire expanded
11 choices for purchasing renewable energy, and will react positively to the potential for
12 additional options. What it does not show is how those same organizations would choose
13 between different options, their preferences for program characteristics, or that their
14 needs or demands can only be met by Solar*Connect. The story the market research and
15 letters of support tell is simply that customers like renewable energy and want renewable
16 energy purchase options.

17 **Q: HAS PUBLIC SERVICE PROVIDED ANY EVIDENCE IN ITS APPLICATION**
18 **DEMONSTRATING THAT THERE ARE CUSTOMERS WHO WOULD ONLY**
19 **SIGN UP FOR A VOLUNTARY SOLAR PROGRAM IN WHICH RECS WOULD**
20 **BE RETIRED ON THEIR BEHALF?**

¹² *Id.*, page 22.

¹³ Jackson testimony, Attachment AKJ-1.

1 A: No, there is no evidence that there is a significant number of customers who would only
2 participate in a program in which RECs are retired on their behalf. As I have described
3 previously, the market research survey results are at the very least mixed, and in several
4 notable instances directly contrary to the assertion that REC retirement is a foundational
5 need for customers. To be clear, I am not stating that there are not any customers who
6 might have this need. I am stating only that Public Service has not demonstrated a
7 widespread need for a product of this type that *might* be taken to partially justify the need
8 for the Solar*Connect program, particularly since customers are free to pursue solar REC
9 purchases through other voluntary market options.

10 Q: **YOU ALSO MENTIONED THAT PUBLIC SERVICE WOULD NOT BE ABLE**
11 **TO OFFER SUBSCRIPTIONS FOR MORE THAN 0.8 MW OF CAPACITY**
12 **FROM A SINGLE UTILITY-OWNED CSG. HAS PUBLIC SERVICE PROVIDED**
13 **ANY EVIDENCE IN ITS APPLICATION DEMONSTRATING THAT THERE IS**
14 **CUSTOMER DEMAND FOR A VOLUNTARY SOLAR ENERGY PROGRAM IN**
15 **WHICH CUSTOMERS COULD SIGN UP FOR MORE THAN 0.8 MW OF**
16 **CAPACITY AT A TIME?**

17 A: No. A review of Witness Schwain's testimony and attachments do not show any data or
18 other information indicating that Public Service examined this as a potential barrier to
19 customers in any form. Moreover, the 0.8 MW limit is not a true limit because customers
20 are permitted to subscribe to more than one CSG.

1 Q: HAS PUBLIC SERVICE PROVIDED ANY EVIDENCE IN ITS APPLICATION
2 DEMONSTRATING THAT THERE ARE CUSTOMERS WHO WOULD ONLY
3 SIGN UP FOR A VOLUNTARY SOLAR PROGRAM IN WHICH CUSTOMERS
4 COULD SIGN UP FOR MORE THAN 0.8 MW OF CAPACITY AT A TIME?

5 A: No. Again, this particular detail has not been addressed at all as a barrier to some
6 customers or in any other context.

7 Q: BASED ON THESE OBSERVATIONS, WHAT DO YOU RECOMMEND?

8 A: To the extent Public Service is motivated to meet the customer needs it has identified in
9 its application and the supporting testimony of its witnesses, the Commission should
10 direct Public Service to develop its own CSGs to address these needs. As I discuss in the
11 following section, this approach could also be supplemented by the development of a
12 solar REC purchase program that addresses the desire some customers may have to have
13 RECs retired on their behalf.

VI. A PROGRAM SIMILAR TO WINDSOURCE WOULD MEET THE CUSTOMER
NEEDS THAT PUBLIC SERVICE HAS IDENTIFIED WITHOUT RAISING
ANTI-COMPETITIVE CONCERNS

14 Q: PLEASE DESCRIBE THE BASIC STRUCTURE OF PUBLIC SERVICE'S
15 WINDSOURCE PROGRAM IN ITS CURRENT FORM.

16 A: Windsource is a wind REC purchase program through which customers pay a premium
17 on their electric bills. The premium is denominated in a dollar amount per 100 kWh
18 block, presently set at \$2.16 per block, or a premium of \$0.0216/kWh. The program is
19 not restricted to any particular class or type of customer, and operates as a rider on top of
20 a customer's otherwise applicable rate schedule. Residential participants are permitted to

