STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

VERIFIED PETITION OF DUKE ENERGY INDIANA, LLC FOR: (1) APPROVAL OF AN ADJUSTMENT TO ITS ELECTRIC SERVICE RATES THROUGH ITS TRANSMISSION, DISTRIBUTION AND STORAGE SYSTEM IMPROVEMENT CHARGE ("TDSIC") RATE SCHEDULE, STANDARD CONTRACT RIDER NO. 65; (2) AUTHORITY TO DEFER 20% OF THE APPROVED CAPITAL EXPENDITURES AND TDSIC COSTS FOR RECOVERY IN PETITIONER'S NEXT GENERAL RATE CASE; AND (3) APPROVAL OF PETITIONER'S UPDATES TO ITS 7-YEAR ELECTRIC PLAN, PURSUANT TO IND. CODE § 8-1-39-9.	)	**CAUSE NO. 44720 TDSIC-02**

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

CORRECTED REDACTED TESTIMONY OF

ANTHONY A. ALVAREZ – PUBLIC'S EXHIBIT NO. 2

JULY 14, 2017

Respectfully submitted,

Jeffrey M. Reed
Attorney No. 11651-49
Deputy Consumer Counselor

REDACTED (PUBLIC) TESTIMONY OF
OUCC WITNESS ANTHONY A. ALVAREZ
CAUSE NO. 44720 TDSIC-2
DUKE ENERGY INDIANA, LLC

I. INTRODUCTION

Q: Please state your name and business address.

A: My name is Anthony A. Alvarez, and my business address is 115 West Washington Street, Suite 1500 South, Indianapolis, Indiana 46204.

Q: By whom are you employed and in what capacity?

A: I am employed as a Utility Analyst in the Resource Planning and Communications Division of the Indiana Office of Utility Consumer Counselor ("OUCC"). I describe my educational background and preparation for this filing in Appendix A to my testimony.

Q: Have you previously testified before the Indiana Utility Regulatory Commission ("Commission")?

A: Yes. I have testified in a number of cases before the Commission, including electric utility base rate cases, environmental tracker cases, Transmission, Distribution, and Storage System Improvement Charge ("TDSIC") cases, and applications for Certificates of Public Convenience and Necessity ("CPCN").

Q: What is the purpose of your testimony?

A: My testimony discusses my review of DEI Energy Indiana, LLC's ("Petitioner" or "DEI") request for Commission's approval of its second TDSIC tracker filing ("TDSIC-2"). I discuss my analyses of Petitioner's Transmission and Distribution Infrastructure Improvement Plan ("T&D Plan") and the projects it placed in-service ("T&D projects in-service") in the year 2016. My testimony recommends that the

Commission accept the projects Petitioner placed in-service for inclusion in Petitioner's TDSIC-2 tracker.

II. OUCC REVIEW

Q: Please summarize your review of Petitioner's request in this Cause.

A: My review of Petitioner's request in this Cause focuses on the T&D projects in-service from January 1, 2016 through December 31, 2016 to ascertain whether DEI completed projects in a cost efficient manner that delivers the maximum value to DEI's ratepayers. At the start of my review, I used comparative analysis to provide me with a general overview of DEI's TDSIC program performance in 2016. I utilized variance analysis to investigate any deviations in actual capital costs from the Commission-approved costs. In addition, I conducted a threshold test to identify and segregate the T&D projects in-service that needed my further attention and scrutiny. I discuss my analyses and tests in my testimony.

Q: Please describe how DEI organized and presented the T&D projects in-service that you reviewed.

A: On May 4, 2016, Technical Staff members from DEI and the OUCC met at DEI's Main Offices in Plainfield, IN. During the daylong meeting, DEI presented its T&D projects in-service for the year 2016, discussed numerous aspects of its T&D Plan including the variances, and responded to questions from the OUCC. For uniformity of tracker filings, DEI maintained the same approach in TDSIC-1, utilized the framework of its T&D Plan and updated the information related to the T&D projects in-service. I relied upon the project information presented by Petitioner's witnesses Messrs. William H. Fowler (for Distribution projects) and Donald E. Broadhurst (for Transmission projects) in relevant exhibits and work

papers attached to their respective testimonies in this Cause.[1] I gathered additional project information from Petitioner's exhibits previously filed in TDSIC-1 to facilitate and support my review and analysis.[2] It provided me with a clear understanding of the overall structure of the T&D projects as they roll out of DEI's T&D Plan and placed in-service.

