Proposed Order of Joint Parties
December 18, 2020

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF SOUTHERN INDIANA GAS AND ELECTRIC COMPANY D/B/A VECTREN ENERGY DELIVERY OF INDIANA, INC. FOR APPROVAL OF A TARIFF RATE FOR THE PROCUREMENT OF EXCESS DISTRIBUTED GENERATION PURSUANT TO IND. CODE § 8-1-40 ET SEQ.	**)**	**CAUSE NO. 45378**
	)	**APPROVED:**

ORDER OF THE COMMISSION

Presiding Officers:
Stefanie N. Krevda, Commissioner
David L. Ober, Commissioner
Carol Sparks Drake, Senior Administrative Law Judge

On May 8, 2020, Southern Indiana Gas and Electric Company d/b/a Vectren Energy Delivery of Indiana, Inc., a CenterPoint Energy Company, ("Petitioner" or "Vectren") filed a Verified Petition with the Indiana Utility Regulatory Commission ("Commission" or "IURC") in the above-caption Cause. On May 11, 2020, Petitioner filed the direct testimony and attachments of Justin Joiner, Director, Power Supply Services, and J. Cas Swiz,[1] Director, Regulatory Rates.

The procedural schedule for this Cause was established by docket entry dated June 3, 2020, which was amended by docket entry dated August 14, 2020.

Petitions to Intervene were filed by the Citizens Action Coalition of Indiana, Inc. ("CAC"), Environmental Law & Policy Center ("ELPC"), Solar United Neighbors, Inc. ("SUN"), and Vote Solar (collectively, "Joint Intervenors" or "JIs"); Indiana Distributed Energy Alliance ("IndianaDG"); Performance Services, Inc. ("Performance Services"); and Solarize Indiana, Inc. ("Solarize Indiana," "Solarize," or "SI"). These petitions were granted without objections. The Indiana Office of Utility Consumer Counselor ("OUCC") also participated as a party.

On May 22, 2020, Solarize Indiana filed a *Verified Motion to Consolidate of Solarize Indiana*. On May 28, 2020, CAC, ELPC, SUN, Vote Solar, and IndianaDG filed *Joint Intervenors' and IndianaDG's Response in Support of Solarize Indiana's Motion to Consolidate*. On June 8, 2020, Vectren filed its *Response in Opposition to Motion to Consolidate*. On June 15, 2020, Solarize Indiana filed a *Verified Reply of Solarize Indiana, Inc. to Vectren's Objections to Motion to Consolidate*. The Commission, in a docket entry dated June 26, 2020, denied the *Verified*

[1] On November 6, 2020, Vectren filed a Notice of Substitution of Witness and Adoption of Testimony that Matthew A. Rice adopts the prefiled direct and rebuttal testimony of Petitioner's witness J. Cas Swiz. Related revisions were also filed to reflect the change in witness.

Motion to Consolidate of Solarize Indiana "given the Commission's action, as well as the matters that were at issue in the 30-day filing Nos. 50331 and 50332".[2]

On June 8, 2020, Solarize Indiana filed a *Verified Appeal to the Full Commission of Solarize Indiana, Inc.*, appealing the Presiding Officers' Docket Entry of May 29, 2020 granting the Solarize Indiana Petition to Intervene for the purpose of requesting the full Commission to modify and clarify the limitation on Solarize Indiana's right to raise issues and seek affirmative relief regarding "PURPA-related matters" which were included in that Entry. On June 15, 2020, Vectren filed a *Response in Opposition to Solarize Indiana's Verified Appeal to the Full Commission of May 29, 2020 Docket Entry*. On June 22, 2020, Solarize Indiana filed its *Verified Reply of Solarize Indiana, Inc. to Vectren's Response in Opposition to Appeal to Full Commission*. The Commission affirmed the decision by the Presiding Officers, thereby declining to modify the May 29, 2020 Docket Entry by docket entry dated June 29, 2020. In this June 29, 2020 docket entry, the Commission also took Administrative Notice of the transcript of the Commission's consideration of this appeal and made it a part of the record of this proceeding.

On August 5, 2020, Joint Intervenors filed *Joint Intervenors' Verified Motion to Compel Vectren Energy to Respond to Relevant Discovery* to compel the production of the Excel version of Vectren's cost of service study. On August 10, 2020, Vectren filed its *Verified Response in Opposition to Motion to Compel*. On August 11, 2020, Joint Intervenors replied to the Response in Opposition by filing a *Verified Reply in Support of Joint Intervenors' Motion to Compel Vectren Energy to Respond to Relevant Discovery*. On August 13, 2020, the Commission granted *Joint Intervenors' Verified Motion to Compel Vectren Energy to Respond to Relevant Discovery*.

On August 20, 2020, the OUCC and Intervenors filed their respective cases-in-chief. The OUCC filed the direct testimony and attachments of Anthony A. Alvarez, Utility Analysis, as well as a collection of customer comments. IndianaDG filed the direct testimony and attachments of Kurt Schneider, Founding Partner with Nick Melloh of Johnson Melloh Solutions; Brad Morton, President and Owner of Morton Solar; and Edward T. Rutter, Manager at the firm of LWG CPAs and Advisors, which included a redacted and unredacted submission. Joint Intervenors filed the direct testimony and attachments of Douglas B. Jester, Partner of 5 Lakes Energy LLC, which included a confidential attachment submission, and Will Kenworthy, Regulatory Director, Midwest, for Vote Solar. Solarize Indiana filed the direct testimony and attachments of Darrell Boggess, Board Member; Barry Kastner, Founding Board Member and Treasurer of Solarize Indiana; Michael A. Mullett, Board Member; Jay W. Picking, Solarize Evansville Team Leader; and Jean M. Webb, Initial Solarize Evansville Team Leader. IndianaDG, Joint Intervenors, and Solarize Indiana also filed their respective workpapers.

On August 26, 2020, Solarize Indiana filed the following: *Verified Motion of Intervenor Solarize Indiana, Inc., for Leave to Supplement Its Prefiled Testimony and Work Papers with Respect to Specified Topics and Witnesses, Supplemental Testimony of Barry S. Kastner on Behalf of Solarize Indiana, Inc. August 27, 2020*, and *Supplemental Testimony of Michael A. Mullett on Behalf of Solarize Indiana, Inc. August 27, 2020.* On September 2, 2020, Solarize filed a *Verified*

[2] These 30-Day Filing Nos. 50331 and 50332 were appealed by Solarize Indiana and are currently pending before the Indiana Court of Appeals in Cause No. 20A-EX-01384.

Motion of Solarize Indiana, Inc. to Withdraw and Replace Designated Filings of August 26, 2020 and an *Amended Verified Motion of Intervenor Solarize Indiana, Inc., for Leave to Supplement its Prefiled Testimony and Work Papers with Respect to Specified Topics and Witnesses.* In the Motion to Withdraw, Solarize sought to withdraw the filings it made on August 26, 2020, and replace these as specified in the Amended Motion to Supplement. In the Amended Motion to Supplement, Solarize requested leave to supplement the testimony of witnesses Kastner and Mullett prefiled on August 20, 2020, and leave to file the confidential work papers underlying Mr. Kastner's supplemental testimony. On September 3, 2020, Vectren filed a *Response and Partial Objection to Solarize Indiana, Inc.'s Motion for Leave to Supplement Its Prefiled Testimony and Work Papers with Respect to Specified Topics and Witnesses.* On September 10, 2020, Solarize filed a *Verified Reply of Solarize Indiana, Inc. to Vectren's Response and Partial Objection to Solarize Indiana, Inc.'s Amended Verified Motion for Leave to Supplement Testimony and Workpapers with Respect to Specified Topics and Witnesses.* By docket entry dated September 17, 2020, the Commission granted the Motion to Withdraw, found the Motion to Supplement moot, and partially granted the Amended Motion to Supplement such that leave was granted to file the supplemental testimony of Barry S. Kastner, as attached to the Amended Motion to Supplement, and his related confidential work papers; however, the Commission denied the Amended Motion to Supplement with respect to the proposed supplemental testimony of Michael A. Mullett.

On August 27, 2020, Vectren filed *Petitioner's Motion for Protection and Nondisclosure of Confidential and Proprietary Information* requesting that certain information Petitioner intends to submit to the Commission and/or other parties in this Cause have secured from Vectren be treated as confidential and exempt from public disclosure. The Presiding Officers granted the Motion and found the information should be treated as confidential on a preliminary basis by docket entry dated September 9, 2020.

On August 31, 2020, IndianaDG filed a *Verified Motion for Leave to File the Supplemental Testimony of Edward T. Rutter*, as well as the Supplemental Direct Testimony of Edward T. Rutter. On September 8, 2020, Vectren filed a *Response to IndianaDG's Verified Motion for Leave to File the Supplemental Testimony of Edward Rutter,* stating that it does not oppose the Commission granting IndianaDG leave to file Mr. Rutter's proposed supplemental testimony. The Commission granted IndianaDG's *Verified Motion for Leave to File the Supplemental Testimony of Edward T. Rutter* by docket entry dated September 14, 2020.

On August 31, 2020, IndianaDG also filed *IndianaDG's Motion for Protection and Nondisclosure of Confidential and Proprietary Information* requesting that certain documents be treated as confidential and exempt from public disclosure. The Presiding Officers granted the Motion and found the information should be treated as confidential on a preliminary basis by docket entry dated September 11, 2020.

On September 11, 2020, Vectren filed the rebuttal testimony and attachments of J. Cas Swiz,[3] Justin M. Joiner, Jason L. Williams, and Ryan E. Abshier, with a confidential portion of rebuttal testimony of Mr. Swiz.

On September 17, 2020, the OUCC, IndianaDG, Joint Intervenors, Performance Services, and Solarize Indiana ("Joint Movants") filed *Joint Movants' Motion for Summary Judgment and Brief in Support of Motion*, arguing that pending proposal by Vectren does not comply with Ind. Code ch. 8-1-40. Vectren on September 22, 2020, filed its *Response to Joint Movants' Motion for Summary Judgment*. On September 29, 2020, Joint Movants filed *Joint Movants' Reply to Vectren South's Response to Motion for Summary Judgment*, noting "the language of the Rider, whether in its original or amended version, clearly shows the incorrect application of Ind. Code § 8-1-40-5 and is the legal foundation for Joint Movants' Motion." The Presiding Officers denied *Joint Movants' Motion for Summary Judgment and Brief in Support of Motion* by docket entry dated October 15, 2020. On October 23, 2020, the OUCC, IndianaDG, Joint Intervenors, and Solarize Indiana filed a *Joint Appeal to the Full Commission by the Office of Utility Consumer Counselor, Indiana Distributed Energy Alliance, Joint Intervenors, and Solarize Indiana, Inc., and Request for Oral Argument*, arguing the Presiding Officers' October 15, 2020 Docket Entry erred in denying summary judgment. On October 28, 2020, Vectren filed its *Response in Opposition to Joint Appellants' Appeal to Full Commission and Request for Oral Argument*. On November 2, 2020, the OUCC, IndianaDG, Joint Intervenors, and Solarize Indiana filed their *Joint Appellants' Reply to Vectren South's Response to Joint Appeal to Full Commission*. At the evidentiary hearing on November 17, 2020, counsel for Solarize Indiana noted that "with the current pending appeal to the full Commission from the Presiding Officers' determination on the Motion for Summary Judgment, that for purposes of the record, Solarize Indiana would like to make it clear that our participation in today's hearing in no way should be construed as a waiver of any legal arguments presented in that – in that filing nor of our ability to seek further redress at the Court of Appeals and Supreme Court should it be necessary with respect to the Presiding Officers' decisions." Tr., A-7, line 22—A-8, line 6. Counsel for Joint Intervenors joined in that statement made by Solarize Indiana's counsel. Tr., A-8, lines 12-14.

On September 22, 2020, the OUCC, IndianaDG, Joint Intervenors, Performance Services, and Solarize Indiana filed a *Joint Motion to Continue Previously Scheduled Evidentiary Hearing on the Merits* to allow consideration of *Joint Movants' Motion for Summary Judgment and Brief in Support of Motion* filed on September 17, 2020. The Commission ordered by docket entry dated September 25, 2020, the deadline within which Vectren may respond to this motion changed to on or before September 28, 2020, and the deadline within which Joint Movants may file a reply to Vectren's response changed to on or before September 30, 2020. The Commission by docket entry dated October 29, 2020, rescheduled the evidentiary hearing to November 17, 2020.

On October 7, 2020, Solarize Indiana, Inc., Citizens Action Coalition of Indiana, Environmental Law & Policy Center, Inc., Vote Solar, Inc., and Solar United Neighbors, Inc. (collectively, "Joint Movants") filed *Joint Verified Motion for All-Remote Hearing*, given the

[3] On November 6, 2020, Vectren filed a Notice of Substitution of Witness and Adoption of Testimony that Matthew A. Rice adopts the prefiled direct and rebuttal testimony of Petitioner's witness J. Cas Swiz. Related revisions were also filed to reflect the change in witness.

ongoing health and safety risks and challenges presented by the unprecedented COVID-19 pandemic. On October 13, 2020, Vectren filed *Petitioner's Response to Motion for All-Remote Hearing*, taking no position upon whether the evidentiary hearing should be held in person or remotely. On October 15, 2020, Joint Movants filed *Joint Movants' Verified Reply to Vectren South's Response to Verified Joint Motion for All-Remote Hearing.* The Commission granted the *Joint Verified Motion for All-Remote Hearing* by docket entry dated November 6, 2020. On November 4, 2020, given that the *Joint Verified Motion for All-Remote Hearing* was pending at that time, Solarize Indiana and Joint Intervenors filed the *Joint Request for Administrative Notice of Joint Intervenors and Solarize Indiana, Inc.*, requesting administrative notice of certain facts in support of their *Joint Verified Motion for All-Remote Hearing*. The *Joint Request for Administrative Notice of Joint Intervenors and Solarize Indiana, Inc.*, was subsequently withdrawn at the November 17, 2020 evidentiary hearing, given that the Commission's November 6 docket entry made that request moot in granting the *Joint Verified Motion for All-Remote Hearing*.

On October 26, 2020, IndianaDG filed a *Motion for Alternative Dispute Resolution.* On November 4, 2020, Vectren filed *Petitioner's Response to Motion for Alternative Dispute Resolution.* On November 6, 2020, IndianaDG filed a *Reply to Vectren's Response to Motion for ADR*. The Commission denied the *Motion for Alternative Dispute Resolution* by docket entry dated November 9, 2020.

The Commission held an evidentiary hearing in this Cause commencing at 9:30 a.m. via WebEx on November 17, 2020. Vectren, the OUCC, IndianaDG, Joint Intervenors, Performance Services, and Solarize Indiana appeared and participated at the hearing by counsel. Vectren, the OUCC, IndianaDG, Joint Intervenors, and Solarize Indiana offered their respective prefiled testimony and exhibits. Without objection, the prefiled testimony and exhibits of all witnesses was admitted into evidence and cross-examination was conducted of Vectren witnesses Rice, Joiner, Abshier, and Williams.

Based upon applicable law and evidence presented, the Commission finds:

1. <u>Notice and Jurisdiction</u>. Notice of the hearing in this Cause was given and published as required by law. Petitioner is a "public utility" under Ind. Code § 8-1-2-1, and an "electricity supplier" pursuant to Ind. Code §8-1-40-4(a). Petitioner is subject to the jurisdiction of this Commission in the manner and to the extent provided by the Public Service Commission Act, as amended, and other pertinent laws of the State of Indiana. Therefore, the Commission has jurisdiction over Vectren and the subject matter of this proceeding.

2. <u>Vectren's Characteristics</u>. Petitioner is an operating public utility, incorporated under the laws of the State of Indiana, with its principal office and place of business located at One Vectren Square, 211 NW Riverside Drive, Evansville, Indiana 47708. Petitioner provides electric utility service to approximately 145,000 customers in six counties in southwestern Indiana. Petitioner renders such electric utility service by means of utility plant, property, equipment and related facilities owned, leased, operated, managed and controlled by it, which are used and useful for the convenience of the public in the production, treatment, transmission, distribution and sale of electricity.

3. Applicable Rules and Statutes. According to its Petition, Petitioner considers the provisions of the Public Service Commission Act, as amended, Ind. Code §§ 8-1-2-1 to 127, Ind. Code §§ 8-1-40-1 to 23, and 170 IAC 4-4.2-1 to 10, "among others" to be applicable to this matter. Joint Parties consider 170 IAC 4-4.3-1 to 12 to be included "among others." This is the first case which the Commission has decided in which Ind. Code §§ 8-1-40-1 to 23 have been considered applicable.

4. Relief Requested. Vectren requests Commission approval of its Rider EDG for the procurement of "excess distributed generation" from future distributed generation ("DG") customers as prescribed by Ind. Code § 8-1-40-5. Joint Parties consider this request necessarily to encompass all other relief required to assure "just and reasonable rates" and "reasonably adequate service" within the meaning of Ind. Code § 8-1-2-4. Joint Parties' position is that Vectren has met neither of these statutory obligations with the EDG tariff it has proposed and the case it has presented as Petitioner in this matter. Consequently, Joint Parties request that the Commission deny the relief requested by Vectren and, as described in more detail below, direct Vectren to comply with the applicable statutory requirements when it files its next EDG case.

5. Evidence.

A. Vectren Direct. [Joint Parties will review and redline Vectren's submission of its testimony summaries as part of its reply and exceptions to Vectren's proposed order.]

B. OUCC Direct and Customer Comments.

1. Anthony Alvarez. Anthony Alvarez, Utility Analyst for the Indiana Office of Utility Consumer Counselor, testified on Vectren's erroneous definition and application of the term "excess distributed generation" ("EDG") in its proposed Rider EDG tariff, which does not comply with the definition of EDG as Ind. Code § 8-1-40-5 prescribes, addressed metering and billing methodology issues and deficiencies in Vectren's proposal, and recommended the Commission deny Vectren's request for approval of its proposed Rider EDG tariff. Mr. Alvarez first described the definition of "excess distributed generation" as identified in Ind. Code § 8-1-40-5 and explained the components of the definition. The components that must be present are the electricity that is supplied by an electricity supplier, and the electricity that is supplied back to the electricity supplier. Additionally, the statute explicitly defines EDG as the "difference" between these two components.

Mr. Alvarez testified that Vectren failed to define the term "excess distributed generation" as it is defined in Ind. Code § 8-1-40-5 in its proposed Rider EDG tariff, thus rendering its proposed tariff incomplete, incorrect, and unacceptable for approval. Mr. Alvarez pointed to the testimony of J. Cas Swiz in which "inflow" is described as the electricity supplied by Vectren to the customer, and that Vectren describes the electricity supplied by the customer to Vectren is defined as "outflow" and the total outflow amount represents excess distributed generation from the customer to the Company. Mr. Alvarez testified Vectren claims the "total outflow amount" is the EDG, which is contrary to the definition of "excess distributed generation."

Mr. Alvarez argued that Vectren's proposed Rider EDG tariff does not take the difference between the electricity it supplied to the distributed generation ("DG") customer and the electricity supplied back to it by the DG customer to determine the DG customer's EDG. Instead, Vectren's proposed Rider EDG tariff erroneously characterized the "outflow" measured, recorded, and captured by its meter as EDG. Mr. Alvarez continued that this does not conform with the definition of the term "excess distributed generation," because the "outflow" measured, recorded or captured by Vectren's meter only recognizes "the electricity that is supplied back to the electricity supplier by the customer," which is only one of the two Distributed Generation Statute components used to determine EDG.