1 enroll for a minimum period of one year and thereafter transition to a month-to-month re-
2 enrollment schedule. For commercial and industrial customers the minimum initial term
3 is three years, after which the subscription transitions to a month-to-month protocol.
4 There are no other pre-conditions for Windsource service identified in the tariff.¹⁴ The
5 resource mix is 100% wind generation located within Colorado, as detailed in the
6 program's Green-E certification.¹⁵ The additional revenues raised through the price
7 premiums are deposited in the RESA account, which is used to fund programs associated
8 with Public Service's compliance with Colorado's RES.¹⁶

9 **Q: IS WINDSOURCE SUPPLIED BY A DEDICATED WIND RESOURCE?**

10 A: No. RECs from the program are provided by existing system resources.¹⁷ This is not by
11 accident, or for lack of consideration of alternatives. In 2012 the Commission rejected a
12 proposal set forth by Public Service to introduce a new Windsource product, Windsource
13 Long-Term Contract (LTC) based on a dedicated resource.¹⁸

14 **Q: DO YOU BELIEVE THAT A PROGRAM SIMILAR TO WINDSOURCE BUT**
15 **FOR SOLAR ENERGY WOULD MEET THE DEMANDS OF CUSTOMERS**
16 **THAT PUBLIC SERVICE SAYS IT IS TRYING TO MEET THROUGH THE**
17 **PROPOSED SOLAR*CONNECT PROGRAM?**

18 A: Yes. Though I maintain that Public Service has not identified a widespread need for a
19 REC purchase product, to the extent that this need exists among a small subset of

¹⁴ Public Service Company, Schedule WS Windsource Service.

¹⁵ Public Service Company, Windsource for Residences, accessed May 24, 2016.

https://www.xcelenergy.com/programs_and_rebates/residential_programs_and_rebates/renewable_energy_programs/windsorce_for_residences

¹⁶ See supplemental response to EFCA2-9(e), included as Attachment JRB-2.

¹⁷ Supplemental response to EFCA2-6(a), included as Attachment JRB-3.

¹⁸ Decision No. C12-1107, ¶ 283.

1 customers, a product equivalent to Windsource except based on solar RECs would satisfy
2 this demand. There is no reason why this program could not be deployed as a standalone
3 offering or alongside a CSG offering developed by Public Service of its own volition or
4 in response to a Commission directive. For simplicity, I will refer to this proposal as
5 “Solarsource.”

6 **Q: PLEASE DESCRIBE HOW SUCH A SOLARSOURCE PROGRAM WOULD**
7 **WORK.**

8 A: Solarsource would operate in a manner nearly identical to Windsource. The program
9 would be available to all customers as a voluntary option without additional pre-
10 requisites. Participants would pay a premium for discrete blocks of solar energy as an
11 adder to their otherwise applicable rate. Like Windsource, the REC sources would be
12 non-specific system resources, in this case composed of the mix of wholesale distributed
13 generation (DG), retail DG, and utility-scale solar facilities. Also like Windsource, the
14 premiums paid by customers would be deposited in the RESA account and used to
15 support additional renewable generation, contributing to the addition of new resources
16 over time. Pricing would operate under a cost-based system consistent with the mix of
17 solar RECs within the program. Relative to Windsource, the program would have the
18 additional benefits of appealing to customers with more favorable views of solar than
19 wind, and to those customers who desire to support distributed generation.

20 **Q: UNDER YOUR SOLARSOURCE PROPOSAL, WOULD PUBLIC SERVICE BE**
21 **ABLE TO RETIRE RECS FOR PARTICIPANTS?**

22 A: Yes.

1 **Q: UNDER YOUR SOLARSOURCE PROPOSAL, WOULD PUBLIC SERVICE BE**
2 **ABLE TO OFFER SHORT-TERM CONTRACTS FOR PARTICIPANTS?**

3 A: Yes. As with Windsource, which offers initial contract terms of one year for residential
4 customers and three years for commercial customers, there is no reason why short-term
5 contracts could not be offered through a Solarsource program. In contrast to
6 Solar*Connect, there would be no risk of unsubscribed energy with Solarsource and
7 therefore no risks for Public Service associated with short-term contracts.