Q: Please describe the structure of DEI's T&D Plan.

A: DEI divided its T&D Plan into two major groups (or "functional categories"): Distribution System Improvements and Transmission System Improvements.[3] There are three sub-categories in Distribution and there are two sub-categories in the Transmission. I reviewed supporting documentation for DEI's T&D projects in-service in both Distribution and Transmission functional categories and their respective sub-categories in the T&D Plan.

Q: Please describe the comparative analyses you used in your review of the T&D projects DEI placed in-service from January 1, 2016 through December 31, 2016.

A: I used comparative analyses between DEI's T&D projects' in-service actual capital costs and the Commission-approved costs in its TDSIC-1 Order, and the TDSIC

[1] Petitioner's Witness Mr. William H. Fowler, Direct at 9, Lines 11 – 18. Mr. Fowler provided Petitioner's Exhibits 1-A and 1-B, and Confidential Exhibits 1-C (WHF) and 1-D (WHF) in this Cause. Petitioner's Witness Mr. Donald E. Broadhurst, Direct at 6, Lines 2 – 6. Mr. Broadhurst provided Petitioner's Exhibit 2-A and Confidential Exhibit 2-B (DEB) in this Cause.

[2] Petitioner's Confidential Exhibits 1-C (WHF), 1-D (WHF), 2-B (DEB), and 2-F (DEB) filed in previous Cause No. 44720 TDSIC-1.

[3] My testimony follows the same order as DEI's T&D Plan. I discuss Distribution System Improvements first followed by Transmission System Improvements.

Settlement costs cap. The following are the comparative analyses I performed and I will discuss the results in my testimony:

1. DEI's T&D projects' in-service actual capital costs and the TDSIC Settlement costs caps for the year 2016;[4]

2. DEI's T&D projects' in-service actual capital costs and Commission-approved costs in TDSIC-1 for the year 2016;[5]

3. DEI's T&D projects' in-service actual capital costs for the year 2016 and the Commission-approved capital costs (as of June 30, 2016) in TDSIC-1.[6]

4. The T&D projects DEI placed in-service for the year 2016 and the Commission-approved T&D Plan in TDSIC-1.[7]

Q: Please summarize the results of the comparative analyses in your review.

A: My analyses showed:

1. DEI's T&D projects' in-service total actual capital costs did not exceed the TDSIC Settlement capital costs cap;[8]

2. DEI's T&D projects' in-service actual total capital costs came in below the approved capital costs (for same projects) in TDSIC-1;

3. DEI placed in-service approximately $57,627,151 of its T&D project capital costs during the period July 1, 2016 through December 31, 2016 covered by TDSIC-2; and

4. The T&D projects DEI placed in-service for the year 2016 were all within the Commission-approved T&D Plan in TDSIC-1.

[4] Petitioner's Exhibit 1-A (WHF) filed in this Cause; and TDSIC Settlement Agreement at 2, Cause No. 44720 Final Order issued June 29, 2016.

[5] Petitioner's Exhibit 1-A (WHF) filed in this Cause. My analysis uses the amounts shown in the column "Actuals (In Service Investments)". These represent DEI's actual T&D project capital costs.

[6] Petitioner's Exhibit 1-A (WHF) filed in this Cause; and Cause No. 44720 TDSIC-1 Final Order issued Mar. 22, 2017 at 12, Para. C. Capital Expenditures and TDSIC Costs.

[7] Petitioner's Confidential Exhibits 1-C (WHF), 1-D (WHF) and 2-B (DEB) in this Cause. *Also,* Petitioner's Confidential Exhibits 1-C (WHF), 1-D (WHF), 2-B (DEB), and 2-F (DEB) filed in previous Cause No. 44720 TDSIC-1.

[8] *See* Mr. Fowler, Direct at 10, Lines 2 – 3.

Table 1 below summarizes the results of the high-level comparative analyses.

Table 1 – General Overview of DEI's TDSIC Program Performance for 2016

T&D Projects In-Service 2016	$ 80,522,060	Period Jan 1 thru Dec 31, 2016
TDSIC Settlement Cost Cap	$ 91.8 million	Not Exceeded
TDSIC-1 Approved Capital Costs	$ 83,277,414	Not Exceeded
T&D Projects In-Service TDSIC-1	$ 22,894,909	Approved in TDSIC-1
DEI T&D Plan Approved in TDSIC-1	No Changes	T&D Projects In-Service 2016 within Approved T&D Plan

The general overview of DEI's TDSIC Program Performance for 2016, as shown in Table 1 above, suggests DEI executed its T&D Plan and placed T&D projects in-service as approved by the Commission.

