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SOLAR SHIFT: AN ANALYSIS OF THE FEDERAL INCOME TAX ISSUES ASSOCIATED WITH THE RESIDENTIAL VALUE OF SOLAR TARIFF

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In the years since renewable energy technologies were deployed as an alternative energy source, solar energy continues to aid in reducing carbon dioxide emissions. To date, solar technologies are emerging as an increasingly useful source of electricity. Additionally, solar technologies also provide significant benefits to the environment as well as various solar stakeholders across the nation. Of particular importance here, photovoltaic technologies (commonly known as "solar panels" or "solar systems") are especially useful to the residential solar system model. Although this residential model provides the aforementioned significant benefits, as solar stakeholders consider shifting from using the traditional net metering rate design to the newer value of solar tariff with the residential model, they must also consider the federal income tax consequences of such a shift. Thus, this paper examines the importance of the resident-utility agreement's structure in assessing the feasibility of this shift.

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INTRODUCTION

Developed models for distributed photovoltaic cells (PV) involve customer or third party ownership where the utility is the owner and operator of the broader electric system to which the solar system connects.[1] A household solar system typically must connect to the electrical grid to draw electricity when the solar system is not producing power (e.g., nighttime), or to export power when the solar system produces more electricity than the household consumes. The traditional developed model is known as the "customer-owned model."[2] Under this model, the homeowner owns and installs a solar system on his property[3] and must cover the financing and system maintenance himself.[4] Tax incentives such as federal income tax credits help the homeowner alleviate the upfront costs of system installation.[5]

As the solar market grows and solar stakeholders consider the implications of cross-implementing various rate design options with the residential model, the tax consequences of cross-implementation become critical in determining which rate designs are viable options for both utility companies and consumers. Particularly, as stakeholders consider the shift from the traditional net metering rate design to the relatively newer value of solar tariff (VOST), the resident-utility VOST agreement is a central consideration. This agreement's structural indicators are critical to the broader discussion regarding the federal tax consequences of VOST implementation. Thus, this paper discusses the importance of the resident-utility agreement's structural indicators with regards to federal income taxes. Part I discusses the traditional rate design, net metering, as well as the reasons solar stakeholders are contemplating a shift to a VOST rate design. Part II narrows the discussion to detail the importance of structural indicators within the resident-utility agreement when considering the tax consequences of using the VOST. This paper concludes by outlining additional key considerations in assessing the tax consequences of VOST use.

I. BACKGROUND: THE CONTEMPLATED SHIFT FROM NET METERING TO THE VALUE OF SOLAR TARIFF

Different rate designs can be used in conjunction with the residential model to manage the energy flow to and from the grid produced by the solar system. Specifically, net metering was the first rate design adopted and is now used in 43 states.[6] Net metering generally

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1. L. BIRD ET AL., NAT'L RENEWABLE ENERGY LAB. & REGULATORY ASSISTANCE PROJECT, REGULATORY CONSIDERATIONS ASSOCIATED WITH THE EXPANDED ADOPTION OF DISTRIBUTED SOLAR 1, 18-19 (2013) *available at* http://www.nrel.gov/docs/fy14osti/60613.pdf.

2. *Id.* An alternative strategy to grid-connection is energy storage, however, to date, this approach is typically not cost effective.

3. Whether the solar system is "on site" is another important legal issue, but it is outside the scope of this paper.

4. *See id.*

5. *See id.*

6. *See* Karl R. Rábago, *The Value of Solar Tariff: Net Metering 2.0, in* INTERNATIONAL CONFEDERATION OF ENERGY REGULATORS, THE ICER CHRONICLE 45, 46 (1st ed. Dec. 2013), *available at* http://rabagoenergy.com/files/icer-chronicle-rabago-vos-article-131220---extract.pdf.

involves one meter that accounts for electricity flowing both to and from the electrical grid.[7] As the resident produces electricity from his own system, the electricity he does not directly consume is "netted" against his total household consumption on a kilowatt hour (kWh) basis.[8] Thus, when production exceeds consumption, this product is transported to the grid.[9] In other words, when the generated electricity is not directly used by the resident, that electricity is sent to the grid.[10] This unused generation spins the resident's meter backward because the resident's generation exceeds his consumption.[11] This rate design recognizes that "energy generated at the point of consumption by the customer is worth at least as much as a unit of energy delivered by the utility to that customer."[12] When the meter spins backward, the user is credited on a kWh basis for his excess electricity production.[13] Most utilities allow monthly excess generation to carry over to the next month to offset total usage; some utilities place limits on the carryover period.[14] States vary in annual carry over, where the periods can range from annual limits to indefinite carryover.[15] These limits are in line with most states' general guidelines that the solar system should not produce more power than a customer consumes over a given time period. In this way, all the electricity produced by the solar system is treated as available for use by the customer, even though at times the actual electricity flows to the grid.