8 **Q: UNDER YOUR SOLARSOURCE PROPOSAL, WOULD PUBLIC SERVICE BE**
9 **ABLE TO ALLOW CUSTOMERS TO PARTICIPATE IN THE PROGRAM**
10 **WITHOUT RUNNING A CREDIT CHECK OR REQUIRING A MINIMUM**
11 **LEVEL OF CREDITWORTHINESS?**

12 A: Yes. As with Windsource, this type of pre-condition is unnecessary for Solarsource. The
13 premium itself would be a small addition to customer's bills, which is unlikely to cause
14 substantial additional hardship if the customer's economic circumstances change
15 suddenly. Further, customers would have the ability to opt-out with minimal notice after
16 the short initial contract term. If determined to be necessary, any remaining incremental
17 risk could be mitigated with the addition of a pre-condition that the customer's account is
18 in good standing upon enrollment. However, since this condition is not a feature of the
19 long-running Windsource program, it is unnecessary in my opinion.

20 **Q: UNDER YOUR SOLARSOURCE PROPOSAL, WOULD PUBLIC SERVICE BE**
21 **ABLE TO OFFER PARTICIPANTS THE ABILITY TO SUBSCRIBE TO LARGE**
22 **AMOUNTS OF CAPACITY?**

1 A: Generally speaking, yes. The only upper limit on program availability would be
2 associated initially with the availability of solar RECs needed to supply the program. In
3 its 2017-2019 RE Plan, Public Service provides data on the status of its current REC
4 balances, showing a significant excess of retail DG RECs and wholesale DG RECs
5 relative to RES compliance requirements even counting only existing resources. Public
6 Service's witness Ms. Robin Kittel provides figures in that proceeding indicating that
7 *current* retail DG resources will produce an excess of 72,000 RECs through 2019.¹⁹ For
8 wholesale DG, the excess over the three year compliance period is 200,000 RECs
9 annually, totaling 600,000 RECs over three years.²⁰ The solar-generated portion of this
10 wholesale DG is roughly 200,000 RECs annually.²¹ Public Service also expects solar
11 REC production of roughly 447,000 MWh annually on average during the 2017-2019
12 time frame.²² This too would be available to Solarsource since Public Service has
13 available RECs far in excess of the amount necessary to meet the non-DG targets as
14 well.²³ From all of these sources together, available solar RECs during the 2017-2019
15 timeframe total 1.19 *million*.

16 While this high-level assessment ignores the effects of some minor adjustments to
17 REC availability, there are clearly substantial RECs available to supply a significant
18 enrollment of large customers in a Solarsource program. For instance, a three-year
19 Solarsource contract with a customer that has a 2 MW load and a 75% load factor would

¹⁹ Proceeding No. 16A-0139E, Direct Testimony of Robin L. Kittel on behalf of Public Service Company of Colorado, page 28, included as Attachment JRB-4.

²⁰ *Id.*, page 27.

²¹ Proceeding No. 16A-0139E, Attachment RLK-2 to the Direct Testimony of Robin L. Kittel, Table 4-2, page 3, line 18, included as Attachment JRB-5.

²² *Id.*, page 4, line 87.

²³ *Id.*, page 4. *See* lines 89 and 104 showing non-DG REC production and non-DG compliance obligations.

1 require 40,000 RECs over three years for a 100% solar energy supply. Existing resources
2 could support 20 or more customers of this type with substantial room left over for
3 purchases by smaller customers, to say nothing of planned additions to Public Service's
4 solar portfolio or further additions prompted by program demand.