Q: Please describe your analysis of the T&D projects DEI placed in-service from January 1, 2016 through December 31, 2016.

I utilized variance analysis in an increasing granularity as I went through the major categories of DEI's T&D Plan and its respective sub-categories. This helped me determine what drives the overall variance of the T&D Plan.

Q: Please discuss the results of the variance analysis you used in your review.

A: I utilized the data and information in Petitioner's Exhibit 1-A (WHF) filed in this Cause. I calculated the overall variance between first column "Actuals (In-Service Investments)" and the second column "Approved TDSIC-1 Plan (In-Service Investments)" as shown in Table 2:

Table 2 - DEI T&D Projects In-Service Jan. 1 thru Dec. 31, 2016

Function	Project Category	Actual[9]	Approved[10]	Variance	% Var.
Distribution	Distribution System Circuit Improvements	46,721,063	44,553,926	-2,167,137	-4.86%
	Distribution System Substation Improvements	2,925,013	2,875,985	-49,028	-1.70%
	Distribution Total	49,646,076	47,429,911	-2,216,165	-4.67%
Transmission	Transmission System Line Improvements	21,819,111	26,393,555	4,574,444	17.33%
	Transmission System Substation Improvements	9,056,873	9,453,948	397,075	4.20%
	Transmission Total	30,875,984	35,847,503	4,971,519	13.87%
Total DEI T&D Projects In-Service 2016		80,522,060	83,277,414	2,755,354	3.31%

The overall 2016 variance of DEI's T&D projects in-service is $2,755,354 or 3.31%. This means the 2016 actual capital costs of the T&D projects DEI placed in-service was lower than the approved capital costs in TDSIC-1. The 2016 Distribution project portfolios came in above budget (-$2,216,165 or -4.67%), driven mainly by the Distribution Circuit projects' larger negative variance. 2016 Transmission project portfolios came in below budget ($4,971,519 or +13.87%) driven mainly by the Transmission System Line Improvements' larger positive variance.

III. DISTRIBUTION SYSTEM IMPROVEMENTS

Q: Did you use variance analysis to determine what drives the Distribution System Circuit Improvements' (or "Distribution Circuit") negative variance?

[9] Petitioner's Exhibit 1-A (WHF) filed in this Cause.

[10] *Id.*

A: Yes. Based on the results of my analysis, I can attribute the Distribution Circuit negative variance to the five Distribution Circuit projects that were over budget. Table 3 below summarizes the Distribution Circuit negative variance drivers.

Table 3 - Distribution Circuit Negative Variance Driver[11]

Distribution System Circuit Improvements	Variance
Ground Line Pole Replacement (GLT)	-$2,208,224
Hydraulic Recloser Replacement	-$102,617
Sectionalization	-$199,204
Underground Cable Replacement	-$467,948
Capacitor Automation (Non-IVVC or IVVC)	-$809,381

I reviewed and utilized the data and information in Petitioner's Confidential Exhibit 1-C (WHF) filed in this Cause.[12] I calculated the variance amount and percentage between the first column "Actuals (In-Service Investments)" and the second column ("Approved TDSIC-1 Plan (In-Service Investments)" for each project. I subjected each project to threshold tests using the variance amount range of +/- $100,000 as well as percent variance range of +/-20% as thresholds in different combinations. Finally, I utilized variance analysis and threshold test independently, in tandem or sequentially, to identify the projects that drove the Distribution Circuit over budget.

Q: Please explain the variance of the T&D projects in-service you identified.

A: The Ground Line Pole Replacement (GLT) is an inspection-based project that can influence the number of pole failings. During our May 4th meeting, DEI walked us

[11] Variance amounts are cumulative therefore; it can directly affect or drive the overall variance.

[12] Petitioner's Confidential Exhibit 1-C (WHF) filed in this Cause.

through the reasons and discussed how these changes affected the variance in this project. [13] The OUCC understands these reasons but will review results of this project in future filings.

The Hydraulic Recloser Replacement's variance amount was right above the threshold while its percent variance was below 10%. Replacement equipment, overall material and labor cost, field conditions, and outage scheduling are situations and conditions that affect the overall cost of this type of project. During our meetings with DEI staff, we discussed similar conditions that were also affecting the actual capital costs of Capacitor Automation and Sectionalization. Contract negotiations between DEI and contractors for the Sectionalization project are underway to mitigate the increases in labor cost causing the variance.[14] However, DEI expects unit costs to continue to go up until contractors sign new contracts and agree on firm unit rates for the Sectionalization project.