Mr. Alvarez noted that Vectren prices outflow at the EDG rate because this represents EDG from the customer to Vectren. Vectren assumes the "total outflow amount" is the EDG electricity for that particular billing period, without determining the difference from the electricity it supplied to the DG customer, as required by the Distributed Generation Statute. Mr. Alvarez further raised Vectren's response to OUCC discovery, in which Vectren stated the measurement of outflow in the standard customer meter reflects the difference between what the distributed generation resource produced and what the customer used behind the meter, with the excess ("excess distributed generation") flowing through the meter to Vectren South's distribution system, and priced at the Rider EDG Marginal DG Price. However, Mr. Alvarez contended the statutory definition does not refer to the difference of energy generated by the DG resource and the customer's consumption as EDG.

Mr. Alvarez raised additional concerns with Vectren's application of the EDG rate, what the rate is applied to, and the sequence in which the rate is applied. First, because Vectren does not correctly determine EDG as the difference between the inflow and outflow kWh, it does not apply the rate to the correct EDG amount. Further, Vectren does not apply the rate in the correct sequence. Mr. Alvarez observed that under Vectren's proposal, the customer's applicable tariff rate is applied to the total inflow amount and EDG rate is applied to the total outflow amount (separately) resulting in two separate dollar amounts. Then, Vectren takes the difference between the two inflow and outflow dollar amounts to determine what is billed to customers. However, the Distributed Generation Statute is specific in requiring the utility to first take the difference between the kWh supplied to the DG customer and the kWh supplied by the DG customer to determine the EDG and then use the resulting kWh for billing purposes, to which a rate is applied.

Mr. Alvarez disagreed with Mr. Swiz's application of how the EDG rate should be applied. Mr. Alvarez pointed out that this application harms customers. By pricing all of the outflow at the lower EDG rate, Vectren fails to offset some of the inflow, priced at the higher retail rate, which negatively affects customers. Mr. Alvarez also disagreed, from a technical perspective, with applying the EDG rate to the total outflow amount. Mr. Alvarez explained that the meter remains the boundary or delineation between the load side and the supply side in a DG customer set up. Although, Vectren claims the DG customer's AMI meter can measure, record and accumulate both total power inflow and outflow distinctly and separately from each other as they occur (one way at a time), the total power outflow does not represent EDG from the customer to Vectren, as Mr. Swiz's statement indicates. Mr. Alvarez explained that the utility cannot lay claim to the amount of power internally generated and consumed by the load at the load side of its metering point.

Vectren can only lay claim to the electricity measured and recorded by the AMI meter at the metering point.

Mr. Alvarez recommended that because Vectren's proposal does not conform with the statutory requirements for determining EDG, the Commission deny Vectren's request for approval of its proposed Rider EDG tariff.

2. Customer Comments. The OUCC received approximately 191 customer comments, all opposed to Vectren's proposal. The majority of the comments raised the same issues. The commenters stated that Vectren's new EDG tariff would make customer-owned solar energy unaffordable for most Vectren customers by reducing the bill credit new solar owners get for excess generation. The commenters further stated that moving to an instantaneous netting period would effectively ensure more of the solar generation is credited at the new lower rate. The commenters asserted Vectren's new proposed EDG tariff will strangle competition and choice in their utility territory by reducing the ability of their customers to invest in rooftop solar and would set a precedent for other utilities around the state. The commenters described the benefits of distributed generation like rooftop solar and argued that if Vectren's proposal is adopted, this sector of Indiana's economy might not be able to recover. The commenters concluded by recommending the Commission reject Vectren's new EDG tariff.

C. IndianaDG Direct and Supplemental Direct.

1. Brad Morton. Brad Morton, President and owner of Morton Solar testified regarding his business operations, the adverse impacts Vectren's proposals in this Cause would have on his solar installation business, on his prospective customers, and on Indiana's economy. He explained that the recovery of their investment in solar generation through electricity cost savings is a primary reason Vectren customers invest in solar installations for their homes and businesses. He explained that without a reasonable period over which the investment is recovered through savings there would be very little demand for new solar energy systems.

He described the financial analysis he provides to prospective solar installation customers that calculates the period over which their investment in solar generation will be paid back by electricity cost savings. He pointed out the current Investment Tax Credit on solar investments drops from 26% to 22% in 2021, then to 10% in 2022 for commercial projects and ends for residential solar.

His Attachments one through four show the negative impacts Vectren's EDG proposals would have on customer solar investment payback periods on a 10 kW solar array investment under four relevant scenarios. *Attachment 1* shows that today under current Vectren net metering and with the declining tax credit a 10 KW residential size solar installation would have a payback period of about 9 years. *Attachment 2* shows that the impact of only Vectren's proposed 3.1 cent EDG rate which would increase that current payback period to 16 years. *Attachment 3* shows the impact that Vectren's proposed 3.1 cent EDG combined with their instantaneous netting proposal would increase the current payback period to at least 21 years. *Attachment 4* shows the cumulative impact of Vectren's EDG and instantaneous netting proposals along with elimination of the Federal tax credit. The resulting payback period would be approximately 27 years.

He explained the resulting lengthening of the customer payback period would make customers extremely reluctant or unwilling to invest in solar. This will be devastating to Indiana's fledgling solar industry and result in job losses and probable market contraction to an industry and was just beginning to blossom and will decrease employment opportunities in Indiana's solar industry. He testified that in 2019 Morton Solar did $2.5 million of projects in Vectren's service area, 3.1 million in Indiana and paid $1.1 million in employee compensation mostly to union electricians. He explain when possible Morton solar buys materials and supplies locally and that the dollars Morton Solar injects into Indiana's economy are ripple effect re-spent and invested multiple times before leaving Indiana. He described the stimulus that Morton solar and its employees create through their payment of taxes to local and state governments. He testified the number of solar jobs in Indiana has increased to approximately 3,500 in 2019.

He testified the EDG's severe restriction on the customer value of solar generation leads to Vectren's investments in large solar farms to monopolize solar energy generation in its service area. He recommended that the Commission deny Vectren's EDG request and if complete denial was not possible to minimize its impact on solar installers and order Vectren to collaborate with its solar stakeholders.

2. Kurt Schneider. Kurt Schneider a founding partner of Johnson Melloh Solutions ("JMS") described JMS business operation, the economic stimulus they create in Indiana, the adverse impact Vectren's EDG proposals would have on JMS and the economic stimulus they create. He testified JMS employs 45 full time employees, electrical and rack installation contractors and engineering resources. In 2019 in Vectren's service area JMS did about $6.45 million of solar installations using union electricians. They paid wages of $1.2 million in Vectren's service area and $7,646,000 in Indiana. He testified that solar installation jobs are particularly important to Southern Indiana due to declining coal industry employment and the growing need for new jobs.

In addition to employment, he described the economic stimulus JMS solar installation creates through ongoing purchases of solar installation support supplies and materials. These purchases in 2019 totaled $1.2 million in Vectren's service area and approximately $7.65 million in Indiana as a whole. He explained the wages and purchase JMS pays provides get re-spent in ripple effect many times within Indiana, further stimulating our economy. He also described the economic benefits Indiana and local governments receive from increased income tax and sale tax payments by JMS, and all those who work for them or do business with them. He noted another large solar installation company Performance Services, Inc. employs about 200 workers and recently did about $13 million in annual business.

He noted that JMS total economic 2019 stimulus in Indiana was approximately $18.5 million and in Vectren's service area was about $6.5 million. He noted JMS economic stimulus alone in Vectren's service area is worth a lot more that the 2019 Vectren net metering customer booked kWh credit of approximately $170,000 and Vectren's net credit of about $53,000 that Vectren's EDG proposals are intended to substantially reduce.

Mr. Schneider described the negative impacts that Vectren's EDG proposals would have on its customers and on Indiana as a whole. He stated it would completely undermine the future of JMS Indiana solar business because it would create untenable solar customer investment

payback periods. He described a "double whammy" effect of Vectren proposing to reduce the per kWh solar credit rate down to about 3.1 cents per kWh and further dramatically reducing the customer's monthly bill credit by changing from monthly netting to instantaneous netting. He explained the result would increase customer payback periods from about 7-10 years to about 25 years. The result could eliminate new solar business Vectren's service area.

He explained the solar installation industry is very concerned about Vectren's EDG proposals as they are the first Indiana utility to file for an EDG rate. If the much lower 3.1 cent EDG rate and instantaneous netting were approved, he feared it could become the "double whammy" template for other utilities to follow. He stated if that occurs, Companies like JMS and their future solar installation business activities, along with the economic development growth they spur, would likely shift away from Indiana into nearby jurisdictions that reasonably treat solar DG customers. He concluded Vectren's EDG proposals are unfair to its customers, to solar installation companies and to Indiana's economic interests at large. He recommended Vectren's proposals be denied, but if approved be minimized to prevent the proposed brutal treatment of solar DG.

3. Edward Rutter. Edward Rutter a manger with LWG CPA's and Advisors testified in opposition to Vectren's EDG proposal. He recommended that the EDG proposal be denied, but if not fully denied then reject instantaneous netting and continue current monthly netting. First he testified Vectren's EDG proposal is an unjust and unreasonable rate. He testified that the Commissions judgment and expertise in considering and resolving multiple aspects of EDG are needed in balancing consumer and shareholder interests in order to reach a just and reasonable rate outcome. He testified that DSM / Energy Efficiency ("EE") and DG are all Distributed Energy Resources ("DERs") i.e. a resource sited close to customers that provides some or all of their electric power needs. They all serve the public purpose of reducing load, improving utility operations and improving the environment.

The direct benefits he described were: reduce need for new generation, lower peak demands, reduce T&D line loss, defer or avoid need for new transmission and distribution capacity, improved system reliability, improved power quality and cyber security for DG output. He described the Indirect benefits as: environmental and health benefits from no carbon pollution, lower right of way acquisition costs, reduced vulnerability to electric cyber-attacks, improved infrastructure resilience, and avoided carbon capture costs.

He testified that Vectren's EDG proposal provides no recognition of these direct and indirect benefits. The lack of considering these benefits in cost of service contribute to the unjust and unreasonableness of Vectren's EDG proposal. He testified regarding the incongruity of Vectren proposing a retail rate credit for EDG only to have the EDG credits recovered like wholesale power purchases in the FAC. He also generally pointed out that Vectren's own IRP indicates it pays more for purchased power than it would pay its own customers for solar DG.

He testified that Vectren's EDG proposal fails to meet the three basic rate tenants for just and reasonable rates as described by James Bonbright in his "*Principles of Public Utility Rates*" i.e. revenue requirement objective; 1) fair cost apportionment and optimum use, 2) to have rates discourage wasteful use of utility services and 3) to promote economically justified use. He explained Vectren's EDG proposal grossly undervalues DG, is unjust, unreasonable, would not

allow DG customers to recover their investment for approximately 25 years and would stifle DG growth to the detriment of Vectren and all its customers.

He described the highlights of this Commission's recent Lawrence Berkley National Laboratory ("LBNL") Report to the 21st Century Energy Policy Development Task Force on emerging energy technologies in distribution systems. The Report states with high adoption of rooftop solar there will be Vectren system wide savings. It points out that DER's including DG can be beneficial to the distribution and transmission system by reducing line and transformer losses and differing new capacity. High PV adoption scenarios have 8% lower costs largely driven by reduced capital and fixed costs. DERs can also impose technical costs to distribution. From the Report he concluded LBNL echoes the same benefits he described. He stated Vectren's proposals are unfair to customers and contrary to achieving DG benefits. The noted LBNL Reports findings serve to further justify denial of Vectren's EDG proposal.

Second, in opposition to the EDG proposal he testified that the energy cost used to calculate the proposed 3.15 cent EDG rate is materially lower than the Vectren system IRP marginal cost of $28.63 for 2020 (i.e. $.02863 per kWh, multiplied by 1.25 equals $.03578), which escalates throughout the entire 20 year IRP. He testified that is fundamentally unfair to base EDG customers' credit on less than the IRP marginal cost. If the system marginal cost is accurate enough to support Vectren's 20 year IRP generation and purchased power planning, it should equitably be the bare bones starting point for the EDG calculation.

Third, he described the oppressive impact Vectren's new proposed instantaneous netting would have on DG customers. He testified that proposal does not seem to comply with the applicable statute and is designed to give DG customers the lowest possible compensation for their EDG. He testified monthly netting has been the norm under current net metering and should continue under EDG. Mr. Rutter suggested a middle ground solution to consider in developing a just and reasonable EDG rate. He initially suggested a 50/50 mechanism for residential rates and a 60/40 split in favor of commercial customers with possible sliding scale. He testified this middle ground approach would give value for the direct and indirect benefits that DG brings to Vectren's system and to non DG customers. After Vectren produced its most recent cost of service study in live format in compliance with our granting a Motion to Compel, Mr. Rutter sponsored Supplemental Testimony. Therein he supplemented his original Middle Ground Yardstick suggested EDG rate through his analysis of the live cost of service study to ensure a just and reasonable EDG rate. He calculated a distribution cost of service updated to the present. He deducted that from Vectren's retail residential rate of $0.15675 for a more accurate middle ground EDG rate of $0.12903 per kWh. He testified it was unfair that Vectren would only allow EDG customers a credit of $0.0315 and then resell their excess DG output to neighboring customers at the retail rate of $0.15675.[4] He explained his alternative perspectives in considering the many facets of Vectren's EDG proposal and ensuring the resulting EDG rate treatment is just and reasonable.

[4] Messers. Kastner and Kenworthy used 2.7 cents and 14.3 cents (while Mr. Rutter and Mr. Morton used 3.1 cents and 15 cents, respectively), which are based on the IURC approval in late June 2020 of a revised (lower) wholesale rate for PURPA purposes. The Commission will rely on the updated June 2020 numbers for the remaining language in the Order.

Fourth, Mr. Rutter described the small amount of Vectren's 2019 net metering customer banked credits and compared that with the solar installation economic development benefits created by just Morton Solar and JMS. He explained that at the current residential net metering credit rate of about $0.15675 per kWh and the commercial rate at about $0.12 per kWh Vectren balance of unused DG credits was only $53,369 and was carried over to 2020. Vectren's total gross 2019 banked credits were only about $170,506. Under EGD the credit per kWh and the credit accumulation would be much lower because the proposed rate is only about $0.031, one fifth of $0.15675. He then compared Vectren's 2019 net metering customer credit of $53,369 to the 2019 $9 million economic development stimulus provided by just Morton Solar and JMS in Vectren's service area. He concluded that to maintain and grow economic well-being in the Vectren service area a reasonable person would accept responsibility for $53,369 of DG customer credits in exchange for $9 million dollars of economic development. He stated the jobs created and the tax dollars thereby generated are worth the small cost of the DG customer credits, costs that would be even lower under Vectren proposed $0.0315 LMP based EDG rate.

Lastly, Mr. Rutter described the impact of EDG based on an analysis of five actual DG customer's recent 12 months of bills. From this he concluded that EDG rate and instantaneous netting represent a brutal massive increase in DG customer monthly bills. An increase so great that it bolstered his opinion that Vectren's EDG proposal is unjust, unreasonable and should not be approved.

D. Joint Intervenors' Direct.

1. Douglas B. Jester. Douglas Jester, with more than 30 years of experience in utility industry regulation and related fields, testified on behalf of Joint Intervenors. He addressed Vectren's proposal to consider all instantaneous outflow from the customer to Vectren to be EDG, to be credited at 1.25 times the hourly locational marginal price in MISO, and to continue to charge such customers the standard retail rate for all inflow from Vectren to the customer. He testifies that in order to provide customers who have behind-the-meter generation just and reasonable rates that reflect the true cost of service, the Commission should apply the EDG tariff rate to net monthly outflow and must make available to customers who have behind-the-meter generation an inflow rate that accurately reflects the cost of service for such customers. This requirement would be consistent with the Public Utility Regulatory Policies Act of 1978, as amended ("PURPA"), including PURPA's implementing rules adopted by FERC and Indiana's PURPA implementing statutes and rules, in that it obligates utilities to offer customers with renewable behind-the-meter generation a rate for EDG that meets certain standards.

Mr. Jester discussed the extent to which Vectren's proposed EDG methodology aligns with traditional cost of service principles and how that should play a role in the Commission's determination of whether the Company's proposal is just and reasonable. In particular, he explained the Commission's discretion in considering the proposed Rider EDG, noting that while the EDG *rate* is set by statute, the Commission should examine whether Vectren South's proposed *methodology* for implementing the EDG rate is just, reasonable, and lawful. In particular, he said the Commission should consider whether instantaneous flows are the correct basis to determine excess distributed generation, and whether the standard retail tariff is the appropriate basis for

charges for power delivered to customers with distributed generation under the Commission's cost of service practices.

He explained how cost of service studies allocate utility revenue requirements to customer classes, and how distributed generation changes the service requirements of the customer class to which the customer with distributed generation is assigned, modifying the statistics used to allocate costs. He stated that the effect of distributed generation on cost of service differs in a few details but is otherwise not different than the effects of additions or losses of customers; changes in household membership; replacement, removal, or addition of customer equipment that consumes electricity; changes in business operations schedules, or any other customer action that changes the amount or timing of their power consumption—with each of these changes in customer service requirements affects the statistics used to allocate utility costs whether or not those changes affect the utility's overall revenue requirements. He further detailed how the power from distributed generation flows, and how distributed generation should affect fuel and purchased energy cost allocation in the COSS, namely that the load on which fuel and purchased energy costs should be allocated to customers classes is the metered load minus metered outflow. He explained that the bill credit for outflow does not have the effect of treating outflow as a negative load for purposes of calculating the allocation of fuel and purchase energy costs, because it is an element of rate design and not of cost of service calculations.

He explained that if the bill credit is used in rate design but the COSS does not treat outflow as a negative load, as in Vectren's proposed case, then costs will be inaccurately allocated, with disproportionately higher costs going to DG customer classes because the study will allocate costs as though the outflow does not exist. Additionally, because the COSS has not reduced the class revenue responsibility despite the availability of outflow, the bill credits to customers with DG will be paid for by increased retail rates to those customers without DG, rather than by reduced allocation of costs to the customer class. He said that treating outflow from a customer having distributed generation as a negative load preserves the integrity of cost allocation in the cost of service study and will avoid these undesirable and inequitable consequences.

Mr. Jester stated that Vectren's COSS also allocated production plant costs entirely based on a production demand allocator based on 4 Coincident Peak ("4CP") demand at generation; thus, the COSS for customers having DG behind-the meter, or more generally for the class to which they are assigned in the COSS, should be based on treating outflow, adjusted by the appropriate line loss factors, during the hours used to determine 4CP as negative demand. He recommended that the Commission provide clear direction on this issue to Vectren regarding future cost of service studies. He explained that outflow should be considered in the allocation of production costs since outflow physically reduces the power flows that those COSS metrics represent. Because Vectren takes network transmission service from MISO and is subject to MISO Resource Adequacy standards, it is required to demonstrative that is supplies or has acquired zonal resource credits sufficient to satisfy that demand plus a reserve margin. Thus, since a reduction in peak demand reported to MISO by Vectren thereby reduces Vectren's resource acquisition obligations (reducing Vectren's costs and ultimately its rates to its customers), the Commission should direct Vectren to hereafter treat outflow as negative load for purposes of MISO's Resource Adequacy standards.