5 **Q: UNDER YOUR SOLARSOURCE PROPOSAL, WOULD CUSTOMERS BE ABLE**
6 **TO SIGN UP FOR THE PROGRAM WITHOUT THE NEED TO DEAL WITH A**
7 **THIRD PARTY OR ENTER INTO A CONTRACT WITH A THIRD-PARTY?**

8 A: Yes.

9 **Q: FROM A CUSTOMER'S PERSPECTIVE, ARE THERE PRODUCT FEATURES**
10 **THAT WOULD BE AVAILABLE THROUGH THE PROPOSED**
11 **SOLAR*CONNECT OFFERING THAT WOULD NOT BE AVAILABLE TO**
12 **CUSTOMERS THROUGH YOUR PROPOSED SOLARSOURCE PROGRAM?**

13 A: From a customer's perspective, the only differences in the offerings would be that
14 Solar*Connect has a dedicated resource, and purports to offer a hedge against future price
15 increases. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

21 Residential preferences of this type are not addressed.

²⁴ Confidential Attachment KDS-2, page 20.

1 On the second point, it is not clear to me that customers would see great value in
2 this hedge when balanced against availability of other programs that can provide
3 substantially greater price hedging benefits. In any case, as discussed in Professor Van
4 Nostrand's testimony, there are reasons why under Colorado law and Colorado's utility
5 regulatory regime it is improper for a particular utility resource to be dedicated
6 exclusively to a particular subgroup of self-selecting customers, who might also enjoy a
7 different rate from other customers in their customer class.

8 **Q: HOW WOULD PUBLIC SERVICE ACQUIRE SUFFICIENT SOLAR RECS FOR**
9 **SOLARSOURCE?**

10 **A:** Supply could be sourced through the same means that Public Service already procures
11 solar RECs, namely, the Solar*Rewards and Solar*Rewards Communities programs, as
12 well as through power purchase agreements and competitive solicitations for utility-scale
13 resources.

14 **Q: WOULD THIRD-PARTY SOLAR DEVELOPERS BE ABLE TO PARTICIPATE**
15 **IN SOLARSOURCE?**

16 **A:** Yes.

17 **Q: WOULD SOLARSOURCE HAVE A POSITIVE OR NEGATIVE IMPACT ON**
18 **THE RESA ACCOUNT?**

19 **A:** The impact on the RESA account would be positive.

20 **Q: PUBLIC SERVICE HAS PROPOSED TO RETAIN SOME EARNINGS FROM**
21 **SOLAR*CONNECT. WOULD PUBLIC SERVICE HAVE THE OPPORTUNITY**
22 **TO RETAIN ANY EARNINGS FROM SOLARSOURCE?**

1 A: Public Service justifies retaining earnings from Solar*Connect based on the risks it will
2 face.²⁵ Professor Van Nostrand demonstrates that those risks are negligible. If it does not
3 face a commensurate downside risk, there is little reason for Public Service to retain any
4 earnings from a voluntary solar program. However, Public Service can nevertheless earn
5 money from Solarsource to the extent it owns some of the resources that supply RECs to
6 the program. This is the same opportunity that exists in the Windsource program, which
7 Public Service acknowledges can be a source of profits.²⁶ As evidenced by its recent
8 proposal to own 600 MW of new wind capacity, Public Service is not reluctant to pursue
9 these types of earnings opportunities.²⁷

10 **Q: DO YOU HAVE ANY CONCERNS WITH PUBLIC SERVICE'S PROPOSED**
11 **EARNINGS MECHANISM IN THE SOLAR*CONNECT PROGRAM THAT YOU**
12 **WOULD NOT HAVE WITH SOLARSOURCE?**

13 A: Yes, while earning its regulated rate of return on utility-owned facilities is the standard
14 way for Public Service to earn a profit in Colorado, earning a 10 percent return on what
15 amounts to a mark-up of PPA costs would be unprecedented in Colorado. The ability to
16 earn this 10 percent margin is a significant incentive for Public Service to acquire as
17 many customers as possible, including customers who might otherwise participate in
18 Solar*Rewards or Solar*Rewards Community, while being insulated from any
19 competition due to its status as the only potential provider of a Solar*Connect-type
20 product. Under my Solarsource proposal, Public Service would be offering a new
21 program to meet the demands it says it is hearing from its customers, and would be

²⁵ See response to EFCA6-5(a), included as Attachment JRB-6.

²⁶ Response to EFCA2-6(h), included as Attachment JRB-3.

²⁷ See generally Proceeding 16A-0117E.

1 financially indifferent as to whether the program subscribed a large number of customers
2 to the possible detriment of competitive solar providers.