Some solar stakeholders urge that the traditional rate design structure, net metering,[16] should shift to an alternative rate design that more accurately accounts for cost distribution across the electrical grid.[17] Utilities are considering implementing an alternative rate design in place or in addition to net metering due to several issues associated with traditional net metering. This approach, termed the value of solar tariff (VOST), uses several elements to

7. *See id.* (noting that no additional calculation is necessary for assessing the cost or value of solar generation).

8. *See id.*

9. *See* Ariz. Pub. Serv. Co. ("APS") for Approval of Net Metering Cost Shift Solution, Docket No. E-01345A-13-0248, Ariz. Residential Util. Consumer Office, 1, 6 (2013) (Application), http://images.edocket.azcc.gov/docketpdf/0000146792.pdf [hereinafter Appl. of APS].

10 *See* Rábago, supra note 6, at 46.

11. *See id.*; *see also* Appl. of APS, *supra* note 9, at 5 ("This extra energy is called Export Energy, and is exported onto the electrical grid.").

12. *See* Rábago, *supra* note 6, at 46.

13. *See id.* (explaining that the credit is usually at the retail rate, but alternatively, the utility can credit the user at the current fuel charge value).

14. L. BIRD ET AL., *supra* note 1, at 33.

15. *Id.*

16. *See* Rábago, *supra* note 6, at 45 (noting that the traditional net metering rate design has been used for more than thirty years in the U.S.).

17. *See id.* (explaining the methodology behind calculating the "value of solar" ("VOS")); *see also* INTERSTATE RENEWABLE ENERGY COUNCIL, A REGULATOR'S GUIDEBOOK: CALCULATING THE BENEFITS AND COSTS OF DISTRIBUTED SOLAR GENERATION (2013), *available at* http://www.irecusa.org/wp-content/. uploads/2013/10/IREC_Rabago_Regulators-Guidebook-to-Assessing-Benefits-and-Costs-of-DSG.pdf.

account for a rate design that best encompasses the true value of solar; equally distributes costs to residential solar generators, solar users, and non-solar users; allows utilities to adequately recover the costs of serving solar customers;[18] and encourages electric energy efficiency.[19]

For instance, the Arizona Public Service Company (APS), Arizona's largest electricity provider,[20] filed an application with the Arizona Corporation Commission (ACC) seeking approval of a net metering cost shift solution. APS believed that the traditional net metering rate design improperly shifts the cost burden of transmission and distribution from residential solar owners to other ratepayers on the grid.[21] In APS's application, regarding equal distribution of costs, APS noted that the customer receives constant services from the grid at all times, but this usage is not always paid by the consumer.[22] Specifically:

> These services include (i) immediate and reliable access to energy when the rooftop system doesn't produce enough energy to meet 100% of the customer's needs; (ii) a connection to the grid which they can export power when their system is producing more than needed by the customer; (iii) providing power quality and stability . . . for the customer without which the rooftop solar system would not work; (iv) providing back up power so that when the rooftop solar system suddenly stops producing, such as when clouds pass overhead, the customer's electricity supply continues without even a momentary interruption.[23]

Thus, APS highlights many general problems VOST advocates cite as support for the rate design shift.

Alternatively, two-way rates allow the consumer to ascertain the services in each direction—both to and from the grid—and the specific prices paid for each service.[24] This rate design emphasizes that the grid accommodates power flow in both directions.[25] Specifically, for the aforementioned reasons, many solar stakeholders advocate for the VOST

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18. For purposes of this paper, I am using "customer," "consumer," and "resident" interchangeably.

19. *See* Rábago, *supra* note 6, at 46-47; *see also* Appl. of APS, *supra* note 9, at 6 ("The ability to supply their own power, while taking service on a rate that collects almost all electric service costs through charges based on total energy consumed, provides a monetary benefit to solar customers. It permits them to avoid paying almost their entire electric bill. This is true even though they continue to rely on and use the electricity grid. The ability to sell Export Energy back to [the utility] furthers this monetary benefit."); Appl. of APS, *supra* note 9, at 7 (explaining that the utility must buy back the excess production through a credit at the retail rate rather than through the wholesale market at a lower price).

20. *See* Appl. of APS, *supra* note 9, at 7.