Mr. Jester further explained that if MISO's FERC tariff does not permit treating outflow as negative load, then it should be treated as generation for purposes of Resource Adequacy, or Vectren will be wasting that resource. He stated that if outflow is not accounted for as negative load, then accounting for it as a source of power is appropriate, and reduces Vectren's obligations to acquire other resources at some cost as well as enhances the Company's opportunities to convey some of its capacity resources to other MISO participants for revenue. Mr. Jester further illustrated how Vectren could aggregate customer outflows and utilize MISO's current tariff and Business Practice Manuals to claim Zonal Resource Credits for outflow based on the method that MISO specifies for intermittent resources, such as solar generation. This Credit can be used in Vectren's Resource Adequacy compliance and reduce the need to gather Zonal Resource Credits from other sources. Thus, Mr. Jester recommended that in the event that the Commission does not find that outflow should be treated as negative load for purposes of Resource Adequacy demonstrations, then the Commission should direct Vectren to aggregate outflows from its customers, obtain Zonal Resource Credits for those resources, and use those Zonal Resource Credits in Vectren's Resource Adequacy demonstrations to MISO and to the Commission. Still, he said the Commission should prefer the treatment of outflow as a negative load because it provides greater value to Vectren and its customers than using outflow to accrue Zonal Resource Credits because of the "extra" credit provided by avoided planning reserve margins.

Mr. Jester then explained how DG should affect transmission cost allocation. He said the proper treatment of outflow in transmission cost allocation depends on whether the customers is interconnected at transmission or to the distribution system. He said that outflow from a transmission customer would not be deducted from the allocator for transmission costs for the class to which that customer is assigned because outflow from DG behind the meter interconnected at transmission will itself flow over the transmission system. Conversely, outflow from DG customers behind the meter of a customer that is interconnected at a primary or secondary distribution will reduce the amount of power delivered over the transmission system to the customer class to which that customer belongs, and therefore this outflow should be treated as negative demand for purposes of transmission cost allocation.

Mr. Jester testified that Vectren's COSS allocates transmission costs to customer classes based on the 12 Coincident Peak ("12CP") method, meaning costs are allocated to each customer class in proportion to its load during the peak hour of each of the twelve months of the year. He said proper consideration of DG in the COSS should treat outflow during the 12 monthly peak hours from customers that are interconnected to the distribution system as negative load, and to be consistent with the COSS those outflows should be adjusted based on loss factors from transmission to customer. He then explained how MISO considers outflow in its allocation of transmission costs to load-serving entities, concluding that outflow from a Vectren retail customer almost certain reduces power flow over MISO-tariffed transmission to Vectren by the amount of that outflow plus avoided line losses so it is appropriate to exclude outflow from MISO's transmission cost allocation. Thus, he recommended that the Commission direct Vectren to hereafter treat outflow as negative load for purposes of MISO load statistics.

He then detailed how DG should affect substation cost allocation, concluding that DG should reduce substation cost allocation by the combined reduction in peak-day load due to both unmetered avoided inflow and metered outflow. He said that Vectren's most recent COSS

allocates costs for substations associated with generation plants on the basis of production demand measured by 4CP at generation, costs for substation transmission equipment on the basis of transmission demand measured by 12CP at transmission, and costs for substation distribution equipment on the basis of primary distribution demand. Thus, he said that: for substation costs associated with generation plants, outflow during the 4CP hours, adjusted for losses from generation to customer, should considered as negative load. He said, for those substation costs allocated as transmission costs, outflow during the 12CP hours, adjusted for losses from transmission to the customer, should be considered as negative load. 50% of the primary distribution demand allocator is based on class peak demand and 50% of the primary distribution demand allocator is based on individual non-coincident peak demand. And, as with other aggregate demand statistics, he said outflow during the class peak should be considered as negative load during the hour in which the customer's class has its annual peak load.

He said it is therefore logical that customer non-coincident demand used for cost allocation at a higher voltage level should be considered as negative demand for cost allocation purposes; thus, for purposes of allocating costs of substations, customer non-coincident demand should be calculated as the customer's annual maximum net load, treating outflow as negative demand. However, he said that because there are many hours of the year during which behind-the-meter generation does not produce power, individual customer annual maximum demand will generally not be much reduced by treating outflow as negative demand for purposes of cost of service allocation.

With regard to how DG should affect primary distribution system cost allocation, Mr. Jester testified that Vectren's most recent COSS allocates primary line costs based partly on both customer count and partly on distribution system demand with distribution system measure 50% based on peak demand and 50% based on individual customer demand. He said that because Vectren allocates a portion of primary distribution cost based on customer count, a portion based on class peak demand, and a portion based on individual demand, much of the cost allocation for the primary distribution system is based on metrics that will not be much affected by treating outflow as negative demand. He noted how the portion of this allocation based on customer count will not change at all because of outflow, and the portion based on individual peak demand may be somewhat reduced by treating outflow as negative demand and not substantially reduced because there are typically many hours of the year during which outflow does not occur. Thus, he said treating outflow as negative demand will modestly diminish cost allocation based on a customer with behind-the-meter generation, which is an appropriate result given that such outflow only partially reduces the use of the primary distribution system for a particular customer class.

Mr. Jester next discussed how distributed generation should affect line transformer cost allocation. He explained why it is appropriate to consider that a customer with behind-the-meter DG causes reduced transformer costs in proportion to reduced demand from that customer, which reduces the diversified demand of the group of secondary customers served by the line transformer. He noted how Vectren's most recent COSS allocates the costs of the line transformers on a combination of customer count and individual customer non-coincident demand. He said treating outflow as a negative demand for purposes of the COSS will modestly reduce the costs assigned based on a customer with behind-the-meter generation. He said because the portion of line transformer costs allocated based on customer will not be diminished by behind-the-meter

generation, and the portion of line transformer costs allocated based on individual customer non-coincident demand will be modestly reduced by treating outflow as negative demand, then treating outflow as negative demand for purposes of allocating line transformer costs will produce approximately the same result as a more careful analysis of the effects of DG on transformer sizing and cost.

Mr. Jester then testified as to the how the DG affects secondary distribution system cost allocation. He said while most COSS he has examined allocate secondary distribution system costs based on some measure of class non-coincident peak or individual customer annual demand, Vectren's most recent COSS appears to allocate secondary distribution system costs entirely on the basis of individual customer non-coincident peak demand. He said it was appropriate that outflow from a secondary distribution customer would not be deducted from the allocator for secondary distribution costs for the class to which that customer is assigned.

Mr. Jester summarized how DG should be considered in a COSS. He said that the power supplied from DG and immediately consumed behind-the-meter will naturally and appropriately be excluded from all COSS allocator statistics. He said outflow from DG customers should be treated as negative power flows in each and every cost allocator statistic to which that customer's load or demand would normally be added, except perhaps at the voltage level to which they are interconnected, which will result in reduced cost allocations to the customer classes to which customers with behind-the-meter are assigned. This reduction is consistent with the way in which cost allocations are affected by all other increases or decreases in load within individual customer classes. He explained how the treatment of DG in the COSS should affect rate design for customers having behind-the-meter DG in that it should result in a reasonable correspondence between the amount billed to such a customer and the customer's contribution to cost of service.

Mr. Jester said the simplest approach to accomplish this is to reject Vectren's proposal to use instantaneous outflow as the measure of EDG must be rejected in favor of some form of netting, which is consistent with both cost allocation and good rate design principles. Mr. Jester testified that Vectren's current rate designs do not appear to be closely linked to the cost allocations in its OCSS through time of use rates or similar rate designs. Since Vectren's current rate design is not particularly cost-reflective, monthly netting will more closely match customer bills to cost of service for customers having DG behind-the-meter. In addition to using netting to more accurately reflect cost of service for a customer with behind-the-meter generation, he said that the Commission could make adjustments to inflow rates that would offset some of the disparity between the credits for EDG and the appropriate effect of outflows on cost of service allocations by either offering optional time of use rates to all customers and allowing customers with behind-the-meter rates to choose such time of use rates or by modifying inflow rates as well as outflow rates in a DG ride or separate DG tariff. He said the degree and direction of such an adjustment to inflow rates will depend on the results of the COSS and the netting interval chosen by the Commission for outflow rates. He recommended that the Commission modify proposed Vectren's Rider EDG tariff such that the calculation of EDG is based on monthly-billing period netting, as well as direct Vectren to provide a COSS analysis for behind-the-meter DG customers in its next general rate case and base EDG rate design in that case on accurate reflection of the cost of service for such customers. He further described how the COSS analysis and rate design he recommended to compensate a customer with behind-the-meter generation would provide a close approximation

to the long-term value of behind-the-meter generation to the power system, but would not fully account for additional value that is outside of normal system costs such as community resilience to power outages, reduced pollution, etc., which would require the Commission undertake a value of solar study.

Finally, Mr. Jester discussed Vectren's PURPA obligations to customers with DG and its implications for this case. He highlighted Section 210 of Title II of PURPA and indicated how Vectren must offer to purchase electric energy from any qualifying cogeneration or qualifying small power production facility at rates compliant with the rules adopted by FERC to implement PURPA, noting that he understood DG behind-the-meter to be a qualifying facility pursuant to PURPA, so long as that generation is either cogeneration or renewable generation that meets the definition of a small power production facility. He testified that all of the DG potentially affected by Rider EDG in Vectren's service territory are qualifying facilities. Mr. Jester provided the FERC rules that prescribe the rates that apply to the purchase of power from DG facilities that are PURPA qualifying facilities, 18 C.F.R. § 292.304, and noted FERC's recently issued Order 872 that altered certain PURPA policies that are not yet in effect. He said that most DG behind-the-meter in Vectren's service territory will be less than 100 kW capacity and would therefore be covered by the requirement of Paragraph (c) of 18 C.F.R. § 292.304, as could similar facilities that are larger than 100 kW. He said though that Vectren does not currently offer standard rates for DG; rather Vectren only implements one tariff for power purchases from PURPA qualifying facilities—Cogeneration and Small Power Production ("CSP"). He said Rate CSP cannot satisfy the requirement that Vectren provide standard rates for qualifying facilities with capacity less than 100 kW and therefore does not satisfy the PURPA requirements for small qualifying facilities. He further explained that the proposed Rider EDG also does not provide PURPA-compliant rates for DG since it does not provide compensation based on avoided costs as specified by 18 C.F.R. § 292.304. He concluded by noting that Vectren's behind-the-meter customers are entitled under PURPA to receive as-available avoided costs of energy and avoided costs of capacity, each adjusted for marginal line losses, and that, while non-generation avoided costs are not specified to the same level of detail in 18 C.F.R. § 292.304 as avoided generation costs, they nonetheless are required to be paid to qualifying facilities. He said that Vectren has not attempted to demonstrate that Rider EDG meets that standard and that PURPA avoided cost for outflow from customers with behind-the-meter generation would exceed the outflow provided by the proposed Rider EDG.

2. Will Kenworthy. JI Witness Kenworthy, the Midwest Regulatory Director for Vote Solar and with nearly 30 years of experience in the energy industry, filed Testimony on behalf of Joint Intervenors. His Testimony primarily focuses on the flawed structures of Vectren's proposed Rider EDG tariff and methodology for calculating EDG credit through dual-channel billing methods, along with the negative impacts such proposals will have on customers and the overall principles of sound rate design, as well as the market for distributed generation ("DG") within Vectren's service territory.

Mr. Kenworthy testifies that Vectren seeks to use instantaneous netting, or dual-channel billing, within the proposed Rider EDG tariff, which would limit Advanced Metering Infrastructure ("AMI") meters to only 'inflow' (the electricity supplied by Vectren to the customer) or 'outflow' (the electricity supplied by the customer to Vectren) in the registration of power units. He states that this dual-channel method is not required under Indiana's Distributed Generation Statute, and he compares this instantaneous netting methodology with four other different bill

calculation methodologies to illustrate its inefficiencies and weaknesses as well as the fact that one set of underlying data can result from the application of different billing methodologies. He stated his belief that these alternative methodologies align more closely with sound rate design principles than the one proposed by the Company and thus should be adopted in order to produce a just and reasonable result. These include: 1) Full retail net metering, 2) Buy all/ Sell all, 3) Hourly net billing, and 4) Monthly net billing.

Vectren's current practice for full retail net metering billing has been in place since 2004, and involves registering the billed kWh at the end of each month as the usage at the end of the month *minus* registered usage at the beginning of the month, leaving the billing determinant of net kWh predictable and sound. He next discusses the Buy All/Sell All method offered up by Company Witness Swiz as a point of comparison to the Company's proposed dual-channel billing. This method requires a second meter to measure the generation output from the distributed generation; the customer purchases all of their electricity from the utility and the on-site generation does not offset any of the customer's site load, as all DG output is purchased by the utility at a separate rate. He next testifies on the billing determinants of dual-channel billing, also known as instantaneous billing, that Vectren has proposed. He states that with this proposed methodology, the Company separately measures all inflow and all outflow from the customer site at a single meter instead of measuring the difference between inflows and outflows over a period of time. At any given moment in time, power flow may be inflow or outflow and it registers as such in the appropriate channel register. Thus, during the course of any given hour, especially during the shoulder hours of a day (morning and evening), there may be both inflow and outflow. Instead of registering the difference between inflows and outflows during that hour, the Dual-channel Billing method registers all inflows and outflows separately and uses each of those values as separate billing determinants using one rate to charge for inflow and another rate to credit for outflow. In contrast, Hourly Net Billing calculates billing determinants on an hourly basis as the net difference between inflow and outflow during a particular hour. Each hour may have either inflow or outflow at any particular moment, but the net difference between them for any given hour can only be either net inflow or net outflow. For example, if the inflow is greater than the outflow, then the difference between the inflow and outflow is recorded as a positive net value for the hourly net outflow. Similarly, Monthly Net Billing sees net outflows over the course of the month given as monetary credit at the outflow rate, instead of a kWh credit that carries forward from month-to-month. Mr. Kenworthy testifies that these comparisons serve to illustrate the necessity for Vectren to propose a billing methodology that is consistent with the underlying statute and principles of sound rate design, produces a just and reasonable outcome for customers, and aligns with the measurements of cost causation in the setting of rates for all customers, as discussed fully by JI Witness Jester.

Mr. Kenworthy then discusses the customer impacts of various billing methods. He testifies that although Mr. Swiz provides examples of the impact of the proposed Rider EDG compared to Net Energy Metering and the Buy All/Sell All billing methodologies in his testimony, Vectren did not conduct an analysis of the customer impacts of the alternatives discussed that calculates customer bills using the difference between inflows and outflows during the course of the relevant netting or billing period. The limited analysis offered by the Company is plagued with several shortcomings that expose problems with the transparency and fairness of the proposed methodology. He states that the modeling tools required to simulate Vectren's proposal to simultaneously measure inflow and outflow from a customer's site on a basis that is more granular

than one hour simply do not exist. Standard software tools available for licensing by distributed generation developers and installers can provide hourly production estimates, not sub-hourly or "instantaneous" estimates. Likewise, with the exception of very large customers, site load interval data is only available to customers on an hourly basis, and rarely is it sub-hourly. Witness Kenworthy also illustrates that the Company's analysis contains several problems that complicate modeling of projected economic performance for prospective solar customers. For example, Vectren's analysis of the Buy All / Sell All billing methodology may or may not be representative given that Vectren witness Mr. Swiz used a DG production estimate "based on the sized capacity for the customer and the anticipated capacity factor for this area and investment." Because the Company does not have generation data for its net metering customers, Mr. Swiz's estimates of generation data are based on hypothetical estimates that may or may not be realistic for the hypothetical customer being illustrated. The shortcomings of this analysis illustrate the problems with making comparisons between methodologies without accurate data from actual customers. Likewise, it is impossible to determine the actual site load that is being offset by the customer's generation, and to therefore determine what a customer's bill may be in the absence of the solar array, with any of the proposed methodologies.

Mr. Kenworthy testifies that the proposed billing methodology presents numerous problems specific to Vectren's customers, mainly due to the variability introduced in the shorter and shorter netting periods that makes estimating DG production and its larger economic value for installers and developers increasingly difficult. Economic value estimates based on hourly production estimates include some uncertainty already, but when that granularity goes to the sub-hourly level, the uncertainty increases significantly, given that it is not technically feasible for customers to predict on a sub-hourly basis how their energy use aligns with moment to moment energy generation patterns. Vectren's proposal to calculate bills on an instantaneous basis is based on an unreasonable expectation of the customer's ability to manage their load on a moment-by-moment basis, given that sub-hourly data is not available. Billing at a netting interval that is beyond the customers' ability to manage eliminates the customer's ability to respond to price signals, and conflicts with principles of good rate design. While this is also clearly detrimental to the customer and consumer, is also harms Vectren and the market due to the economic uncertainties and difficulties that results.

Mr. Kenworthy then moves to an analysis of the economic impact of dual-channel billing compared to hourly and monthly net billing, using the customer net metering data provided by the Company during the discovery process. This data included the hourly inflow and outflow data for all net metering customers for 2018 through June 2020; the data set begins with 81 distinct customers and grows to 636 customers by the end of the analysis period. Witness Kenworthy used this data to calculate the billing determinants for the full set of customers using each of the four billing methods, and divided the results by the number of customers to arrive at monthly average values for each month in the analysis and each billing period.

He testifies that the granularity of the netting period had a significant impact on the average expected customer savings for DG, as expected: Over the course of a year, an average full net metering customer in the dataset would pay $776.74 for the volumetric portion of their electricity bill. Using the same raw meter data, the average DG customer would pay $1,616.86 for the volumetric portion of their bill using the Company's proposed billing methodology -- more than

double the cost that would be charged under net metering. Therefore, approval of this tariff would double the charges for Vectren's net metering customers. Witness Kenworthy also simulated a similar analysis of hypothetical customers in Evansville in order to illustrate the long-run impact of DG customer paybacks. He notes that these estimates are based on comparing No Solar, Hourly Net Billing, Monthly Net Billing, and Full Retail Net Metering given technical limitations, though he estimates that the annual bill for the average customer under the dual-channel billing methodology would be approximately 12% more than the average customer bill under Hourly Net Billing. He testifies that the bill impact analysis combined a typical customer load profile for a base-use electricity customer in Vectren's service territory with a rooftop solar installation sized to meet nearly all the customer's annual load, then selected a typical customer load profile using a dataset available from the Department of Energy within the software. Finally, he modeled the current electricity rates, the updated Rider EDG Outflow rate used in the previously discussed analysis, and the 2020 Investment Tax Credit rate for residential customers to compare the total bills and simple payback between net metering and the proposed Rider EDG tariff. He states that his analysis found that a typical customer sizing a solar array to meet their annual energy usage would pay nearly $1,000 per year more on their electricity bill using the Company's proposed EDG billing methodology than if that same customer were receiving service under net metering. In other words, simple payback over the life of a DG system would go from approximately 10.7 years to 25.2 years. He testifies that these results further illustrate the adverse impact of Vectren's proposal and the unacceptable level of uncertainty that it introduces for ratepayers in estimating the economic performance of prospective DG investments. Once again, this is to the detriment of ratepayers, market certainty and stability, transparency and predictability, and to the financial performance of DG resources.