Some of the underground cables, upon visual inspection by crews on-site, show deterioration and poor physical condition.[15] Some of these cables may require replacement all the way back to the source point. The full extent of work in underground cable replacement remains unknown until the work itself is underway.

[13] DEI changed inspection vendors from 2015 and 2016, which contributed to higher pole unit fail count. DEI replaced a construction contractor due to safety reasons. Internal accounting practice change associated with pole-top related damage. Inspectors may go through certain map quadrant and find small number of poles that need replacements or a different map quadrant where it will encounter a large number.

[14] *Id*. at Page 21, Lines 16 – 22, up to Page 22, Lines 1 – 13. *See also* Page 15, Lines 10 – 22, up to Page 16, Lines 1 – 8.

[15] Mr. Fowler, Direct at 15, Lines 4 - 6

The threshold test shows 40 out of 58 work orders (approx. 70%) were above budget. Twenty-eight (of the 40 work orders) were more than 20% above budget..

Q: Do you have concerns regarding the T&D projects in-service with larger negative variances driving the overall negative variance of Distribution?

A: None for now. This is the first full year DEI implemented its TDSIC program with the TDSIC Settlement in effect. Open and detailed discussions during meetings with DEI staff provide the OUCC the opportunity to collect insights on the conditions influencing the negative variances of certain projects. At the same time, DEI staff apprises us with their solutions to mitigate these conditions.

Q: Did your variance analysis and threshold test on T&D projects in-service also identify larger positive variances that mitigate the effect of some of the negative variances?

A: Yes. I identified six Distribution projects with larger positive variances that mitigated the effect of the negative variances. Table 4 below shows a summary of these projects.

Table 4 - Distribution Positive Variance Projects[16]

Distribution System Circuit Improvements	Variance
Capacitor Changeout	$225,064
Deteriorated Conductors	$104,225
Self-Healing Teams	$234,023
Surface Mounted Equipment Follow-up (SMEI)	$131,863
Transformer Retrofit	$796,467
Dist System Costs Asso with Transmission Line Improvements	$278,349

[16] The "Dist System Costs Asso with Transmission Line Improvements" project type refers to DEI's "underbuilt" distribution asset work.

Q: Did DEI provide explanation for the T&D projects in-service with larger positive variances?

A: Yes. Regarding the Capacitor Changeout, DEI kept labor cost within budget, and certain planned capacitor change out locations did not need full replacement resulting in under-runs.

One Deteriorated Conductor project was below approved capital costs by 12%. All six projects in the Self-Healing Teams were below the approved capital costs. A change in the accounting practice affected the Surface Mounted Equipment ("SMEI") project in TDSIC-1. After the accounting practice change took effect, DEI updated its T&D Plan in TDSIC-1.[17]

Q: Do you have any comments on the Transformer Retrofit project?

A: Yes. The Transformer Retrofit project type had approximately 200 different projects placed in-service for 2016;[18] most were small. Sixty-two were above the approved capital costs, with approximately 70% of the completed Work Orders below the approved capital costs.

Q: What is the total Distribution System Substation Improvements (or "Distribution Substation") variance in DEI's T&D Plan?

[17] *See* Mr. Fowler, Direct at 23, Lines 3 to 10, in previous Cause No. 44720 TDSIC-1. "The estimate was developed using historical actuals costs where the transformer cost was pre-capitalized and excluded from the project costs. However, pre-capitalization is no longer applied to this asset type due to an accounting practice change. The transformer cost is now included in the actual capital project unit cost. This resulted in an increase in unit costs to include the cost of the transformer. With the accounting change, all future estimates in our updated T&D Plan have been updated according to the new standard and include the transformer costs."

[18] Petitioner's Confidential Exhibit 1-D (WHF). At this point of my analysis, I am conducting the threshold test, which is quite effective in spotting trends.

A: I reviewed and utilized the data and information in Petitioner's Confidential Exhibit 2-B (DEB) filed in this Cause.[19] The variance of the total Distribution Substation projects DEI place in-service was -$49,028 or -1.70% above budget. The actual capital costs for the six projects were $2,925,013. This amount is above the approved capital costs of $2,875,985.[20]

Q: Please discuss your review of the six Distribution Substation projects.