21. *See id.*

22. *See id.*

23. *Id.*; *see also id.* at 11 (wherein APS explained that four key principles guiding APS' decision to present alternatives to net metering included to: "(i) Ensure fairness in addressing the cost shift; (ii) Make transparent any incentives underlying the installation of rooftop solar; (iii) Minimize costs to customers; and (iv) Craft a solution that will be robust and adaptable over the long term.").

24. *See* L. BIRD ET AL., *supra* note 1, at 41-42.

25. *See id.*

two-way rate.[26] Although a VOST may be structured in different ways, as will prove important, the design encompasses two generally applicable components.[27]

> First, the tariff relies on an annually-updated value of solar calculation designed to reveal the value to the utility of a unit of generated solar energy. . . . Second, the tariff reconfigures the netting process to ensure that the utility recovers its full cost of serving the solar customer before any credit [or monetary value] for solar generation is applied.[28]

II. ANALYSIS: THE IMPORTANCE OF STRUCTURAL INDICATORS WITHIN THE RESIDENT-UTILITY AGREEMENT TO ASCERTAINING THE FEDERAL INCOME TAX CONSEQUENCES OF CROSS-IMPLEMENTATION

The federal tax implications of a VOST's structure are critically impacted by the resident-utility agreement.[29] The existence or nonexistence of several structural indicators used within the residential consumer-utility agreement may determine whether and to what extent federal income tax issues arise. More specifically, these structural indicators aid in ascertaining whether the resident is generating electricity for consumption or for sale as well as the overarching question as to which VOST structures will potentially present federal tax issues.[30] The structural indicators are analyzed below in order of component part complexity.

First, the amount and nature of the transactions, including title transfer, sale arrangement, and term limitation aid in ascertaining the structure and character of the transaction.[31] If such rate design is structured in a "buy-all/sell-all"[32] structure, two transactions take place. In the first transaction, the utility purchases all the electricity generated by the residential homeowner's PV system.[33] In this initial transaction, the utility is "buying all" of the resident's self-generated electricity and the homeowner is "selling all" of his initial generation before he consumes it.[34] In this context, "sell" means that legal title to the electricity

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26. *See* Rábago, *supra* note 6, at 47.
27. *See id.*
28. Rábago, *supra* note 6, at 47-48. I added "or monetary value" to make these generalizations applicable to any VOST structure.
29. *See* Memorandum from Sean Shimamoto & Emily Lam, Partners, Skadden, Arps, Slate, Meagher & Flom, LLP to The Alliance for Solar Choice (TASC 1, 1 (Aug. 9, 2013), *available at* http://www.rabagoenergy.com/blog/files/tasc-arizona-tax-memo-on-fits.pdf [hereinafter Skadden Memo] (conceding that the federal tax implications are dependent upon the rate design).
30. Karl R. Rábago, *QSEPs, Rates, and Taxes*, RÁBAGO ENERGY, LLC: SPARKS (BLOG) (Aug. 28, 2013, 10:07 PM), http://www.rabagoenergy.com/blog/files/archive-aug-2013.html [hereinafter Rábago Blog] (emphasizing that a reasonable interpreter of such resident-utility agreement would look to the "structure and character of the transaction").
31. *See id.*
32. I am referring to a rate design that may be applicable to both a "buy all/sell all" VOST as well as a feed-in-tariff (FIT) agreement so long as the transactions are structured in this manner. *See id.* (providing an example of a FIT agreement).
33. *See* Skadden Memo, *supra* note 28, at 2-3.
34. *See id.*

passes prior to the homeowner's electricity consumption.[35] The second utility-homeowner transaction occurs where the utility sells electricity back to the homeowner for his personal consumption.[36] These two transactions may create federal income tax credit ineligibility and gross taxable income issues.

Individual taxpayers that install qualified solar electric property expenditures are eligible for the Residential Energy Efficient Property Credit under 26 U.S.C. § 25D.[37] Under § 25D, an individual can obtain a tax credit for 30 percent of the qualified solar electric property expenditures made by the individual for the taxable year.[38] A "qualified solar electric property expenditure" is "an expenditure for property which uses solar energy to generate electricity for use in a dwelling unit located in the United States and used as a residence by the taxpayer."[39] Under this definition, the electricity generated must be used in the consumer's residence.[40]

Under the "buy all/sell all" VOST structure, because all initially generated electricity is not used in the resident's home, but is instead sold directly to the utility, the resident may not qualify for the residential tax credit.[41] As such, federal income tax provisions lend support