Mr. Kenworthy next testifies on his concerns surrounding the site access, control, and disconnecting requirements of the proposed Rider EDG tariff, arguing that Section 2 of Vectren's Terms and Conditions of Service is overly broad and not justified for small inverter-based, UL 1741 certified systems that do not require immediate access at all times to the full range of metering and control and protective equipment. Though 170 IAC 4-4.1-7 does require that utilities must have immediate access for large systems connected to the grid under Rule 4.1 called "Cogeneration and Alternate Energy Production Facilities," the applicable rule for Customer-Generator Interconnection Standards (170 IAC 4-4.3) contains no such requirement or authorization. He recommends deletion of the provision in Section 2 of the proposed Terms and Conditions requiring the Company be granted immediate access to a customer's "metering, control, and protective equipment" because of it is overly broad and superfluous. He testifies that these should be replaced by the Interstate Renewable Energy Council's Model Interconnection Procedures updated in 2019 that are intended to provide guidance to states on best practices for safe and efficient interconnection procedures, and which includes language to ensure reasonable utility access to DG customer premises.

He also discusses his concerns with Vectren's requirements for disconnecting devices in Section 5 of the proposed Terms and Conditions. He stresses the need for the EDG tariff to clarify that disconnect switches for Level 1 systems not be required, especially because UL-1741 inverters already automatically disconnect from the grid in the event of loss of grid power. Additionally, to the extent that it does require disconnect switches for Level 2 and 3 systems, the Company should adopt the Model Procedures' approach of reimbursing customers for the cost of the switch. He

testifies on Vectren's proposal concerning loss of excess distributed generation ("EDG") credits; as described in Witness Swiz's direct testimony: "Customers will receive the EDG Billing Credit up to the point where the total net bill reaches the Minimum Monthly Charge as defined in the customer's applicable Rate Schedule." At that point, the EDG Billing Credit has a monetary value and is carried forward. Witness Kenworthy argues that Vectren's proposed method for crediting EDG is unfair and unjustified in its confiscation of a customer's remaining EDG credits upon disconnection of service, and that these credits should be refundable to customers upon termination of service. Mr. Kenworthy wraps up this portion of his testimony by arguing against the inclusion of proposed language that Vectren customers receiving three-phase service bear the cost of installing AMI meters. He states his understanding that AMI adoption has been nearly completed in Vectren's service territory, and that appropriate AMI meters have been installed for virtually all of the Company's customers. As such, there is no reason as to why additional metering would be required, and this proposed language should be deleted.

Witness Kenworthy next testifies on his understanding of the requirements in Indiana statute related to requirements for installers to provide estimates of the financial performance of proposed systems. He supports Section 23 of Ind. Code § 8-1-40-23, which establishes "the right to know the rate at which the customer will be credited for electricity produced by the customer's DG equipment and delivered to a public utility." He states his support for this provision, and the inclusion of vigorous consumer protections in the sale of DG. As previously stated, the proposed Rider EDG tariff will insert significant uncertainty into the larger DG market, and it is unfair to establish a billing system that measures energy use at a level that is more granular than the tools available for modeling the systems' expected performance. Vectren's proposed billing methodology will have the adverse impact of making it more difficult for customers trying to understand their options, and for installers seeking to provide good faith estimates of their proposed systems. These conditions necessitate that Vectren adopt a more predictable, transparent, and fair method of compensating DG owners.

The final section of Mr. Kenworthy's testimony details the various negative customer impacts that Vectren's proposed Rider EDG tariff will generate, in addition to the impacts already discussed. First and foremost, the tariff will go against the principles of sound rate design, with its focus on stability and simplicity. Rate simplicity and stability are two of the founding principles of electricity regulation that enable customers to make informed, long-term investments that spur economic growth. He testifies that rates should reflect simplicity, understandability, public acceptability, and feasibility of application and interpretation, should be effective at yielding total revenue requirements, and should provide cash flow stability and revenue while preventing "rate shock," among other things. Both Vectren and the Commission have an obligation when implementing the DG Statute to apply sound rate design principles to the greatest extent possible.

Overall, Vectren's proposed EDG tariff failed demonstrably in this test of just and reasonable rate design. Witness Kenworthy states that the proposed EDG tariff lacks transparency in both data used as calculation inputs, and in the processes used to generate such data. Based on the discussion of alternative billing calculation methodologies, he finds that the Monthly Net Billing method provides the greatest stability and predictability for customers, and as such adheres more closely to the principles of sound rate design. Contrary to previous Company assertions, the introduction of locational marginal price ("LMP") based compensation rates would not address

these issues, but rather exacerbate them. LMP is a wholesale market rate, which are notoriously volatile and unpredictable. Company Witness Joiner even addressed the factors that could drive changes to the average LMP on an annual basis, conceding that the LMP represents a market rate driven by multiple factors. Based off of these conclusions, Mr. Kenworthy testifies that an LMP based compensation rate, too, is inconsistent with the principles of sound rate design.

The final portion of Witness Kenworthy's testimony concerns the full and fair valuation of DG resources. He testifies that Indiana's DG statute addresses utility costs by requiring electricity suppliers to procure excess distributed generation produced by customer-generators at a rate specified in Ind. Code § 8-1-40-17; this rate is set at the "average marginal price of electricity" paid by the electricity supplier during the most recent calendar year; multiplied by one and twenty-five hundredths (1.25). Lastly, the "marginal price of electricity" is defined as "the hourly market price for electricity as determined by a regional transmission organization of which the electricity supplier serving a customer is a member." This would only compensate customers for the energy value of the outflow provided to the utility, and delivered electricity would include a number of other components that are part of the full stack that the Company provides in its role as a service provider. He states his understanding that the DG statute only describes the energy value of the outflow from the customer's DG, and does not proscribe fair compensation for other components of the energy value stack. The Company has not conducted a study of the cost to serve DG customers; he concurs with JI Witness Jester that the Commission should consider the lower cost to serve customer-generators not only in determining the appropriate outflow rate in this proceeding, but also potentially to determine a lower inflow rate for DG customers. Mr. Kenworthy recommends that the Commission initiate a comprehensive process to calculate the value of DG resources to the grid, similar to that of other Midwestern states, so that DG can be fully and fairly valuated. He points to Section 11.3.5 of Vectren's Integrated Resource Plan ("IRP") as a primary example of Vectren's existing capabilities for understanding of the full value of avoided costs from DG resources, and states that this should provide the basis for considering supplemental compensation for DG customers and more fully understanding DG's value within the Company's system. He testifies that, at a minimum, the Commission should require the Company to use the Monthly Net Billing method for calculating EDG. He also recommends that the Commission initiate a value of DG investigation that could inform future policy and regulatory decisions based on objective and robust study of DG's value, and can provide the basis for a just and reasonable tariff that protects program participants and non-participants alike.

E. Solarize Indiana Direct and Supplemental Direct. Solarize Indiana, Inc. (SI) introduced into evidence the direct testimony of five witnesses: Jay Picking, Jean Webb, Darrell Boggess, Barry Kastner, and Michael Mullett, all of whom serve SI as volunteers in the Evansville area or statewide.

1. Jay Picking. Retired from Vectren as a former Vice President, Picking has volunteered since early 2019 with Solarize Indiana, initially as its Evansville Co-Team Leader and most recently as its sole Team Leader. He also serves his church as chair of the team which oversaw the installation and manages the operation of its solar PV system.

Picking described the mission and operation of the Evansville Team under his leadership to be encouraging and facilitating interested Vectren customers (primarily residential) with sites suitable for rooftop or ground-mounted solar installations to purchase and install solar photovoltaic

systems by matching them with a vendor pre-screened and pre-selected through a competitive request for proposal (RFP) process for its good reputation, reliable products, and competitive prices. During 2019-20, the vendor selected by the Evansville Team has been Morton Solar. During the time that Picking has been its Leader or Co-Leader, the SI Evansville Team facilitated 35 solar installations in 2019 and 12 installations to date in 2020.

Based on his experience as SI's Evansville Team Leader, Picking offered this opinion of Vectren's EDG tariff proposal:

> [T]he current net metering framework has allowed a reasonable ROI to be achieved by residential homeowners installing solar. However, the proposed EDG tariff utilizing such a low compensation rate and smart meters for netting excess generation will reduce that ROI. Vectren's proposed tariff is also causing confusion, concern, and difficulty in estimating potential savings and ROI because the Company cannot provide comparative data for actual customers individually, or for even a hypothetical "typical" customer for illustration purposes. . . .
>
> As a result, in my opinion based on my experience as the Solarize Evansville Team Leader for 2019 and 2020, Vectren's EDG proposal will discourage prospective solar purchasers in its service territory from making a significant investment in residential solar after December 31, 2020.
>
> I believe that unless Vectren's proposal is changed by the Company or the Commission, we will see little interest in the residential solar market in the Evansville area with the EDG tariff.

SI Exhibit 1, pp. 6-7.

2. Jean Webb. Retired after more than thirty years of varied experience in the pharmaceutical manufacturing industry Webb helped to organize SI's Evansville Team and then served as its Team Leader in its first year of operation, 2017. She is also a solar homeowner.

In her testimony, Webb describes the formation of the Evansville Team following the enactment of SEA 309 in order to accomplish the same mission explained by the current Team Leader, Jay Picking, namely to encourage and facilitate interested Vectren customers (primarily residential) with sites suitable for solar installations to purchase and install solar photovoltaic systems from a vendor pre-selected through a competitive RFP process based on reputation, quality of products, and competitive pricing. The vendor selected by the Evansville Team for 2017 was Solar Energy Solutions. During 2017, SI's Evansville Team under Webb's leadership facilitated solar installations.

Based on her experience as both the owner of a home solar system and the SI Evansville Team Leader in 2017, it is Webb's opinion that:

> [T]he prices of solar systems have simply not dropped enough, nor are they expected to drop enough, to compensate for the past reductions in and future

> loss of a favorable tax credit combined with the replacement of a favorable net-metering tariff with an unfavorable EDG tariff.
>
> Solarize Indiana not only tries to help prospective solar owners determine their expected return on investment, we also try to educate them on their risks. Frequent questions are: How much do you spend on maintenance? What happens if you have to replace your roof? Will a hailstorm damage them? But a huge question that the proposed EDG tariff will introduce is: What will my electric bill be?
>
> This was a fairly easy question to answer with net-metering since we have the prospective customers previous year's bills and the solar vendor's quotes. But with the proposed EDG tariff, we have no good models to show the effect of a day where clouds are intermittent. The complexity of instantaneous netting of energy received and delivered by the customer, measured only by the utility, creates risk for customers that neither Vectren nor SI are equipped to address to customers' satisfaction.
>
> Thus, based on my experience as a solar homeowner and as Team Leader of the 2017 Solarize Evansville effort, my conclusion is that the proposed EDG tariff, if approved, would end most new customer-owned solar in the Vectren service territory.

SI Exhibit 2, pp. 12-13.

3. Darrell Boggess. Retired after decades of experience in a variety of engineering and management positions with General Motors and later various management positions with the federal government, Boggess has served SI since its inception as both an educator on solar energy and the manager of its solar vendor RFP process. Boggess is also a solar homeowner.

In his testimony, Boggess offered this succinct explanation of the characteristic process which Solarize Indiana has added to the Indiana distributed solar marketplace:

> The process begins with solar companies responding to Solarize Indiana's annual Requests for Proposals. Ten companies from Indiana, Kentucky and Ohio sent proposals in January 2020, indicating their experience, qualifications, products, pricing and preference for regions in the state. These solar contractor proposals are reviewed by volunteers and shared with local teams who select partner companies using best value criteria for quality products from reputable manufacturers and competitive pricing by capable installation companies.
>
> Solarize Indiana volunteers host online public meetings discussing the cost, performance and availability of distributed solar energy for homes and businesses. Contact information for attendees who request a custom proposal is then provided to the partner company. Although review and

> modification of customer proposals is negotiated between customers and the solar company, participants appreciate the simplicity of the process with vetted products, pricing and providers. A significant barrier to growth of distributed solar in the Midwest is a generally low awareness of how and where to find providers. Solarize offers an easy path forward and a trusted source of information to prospective solar owners. Solar companies also appreciate the value added by partnering with Solarize Indiana insofar as Solarize provides qualified leads which reduce their costs of marketing and outreach.

SI Exhibit 3, p. 4.

As a solar homeowner himself with lengthy private and public sector experience in product procurement and project management, Boggess' in-depth knowledge of the Indiana distributed solar marketplace through his management of the Solarize RFP process provides him with a particularly well-informed perspective on the Vectren EDG proposal with respect to the investment expectations of prospective solar system owners:

> I expect the Vectren proposed EDG tariff to have two adverse effects if approved. First, the new tariff will be a disincentive for future solar aspirants in that it reduces the financial feasibility of investments in solar energy. Second, it will create confusion and uncertainty in decision analysis by prospective solar owners. Individual Solarize participants, whether homeowners, businesses or nonprofits, have a range of motivations, including financial return on investment ("ROI"), mitigation of the effects of climate change, and energy independence. These adverse financial effects from Vectren's proposed EDG tariff will certainly reduce the numbers of prospective and actual solar customers.
>
> Explaining further, the solar market has increased due to solar panels becoming more affordable over the past decade and, therefore, ROI is becoming the primary consideration for people with lower incomes who had not previously considered solar. Common home improvement projects such as remodeling a bathroom or kitchen, or adding a hot tub, sauna or pool are expenses justified by enhanced comfort, convenience or aesthetics for which the cost is not expected to be fully recovered. Investment in a system for generating energy is mostly a financial decision whereby short-term cost is offset by greater long-term gain. Financial decisions are unlikely to be approved when the expected gain is less than the cost.
>
> Unfortunately, the financial incentive for new solar customers will be less after the July 2022 legislated end of net metering; however, Vectren's proposed EDG tariff will exacerbate this problem by lowering the expected gains even further. Thus, customers of Vectren will not be inclined to invest in solar energy if the proposed EDG tariff is approved, particularly

> considering Vectren's onerous netting proposal discussed further by SI Witness Kastner.

SI Exhibit 3, pp. 5-6.

4. Barry Kastner. Retired from Cummins, Inc., after 20 years in successively more responsible management and executive positions in corporate finance and information technology, Kastner now serves SI as a founding board member and treasurer. Kastner is also a solar homeowner as well as a founding steering committee member and current administrative coordinator for the Columbus Community Solar Initiative.

In Exhibit BSK-2 to his direct testimony, SI Exhibit 4, Kastner describes and explains in detail the financial model which he has developed to project the operational and financial results over time of a proposed or installed solar photovoltaic system based on a number of metrics regarding the solar system, its exposure to solar insolation, applicable financing, tax credit and generation compensation, and the owning customer's electricity consumption profile over twelve consecutive months or more. He also compares and contrasts his model with a very similar one which the Michigan Public Service Commission has developed independently and uses for purposes of its analyses of the value of solar PV systems to the electric systems of Michigan public utilities. As a spreadsheet model, Kastner's model has the capability to analyze interval data for time periods as short as an hour (8760 data points per year) (analyzing "instantaneous" interval data over a time period of twelve months or more would require an automated, programmed model due to the sheer volume of currently retrievable data which would need to be compiled and analyzed at that measurement interval, a task which Kastner has not to date had the time or resources to undertake).

Kastner then analyzed in his direct testimony and a supporting workbook the operational and financial results of applying his model to a hypothetical "typical" Vectren residential customer using approximately 10,000 kWh of electricity per year who has installed a "net zero" solar PV system designed to fully offset household electricity consumption over the course of a year. He computes and compares those results for three different generation compensation frameworks: Net Metering as currently available to Vectren customer; Excess Distributed Generation with the 125% of wholesale compensation rate set by SEA 309 with hourly netting of Inflow and Outflow; and Excess Distributed Generation with the same compensation rate but billing period netting of Inflow and Outflow.

Kastner subsequently supplemented his direct testimony with an analysis comparing the operational and financial results of applying his model to five current Vectren residential Net Metering Customers who had given their consent for Vectren to retrieve and SI to analyze their data over a twelve-month period in 2019-2020. *See* SI Exhibit 6.

Mr. Kastner's analyses yielded the following comparative financial results for the statistically "typical" Vectren residential household installing in 2021 a "net zero" solar DG system the projected generation of which would approximately equal the household's electricity consumption over a year's time (assuming expected Evansville-area per kw installation costs for the solar system and the federal Investment Tax Credit terminating as scheduled at the end of 2021):

Exhibit 1: Financial Recap: (No Federal Tax Credit)

			SEA 309 Compliant	Vectren's Proposal
	No Solar	Net Metering	EDG Estimate	EDG Estimate
Annual Electricity Bill (Year 1)	$1,832	$ 1	$ 167	$ 904
Savings (Year 1)		$ 1,832	$ 1,665	$ 928
Net Present Value (@5%)		$ 6,020	$ 4,084	$(7,595)
Simple Payback		12	13	22

SI Exhibit 4, p. 8.

Mr. Kastner summarized these financial metrics in these words:

> Over 25 years, the Net Metering household makes a modest return on its solar investment but has to wait 12 years before it starts turning positive. Under the SEA 309[-compliant] method of determining the EDG credit, the solar household would fare a little worse and have to wait 13 years to go positive. But under the Vectren EDG proposal, the solar investment would fall far short of modest investment returns and would not turn positive until nearly the end of the 25 year planning horizon—and this is under the best of planning assumptions.

SI Exhibit 4, p. 9.

He then assessed the implications of these comparative financial results for the Vectren EDG proposal as follows:

> The differences in financial return on investment between the Vectren and the SEA 309[-compliant] models are material. Vectren's approach not only contradicts the statute but also makes a go-solar decision unjustifiable on financial grounds alone. In my experience of helping solar prospects reach a go/no go decision, we get very few REMC customers to go solar because they have faced low "Net Billing" rates similar to the proposed EDG Tariff. For those who might still go solar despite poor financial measures, the EDG Tariff would drive some of them to invest in only smaller systems that do not send much clean energy to the grid. They would change normal energy consumption behaviors and try to use as much generation for onsite usage during peak production periods when excess generation would be most valuable to the electricity sector. Overall, the amount of clean renewable energy fulfilling the electricity needs of Hoosiers would go down and

> utilities would generate more polluting energy while the innovative, entrepreneurial solar business sector would suffer.

SI Exhibit 4, pp. 9-10.