A: I reviewed all six projects of the Distribution Substation projects including the actual versus approved capital costs and the variance. I summarized the results of my review below:

1. The actual capital cost of the *Azalia Wd Sub Struct Rbld VCR Repl* project was $[redacted], or -[redacted]% above the approved capital costs of $[redacted] in TDSIC-1. This was caused in part by a $[redacted] charge on capital instead of O&M. DEI will reflect this adjustment in future filing.

2. The actual capital cost of the *Harodsbg_13834 Tranruptr TDSIC* project was $[redacted], or [redacted]% below the approved capital costs of $[redacted].

3. The actual capital cost of the *Hanover_138kV Transrupter Rpl TDSIC* project was $[redacted], or -[redacted]% above the approved capital costs of $[redacted].

4. The actual capital cost of the *New Alb Cent_138kV Transrupter Rpl* project was $[redacted], or -[redacted]% above the approved capital costs of $[redacted].

5. The actual capital cost of the *Grncas Cem Rd_1201 Disc Rpl TDSIC* project was $[redacted], or [redacted]% below the approved capital costs of $[redacted].

6. The actual capital cost of the *Kok Delco_Transrupter Rpl* project was $[redacted], or [redacted]% below the approved capital costs of $[redacted].

[19] Petitioner's Confidential Exhibit 2-B (DEB) filed in this Cause.

[20] Petitioner's Exhibit 2, page 4, lines 6 – 8.

Q: Do you have any concerns with the Distribution Substation projects?

A: No. DEI completed five of the six Distribution Substation projects on or near budget. The *Azalia Wd Sub Struct Rbld VCR Repl* project was 9.8% above budget. However, an O&M expense correction may reduce the overrun to 3.7%.

IV. TRANSMISSION SYSTEM IMPROVEMENTS

Q: What is the total Transmission System Line Improvements (or "Transmission Line") variance in DEI's T&D Plan?

A: I reviewed and utilized the data and information in Petitioner's Confidential Exhibit 2-B (DEB) filed in this Cause.[21] DEI's overall actual capital costs for the completion of seven Transmission Line projects was 17.3% below the Commission-approved capital costs in TDSIC-1 for 2016. However, DEI's supporting documentation indicates that three of the Transmission Line projects still have outstanding invoices.[22] DEI will request recovery of these charges in its TDSIC-4 tracker filing in spring 2018.[23]

Q: Please discuss your review of the seven Transmission Line projects.

A: I reviewed all seven Transmission Line projects including the actual versus approved capital costs and the variance. I summarize the results of my review below:

1. The *6935 IN Rebuild Pt 2 TDSIC* actual capital cost was $[redacted], or [redacted]% below the approved capital costs of $[redacted] in TDSIC-1.
2. The *Azalia Wd Sub Struct Rbld VCR Repl* actual capital cost was $[redacted], or [redacted]% below the approved capital costs of $[redacted].

[21] Petitioner's Confidential Exhibit 2-B (DEB) filed in this Cause.

[22] Petitioner's Confidential Exhibit 2-B (DEB), page 1.

[23] Petitioner's Exhibit 2, page 4, lines 16 – 22.

3. The *Lincoln WVPA_Rpl 69 Sws-Fuse TDSIC* actual capital cost was $[redacted], or -[redacted]% above the approved capital costs of $[redacted]. DEI owns the transmission line asset that feeds to the Lincoln Substation owned by Wabash Valley Power Authority.

4. The actual capital cost for the *6951 Edwprt HE RgrsJct Rbld TDSIC* was $[redacted], or [redacted]% below the approved capital costs of $[redacted]. The approved (original) estimate included work associated with the transfer of the transmission conductors and static wire. During the course of the project, DEI replaced (which is a capital expense) rather than transferred (which is an O&M expense) the conductors and static line. This resulted in a reduction in actual O&M costs to the project.

5. The capital estimate approved in TDSIC-1 for the *Pole Repl Gnd Line-T* ("Ground Line Treatment" or "GLT") project for 2016 was $[redacted], but the actual costs are $[redacted], or [redacted]% less than estimated. DEI's supporting documentation for this project indicates that materials had a [redacted]% underrun and labor was [redacted]% less. More accessible poles that required less environmental mitigation measures, such as matting and vegetation.[24] This project also has approximately $[redacted] in outstanding invoices that will ultimately reduce the final project underrun for 2016 transmission GLT from [redacted]% to about [redacted]%.[25]

6. The actual capital cost for the *6936 IN Rbld Pt 2 TDSIC* project is currently $[redacted] and projected to increase by [redacted] due to outstanding invoices. The approved capital cost for this project was $[redacted]. Currently, the project is approximately [redacted]% below budget. After DEI adds the outstanding invoices, the project will be closer to [redacted]% below budget.[26]

7. The actual capital cost for the *34521 IM Dead Strucs TDSIC* project is currently at $[redacted], or [redacted]% below the approved capital cost for this project was $[redacted]. However, there are still outstanding invoices of $[redacted] for this project that DEI intends to include in its TDSIC-4 filing.[27] Once DEI added the outstanding invoices, this will result in an approximate [redacted]% underrun for this project.