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35. *See id.*
36. *See id.*
37. *See Residential Renewable Energy Tax Credit*, U.S. DEP'T OF ENERGY, http://energy.gov/savings/residential-renewable-energy-tax-credit (referring to this federal tax incentive by its common name—the "Residential Renewable Energy Tax Credit").
38. 26 U.S.C.A. § 25D(a)(1) (West, Westlaw through P.L. 113-296 (excluding P.L. 113-235, 113-287, and 113-291)).
39. § 25D(d)(2).
40. *See id.*
41. *See* Skadden Memo, *supra* note 28, at 2; *see also* I.R.S. Notice 2013-70, 2013-47 I.R.B. 1, 531 (Nov. 18, 2013) (hereinafter I.R.S. Notice):

> Q-26: A taxpayer purchases solar panels that are placed on an off-site solar array and connected to the local public utility's electrical grid that supplies electricity to the taxpayer's residence. The taxpayer enters into a direct contractual arrangement with the local public utility that supplies electricity to the taxpayer's residence to allow the taxpayer to provide electricity to the grid using a net metering system that measures the amount of electricity produced by the taxpayer's solar panels and transmitted to the grid and the amount of electricity used by the taxpayer's residence and drawn from the grid. The contract states that the taxpayer owns the energy transmitted by the solar panels to the utility grid until drawn from the grid at his residence. Absent unusual circumstances, the panels will not generate electricity for a specified period in excess of the amount expected to be consumed at the taxpayer's residence during that specified period. Can the taxpayer claim the § 25D credit?
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> A-26: Yes. Section 25D(d)(2) defines a qualified solar electric property expenditure, in part, as an expenditure for property that uses solar energy to generate electricity for use in a dwelling unit used as a residence by the taxpayer. The taxpayer's expenditure for off-site solar panels under this type of contractual arrangement with a local public utility that supplies electricity to the taxpayer's residence meets the definition of qualified solar electric property expenditure.

to this interpretation. Mainly, 26 U.S.C. § 25D(e)(7) specifies that "if less than 80 percent of the use of an item is for nonbusiness purposes, only that portion of the expenditures for such item which is properly allocable to use for nonbusiness purposes shall be taken into account."[42] Put differently, to qualify for this personal tax credit, the resident, by nature, must be a nonbusiness. To qualify as a nonbusiness, the resident must dedicate less than 80 percent of his electricity use for nonbusiness/residential purposes. Additionally, only the expenditure portion that is a nonbusiness use is accounted for upon assessment of eligibility.[43] Thus, in the above structure, if the resident's "sell" is interpreted as a sale of 100 percent of the resident's electricity, this transaction may be interpreted as a business transaction for more than 20 percent of the resident's total use of his self-generated electricity.[44] Further, under this assumption the resident is not using the requisite 80 percent of his generated energy.[45] Finally, under such interpretation the resident is likely ineligible for the residential renewable energy tax credit.

Second, the utility's compensation method is another structural indicator. The compensation method can be structured as a non-refundable tax credit or a form of monetary compensation for the resident's electricity generation.[46] In a "buy all/sell all" or FIT resident-utility agreement, the customer is compensated at a fixed price per megawatt hour (MWh).[47] The homeowner's receipt of a monetary sum for his electricity generation likely presents another tax issue because this payment likely falls under the definition of gross taxable income.[48] Gross income is defined as:

> All means of income from whatever source derived, including (but not limited to) the following items: (1) Compensation for services, including fees, commissions, fringe benefits, and similar items; (2) Gross income derived from business; (3) Gains derived from dealings in property; (4) Interest; (5) Rents; (6)

But see I.R.S. Notice:

> Q-27: A taxpayer purchases and installs solar electric property to generate electricity for the taxpayer's own home and to allow the taxpayer to sell excess electricity to a utility. Unlike the taxpayer in Q-26, this taxpayer generates more than a minimal amount of excess electricity. Does this taxpayer qualify for the § 25D credit on the full amount of the solar electric property? A-27: No. Under these facts, the taxpayer may not claim the § 25D credit for the full amount of the solar electric property expenditure because the property not only generates electricity for use in the taxpayer's home, but it also generates electricity for sale by the tax payer. The taxpayer may only claim the § 25D credit for the portion of the solar electric property expenditure that relates to the electricity generated for use in the taxpayer's home.

42. *See* 26 U.S.C.A. § 25D(e)(7) (West, Westlaw through Pub. L. No. 113-74).
43. *See id.*
44. *See* Skadden Memo, *supra* note 28, at 3 (concluding that the all of the electricity sold to the utility would be classified as a "business use").
45. *See id.*
46. *See* Rábago Blog, *supra* note 29.
47. *See* FIT at Section H; *see also* Skadden Memo, *supra* note 28, at 3.
48. *See* Skadden Memo, *supra* note 28, at 3.