Mr. Kastner also filed Supplemental Direct Testimony to assess the comparative bill impacts of Rate EDG with "billing period" netting and "instantaneous" netting for five actual Vectren residential Net Metering customers assuming the same levels of "Inflow" and "Outflow" they had experienced over twelve consecutive billing periods in 2019-20. *See* SI Exhibit 6. He reported the financial metrics for these comparative bill impacts as follows:

Exhibit 2. Monetized Volumetric Charges and Credits Over 12 Billing Cycles, Comparing Different Solar Tariffs

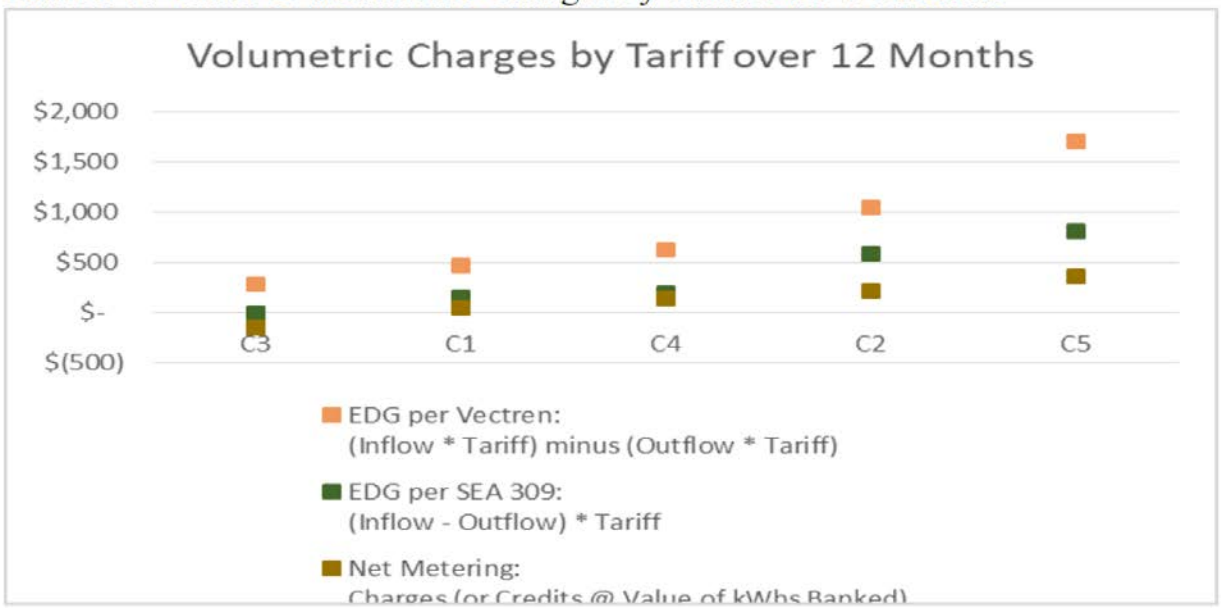
SUM of MONETIZED VOLUMETRIC CHARGES AND CREDITS OVER 12 BILLING CYCLES						
SYSTEM PROFILES:		C3	C1	C4	C2	C5
	System Size (kWp DC)	3.77	6.2	7.9	14.58	27.28
	Rate Class	RS-S	RS-S	RS-S	RS-T	RS-T
VOLUMES:						
	Inflow "Delivered" (kWh)	2,809	4,181	5,377	12,879	21,696
	Outflow "Received" (kWh)	(3,871)	(3,850)	(4,444)	(11,385)	(18,762)
	Inflow minus Outflow (kWh)	(1,062)	331	933	1,494	2,934
SOLAR TARIFFS:						
1	Net Metering: Charges (or Credits @ Value of kWhs Banked)	$ (150)	$ 47	$ 131	$ 210	$ 356
2	EDG per SEA 309: (Inflow - Outflow) * Tariff	$ (10)	$ 146	$ 192	$ 585	$ 809
3	EDG per Vectren: (Inflow * Tariff) minus (Outflow * Tariff)	$ 273	$ 468	$ 618	$ 1,043	$ 1,706

SI Exhibit 6, p. 4.

Mr. Kastner assessed the implications of these results for Vectren's EDG proposal in these terms:

> The impact of the EDG tariff, when using Vectren's proposed method, results in sharp rise in net charges to solar customers. Please consider how with each sample customer the volumetric charges increase significantly from the Net Metering existing case, at each scale of system size, to the rate EDG case, especially with the Vectren Tariff EDG proposal. These increased net charges would subtract deeply from the savings on solar PV projects, substantially extending a customer's payback period and undermining a customer's return on investment in solar. The sharp rise in net charges due to EDG tariff is shown graphically below:

Exhibit 3: Chart of Volumetric Charges by Tariff over 12 Months



> Based on this sample of existing customers, using real data, the impact of Vectren's proposed EDG tariff would have a significant impact on current and future Vectren customers. Each of the five illustrative customers would be markedly impacted by the EDG tariff proposed by Vectren if and when their Net Metering goes away. Further, new residential solar prospects at any level of solar investment would be deterred by the substantially increased payback periods and diminished returns on investment resulting from Vectren's proposed EDG tariff.

SI Exhibit 6, pp. 5-6.

5. Mullett Testimony. Having retired from the practice of law after 32 years appearing before the Commission, other state and federal administrative agencies, and the state and federal courts, Mr. Mullett serves SI as a founding Board Member and the Columbus Community Solar Initiative as a founding steering committee member and past administrative coordinator. Mr. Mullett is also a solar homeowner.

In his direct testimony, SI Exhibit 5, Mullett describes the legal and policy concerns which SI as an organization has with the Vectren EDG tariff proposal. These concerns may be summarized as follows:

(1) Due to fundamental changes in the technology and market structure of the electric industry currently underway, DERs are rapidly becoming an ever more critical part of the industry, necessitating major changes in the business and regulatory models which have dominated the industry for the past century. In that context, Vectren's EDG proposal is violating a basic principle of enterprise, indeed of life itself: "Keep your eyes on the prize, and your feet marching forward to that prize!" Notably, SI believes that Vectren is badly misreading the direction and pace of change in the electric industry marketplace with respect to DERs, especially distributed solar

aggregated and integrated with other resources such as end-use efficiency, demand response, battery storage, electric vehicles and microgrids. *See* Exhibit 5, pp. 6, 7-8, and 27-31.

(2) In the context of these fundamental changes in the electric industry, approval and implementation of Vectren's EDG proposal would, in particular, cause substantial and irreparable harms to Solarize Indiana, its participating Vectren electric customers, and its cooperating energy services vendors, as well as Vectren and its service territory more generally. Specifically, SI is concerned that (a) EDG customers would not receive fair compensation for their "excess distributed generation" properly defined and measured and thus would be few in number; (b) solar vendors would suffer reductions in customers and revenues sufficient to endanger their businesses; and (c) the Vectren service territory would lose the already important and rapidly growing engine of economic development represented by the distributed solar industry. *See* SI Exhibit 5, pp. 6, 16-20, 23, 25-26, and 37-39.

(3) These serious harms could be avoided – or at least significantly mitigated – by the approval and implementation of the alternative EDG proposal being advocated by SI and other intervenors. In particular, SI is advocating (a) definition and measurement of "excess distributed generation" as the difference on a billing period basis between electricity delivered to Vectren by its solar customers and the electricity delivered to its solar customers by Vectren, commonly called "billing period netting"; (b) EDG tariff provisions re liability, insurance and indemnity, and customer premises access conforming to applicable Commission Net Metering and Interconnection rules; and (c) no "double recovery" through Vectren's Fuel Adjustment Charge (FAC) of EDG credits. *See* SI Exhibit 5, pp. 6, 18-20, 23-24 and 26.

(4) Vectren's EDG proposal violates applicable statutes and rules, while intervenors alternative EDG proposal is consistent with both. In this regard, SI is especially concerned that (a) "instantaneous netting" as proposed by Vectren violates the plain meaning of Ind. Code § 8-1-40-5; (b) the combination of the statutory rate of EDG provided by Ind. Code § 8-1-40-17 and "instantaneous netting" would be "unjust and unreasonable" in violation of § 8-1-2-4; (c) proposed EDG tariff provisions relating to liability, insurance and indemnity, and customer premises access violate Commission Net Metering and Interconnection rules; and (d) FAC recovery of EDG credits would represent "double recovery" in violation of Ind. Code § 8-1-40-19(b) and Ind. Code § 8-1-2-4. *See* SI Exhibit 5, pp. 6, 16-20, 23-24 and 26.

(5) Vectren is simply not ready to implement its fundamentally flawed and seriously harmful EDG proposal as of January 1, 2021, a crucial fact which requires material modification of its proposal and a significant delay in its implementation. Notably, SI believes that Vectren must modify its EDG tariff proposal to incorporate the definition and measurement of "excess distributed generation" as provided by statute before it could be approved. Additionally, it must demonstrate to the Commission that its billing and customer portal systems have been modified to provide the types of information to its EDG customers regarding their electricity consumption and "excess distributed generation" required to assure "reasonably adequate service." As a practical matter, this modification and showing simply cannot be made in time for a January 1, 2021 implementation by Vectren of an EDG tariff, so that implementation must be delayed. *See* SI Exhibit 5, pp. 6 and 16-22.

F. Vectren Rebuttal. [Joint Parties will review and redline Vectren's submission of its testimony summaries as part of its reply and exceptions to Vectren's proposed order.]

6. Discussion and Commission Findings.

A. Definition and Measurement of "Excess Distributed Generation" pursuant to Ind. Code § 8-1-40-5

As an initial matter, all non-Vectren parties have asserted that this case can be decided simply on the "plain meaning" interpretation of Ind. Code § 8-1-40-5. All of these parties filed a Joint Motion for Summary Judgment and all but one of them filed an appeal to the full Commission of the Presiding Officers' determination that a genuine dispute of material fact precluded the entry of judgment prior to the evidentiary hearing in this matter. With the evidentiary record now complete, the Commission may now determine the potentially dispositive issue of whether the definition of and measurement of "excess distributed generation" provided for in Vectren's proposed EDG tariff complies with Ind. Code § 8-1-40-5.

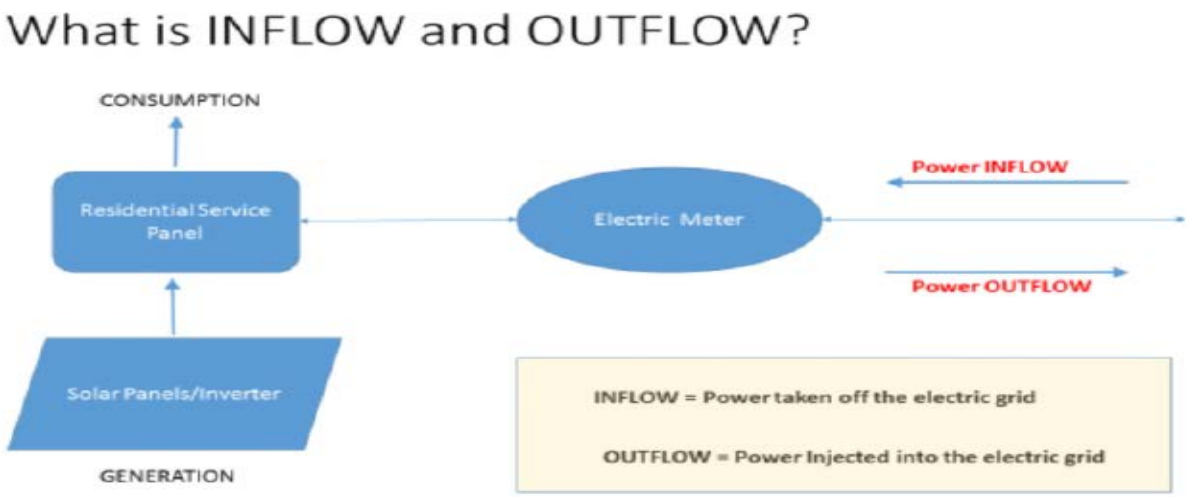
When interpreting a statute, the first step is to consider "whether the Legislature has spoken clearly and unambiguously on the point in question." *KS&E Sports v. Runnels*, 72 N.E.3d 892, 898–99 (Ind. 2017) (citing *Basileh v. Alghusain*, 912 N.E.2d 814, 821 (Ind. 2009)). If a statute is clear and unambiguous, the Commission and reviewing courts must "put aside various canons of statutory construction and simply 'require that words and phrases be taken in their plain, ordinary, and usual sense.'" *Id*. When determining whether a statute is clear, Indiana courts presume that "the legislature uses undefined terms in their common and ordinary meaning." *NIPSCO Indus. Grp. v. N. Indiana Pub. Serv. Co.*, 100 N.E.3d 234, 242 (Ind. 2018), modified on reh'g (Sept. 25, 2018). Additionally, "[t]he language of the statute itself is the best evidence of legislative intent, and we must give all words their plain and ordinary meaning unless otherwise indicated by statute." *U.S. Steel Corp. v. N. Indiana Pub. Serv. Co.*, 951 N.E.2d 542, 552 (Ind. Ct. App. 2011). Thus, in this case, the Commission's primary job is to determine whether the "common and ordinary meaning" of the words in Ind. Code § 8-1-40-5 support Vectren's interpretation in its proposed tariff of the statutory definition of "excess distributed generation." If not, the Commission must reject Vectren's proposed tariff. As described further below, we find that Vectren's interpretation of "excess distributed generation" as defined in Ind. Code § 8-1-40-5 violates the plain, ordinary, and usual meaning of the language of the statute, and therefore Vectren's proposal cannot be approved.

Ind. Code § 8-1-40-5 provides the definition of "excess distributed generation," which states:

> As used in this chapter, "excess distributed generation" means the difference between:
> (1) the electricity that is supplied by an electricity supplier to a customer that produces distributed generation; and
> (2) the electricity that is supplied back to the electricity supplier by the customer.

The statutory definition of "excess distributed generation" is straightforward. It is the difference between two values: the electricity that Vectren supplies to a DG customer and the electricity that the DG customer supplies back to Vectren. Stated as equation, the statute requires this calculation: *Excess Distributed Generation (EDG) = Outflow (electricity supplied by the customer to the system) — Inflow (electricity supplied by the utility to the customer).*

In short, it is the *difference* between the two values that constitutes Excess Distributed Generation as defined by statute. This straightforward interpretation of Excess Distributed Generation is driven by the plain language of the statute, supported by the testimony of OUCC and Joint Intervenors' witnesses, and confirmed by Vectren's witness Rice at the evidentiary hearing. During the hearing, Mr. Rice was questioned about Vectren's Figure 1 on page 8 of his prefiled rebuttal testimony, Petitioner's Exhibit No. 3. That figure is reproduced below:



Mr. Rice's responses confirmed, unequivocally, that the arrow labeled "Power INFLOW" is the electricity that Vectren supplies to a DG customer, and "Power OUTFLOW" is the electricity that the DG customer supplies back to Vectren:

> Q: Do you see the arrow labeled "Power INFLOW" on Figure 1?
> A: I do.
> Q: And that arrow represents electricity that is **supplied by Vectren to a customer that produces distributed generation**; correct?
> A: Correct.
> ….
> Q: Okay. Do you see the arrow labeled "Power OUTFLOW"?
> A: I do.
> Q: And that arrow represents electricity that is **supplied back to Vectren by the customer**; right?
> A: That is correct.

Tr., page A-24, line 23 – page A-25 line 3 (emphasis added); Tr., page A-25, lines 19-23 (emphasis added).

The emphasized language from the exchange with Mr. Rice at the hearing precisely mirrors the two statutory components of EDG, as defined by Indiana Code § 8-1-40-5. Mr. Rice's admission that "Inflow" is "electricity that is supplied by Vectren to a customer that produces distributed generation" and "Outflow" is "electricity that is supplied back to Vectren by the customer" conforms to the plain language definition of Excess Distributed Generation which requires Vectren to measure "the difference between" "Outflow" and "Inflow" when applying its EDG rate. As explained below, however, Vectren's tariff does not follow the plain language of the statute.

The non-Vectren parties asserted that Vectren incorrectly applied the definition of EDG in its proposed tariff. We agree. Instead of calculating EDG as the "difference between" "Outflow" (the power supplied by a customer to Vectren) and "Inflow" (the power supplied by Vectren to the customer), Vectren's tariff defines outflow exclusively as EDG, without any regard to Inflow. Rice Direct, page 12, lines 23-25 ("The total outflow amount for the billing period will be priced at the Rider EDG credit rate, as it represents excess distributed generation from the customer to the Company."); *see also* Rice Rebuttal, Attachment MAR-R1, page 1 of 6 (defining "Outflow" as "the separate meter channel measurement of energy delivered by Customer to Company as Excess Distributed Generation"). The non-Vectren parties assert that Vectren's interpretation of EDG ignores the Inflow component (the power supplied by Vectren to the customer), which is half of the statutory equation. We agree. *See* Ind. Code § 8-1-40-5(1) (defining EDG as the difference between "the electricity that is supplied by an electricity supplier to a customer that produces distributed generation" and "the electricity that is supplied back to the electricity supplier by the customer").

Mr. Rice's rebuttal testimony claims that Vectren's measurement of "Outflow" somehow captures "the net of both components" of EDG:

> The net of the electricity supplied by Vectren South to the customer and the electricity that is supplied back to Vectren South is specifically captured as "Outflow" on the customer's meter. In other words, the meter registers as "Outflow" the net of both components of "excess distributed generation" as set forth in IC § 8-1-40-5, not just a single component as OUCC Witness Alvarez believes.

Petitioner's Exhibit No. 3, Rebuttal Testimony of Matthew A. Rice, page 6, lines 13-18. But, Mr. Rice's cross-examination directly contradicts this testimony. As he admitted at the hearing, "Outflow" represents "electricity that is supplied back to Vectren by the customer," not the "net of the electricity supplied by Vectren South to the customer and the electricity that is supplied back to Vectren South." Tr., page A-25, lines 19-23. Mr. Rice agreed that "Outflow" occurs "when a DG customer's on-site electricity generation exceeds that customer's on-site electricity usage at any given moment in time." Transcript, page A-25, line 24 to page A-26, line 2. Mr. Rice's response on cross-examination clarifies that Outflow is determined exclusively by activities occurring on the *customer's* side of the meter and therefore *cannot* represent "the net of both components" of excess distributed generation as he stated on rebuttal. Rice Rebuttal, page 6, lines 13-18. The Commission gives no weight to Mr. Rice's contradictory rebuttal testimony. Vectren's decision to define EDG as the "Outflow" (without regard to Inflow) in the tariff cannot be squared

with the plain language of the statute, which requires Vectren to measure EDG as "the difference between" electricity supplied to a customer (Inflow) and the electricity supplied back to Vectren (Outflow). Ind. Code § 8-1-40-5.

Many of the non-Vectren parties also asserted that Vectren's attempt to characterize its proposal as a form of "instantaneous billing" or "instantaneous netting" is misleading and does not save Vectren's proposed tariff from the failure to meet the statutory definition of Excess Distributed Generation. Rice Rebuttal, pages 10-11. Mr. Rice's initial testimony explains that power only flows in one direction through the meter on an instantaneous basis: "Because the meter can only register the instantaneous measurement of electricity in either direction, each unit of power can only be either inflow and outflow (or net zero in the case of perfect matching of generation to consumption)." Rice Direct, page 12, lines 14-17 (emphasis added). Mr. Rice further confirmed this at the hearing:

> Q: And would you agree that it's not possible for inflow and outflow to occur simultaneously across a DG customer's meter?
>
> A: When the net inflow is occurring, there is zero outflow, and when the net outflow is occurring, there is zero inflow.
>
> Q: Okay. So, at any moment in time, the meter is registering either inflow or outflow or nothing; correct?
>
> A: Correct.

Tr., page A-26, lines 17-25.

As the meter can only measure either inflow or outflow at any given instant, not energy flow in both directions, any outflow is not simultaneously "net" of both components. Therefore, notwithstanding Vectren's description of its approach as "instantaneous netting," we agree that it is not physically or conceptually possible to "instantaneously" net inflow against outflow. Ultimately, "instantaneous netting" is just another way to say "no netting." While Vectren may prefer a "no netting" policy, the Commission is not free to ignore the plain meaning of the statute that requires Vectren to measure (i.e. "net") the "difference between" inflow and outflow.

When interpreting a statute, Indiana courts "presume the legislature uses undefined terms in their common and ordinary meaning." *NIPSCO Indus. Grp.*, 100 N.E.3d at 242 (Ind. 2018) (citing words *In re S.H.*, 984 N.E.2d 630, 635 (Ind. 2013)). As a verb, "supply" means "to provide for" or "to make available for use." Supply, MERRIAM–WEBSTER'S DICTIONARY (2020). The electricity that Vectren "provides" or "makes available" to DG customers is Inflow. The electricity that DG customers "provide" or "make available" to Vectren is "Outflow." Vectren cannot avoid the statute's clear requirements by defining "Outflow" as "Excess Distributed Generation" in the tariff. Rice Rebuttal, Attachment MAR-R1, page 1. Simply stating in the tariff that "outflow" is "excess distributed generation" does not make the definition correct. As described above, in order to properly conform with the plain language of the statute, we find that Vectren must use a methodology that measures both inflow and outflow, and then takes the "difference between" these amounts to determine EDG. Ind. Code § 8-1-40-5.