[24] Petitioner's Confidential Exhibit 2-B (DEB), page 1.
[25] *Id*.
[26] *Id*.
[27] *Id*.

Q: Does the OUCC have any concerns with the outstanding invoices for the three Transmission Line projects?

A: No. As discussed above, DEI was able to indicate the amounts of outstanding invoices. The OUCC will examine these amounts when presented for recovery in future filings to ensure they are in line with the figures presented in this filing.

Q: What is the total Transmission System Substation Improvements (or "Transmission Substation") variance in DEI's T&D Plan?

A: The overall actual capital cost for Transmission Substation projects was $9,056,873, or 4.20% below approved capital costs of $9,453,948.

Q: Please discuss your review of the eight Transmission Substation projects.

A: I reviewed all eight of DEI's Transmission Substation projects including the actual versus approved capital costs and the variance. I summarize the results of my review below:

1. The actual capital cost of the *Kok Hi Pk 230k CB_Rel Rpl TDSIC* project was $[redacted], or -[redacted]% above the approved capital costs of $[redacted].

2. The actual capital cost for the *Batesvl 345 138kV TrfSwi Rpl TDSIC* project was $[redacted], or [redacted]% below the approved capital costs of $[redacted].

3. DEI completed the *Crane Metr_Repl 69kV Pots TDSIC* project on budget at the approved capital costs of $[redacted].

4. DEI completed the *New Castle Rel Repl TDSIC* project on budget at its approved capital costs of $[redacted].

5. The actual capital cost of the *Mitchell Lost River Rel Repl TDSIC* project was $[redacted], or [redacted]% below the approved capital costs of $[redacted].

6. The actual capital cost of the *Wabash River 138KV Gen Sta. Phase I* project was $[redacted], or [redacted]% below the approved capital costs of $[redacted] in TDSIC-1. DEI completed the project concurrently with other work at the same substation. It allowed DEI to use internal labor

rather than contract labor.[28] Further, material costs came in less than estimated.

7. The actual capital cost of the *Greentown_765kV Spare XTR TDSIC Repl* project was $[redacted], or [redacted]% below the approved capital costs of $[redacted].

8. The DEI completed the *Frankfort Westside Sw Rpl TDSIC* project without any associated capital costs (O&M expense only).

Q: Do you have any concerns with the Transmission Substation projects?

A: No.

V. CONCLUSIONS AND RECOMMENDATIONS

Q: Please summarize your recommendations.

A: I recommend the Commission accept the projects Petitioner placed in-service for inclusion in Petitioner's TDSIC-2 tracker.

Q: Does this conclude your testimony?

A: Yes.

[28] Petitioner's Confidential Exhibit 2-B (DEB), page 2.

APPENDIX A

Q: Please describe your educational background and experience.

A: I hold an MBA from the University of the Philippines ("UP"), in Diliman, Quezon City, Philippines. I also hold a Bachelor's Degree in Electrical Engineering from the University of Santo Tomas ("UST"), in Manila, Philippines.

I joined the OUCC in July 2009, and have completed the regulatory studies program at Michigan State University sponsored by the National Association of Regulatory Utility Commissioners ("NARUC"). I have also participated in other utility and renewable energy resources-related seminars, forums, and conferences.

Prior to joining the OUCC, I worked for the Manila Electric Company ("MERALCO") in the Philippines as a Senior Project Engineer responsible for overall project and account management for large and medium industrial and commercial customers. I evaluated electrical plans, designed overhead and underground primary and secondary distribution lines and facilities, primary and secondary line revamps, extensions and upgrades with voltages up to 34.5 kV. I successfully completed the MERALCO Power Engineering Program, a two-year program designed for engineers in the power and electrical utility industry.

Q: What did you do to prepare your testimony?