Royalties; (7) Dividends; (8) Alimony and separate maintenance payments; (9) Annuities; (10) Income from life insurance and endowments contracts; (11) Pensions; (12) Income from discharge of indebtedness; (13) Distributive share of partnership gross income; (14) Income in respect of a decedent; and (15) Income from an interest in an estate or trust.[49]

Further, the U.S. Supreme Court interpreted "gross taxable income" broadly in line with Congress' intent and stated that the term includes "instances of undeniable accessions to wealth, clearly realized, and over which taxpayers have complete dominion."[50] Thus, assuming that the resident-utility transaction is interpreted as a business transaction, proceeds from the resident's initial sale to the utility likely constitute gross income.[51]

Currently, in much of the U.S., the residential solar market is dominated by third-party ownership structures, in which a business owns and operates the solar system on a resident's house and leases the asset (or sells the electricity) to the homeowner.[52] Under these circumstances, the homeowner is still connected to the grid and would be subject to any rate design for solar electricity produced. In contrast with the § 25D tax credit, which affects only a portion of the residential solar market, a "buy all/sell all" transaction constituting gross income would affect the entire residential solar market.

If interpreted this way, a change from net-metering to a "buy all/sell all" VOST transaction could significantly impact the economics of a residential solar system irrespective of the actual value attributed to the energy generation. Thus, some argue that under a "buy all/sell all" transaction, the homeowner is likely ineligible for the § 25D tax credit, and may pay taxes on gross income incurred (whether the homeowner owns the system or not).

Alternatively, if the resident's compensation is structured similarly to the current net metering structure, where the utility allows the homeowner to keep his electricity quantifications on his side of the meter by directly providing non-refundable bill credits to the customer for all of his self-generated electricity, this structure may not present the aforementioned tax issues.[53] Specifically, this structure does not involve an initial transaction where the resident sells to the utility.[54] By eliminating this transaction, this structure also likely eliminates the gross taxable income issue because the resident consumes all needed generation

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49. 26 U.S.C.A. § 61(a) (West, Westlaw through P.L. 113-296 (excluding P.L. 113-235, 113-287, and 113-291)).

50. *See* Comm'r v. Glenshaw Glass, 348 U.S. 426, 431 (1955).

51. *See* Skadden Memo, *supra* note 28, at 3. Solar advocates disagree regarding whether the "separate and distinct nature" of the two transactions constitutes a relevant structural indicator; *see id.* (emphasizing the separate nature of the transactions). *But see* Rábago Blog, *supra* note 29. ("But as [the] memo says, this all matters NOT because purchase is separate and distinct. So don't get distracted by that.").

52. These third-party businesses are eligible for a business tax credit under § 48 of the tax code.

53. *See City of Austin Electric Rate Schedules: Residential Solar*, AUSTIN ENERGY (2014), http://www.austinenergy.com/wps/wcm/connect/c6c8ad20-ee8f-4d89-be36-2d6f7433edbd/ResidentialSolar.pdf?MOD=AJPERES.

54. *See id.*

in his home.[55] Further, because the resident does not sell his generation back to the utility, but instead receives credit for all self-generated electricity (which may be carried over into future months), the gross taxable income issue is likely to surface.[56]

Under the aforementioned assumptions, the latter may be more practical for both consumers and utilities due to additional indication that some state courts are interpreting such transactions as energy reduction rather than "selling electricity."[57]

CONCLUSION AND ADDITIONAL CONSIDERATIONS

Thus, structural indicators within the resident-utility agreement are key components in understanding the federal income tax consequences of structuring a VOST. Additionally, other important considerations outside the scope of this paper are useful in fully exploring the federal income tax implications of implementing a residential VOST.

One consideration includes the interconnection point between the resident's solar system and the utility grid (customer side vs. utility side of the meter). Typically net metered systems are connected on the customer side of the meter. In contrast, FIT arrangements involve connection on the utility side of the meter in order for the utility to best track the resident's electricity generation. Such meter placement is unclear for VOST arrangements. The point of connection may be useful to the discussion of whether the homeowner's generation is interpreted as generation for consumption or generation for sale. Finally, other considerations include VOST's effects on the transferability of renewable energy credits (RECs) between the resident and the utility and whether such transfers add additional federal income tax issues. These additional considerations enable solar stakeholders to best consider the effects of a shift to VOST.

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55. *See id.*
56. *See id.*
57. *See* S2 Enterprises, LLC v. Iowa Utils. Bd., 850 N.W.2d 441, 443 (Iowa 2014) (re-characterizing the third-party PV leasing company's long-term contract to supply electricity to residential customers as engaging in the business of energy efficiency in furtherance of Iowa's state goals rather than "selling" electricity).