Instead of measuring the difference between "Inflow" and "Outflow," Vectren substitutes two different, non-statutory terms to determine EDG: the difference between "what the distributed generation resource produced and what the customer used behind the meter." In response to an OUCC discovery request, Vectren admits:

> The measurement of outflow in the standard customer meter reflects the *difference between what the distributed generation resource produced and what the customer used behind the meter*, with the excess ("excess distributed generation") flowing through the meter to Vectren South's distribution system, and priced at the Rider EDG Marginal DG Price in accordance with IC 8-1-40-17.

OUCC Exhibit No. 1, Attachment AAA-1, page 8, Vectren's Response to OUCC DR 2-011 (emphasis added). Vectren witness Rice similarly states:

> [T]he existence of the DG resource behind the meter dictates that the customer's requirements and the DG resource production are *netted before passing through the meter*. The "Outflow" recorded on the meter then is the EDG. The "Inflow" recorded on the meter is the measurement of the requirements of the customer in excess of what is produced by the DG resource.

Rice Rebuttal, page 7, lines 20-25 (emphasis in original).

Contrary to Vectren's proposal, Ind. Code § 8-1-40-5 clearly states that EDG is the difference between the amount of electricity supplied to the customer and the amount supplied back to the electric supplier. This exchange of energy occurs at the customer's meter and is measured as "Inflow" and "Outflow." Vectren's definition of EDG instead pushes across the customer's meter and examines the individual customer's own production and consumption that is occurring on the customer's private property. If the legislature had intended to define EDG by comparing production and consumption on the customer's side of the meter, it would have said so. But it did not. The legislature defined EDG as the difference between electricity that Vectren "supplied" to a DG customer and the electricity that the DG customer "supplied back" to Vectren. Ind. Code § 8-1-40-5. Vectren, however, does not "supply" the electricity that a DG customer produces and consumes behind the meter. By comparing "the customer's requirements and the DG resource production," Vectren is therefore comparing (or "netting") two non-statutory terms.

Vectren is not free to substitute the statutory components of EDG (inflow and outflow) for a different set of components that it prefers. For the reasons explained above, Vectren's proposed EDG tariff fails to properly apply Ind. Code § 8-1-40-5 by using components not stated in the statute and by failing to follow the plain, ordinary, and usual meaning of the statutory language. Therefore, we find that Vectren's tariff is unlawful and reject it.

Although we have determined that Vectren's proposed EDG tariff is unlawful for the reasons stated above, we find ample evidence in the record of additional reasons that the tariff as

currently constructed and proposed to be implemented, cannot be approved. We address those reasons below.

B. Combining the 2.7 cents/kwh EDG credit with the "instantaneous" netting interval proposed by Vectren in its revised EDG tariff produces a ratemaking result which is "unjust and unreasonable" as an ultimate factual conclusion and thus contrary to Indiana law.

While we deny Vectren's EDG proposal for failure to follow applicable law as discussed in Section A above, it is appropriate to address whether Vectren's proposal results in a just and reasonable rate. The EDG credit rate of approximately 2.7 cents/kwh proposed by Vectren was calculated using the formula defined by Ind. Code § 8-1-40-17. The non-Vectren parties do not challenge Vectren's calculation of this credit rate. Instead, the principal argument of the non-Vectren parties against Vectren's overall proposed EDG tariff and rate is that the "instantaneous" netting interval proposed by Vectren is contrary to law as a matter of straightforward interpretation of Ind. Code §§ 8-1-40-5 and 21. *See* Discussion and Findings Section A, *supra*. An argument in the alternative is also being advanced by several of these parties that Vectren's proposal to combine the statutory EDG credit rate with an "instantaneous" netting interval for measuring the amounts of EDG to which the credit rate would apply produces a result which is "unjust and unreasonable" as an ultimate conclusion of fact and thus is contrary to law.

In support of this argument in the alternative, the contending parties offer several challenges to Vectren's combination of the EDG statutory rate for calculating bill credits with its "instantaneous" netting interval for measuring the amounts of EDG to which the credit rate would apply:

(1) It does not provide a level of compensation sufficient to attract future EDG customers and vendors to serve them. *See, e.g.*, SI Exhibits 1 through 6, but especially 5 and 6, and IndianaDG Exhibits 1 through 3.

(2) It does not recognize that utilities receive compensation at the full retail energy rate for the EDG consumed by other customers located on the local distribution system proximate to the customers generating the EDG. *See* JIs' Exhibit 1 and IndianaDG Exhibit 4.

(3) It is not supported by any systematic cost and/or value of service study of record in this matter or incorporated by reference to a relevant study of record in another matter. *See* JIs' Exhibit 1 and IndianaDG Exhibit 3.

In response, Vectren asserts that the other parties' challenges to its proposal are extraneous and irrelevant because Ind. Code Chapter 8-1-40 does not expressly prohibit "instantaneous netting" and the Chapter's underlying legislative intent is to eliminate the "subsidy" provided by Net Metering for excess distributed generation and "instantaneous netting" is necessary to achieve that intent. *See* Vectren Exhibits 3 and 4.

Ind. Code § 8-1-2-4 provides, in part, "The charge made by any public utility for any service rendered or to be rendered either directly or in connection therewith shall be reasonable and just, and every unjust or unreasonable charge for such service is prohibited and declared unlawful." In complying with this fundamental provision of the Public Service Commission Act, the Commission regularly and routinely reviews utility rates and riders providing for customer "credits" as well as customer "charges." *See, e.g.*, Petition of Northern Ind. Pub. Serv. Co., No. 44688 (Jul.18, 2016), 2016 WL 3996436 (Ind. U.R.C.) (initiating $50 credit available to all electric customers who receive bill assistance through the Low Income Home Energy Assistance Program ("LIHEAP"); removing one-time credit of $25.00 per permanently installed space heating unit; continuing interruptible credits paid to customers utilizing Interruptible Rider 775; resetting the off-system sales margin credit to base rates to reflect the level of off-system sales margins included in the test year and to share 50% of margins above and below this amount through Rider 671). With respect to the EDG rate credit and its application, Ind. Code § 8-1-40-21(a) provides, in part, that "the commission's rules and standards set forth in . . .170 IAC 4-4.2 (concerning net metering) remain in effect and apply to net metering under an electricity supplier's net metering tariff and to distributed generation under this chapter." In that context, 170 IAC 4-4.2-3 expressly provides, "Net metering facilities shall be exempt from revenue requirement and associated regulation under IC 8-1-2 as administered by the commission, but the commission shall have authority over rates charged by electric utilities to net metering facilities." Moreover the EDG rate credit is a direct adjustment to the bills that EDG customers will pay for their Vectren electric service.

Thus, the Commission finds that it has the authority to review and resolve whether combining the statutory EDG rate credit with Vectren's "instantaneous" netting proposal to define and determine the amounts of EDG to which the rate credit would apply would be "unjust and unreasonable" as the Commission understands that regulatory term. We also find that the Commission has been granted the statutory power to remedy any "rates, tolls, charges, schedules" if we find that they are "unjust, unreasonable, insufficient, or unjustly discriminatory." Ind. Code § 8-1-2-68. That statutory remedial power covers "regulations, measurements, practices, acts, or service" that we find to be "unjust, unreasonable, unwholesome, unsanitary, unsafe, insufficient, preferential, [or] unjustly discriminatory." Ind. Code § 8-1-2-69. Here, we find that "instantaneous" netting as proposed by Vectren would plainly be both a "measurement" and a "practice" within our remedial power.

1. <u>Comparative Financial Results of Net Metering, EDG Rate with "Billing Period" Netting, and EDG Rate with "Instantaneous" Netting.</u>

In his direct testimony, SI witness Kastner presented the results of a comprehensive and detailed analysis of the bill impacts for a statistically typical Vectren residential household under Net Metering compared with the statutory EDG rate as calculated by Vectren when applied to the amounts of excess distributed generation as defined and determined under both "instantaneous" and "billing period" netting. Given Mr. Kastner's extensive experience, the Commission finds Mr. Kastner to be a highly qualified expert witness with respect to the subject matter of his testimony in this matter.

Mr. Kastner's analyses yielded the following comparative financial results for the statistically "typical" Vectren residential household installing in 2021 a "net zero" solar DG system the projected generation of which would approximately equal the household's electricity consumption over a year's time (assuming expected Evansville-area per kw installation costs for the solar system and the federal Investment Tax Credit terminating as scheduled at the end of 2021):

Exhibit 1: Financial Recap: (No Federal Tax Credit)

			SEA 309 Compliant	Vectren's Proposal
	No Solar	Net Metering	EDG Estimate	EDG Estimate
Annual Electricity Bill (Year 1)	$1,832	$ 1	$ 167	$ 904
Savings (Year 1)		$ 1,832	$ 1,665	$ 928
Net Present Value (@5%)		$ 6,020	$ 4,084	$(7,595)
Simple Payback		12	13	22

SI Exhibit 4, p. 8. Mr. Kastner summarized these financial metrics in these words:

> Over 25 years, the Net Metering household makes a modest return on its solar investment but has to wait 12 years before it starts turning positive. Under the SEA 309[-compliant] method of determining the EDG credit, the solar household would fare a little worse and have to wait 13 years to go positive. But under the Vectren EDG proposal, the solar investment would fall far short of modest investment returns and would not turn positive until nearly the end of the 25 year planning horizon—and this is under the best of planning assumptions.

SI Exhibit 4, p. 9. He then assessed the implications of these comparative financial results for the Vectren EDG proposal as follows:

> The differences in financial return on investment between the Vectren and the SEA 309[-compliant] models are material. Vectren's approach not only contradicts the statute but also makes a go-solar decision unjustifiable on financial grounds alone. In my experience of helping solar prospects reach a go/no go decision, we get very few REMC customers to go solar because they have faced low "Net Billing" rates similar to the proposed EDG Tariff. For those who might still go solar despite poor financial measures, the EDG Tariff would drive some of them to invest in only smaller systems that do not send much clean energy to the grid. They would change normal energy consumption behaviors and try to use as much generation for onsite usage during peak production periods when excess generation would be most valuable to the electricity sector. Overall, the amount of clean renewable

> energy fulfilling the electricity needs of Hoosiers would go down and utilities would generate more polluting energy while the innovative, entrepreneurial solar business sector would suffer.

SI Exhibit 4, pp. 9-10.

JIs' witness William Kenworthy also evaluated the economic impact of Vectren's proposed transition from net metering to a dual-channel billing method. JI Exhibit 2, pp. 16-18. Using a dataset comprised of the hourly inflow and outflow data for all of Vectren's net metering customers for 2018 through June 2020, Mr. Kenworthy concluded that the average DG customer would pay $1,616.86 for the volumetric portion of their bill using the Company's proposed billing methodology -- more than double the cost that would be charged under net metering. Id. at 18. Over the life of a typical DG system, Mr. Kenworthy found that the simple payback of the customer's investment would go from 10.7 years to 25.2 years based on the switch from net metering to the Company's Rider EDG proposal. *Id*. at 22. Mr. Kenworthy's economic analysis corroborates Mr. Kastner's conclusion that the transition to Vectren's proposed EDG tariff would "have a significant adverse impact on the economic value of distributed generation for Vectren's customers." *Id*. at 22.

Mr. Kastner also filed Supplemental Direct Testimony to assess the comparative bill impacts of Rate EDG with "billing period" netting and "instantaneous" netting for five actual Vectren residential Net Metering customers assuming the same levels of "Inflow" and "Outflow" they had experienced over twelve consecutive billing periods in 2019-20. *See* SI Exhibit 6. He reported the financial metrics for these comparative bill impacts as follows:

Exhibit 2. Monetized Volumetric Charges and Credits Over 12 Billing Cycles, Comparing Different Solar Tariffs

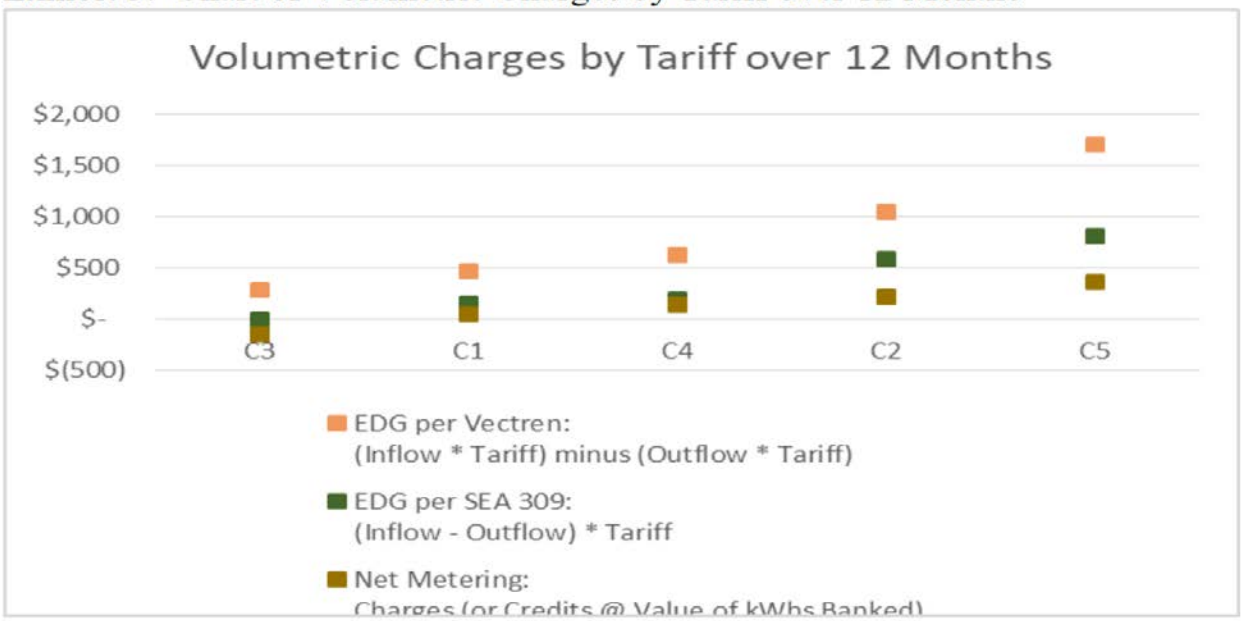
SUM of MONETIZED VOLUMETRIC CHARGES AND CREDITS OVER 12 BILLING CYCLES						
SYSTEM PROFILES:		C3	C1	C4	C2	C5
	System Size (kWp DC)	3.77	6.2	7.9	14.58	27.28
	Rate Class	RS-S	RS-S	RS-S	RS-T	RS-T
VOLUMES:						
	Inflow "Delivered" (kWh)	2,809	4,181	5,377	12,879	21,696
	Outflow "Received" (kWh)	(3,871)	(3,850)	(4,444)	(11,385)	(18,762)
	Inflow minus Outflow (kWh)	(1,062)	331	933	1,494	2,934
SOLAR TARIFFS:						
1	Net Metering: Charges (or Credits @ Value of kWhs Banked)	$ (150)	$ 47	$ 131	$ 210	$ 356
2	EDG per SEA 309: (Inflow - Outflow) * Tariff	$ (10)	$ 146	$ 192	$ 585	$ 809
3	EDG per Vectren: (Inflow * Tariff) minus (Outflow * Tariff)	$ 273	$ 468	$ 618	$ 1,043	$ 1,706

SI Exhibit 6, p. 4.

Mr. Kastner assessed the implications of these results for Vectren's EDG proposal in these terms:

> The impact of the EDG tariff, when using Vectren's proposed method, results in sharp rise in net charges to solar customers. Please consider how with each sample customer the volumetric charges increase significantly from the Net Metering existing case, at each scale of system size, to the rate EDG case, especially with the Vectren Tariff EDG proposal. These increased net charges would subtract deeply from the savings on solar PV projects, substantially extending a customer's payback period and undermining a customer's return on investment in solar.
>
> The sharp rise in net charges due to EDG tariff is shown graphically below:

Exhibit 3: Chart of Volumetric Charges by Tariff over 12 Months



SI Ex. 6, p. 6. Similarly IndianaDG witness Morton documented that under the proposed EDG the customer DG investment payback period would lengthen to an untenable more than 25 years. IndianaDG Ex. 2 at 5; *see also* JI Ex. 2 at 22 (documenting results of Mr. Kenworthy's conclusion that simple payback of a typical customer's DG system would go from 10.7 years to 25.2 years based on the switch from net metering to the Company's Rider EDG proposal).

Based on this sample of existing customers, using real data, the impact of Vectren's proposed EDG tariff would have a significant impact on current and future Vectren customers. Each of the five illustrative customers would be markedly impacted by the EDG tariff proposed by Vectren if and when their Net Metering goes away. Further, new residential solar prospects at any level of solar investment would be deterred by the substantially increased payback periods and diminished returns on investment resulting from Vectren's proposed EDG tariff. SI Exhibit 6, pp. 5-6. We note too that Vectren did not challenge the Kastner, Kenworthy or Morton customer bill impact analyses in its Rebuttal Testimony.

2. Whether Vectren's rationale for "instantaneous" netting recognizes that utilities receive compensation at their full retail energy rate for the EDG consumed by other customers located on the local distribution system proximate to the customers generating the EDG.

Joint Intervenors argue that the fact that Vectren receives compensation for excess power generated by a DG customer at the full retail energy rate for the EDG consumed by other customers located on the local distribution system weighs against approval of Vectren's proposal for "instantaneous" netting.

Joint Intervenors' witness Jester testified that the excess power generated by a DG customer will flow from the customer's premises to the utility. The utility will then sell that excess power at the full retail energy rate to another customer. Mr. Jester explained in detail how outflow from DG customers behind the meter of a customer that is interconnected at a primary or secondary distribution location will reduce the amount of power delivered over the transmission system to the customer class to which that customer belongs. The outflow, from the customer that has distributed generation to the utility, flows through the meter and through the service line that connects the customer to the utility's distribution system. At the point where the customer's service line connects to the distribution system, outflow will either join normal down-current flows to serve down-current customers while reducing flows from up-current to the point of customer interconnection or will be larger than any down-current loads and reverse the normal direction of flow. At some point in the power flow, the outflow from the customer having distributed generation will be less than a flow it joins and will simply reduce the flow from up-current to that point of interconnection. JI Exhibit 1, p. 10.

Vectren witness Joiner provided rebuttal testimony claiming that "…the Excess Distributed Generation Rider ('Rider EDG') rate exceeds the amount of any 'avoided costs' attributable to DG, without any corresponding substantial benefits to Vectren South's system." Petitioner's Exhibit No. 4 (Joiner Rebuttal), page 2, lines 27-29. At the hearing, however, Mr. Joiner admitted that Vectren has not quantified the avoided costs attributable to DG through any kind of rigorous value of DG study, nor has Vectren attempted to quantify the benefits to Vectren South's system attributable to DG. Tr., page C-11, line 18—C-12, line 5.

Vectren also said that "the customer's retail rate is meant to reflect the costs to the system when the customer is utilizing the system." Tr., page A-51, lines 19-21. Yet, we agree that the concept of EDG consumed by other customers located on the local distribution system has not been explained away by Vectren and remains an open issue.