A: I first reviewed the petition, direct testimony and attached exhibits filed by DEI Energy Indiana, LLC ("Petitioner" or "DEI") in this Cause. Then, I reviewed the Commission Order in Cause No. 44720 ("44720 Order") issued on June 29, 2016, approving Petitioner's 7-Year Plan, and the Transmission, Distribution, and

Storage System Improvement Charge ("TDSIC") Settlement Agreement ("TDSIC Settlement"). Further, I also reviewed the Commission's Order in the first TDSIC tracker filing ("TDSIC-1") in Cause No. 44720 issued on March 22, 2017, including DEI's T&D Plan update, Petitioner's witnesses testimonies and exhibits filed in the previous TDSIC-1. I participated in meetings and discussions with DEI staff regarding changes to some its project's actual costs and estimates, and the purposes of the variances between the Commission-approved estimates and the final cost of the completed projects. I reviewed the projects included in the plan to ensure all project cost estimate changes had adequate explanation and support. I also participated in the OUCC case team meetings and discussions pertaining to this Cause.

Settlement costs cap. The following are the comparative analyses I performed and I will discuss the results in my testimony:

1. DEI's T&D projects' in-service actual capital costs and the TDSIC Settlement costs caps for the year 2016;[4]

2. DEI's T&D projects' in-service actual capital costs and Commission-approved costs in TDSIC-1 for the year 2016;[5]

3. DEI's T&D projects' in-service actual capital costs for the year 2016 and the Commission-approved capital costs (as of June 30, 2016) in TDSIC-1.[6]

4. The T&D projects DEI placed in-service for the year 2016 and the Commission-approved T&D Plan in TDSIC-1.[7]

Q: Please summarize the results of the comparative analyses in your review.

A: My analyses showed:

1. DEI's T&D projects' in-service total actual capital costs did not exceed the TDSIC Settlement capital costs cap;[8]

2. DEI's T&D projects' in-service actual total capital costs came in below the approved capital costs (for same projects) in TDSIC-1;

3. DEI placed in-service approximately $57,627,151 of its T&D project capital costs during the period July 1, 2016 through December 31, 2016 covered by TDSIC-2; and

4. The T&D projects DEI placed in-service for the year 2016 were all within the Commission-approved T&D Plan in TDSIC-1.

[4] Petitioner's Exhibit 1-A (WHF) filed in this Cause; and TDSIC Settlement Agreement at 2, Cause No. 44720 Final Order issued June 29, 2016.

[5] Petitioner's Exhibit 1-A (WHF) filed in this Cause. My analysis uses the amounts shown in the column "Actuals (In Service Investments)". These represent DEI's actual T&D project capital costs.

[6] Petitioner's Exhibit 1-A (WHF) filed in this Cause; and Cause No. 44720 TDSIC-1 Final Order issued Mar. 22, 2017 at 12, Para. C. Capital Expenditures and TDSIC Costs.

[7] Petitioner's Confidential Exhibits 1-C (WHF), 1-D (WHF) and 2-B (DEB) in this Cause. *Also*, Petitioner's Confidential Exhibits 1-C (WHF), 1-D (WHF), 2-B (DEB), and 2-F (DEB) filed in previous Cause No. 44720 TDSIC-1.

[8] *See* Mr. Fowler, Direct at 10, Lines 2 – 3.

Table 1 below summarizes the results of the high-level comparative analyses.

Table 1 – General Overview of DEI's TDSIC Program Performance for 2016

T&D Projects In-Service 2016	$ 80,522,060	Period Jan 1 thru Dec 31, 2016
TDSIC Settlement Cost Cap	$ 91.8 million	Not Exceeded
TDSIC-1 Approved Capital Costs	$ 83,277,414	Not Exceeded
T&D Projects In-Service TDSIC-1	$ 22,894,909	Approved in TDSIC-1
DEI T&D Plan Approved in TDSIC-1	No Changes	T&D Projects In-Service 2016 within Approved T&D Plan

The general overview of DEI's TDSIC Program Performance for 2016, as shown in Table 1 above, suggests DEI executed its T&D Plan and placed T&D projects in-service as approved by the Commission.

Q: Please describe your analysis of the T&D projects DEI placed in-service from January 1, 2016 through December 31, 2016.

I utilized variance analysis in an increasing granularity as I went through the major categories of DEI's T&D Plan and its respective sub-categories. This helped me determine what drives the overall variance of the T&D Plan.

Q: Please discuss the results of the variance analysis you used in your review.