3 **Q: WOULD SOLARSOURCE RAISE ANTICOMPETITIVE CONCERNS**
4 **REGARDING PUBLIC SERVICE'S INVOLVEMENT IN THE MARKET FOR**
5 **VOLUNTARY SOLAR ENERGY?**

6 A: No. It would increase opportunities for all customers to access solar and increase
7 competition among solar providers without giving any entities, particularly Public
8 Service, an unfair advantage. Solarsource accomplishes this by using a tried-and-true
9 approach (that is, the approach used by the Windsource program) for bringing renewable
10 energy to customers on a voluntary basis within the traditional regulated utility model in
11 Colorado. In doing so, it allows the utility to do what it does best, which is to aggregate
12 cost-effective energy supplies and sell them to customers on a non-discriminatory basis.
13 It also has the benefit of isolating non-participating customers and fully protecting them
14 from being impacted by the program.

15 **Q: WHAT IS YOUR RECOMMENDATION?**

16 A: I recommend that the Commission direct Public Service, if it desires to meet customer
17 needs that it believes are not being met by existing solar programs, to explore developing
18 a program similar to Windsource for solar energy. The Commission could direct Public
19 Service to do this in isolation, or in conjunction with a directive that Public Service also
20 explore how it could meet the customer needs it identifies by developing its own CSGs.
21 These two initiatives could be offered independently but would also complement each

1 other so as to offer expanded solar energy opportunities to customers in a way that
2 maintains competition for the provision of solar energy on a level playing field.

3 **Q: DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?**

4 **A: Yes.**

APPENDIX A

Justin R. Barnes

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EDUCATION

Michigan Technological University Houghton,
Michigan
Master of Science, Environmental Policy, August 2006
Graduate-level work in Energy Policy.

University of Oklahoma Norman, Oklahoma
Bachelor of Science, Geography, December 2003
Area of concentration in Physical Geography.

EXPERIENCE

EQ Research, LLC and Keyes, Fox & Wiedman, LLP Cary, North
Carolina
Director of Research, July 2015 – present, Senior Analyst & Research Manager, March 2013 – July 2015
Oversee state legislative, regulatory policy, and general rate case tracking service that covers policies such as net metering, interconnection standards, rate design, renewables portfolio standards, state energy planning, state and utility incentives, tax incentives, and permitting. Responsible for service design, formulating improvements based on client needs, and ultimate delivery of reports to clients. Expanded service to cover energy storage. Oversee and perform policy research and analysis to fulfill client requests, and for internal and published reports, focused primarily on state solar market drivers such as net metering, incentives, and renewable portfolio standards. Provide expert witness testimony. Manage the development of a solar power purchase agreement (PPA) toolkit for local governments and the planning and delivery of associated outreach efforts.

North Carolina Solar Center, N.C. State University Raleigh, North
Carolina
Senior Policy Analyst, January 2012-May 2013; Policy Analyst, September 2007-December 2011
Responsible for researching and maintaining information for the Database of State Incentives for Renewables and Efficiency (DSIRE), the most comprehensive public source of renewables and energy efficiency incentives and policy data in the United States. Managed state-level regulatory tracking for private wind and solar companies. Coordinated the organization's participation in the SunShot Solar Outreach Partnership, a U.S. Department of Energy project to provide outreach and technical assistance for local governments to develop and transform local solar markets. Developed and presented educational workshops, reports, administered grant contracts and associated deliverables, provided support for the SunShot Initiative, and worked with diverse group of project partners on this effort. Responsible for maintaining the renewable portfolio standard dataset for the National Renewable Energy Laboratory for use in its electricity modeling and forecasting analysis. Authored the *DSIRE RPS Data*

Updates, a monthly newsletter providing up-to-date data and historic compliance information on state RPS policies. Responded to information requests and provided technical assistance to the general public, government officials, media, and the energy industry on a wide range of subjects, including federal tax incentives, state property taxes, net metering, state renewable portfolios standard policies, and renewable energy credits. Extensive experience researching, understanding, and disseminating information on complex issues associated with utility regulation, policy best practices, and emerging issues.

SELECTED ARTICLES and PUBLICATIONS

Barnes, J., R. Haynes. *The Great Guessing Game: How Much Net Metering Capacity is Left?*. September 2015. Published by EQ Research, LLC.