The Commission need not wade too far into this discussion. The fact of the matter is that Vectren's rationale for "instantaneous" netting does not recognize that utilities receive compensation at their full retail energy rate for the EDG consumed by other customers located on the local distribution system proximate to the customers generating the EDG. As discussed below, no study has been performed to quantify the costs and benefits for consideration in this matter.

3. Whether Vectren's rationale for "instantaneous" netting is supported by any systematic cost and/or value of service study of record in this matter or any relevant study of record in any other matter.

Joint Intervenors examined the extent to which Vectren's proposal for instantaneous netting was supported by any quantitative study of DG solar's benefits, as well as its costs. Joint Intervenors' witness Jester testified as to how DG changes the service requirements of the customer class to which the customer with distributed generation is assigned, thereby modifying the statistics used to allocate costs in a COSS. In particular, Mr. Jester explained several respects in which excess distributed generation results in "avoided costs" to the Vectren system. JI Exhibit 1, pp. 33-34. But Vectren's most recent COSS fails to reflect this "avoided cost" effect.

Vectren witness Joiner provided rebuttal testimony claiming that "…the Excess Distributed Generation Rider ('Rider EDG') rate exceeds the amount of any 'avoided costs' attributable to DG, without any corresponding substantial benefits to Vectren South's system." Petitioner's Exhibit No. 4 (Joiner Rebuttal), page 2, lines 27-29. At the hearing, however, Mr. Joiner admitted that Vectren has not quantified the avoided costs attributable to DG through any kind of rigorous value of DG study, nor has Vectren attempted to quantify the benefits to Vectren South's system attributable to DG. Tr., page C-11, line 18—C-12, line 5.

The careful application of cost of service principles to customers with distributed generation behind-the-meter leads to the conclusion that outflow from EDG customers will result in avoided costs to the Vectren systems which are not currently reflected in Vectren's most recent COSS or rate design. For example, Vectren South's rate design does not charge high rates during the summer afternoons during which 4CP hours would likely assign costs of production plant. JI Ex. 1, p. 25.

If Vectren's rate design was based on time of use and the time of use rates were closely linked to cost of service allocators, then hourly netting might come close to reflecting cost of service for DG customers. But, that is simply not the case at present; indeed, the Company has yet to conduct the study necessary to achieve that result. Thus, because the Company's current rate design is not demonstrably cost-reflective for DG customers, we find as Mr. Jester testified that "monthly netting will more closely match customer bills to cost of service for customers having distributed generation behind-the-meter." JI Ex. 1, p. 25.

C. Double Recovery of Vectren's Costs of Energy Delivered to Customers

We also find fault with Vectren's tariff as it would impermissibly allow double recovery of cost through the FAC, resulting in unjust and unreasonable rates. Recovery by Vectren of the full retail energy rate for "excess distributed generation" consumed by other customers located on the local distribution system proximate to EDG customers combined with recovery from all customers of the aggregate credits for the same "excess distributed generation" through the Fuel Adjustment Charge would constitute "double recovery" as a matter of fact contrary to Ind. Code § 8-1-40-19(b) and thus also an "unjust and unreasonable charge" prohibited and declared unlawful under Ind. Code § 8-1-2-4.

Commission approval of "double recovery" of Vectren's costs of energy delivered to its customers in conjunction with establishment of the utility's Excess Distributed Generation tariff is expressly prohibited by Ind. Code § 8-1-40-19(b):

> The commission may approve a request for cost recovery [of energy delivery costs attributable to serving customers that produce distributed generation] by an electricity supplier if the commission finds that the request: (1) is reasonable; and (2) does not result in a double recovery of energy delivery costs from customers that produce distributed generation.

Thus, any such "double recovery" would also be contrary to the central tenet of utility ratemaking enshrined in Ind. Code § 8-1-2-4: "The charge made by any public utility for any service rendered or to be rendered either directly or in connection therewith shall be reasonable and just, and every unjust or unreasonable charge for such service is prohibited and declared and unlawful."

Vectren contends that its proposed recovery of the value of the EDG rate credits accrued by its future EDG customers through its periodic FAC proceedings is authorized by Ind. Code § 8-1-40-15 because it would not constitute "double recovery" as proscribed by Ind. Code § 8-1-40-19(b):

> Costs eligible for recovery in the FAC are recovered based on energy (kWh) consumed by customers. In the case of an EDG customer, the FAC charges would be applied to the Inflow measurement on their meter, which represents fuel costs associated with the energy consumed by the EDG customer. In other words, there is no double recovery – the customer is paying the variable FAC based on energy consumed which is separate and distinct from the Rider EDG credits paid for EDG.

See Vectren Exhibit 3, p. 24.

However, Vectren's contention cannot be reconciled with either the plain meaning of "double recovery" or the undisputed facts of how the EDG tariff would actually work. As the Supreme Court of Rhode Island has explained, "Preventing double recovery [of a utility's costs of service] . . . is a prohibition on requiring paying customers to pay twice for amounts incurred once by the company." *Providence Gas Co. v. Malachowski*, 600 A.2d 711, 715 (R.I. 1991). Attempted "double recovery" has become more common in recent years with the increased use by utilities of trackers and riders in addition to base rates, especially in relation to the use of purchased power trackers such as the one involved here. *See* L. Mendiola, *The Erosion of Traditional Ratemaking through the Use of Special Rates, Riders, and Other Mechanisms*, 10 Tex. Tech. Admin. L.J. 173, 182-183 (Fall 2008) ("In fact, the possibility of a utility's double recovery through the purchased power capacity rider is substantial. A recovery based solely on the absolute incremental cost and not on the incremental per-unit cost will almost certainly result in a double recovery.").

SI squarely raised the issue of "double recovery" generally in the direct testimony of its witness Mullett, SI Exhibit 5, pp. 27-28. JIs then made of record the two key points establishing "double recovery" through the direct testimony of their witness Jester and their cross examination of Vectren witness Rice. First, Mr. Jester testified, SI Exhibit 1, p. 7, "Both avoided load and

outflow from customers with distributed generation manifestly reduce the need for other generation to be used to serve Vectren South's load at the time of outflow." In other words, any time an EDG customer would transmit "outflow" to the grid from a solar installation, that energy would "reduce the need for other generation to be used to serve Vectren South's load at the time of outflow." Second, Mr. Rice testified on cross-examination:

> Q. Vectren proposes to credit DG customers at the proposed EDG rate for every kilowatt hour of outflow during a billing period; right?
> A. Correct.
> Q. When a DG customer provides outflow to the grid, do Vectren South's other customers receive that electricity for free?
> A. Outflow from the customer when the production outweighs the consumption at any given moment goes on to the grid and may be used by Vectren customers.
> Q. And when Vectren's customers use outflow, what rate are they charged?
> A. Other customers are charged their retail rate.

Tr., p. A-26, lines 4 to 16. In short, any time that an EDG customer generates electricity in excess of its own load that electricity will be transmitted to the grid and consumed at that same time by another Vectren customer – with the EDG customer being credited 2.7 cents per kwh and the other customer being charged the full retail energy rate of 14.3 cents per kwh for that same electricity which includes the full per kwh cost of all of the energy being consumed by the other customer, whether supplied by Vectren or the neighboring EDG customer.

The reason that the Vectren EDG customer will be credited 2.7 cents per kwh for its "excess" distributed generation is because that is the amount which the application of the formula specified in SEA 309 as codified at Ind. Code § 8-1-40-17 calculates to be the approximate marginal cost of the electricity which Vectren would have obtained from an alternative generation source to meet its system load in the absence of the EDG customer's "excess" distributed generation. *See* SI Exhibit 5, p. 32. In effect, SEA 309 determined that an EDG customer should receive a rate credit for its "excess" distributed generation precisely because the customer's production of the "excess" distributed generation would result in Vectren *avoiding rather than incurring* a cost of approximately 2.7 cents per kwh for the alternative generation the utility would have otherwise been required to obtain and provide to serve its load.

Thereafter, at the end of every billing period, Vectren proposes to apply the sum of the credits of 2.7 cents per kwh accrued for "excess distributed generation" against the sum of the charges of 14.3 cents per kwh accrued for Vectren generation consumed by the EDG customer to compensate the EDG customer for the avoided cost savings its generation has provided the utility. As explained above, however, the application of these credits to the EDG customer's bill does not represent an unrecovered cost to Vectren because it is already being recovered through its existing rates being charged to all of its customers for the per kwh cost of the alternative generation the use of which was avoided by EDG customers' "excess" distributed generation.

Consequently, the Commission finds that Vectren's proposed recovery of the financial value of the EDG credits to be accrued by all EDG customers through an increase in Vectren's

periodic Fuel Adjustment Charge would represent a patent "double recovery" of Vectren's energy delivery costs and thus should not be authorized in this proceeding because it would be contrary to both Ind. Code § 8-1-40-19(b) and Ind. Code § 8-1-2-4.

D. Harmful Economic Impacts of Vectren's Proposed EDG Tariff.

We note the serious negative economic impacts of Vectren's EDG proposal would cause and the related additional reason why approval of the proposal would have an unjust and unreasonable result. Substantial evidence was presented regarding the negative economic impacts that Vectren's EDG proposal would have on Vectren area solar installation businesses, Vectren's future DG customers, and the Vectren service area as a whole. IndianaDG's evidence established the critical importance to new DG customers having a reasonable period of recovering their investment in DG equipment from the energy cost savings crated by the DG equipment. The current investment payback period of about 9 years would increase to 13 years solely from the approximately $0.03 EDG rate and then to 21 years under instantaneous netting. IndianaDG Ex 1, Att. 1-3. With the end of the Solar Investment Tax Credit the payback period under Vectren's EDG increases to about 27 years. *Id*., Att. 4. Both Mr. Morton and Mr. Schneider testified such payback period increases would be very harmful to their ability to continue marketing DG in Vectren's service area and would force them to focus on customer markets outside of Indiana. It would likely prevent Vectren customers from investing in DG. IndianaDG Ex. 1, pp. 3, 4 and 7; IndianaDG Ex. 2, pp. 7-9. That would end the economic development contribution that their companies' operations make, e.g. $9.0 million in 2019. *Id*. at 8, IndianaDG Ex. 2, pp. 5-6; IndianaDG Ex. 3, p. 16. Similarly Performance Services solar installation business did about $13 million of Indiana sales in Indiana. IndianaDG Ex. 2 at 6. The economic benefits of DG jobs, higher tax receipts and increased revenues for area business serving the DG installation companies and their employees could all be lost. Faced with such dramatic increases potential DG customers would likely not make the solar investment. IndianaDG Ex. 1 and Ex. 2, *supra*.

Vectren presented no rebuttal testimony questioning the reasonableness or accuracy of IndianaDG's described negative economic impacts and their quantification. Instead it points to a concern about seeking to prevent interclass subsidization between DG customers and other Vectren customers. But the record shows if such subsidization exists it is miniscule. Even under the higher current net metering rate of about $0.15 cents per kWh, rather than the proposed low approximate $0.03 EDG rate, the 2019 total net DG customer credit was only about $53,000 and the gross credit only about $174,000. IndianaDG Ex. 3 at 18. Obviously those total net metering credits would even be much lower under the proposed approximate $0.03 EDG rate. Moreover, when compared to Vectren's authorized annual revenue of $591,442,340 approved in its most electric recent rate case Cause No. 43839, any such alleged EDG subsidy is insignificant. Accordingly, we find that an additional reason supporting our denial of Vectren's EDG proposal is the negative economic impact that, particularly its reliance on its "instantaneous netting," would have on the economy of Southern Indiana and on Vectren customers.

E. Liability, Insurance and Indemnity, and Customer Premises Access Provisions of Vectren's Revised EDG Tariff.

SI also challenges the following liability, insurance, and indemnity provisions of Vectren's Revised EDG Tariff, Vectren Exhibit 3, Attachment MAR-R1, pp. 4, 6:

> INTERCONNECTION REQUIREMENTS
> . . . .
> 2. Customer owning and operating a generator system shall provide proof of liability insurance providing coverage for claims resulting from Bodily Injury and/or Property Damage in the amount of at least one hundred thousand dollars ($100,000) for the liability of the insured against loss arising out of the use of a distributed generation metering facility, as provided in 170 IAC 4-4.2-8. This coverage must be maintained as long as Customer is interconnected with Company's distribution system.
>
> TERMS AND CONDITIONS OF SERVICE
> . . . .
>
> 10. Customer agrees that Company shall not be liable for any damage to or breakdown of Customer's equipment operated in parallel with Company's electric system.
>
> 11. Customer shall agree to release, indemnify, and hold harmless Company from any and all claims for injury to persons or damage to property due to or in any way connected with the operation of Customer-owned equipment and/or generators.

SI is challenging these provisions on the grounds that they do not comply with the applicable Commission Net Metering Rules. For comparison, the liability, insurance, and indemnity provisions in the Commission's Net Metering Rules read as follows:

> 170 IAC 4-4.2-8 Liability insurance and indemnity
> Authority: IC 8-1-1-3
> Affected: IC 8-1-2-33; IC 8-1-2-34
>
> (a) A net metering customer operating a net metering facility shall maintain homeowners, commercial, or other insurance providing coverage in the amount of at least one hundred thousand dollars ($100,000) for the liability of the insured against loss arising out of the use of a net metering facility. Net metering customers shall not be required by the utility to obtain liability insurance with limits higher than that which is stated in this section, nor shall such net metering customers be required by the utility to purchase additional liability insurance, for example, insurance coverage that exceeds one hundred thousand dollars ($100,000) where the net metering customer's existing insurance policy provides coverage against loss arising out of the

> use of a net metering facility by virtue of not explicitly excluding coverage for such loss.
>
> (b) The utility and the net metering customer shall indemnify and hold the other party harmless from and against all claims, liability, damages, and expenses, including attorney's fees, based on any injury to any person, including loss of life or damage to any property, including loss of use thereof, arising out of, resulting from, or connected with, or that may be alleged to have arisen out of, resulted from, or connected with an act or omission by such other party, its employees, agents, representatives, successors, or assigns in the construction, ownership, operation, or maintenance of such party's facilities used in net metering. This indemnification provision is not applicable in the case of governmental net metering customers that are restricted from entering into indemnification provisions.

SI asserts that the language of the Company's tariff provisions is obviously different from that of the Commission rules and the differences are evidently disadvantageous to customers in respects which are "unjust and unreasonable." *See* SI Exhibit 5, pp. 23-24. In particular, the limiting second sentence of 170 IAC 4-4.2-8(a) regarding the sufficiency of insurance coverage implicit in a customer's existing policies is obviously missing from the Company's Interconnection Requirement No. 2. Even more notable, the reciprocal liability, indemnification and hold harmless provisions of 170 IAC4-4.2-8(b) regarding each party's acts and omissions are also missing from the Company' Service Terms & Conditions Nos. 10 and 11. Additionally, the express statement of the inapplicability to governmental customers of the indemnification provisions included in the Commission rule is omitted from the Company's tariff Service Term and Condition No. 11.

Here is the provision in the Vectren Revised Tariff regarding customer premises access which SI is challenging:

> TERMS AND CONDITIONS OF SERVICE
> 2. Customer shall agree that Company shall at all times have immediate access to Customer's metering, control, and protective equipment.

The comparable provisions of the Commission's Net Metering Rules read as follows:

> 170 IAC 4-4.3-9 Requirements for ongoing operation of customer-generator facilities
> Authority: IC 8-1-1-3; IC 8-1-2.4
> Affected: IC 8-1-2
>
> (a) The investor-owned electric utility may perform reasonable on-site inspections to verify the proper installation and continuing safe operation of the customer-generator facility and interconnection facilities:
> (1) at reasonable times; and
> (2) upon reasonable advance notice to the customer.

> The cost of the inspection or inspections shall be at the utility's expense; however, the utility shall not be responsible for any other cost the customer may incur as a result of the inspection or inspections.

Once again, the language of the Company's tariff provision and the Commission's rule is obviously different. And, once again, the differences are disadvantageous to customers. Specifically, the reasonable time and notice provisions for Company access in the Commission rules are absent from the Company's tariff. Likewise, the provision in the Commission rule allocating cost responsibility for Company inspections and their results is completely missing from the Company's tariff provision.

Vectren's response in witness Abshier's Rebuttal Testimony to SI's challenges includes three arguments:

1. The provisions being challenged are comparable to those which have been in the Company's Net Metering Tariff since 2005;
2. No Net Metering customers have complained about the comparable provisions in the Company's Net Metering Tariff; and
3. The Company prefers the language in the challenged tariff provisions to the language in the comparable provisions of the Commission's Net Metering Rule because it provides more flexibility to the Company in dealing with unusual or emergency situations

See Vectren Exhibit 5, pp. 3 to 8.

During cross-examination, witness Abshier generally conceded that the language differences of concern to SI did exist between the Commission's rules and the Company's revised EDG Tariff. *See* Tr., pp. C-52 to 55. But, he also added a fourth argument as to why the differing tariff language should remain unchanged as proposed:

4. Even though it is not included in the Company's EDG filing, there will later be an Interconnection Agreement for EDG customers posted to the Company's website just like there is now for Net Metering Customers, and the language in that Agreement will follow the language in the Commission's rules.

See Tr., p. C-56.

Ind. Code § 8-1-40-21(a) expressly provides that "the commission's rules and standards set forth in: (1) 170 IAC 4-4.2 (concerning net metering); and (2) 170 IAC 4-4.3 (concerning interconnection); remain in effect and apply to net metering under an electricity supplier's net metering tariff and to distributed generation under this chapter." 170 IAC 4-4.2-9(a) expressly provides that each investor-owned utility including Vectren shall have a Net Metering tariff on file with the Commission and "[t]he net metering tariff shall . . . (2) comply with the requirements of this [Net Metering] rule." The Net Metering rule expressly incorporates by reference the requirements of the Commission's Interconnection Rule. *See* 170 IAC 4-4.2-5. It has been the long-established policy and practice of the Commission that the filed tariffs of utilities under its

jurisdiction contain provisions and language which comply fully and precisely rather than partially and approximately with its rules, regulations and standards of service. *See, e.g., Petition of South Harrison Water Co.,* No. 36912 (Nov. 3, 1992), 1982 WL 970012 (Ind.P.S.C.). In that order, the Commission expressly ruled:

> The Commission notes that Petitioner's proposed tariff item "J" concerning deposits to ensure payment of bills specified a cash deposit of $50.00. To comply with this Commission's rules, regulations and standards of service for water utilities the required deposit may not exceed one-sixth of the estimated annual billing at the subject service location. Thus, in addition to general conformity with this Commission's rules regulations and standards with reference to such customer deposits, Petitioner should also be required to delete the specific reference to a "cash deposit of $50.00" and instead substitute the appropriate language as indicated by this Commission's rules regulations and standards of service.

1982 WL 970012 at *5.

That the Company's existing Net Metering Tariff language on file with the Commission has not been updated since 2005 to comply with the current Net Metering rule or that it plans to file sometime in the future an Interconnection Agreement specific to Rate EDG which will include language complying fully and precisely with the Commission's rules are extraneous and irrelevant in this context. So, too, is whether any complaint has heretofore been made to the Commission regarding the non-compliance of the Company's existing Net Metering tariff with the Commission's current rules. As SI's counsel correctly noted in his cross-examination of Vectren Witness Abshier (*see* Tr., p. C-54), it is the tariff language to be approved by the Commission in this proceeding which matters here and which, when approved, will control EDG customer rights, responsibilities and remedies in the future.