A: I utilized the data and information in Petitioner's Exhibit 1-A (WHF) filed in this Cause. I calculated the overall variance between first column "Actuals (In-Service Investments)" and the second column "Approved TDSIC-1 Plan (In-Service Investments)" as shown in Table 2:

The threshold test shows 40 out of 58 work orders (approx. 70%) were above budget. Twenty-eight (of the 40 work orders) were more than 20% above budget. ~~(approx. 5848%)~~.

Q: Do you have concerns regarding the T&D projects in-service with larger negative variances driving the overall negative variance of Distribution?

A: None for now. This is the first full year DEI implemented its TDSIC program with the TDSIC Settlement in effect. Open and detailed discussions during meetings with DEI staff provide the OUCC the opportunity to collect insights on the conditions influencing the negative variances of certain projects. At the same time, DEI staff apprises us with their solutions to mitigate these conditions.

Q: Did your variance analysis and threshold test on T&D projects in-service also identify larger positive variances that mitigate the effect of some of the negative variances?

A: Yes. I identified six Distribution projects with larger positive variances that mitigated the effect of the negative variances. Table 4 below shows a summary of these projects.

Table 4 - Distribution Positive Variance Projects[16]

Distribution System Circuit Improvements	Variance
Capacitor Changeout	$225,064
Deteriorated Conductors	$104,225
Self-Healing Teams	$~~224~~234,023
Surface Mounted Equipment Follow-up (SMEI)	$131,86~~4~~3
Transformer Retrofit	$796,467
Dist System Costs Asso with Transmission Line Improvements	$278,349

[16] ~~It appears that the~~The "Dist System Costs Asso with Transmission Line Improvements" project type refers to DEI's ~~share of~~"underbuilt" distribution asset~~s~~ work. ~~, related to the "Joint Ownership Share of Distribution" project portfolio.~~

Q: Did DEI provide explanation for the T&D projects in-service with larger positive variances?

A: Yes. Regarding the Capacitor Changeout, DEI kept labor cost within budget, and certain planned capacitor change out locations did not need full replacement resulting in under-runs.

One Deteriorated Conductor project was below approved capital costs by 12%. All six projects in the Self-Healing Teams were below the approved capital costs. A change in the accounting practice affected the Surface Mounted Equipment ("SMEI") project in TDSIC-1. After the accounting practice change took effect, DEI updated its T&D Plan in TDSIC-1.[17]

Q: Do you have any comments on the Transformer Retrofit project?

A: Yes. The Transformer Retrofit project type had approximately 200 different projects placed in-service for 2016;[18] most were small. Sixty-~~one~~ two were above the approved capital costs, with approximately 70% of the completed Work Orders below the approved capital costs.

Q: What is the total Distribution System Substation Improvements (or "Distribution Substation") variance in DEI's T&D Plan?

---

[17] *See* Mr. Fowler, Direct at 23, Lines 3 to 10, in previous Cause No. 44720 TDSIC-1. "The estimate was developed using historical actuals costs where the transformer cost was pre-capitalized and excluded from the project costs. However, pre-capitalization is no longer applied to this asset type due to an accounting practice change. The transformer cost is now included in the actual capital project unit cost. This resulted in an increase in unit costs to include the cost of the transformer. With the accounting change, all future estimates in our updated T&D Plan have been updated according to the new standard and include the transformer costs."

[18] Petitioner's Confidential Exhibit 1-D (WHF). At this point of my analysis, I am conducting the threshold test, which is quite effective in spotting trends.

AFFIRMATION

I affirm, under the penalties for perjury, that the foregoing representations are true.

Anthony A. Alvarez
Utility Analyst
Indiana Office of Utility Consumer Counselor

July 14, 2017
Date

Cause No. 44720 TDSIC-02
Duke Energy Indiana, LLC

CERTIFICATE OF SERVICE

This is to certify that a copy of the ***Indiana Office of Utility Consumer Counselor Corrected Redacted Testimony of Anthony A. Alvarez*** has been served upon the following parties of record in the captioned proceeding by electronic service on July 14, 2017.

Petitioner
Kelley A. Karn
Casey M. Holsapple
DUKE ENERGY BUSINESS SERVICES LLC
1000 East Main Street
Plainfield, Indiana 46168
kelley.karn@duke-energy.com
casey.holsapple@duke-energy.com

Jeffrey M. Reed
Deputy Consumer Counselor

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
PNC Center
115 West Washington Street
Suite 1500 South
Indianapolis, IN 46204
infomgt@oucc.in.gov
317/232-2494 – Telephone
317/232-5923 – Facsimile