Barnes, J., Kapla, K. *Solar Power Purchase Agreements (PPAs): A Toolkit for Local Governments*. July 2015. For the Interstate Renewable Energy Council, Inc. under the U.S. Department of Energy SunShot Solar Outreach Partnership.

Barnes, J., C. Barnes. *2013 RPS Legislation: Gauging the Impacts*. December 2013. Article in Solar Today.

Barnes, J., C. Laurent, J. Uppal, C. Barnes, A. Heinemann. *Property Taxes and Solar PV: Policy, Practices, and Issues*. July 2013. For the U.S. Department of Energy SunShot Solar Outreach Partnership.

Kooles, K, J. Barnes. *Austin, Texas: What is the Value of Solar; Solar in Small Communities: Gaston County, North Carolina; and Solar in Small Communities: Columbia, Missouri*. 2013. Case Studies for the U.S. Department of Energy SunShot Solar Outreach Partnership.

Barnes, J., C. Barnes. *The Report of My Death Was An Exaggeration: Renewables Portfolio Standards Live On*. 2013. For Keyes, Fox & Wiedman.

Barnes, J. *Why Tradable SRECs are Ruining Distributed Solar*. 2012. Guest Post in Greentech Media Solar.

Barnes, J., multiple co-authors. *State Solar Incentives and Policy Trends*. Annually for five years, 2008-2012. For the Interstate Renewable Energy Council, Inc.

Barnes, J. *Solar for Everyone?* 2012. Article in Solar Power World On-line.

Barnes, J., L. Varnado. *Why Bother? Capturing the Value of Net Metering in Competitive Choice Markets*. 2011. American Solar Energy Society Conference Proceedings.

Barnes, J. *SREC Markets: The Murky Side of Solar*. 2011. Article in State and Local Energy Report.

Barnes, J., L. Varnado. *The Intersection of Net Metering and Retail Choice: an overview of policy, practice, and issues*. 2010. For the Interstate Renewable Energy Council, Inc.

TESTIMONY

- Public Utilities Commission of Texas, Docket No. 44941. December 2015.

- Oklahoma Corporation Commission, Cause No. PUD 201500271. November 2015.
- South Carolina Public Service Commission, Docket No. 2015-54-E. May 2015.
- South Carolina Public Service Commission, Docket No. 2015-53-E. April 2015.
- South Carolina Public Service Commission, Docket No. 2015-55-E. April 2015.
- South Carolina Public Service Commission, Docket No. 2014-246-E. December 2014.

AWARDS, HONORS & AFFILIATIONS


- Solar Power World Magazine, Editorial Advisory Board Member (October 2011 – March 2013)
- Michigan Tech Finalist for the Midwest Association of Graduate Schools Distinguished Master's Thesis Awards (2007)
- Sustainable Futures Institute Graduate Scholar Michigan Tech University (2005-2006)

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

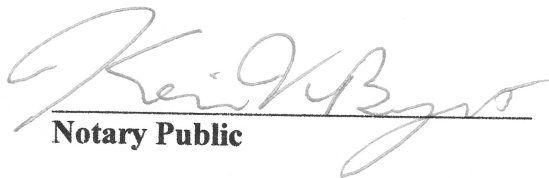
RE: IN THE MATTER OF THE)
APPLICATION OF PUBLIC SERVICE)
COMPANY OF COLORADO FOR) PROCEEDING NO. 16A-0055E
APPROVAL OF ITS SOLAR*CONNECT)
PROGRAM)

AFFIDAVIT OF JUSTIN BARNES ON BEHALF OF THE ENERGY FREEDOM
COALITION OF AMERICA

I, Justin Barnes, being duly sworn, state that the attached answer testimony and attachments were prepared by me or under my supervision, control, and direction; that the answer testimony and exhibits are true and correct to the best of my information, knowledge and belief; and that I would give the same testimony orally and would present the same exhibits if asked under oath.


Justin Barnes

Subscribed and sworn to before me in the County of Wake, State of North
Carolina, this 25th day of May 2016.


Notary Public

My Commission expires: 6/21/2017