Accordingly, the Commission finds and directs that Petitioner should fully and precisely comply with the wording of this Commission's Net Metering and Interconnection rules, regulations and standards of service now in effect with reference to the terms and conditions included in its Excess Distributed Generation tariff, including but not limited to terms and conditions relating to liability, insurance and indemnification, and access to customer premises. The Commission further finds that Petitioner should include as part of its next EDG case a revised EDG tariff with terms and conditions the language of which is consistent with the findings of this order. *Compare* 1982 WL 970012 at *5.

F. Availability of Reliable Interval Data Required for EDG Customers to Project Before Installation and Manage After Installation the Financial Results of Operating Solar Distributed Generation Systems.

To provide guidance to Vectren in its subsequent EDG case, it is necessary to address the availability of reliable interval data required for EDG customers to project before installation and manage after installation the financial results of operating solar DG systems.

The transition from a Net Metering to an Excess Distributed Generation tariff for new Vectren solar customers necessarily changes and complicates the relevant financial analyses and

the data required to perform them for those customers' solar distributed generation systems. This is because, under a Net Metering regime, all distributed generation has the same financial value to customers irrespective of the time it is generated, but under an Excess Distributed Generation regime, distributed generation classified as "excess" has a financial value to customers dramatically less than distributed generation not so classified (e.g., 2.7 cents per kwh vs 14.3 cents per kwh in the financial analyses performed by SI witness Kastner and JIs' witness Kenworthy based on the Vectren proposed EDG rate and actual retail energy rate for residential customers at the time their testimonies were prepared). *See, e.g.*, SI Exhibit 4, Attachment BSK-2, Table 30, p. 50; JIs' Exhibit 2, p. 17. As a result, an Excess Distributed Generation customer has a financial incentive to avoid the classification of a solar system's distributed generation as "excess" to the extent feasible by managing distributed generation and load to "match" as closely as possible. *See, generally*, SI Exhibit 4 and JIs' Exhibit 2.

In this context, any customers who would consider installing solar systems under Vectren's proposed EDG tariff would need and want the interval data necessary to evaluate the comparative economics of acquiring battery storage, load-shifting appliances, and/or electric vehicles to operate in conjunction with their solar system in order to be able to best "match" their energy consumption and generation profiles and thereby minimize the amount of their distributed generation classified as "excess" for billing purposes. *See, e.g.*, M. Yozwiak, *The Impact of Shorter Netting: Uncertainty for Customers*, Pub. Utils. Fort., 52-53 (Jan. 2018), https://www.fortnightly.com/fortnightly/2018/01/impact-shorter-netting.

It is therefore essential that reliable data at the same measurement interval being used for billing purposes be available to prospective solar customers for the financial analyses of their planned solar systems in order to project realistically how much of the systems' generation will be classified as "excess" over the expected lives of the systems before those customers contract for the installation of their systems. Similarly, it is also essential that this data be available for energy management decision-making purposes to customers who have completed installations in order to manage their systems' generation and their households' consumption to minimize the amount of generation which is being classified as "excess' for billing purposes during each billing period of their systems' operation. *See, e.g.*, SI Exhibit 4, Attachment BSK-2, Table 30, p.50; JIs' Exhibit 2, p. 17.

The record shows that Vectren's advanced, dual-channel digital ("smart") meters have been collecting "Inflow" and "Outflow" data for customers with such meters since their installation, data which has then been transmitted to and stored in Vectren's Meter Data Management System ("MDMS"). *See, e.g.*, Vectren Exhibit 5, p. 7. However, as SI witness Kastner testified, SI Exhibit 6, p. 5, SI sought to:

> discover Consumption and Generation data from Vectren at hourly granularity as [at least some of] their customer portals seemed to show hourly energy consumption and solar output data. In our discovery teleconference on July 13, 2020, Vectren explained that the hourly data in the customer portals [of select customers for testing purposes] was [currently] not complete and not reliable for analytical purposes. Vectren

> was unable to otherwise produce hourly consumption or hourly generation data.

As a result, in preparing for filing its EDG case-in-chief, Vectren could only manually access, retrieve and analyze for bill impact purposes the requisite interval data and do so for only one current customer for only two monthly billing periods (April and August 2019). *See* Vectren Exhibit 1, pp. 11-16. Indeed, even at the close of the record in this matter, Vectren had not yet completed or finished testing the IT system changes required to systematically and automatically access and retrieve from the Vectren MDMS and then transmit (1) to the Vectren billing system for inclusion in EDG customer bills or (2) to EDG customers portals for display and downloading purposes "Inflow" and "Outflow" data at a measurement interval shorter than monthly. *See* Vectren Exhibit 3, pp. 25-26; Tr., pp. D-50, line 18 through D-54, line 11.

Consequently, the only reliable consumption data available for any Vectren customers for any interval shorter than monthly was a sample of data collected for the Evansville area *over a decade ago* for an EIA study and currently maintained in an NREL dataset – and that data is for an hourly and *not* the instantaneous measurement interval being proposed by Vectren for billing Rate EDG customers. This EIA/NREL dataset was the one used by both SI witness Kastner and JIs' witness Kenworthy for the financial analyses included in their respective Direct Testimonies. *See, e.g.*, SI Exhibit 4, Attachment BSK-2, pp. 20-21; JIs' Exhibit 2, pp. 17 n. 8, 19 n. 11 and 20 n. 12.

The Company only formally authorized the so-called "Excess Distributed Generation Project" required to address this inability of its IT system to automatically and systematically retrieve, transmit, analyze and present for purposes of customer billing and energy management decision-making in late August 2020, according to the responses of Vectren witness Williams to SI cross-examination during the November 17 hearing. *See* Tr., pp. 36, line 1 through 37, line 24, and SI Exhibit CX-4-C. Vectren then engaged in an extended negotiation with Oracle to provide the additional IT support services required to implement the Project. Specifically, Oracle proposed a Statement of Work for the Project involving two phases in late September, 2020. *See* Tr., pp. D-28, line 1 through D-31, line 24; Tr., pp. D-38, line 5 through D-41, line 3; and SI Exhibits CX-3-C & 5-C.

On further cross-examination by SI counsel, Vectren Witness Williams claimed lack of knowledge of the details of that proposal, leaving the record significantly incomplete as to specifically what Oracle had proposed and Vectren had accepted as to the scope and timing of each phase of the Project. *See* Tr., pp. D-42, line 16 through D-50, line 15. Moreover, while witness Williams did testify on cross examination that it was his management responsibility to assure that the customer billing phase of the Project would be complete by the end of January 2021 and the customer data support phase complete by the end of December 2020, he also testified that neither phase of the Project was complete and ready to function as intended as of the November 17, 2020 hearing date. *See* Tr., pp. D-50, line 18 through D-51, line 24.

Vectren's position is that Ind. Code Chapter 8-1-40 does not expressly require successful completion of either phase of the "Excess Distributed Generation Project" as a prerequisite for Commission approval of its proposed EDG Tariff. The Company maintains that so long as it is

ready to bill EDG customers by the end of their first month of service, that is all that is necessary, and the Company is committed to meeting that goal by that time even though they had not met it by the time the evidentiary record closed on November 17. The Company also maintains that it has no service obligation to meet the customer data support needs to be addressed by the second phase of the "Excess Distributed Generation Project" as authorized and in the process of being implemented.

By contrast, the position of SI, JIs and IndianaDG is that completion of both phases of the "Excess Distributed Generation Project" prior to Commission approval of Vectren's Rate EDG tariff is essential for Vectren to meet its statutory obligation under Ind. Code § 8-1-2-4 to provide "reasonably adequate service" to its future EDG customers. *See, e.g.,* SI Exhibit 2, pp. 21-22. It is also the position of these parties that completion of both phases of the Project prior to Commission approval of the Company's EDG tariff is required for the vendors of its EDG customers' to be able to comply with their obligations under Ind. Code § 8-1-40-23. *See, e.g.*, SI Exhibit 5, pp. 25-26. The Commission agrees with these parties and thus finds that completion of both phases of the Company's EDG IT Project prior to Commission approval of the Company's EDG tariff is required for Vectren to comply with its obligation to provide "reasonably adequate service" under Ind. Code § 8-1-2-4 as well as for prospective EDG customers' vendors to be able to comply with their obligations under Ind. Code § 8-1-40-23.

Accordingly, the Commission finds and directs that Vectren shall, in its subsequent EDG case, set forth in detail the billing and customer portal changes associated with completion of both authorized phases of its Excess Distributed Generation IT Project. The Vectren witness(es) sponsoring such testimony and exhibits shall be sufficiently familiar with the details of the associated billing and customer portal changes to respond to discovery requests and cross-examination from the other parties, as well as any questions from the bench, regarding those changes.

G. Three-Phase Customers Should Not Be Charged for New Meters

It is the position of IndianaDG, JIs and SI that Vectren's EDG three-phase customers should not be charged for the installation of new meters, which unnecessarily drive up the costs of interconnection for EDG three-phase customers.

Vectren seeks to require three-phase customers participating in the EDG rate to pay for their own meter upgrades, but Vectren will pay for the meter upgrades for these same customers if they do not participate in the EDG rate. Vectren offers no rationale for why these meters are necessary just for EDG three-phase customers or why Vectren would pay for the meters for only non-EDG three-phase customers. In other words, Vectren asks for disparate treatment between these two similar types of customers for no apparent reason. Vectren does not argue or prove in evidence that EDG three-phase customers are somehow more costly to interconnect than non-EDG three-phase customers; nor does Vectren otherwise offer rationale for why they continue to pay for any necessary new metering upgrades for non-EDG three-phase customers, but not for EDG three-phase customers. Meters are items of plant required for service that a rational utility focused on service would want to add to their rate base. Instead Vectren seeks to impose that meter cost on EDG customers and chill interest in DG by increasing DG customer costs.

Under I.C. § 8-1-2-4, public utilities are prohibited from engaging in unjust discrimination between classes of customers in the provision of service. *See e.g., La Rowe v. Kokomo Gas & Fuel Co.*, 179 Ind. App. 563, 578 (Ind. Ct. App. 1979) ("Rates and classifications among customers cannot be arbitrary nor discriminatory in the sense of imposing a burden or creating a class in a manner not rationally related to the purposes of regulations.") If the Commission finds any rates or charges to be unjust, unreasonable, insufficient, discriminatory, or otherwise in violation of statute, the Commission may determine, and by order fix, just and reasonable rates or charges, to be imposed in the future in lieu of those found to be improper. I.C. § 8-1-2-68. In addition, I.C. § 8-1-2.4-1 states, "It is the policy of this state to encourage the development of alternate energy production facilities, cogeneration facilities, and small hydro facilities in order to conserve our finite and expensive energy resources and to provide for their most efficient utilization." Inherent in the legislature's grant of power to this Commission is the ability to prospectively rectify any perceived inadequacies in a utility's practices or regulatory scheme, particularly when the utility's practice is simply a bias against customers producing renewable energy. The Commission has the power and authority to do that which is necessary to effectuate their regulatory goals. *South Eastern Indiana Nat. Gas v. Ingram*, (App., 1993), 617 N.E.2d 943. Vectren's bias against EDG three-phase customers should be rejected.

Second, Vectren agrees that Advanced Metering Infrastructure ("AMI") meters, which they have installed now at all customers' premises, offer the same information they require for proper billing of three-phase customers. Compare Vectren's testimony where it states, "The Company's standard 'off the shelf' AMI Meter *does accurately measure and communicate Inflow and Outflow* to the Meter Data Management System [] by default…" to "the standard 'off the shelf' AMI meter is replaced or re-programmed by Company personnel to display the net reading for Rider NM customers or *display Inflow and Outflow for Rider EDG customers*." Petitioner's Exhibit No. 6, p. 9 (emphasis added). Vectren clearly acknowledges that its AMI Meters already measure the information necessary for serving EDG customers, so it is unclear why a replacement or reprogramming is necessary. The requirement for the installation of a new meter for these EDG three-phase customers is superfluous and unnecessarily adds to their cost to interconnect.

This all becomes more curious when Vectren distinguishes between smaller three-phase customers and larger three-phase customers. Vectren argues that "[t]he reason a three-phase meter is installed at the Customer's expense, as opposed to Company's expense, is, in general, single phase and *smaller three-phase self-contained meters can be replaced with a new meter relatively quickly and easily, by a single person within minutes*, while the larger three-phase metering changes have the potential to be much more time consuming, labor intensive, and costly." (emphasis added). Because Vectren acknowledges that the "smaller three-phase customers" would only require a simple switch out with no additional programming or other complications, at a minimum, the "smaller three-phase" customers participating in the EDG rate should not get stuck with the same costs that larger three-phase customers participating in the EDG rate do. Vectren seeks to discourage DG by increasing its costs.

Third, assuming arguendo Vectren does need the three-phase meter for accurate billing of these "larger three-phase customers" because the AMI meter does not suffice (which Vectren has not proven), it is Vectren which is responsible for the accuracy of its own billing. Thus, if Vectren needs certain metering equipment to provide accurate bills for an approved tariff, then that is part

of Vectren's responsibility and consequential expense. Other than for three-phase meters, the only other times the phrase "at customer's expense" appears in Vectren's entire list of rates and tariffs is related to protective equipment for cogeneration/CHP and for customers wishing to sub-meter (e.g., apartment buildings). For all other cases, the utility provides the meter it needs to do its billing (including for non-EDG larger three-phase customers). Vectren offers no compelling rationale for why unlike all other billing meters the costs of EDG three-phase meters should be treated differently and charged to the customer.

In conclusion, Vectren's requirement to charge DG three-phase EDG customers for new three-phase meters or metering upgrades is not necessary for accurate billing, discriminates against them compared to similar customers, and stifles DG. The Commission should not permit such policies, which unnecessarily drive up the costs of interconnection for EDG three-phase customers. At a minimum, Vectren must distinguish "smaller three-phase" customers from "larger three-phase" customers and not charge "smaller three-phase" customers for the cost of any meter upgrades.

H. Future Use of Distributed Energy Resources.

Non-Vectren parties presented evidence that DG can provide direct benefits by reducing the need for new generation, lower peak demands, reduce T&D line loss, defer or avoid need for new transmission and distribution capacity, improved system reliability, improved power quality and cyber security for DG output. Indirect benefits include environmental and health benefits from no carbon pollution, lower right of way acquisition costs, reduced vulnerability to electric cyber-attacks, improved infrastructure resilience, and avoided carbon capture costs. *See, e.g.*, IndianaDG Ex. 3. Vectren did not agree to all these direct and indirect benefits and argued that DG output is too unpredictable and small to rely upon in Vectren planning to meet its system demands. Vectren Ex. 4, pp. 3, 5, and 6.

This Commission's recent 2020 Lawrence Berkley National Laboratory ("LBNL") Report to the Indiana 21st Century Energy Policy Development Task Force on emerging energy technologies indicates that in distribution systems of states with high adoption of rooftop solar there will be system wide savings. It points out that DERs including DG can be beneficial to the distribution and transmission system by reducing line and transformer losses and deferring new capacity. It shows high PV adoption scenarios have 8% lower costs largely driven by reduced capital and fixed costs. IndianaDG Ex. 6, pp. 29-35, 57-61; IndianaDG Ex. 3, pp. 10-11.

The record shows solar DG installations in Indiana and the jobs they create have grown over time, *see, e.g.*, IndianaDG Morton and JMS solar installation companies' testimony, Ex. 1 and its Attachment 4, and Ex. 2. Vectren agrees customer solar installations will grow in Indiana. Tr., p. B-23-24, Tr., p. C-24. Without the financially punishing effect that the rejected instantaneous netting would have had on new DG growth, the record shows Indiana DG will continue to grow. Certainly, the opportunity for Vectren customers to generate their own electricity from solar panels on their rooftop or on unused area of their property by harvesting the 100% clean energy of sunshine will be attractive to many Vectren customers in the future. EDG is an energy resource purchased by Vectren and resold to other customers as part of its provision of public utility service. If Vectren is to make best use of this energy resource in the public interest, Vectren should position itself to reasonably predict the EDG energy output in its service territory

both long-term in its Integrated Resource Planning process and short-term in its participation in MISO Day-Ahead and Real-Time Market processes. Just as predicting Real-Time and Day-Ahead energy output from wind farms and solar farms with which Vectren has contracted is important to its overall system planning, so too is the growing potential of EDG output.

For example, the record reflects that Vectren is capable of using AMI EDG output data to determine the extent to which EDG is generated under varying weather conditions. Tr., pp. D. 13-14. Similarly, Vectren already relies on Nostradamus and PRT systems to predict wind energy output. Tr., pp. C-20-21. Both Nostradamus and PRT rely on forecasted temperatures, cloud cover, humidity, wind and historical patterns. Nostradamus indicates it can be used to predict solar generation from rooftop solar, as short-term prediction is an essential function for many industries. Tr., p. C-21. Vectren indicated that if called upon to develop a means of predicting day ahead EDG output it could do so by using the best available software and its AMI system data. Tr., pp. C-25-27. Accordingly, we find and direct that in its next EDG case Vectren should detail the methods by which it can reasonably best predict EDG energy output so that as EDG grows, Vectren will be prepared to consider that output in planning its energy needs.

7. Confidential Information. As noted above, Vectren and IndianaDG filed their respective Motion for Protection and Nondisclosure of Confidential and Proprietary Information in this Cause, which were supported by affidavits showing that certain information to be submitted to the Commission is trade secret information as defined in Ind. Code § 24-2-3-2 and should be treated as confidential in accordance with Ind. Code §§ 5-14-3-4 and 8-1-2-29. The Presiding Officers found the information which is the subject of the Motion should be held confidential on a preliminary basis, after which the information was submitted under seal. After review of the information and consideration of the affidavits, we find the information is trade secret information as defined in Ind. Code § 24-2-3-2, is exempt from public access and disclosure pursuant to Ind. Code §§ 5-14-3-4 and 8-1-2-29, and shall be held confidential and protected from public access and disclosure by the Commission.

IT IS THEREFORE ORDERED BY THE INDIANA UTILITY REGULATORY COMMISSION that:

1. Vectren's proposed tariff does not meet the requirements of Ind. Code § 8-1-40-5 and for that reason as well as the additional reasons stated herein thus is hereby rejected and denied. Vectren's subsequent EDG filing must be consistent with our findings herein regarding the definition and measurement of "excess distributed generation" required by statute.

2. Upon Vectren's subsequent filing for approval of a rate for the procurement of excess distributed generation, Vectren should fully and precisely comply with and mirror the language of this Commission's Net Metering and Interconnection rules, regulations and standards of service now in effect in stating the terms and conditions included in its Excess Distributed Generation tariff, including but not limited to terms and conditions relating to liability, insurance and indemnification, and access to customer premises. Vectren should include in its next EDG case a revised EDG tariff with terms and conditions the language of which is consistent with the findings of this order.

3. In any subsequent EDG filing, Vectren shall file as part of its next EDG case testimony and exhibits setting forth in detail the billing and customer portal changes associated with completion of both authorized phases of its Excess Distributed Generation IT Project. The Vectren witness(es) sponsoring such testimony and exhibits shall be sufficiently familiar with the details of the associated billing and customer portal changes to respond to discovery requests and cross-examination from the other parties, as well as any questions from the bench, regarding those changes. In addition, in any subsequent EDG filing, Vectren shall detail the methods by which it can reasonably best predict EDG energy output so that as EDG grows, Vectren will be prepared to consider that output in planning its energy needs.

4. This Order shall be effective on and after the date of its approval.

HUSTON, FREEMAN, KREVDA, OBER AND ZIEGNER CONCUR:

APPROVED:

I hereby certify that the above is a true and correct copy of the Order as approved.

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Mary M. Schneider
Secretary of the Commission