FILED
June 4, 2019
INDIANA UTILITY
REGULATORY COMMISSION

OFFICIAL
EXHIBITS

DIRECT TESTIMONY OF DONALD E. BROADHURST
GENERAL MANAGER TRANSMISSION CONSTRUCTION & MAINTENANCE
DUKE ENERGY BUSINESS SERVICES LLC
ON BEHALF OF DUKE ENERGY INDIANA, LLC
CAUSE NO. 44720 TDSIC-6 BEFORE THE
INDIANA UTILITY REGULATORY COMMISSION

IURC
PETITIONER'S
EXHIBIT NO. 2
DATE 5-30-19 AT
REPORTER

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Donald E. Broadhurst, and my business address is 139 East Fourth Street, Cincinnati, Ohio 45202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. For most of 2018, I was employed as General Manager, Transmission Construction & Maintenance by Duke Energy Business Services LLC, a service company subsidiary of Duke Energy Corporation, and a non-utility affiliate of Duke Energy Indiana, LLC ("Duke Energy Indiana" or "Company"). I have recently been named Vice President Operations - Customer Delivery Midwest Region, taking on responsibility for Duke Energy's Midwest Distribution operations.

Q. WHAT WERE YOUR DUTIES AND RESPONSIBILITIES AS GENERAL MANAGER TRANSMISSION CONSTRUCTION & MAINTENANCE?

A. As General Manager for Transmission Construction & Maintenance, I was responsible for leading a team of Construction and Maintenance Managers, Supervisors, and technical craft employees to achieve company objectives. I facilitated and directed activities that supported customers and communities to

provide a safe and efficient high voltage electric system and supported a productive and motivated team of employees. There are approximately 400 employees assigned to the Midwest Transmission Construction and Maintenance team and an additional 200 contract support personnel. The Midwest Transmission Construction & Maintenance organization maintains over 900 substations and approximately 8,000 miles of transmission lines in the states of Kentucky, Ohio, and Indiana. The team is also responsible for the construction of future substation and transmission line assets and upgrades. I was responsible for meeting financial and operational performance objectives for the Midwest Transmission organization and had significant day-to-day decision-making authority for transmission operations. I was also responsible for compliance with all applicable state, federal and company requirements related to the Midwest transmission system. This includes, but is not limited to, Federal Energy Regulatory ("FERC") and North American Electric Reliability Corporation ("NERC") applicable standards.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I have over 40 years of direct electrical utility experience. I started my utility career with the U.S. Air Force as an Exterior Electrician (Power Lineman) serving from 1976 to 1980. During that time in the Air Force, I earned several service awards: one notable award was an Air Force Commendation medal. After receiving an honorable discharge, I started my civilian utility career with Carolina

Power & Light Company/Progress Energy/Duke Energy in 1980 until the present. For the past 38 years I have served in a variety of roles at Duke Energy including Substation Electrician, Substation Operator, Protection & Controls Technician, Substation Maintenance Supervisor, Manager of Materials & Standards, Area Transmission Manager, General Manager of Midwest Transmission Construction & Maintenance, and my current position Vice President Operations - Customer Delivery Midwest Region. I have had the opportunity to work in four different states which has exposed me to three different Transmission and Distribution systems. I hold an A.A.S. General Occupational Technology (Cape Fear Community College), A.A.S. Electronic Engineering Technology (Nash Community College), A.A.S. Instrumentation and Control (ICS Institute), and a B.S. Organizational Management (Saint Augustine University).

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. My testimony will summarize the completed Transmission Line, Transmission Substation and Distribution Substation projects through December 31, 2018. This will include an update on our in-service costs versus the cost estimates we provided in the TDSIC-4 and TDSIC-5 proceedings. Also, as agreed to by Ms. Hart in the TDSIC-5 proceeding, I will discuss indirect costs.

II. OVERVIEW OF TRANSMISSION UPDATE

Q. DO YOU HAVE ANY GENERAL CONCLUSIONS REGARDING THE T&D PLAN?

A. Yes. Generally, the Transmission Line, Transmission Substation and Distribution Substation portions of the T&D Plan, which are the portions of the T&D Plan for which I have management oversight responsibility, are being executed within the scope and schedule identified in Cause No. 44720 and as updated in our semi-annual rider proceedings. Further, although there are some variances in the cost estimates for individual projects, we continue to trend very closely with our overall estimate for the transmission line and substation costs identified in Cause No. 44720 and as updated in our semi-annual rider proceedings.

Q. HAS DUKE ENERGY INDIANA COMPLETED THE WORK THROUGH DECEMBER 31, 2018 AS DESCRIBED IN ITS CASE-IN-CHIEF IN CAUSE NO. 44720 AND MOST RECENTLY UPDATED IN TDSIC-5?

A. Yes. For Distribution Substation charges, 36 of the completed projects included Distribution Substation charges totaling $45,035,732, which is 3% less than the project estimates of $46,361,329. Thirty-four of the completed projects included Transmission Line charges totaling $57,635,651, which is 10% less than the cost estimates of $64,220,389. Twenty-nine of the completed projects included Transmission Substation charges totaling $49,521,169, which is slightly greater than the cost estimates of $49,346,935. Overall, Duke Energy Indiana placed 73 projects in-service with an actual cost of $152,192,553 which is 5% less than the estimated value of $159,928,653, prior to the application of contingency. Please refer to Petitioner's Exhibit 1-A (CMH).

Q. WILL THERE BE CHARGES FOR PROJECTS THAT WENT INTO SERVICE IN 2018 THAT ARE RECEIVED AFTER THE DECEMBER 31, 2018 CUTOFF DATE?

A. Yes. Since some of these projects were placed in-service near the end of 2018, some charges were received after the December 31, 2018 date. These will be requested to be recovered in the planned TDSIC-8 cost recovery filing scheduled for the spring of 2020.

Q. WERE THERE ANY 2018 TRANSMISSION LINE, TRANSMISSION SUBSTATION OR DISTRIBUTION SUBSTATION PROJECTS THAT DID NOT GO INTO SERVICE IN 2018 AS PLANNED?

A. Yes. Due to outage constraints, delayed component delivery, and national storm response, a total of 20 projects had portions of or the entirety of a project not go into service as planned by December 31, 2018. These projects had been moved forward in the plan as a hedge against schedule risks that could occur. These projects are now included in 2019 or future year project plans. The plan has been effective as the T&D combined plans are near the recoverable cap level through the first three years of the TDSIC plan. The forecasted value of these projects is $28M, or 17% of the overall 2018 Transmission project plan. $25.4M of these projects have been placed in service through April of the 2019 construction year. Please see Petitioner's Confidential Workpaper 2-DEB.

Q. WHAT ARE DUKE ENERGY INDIANA'S PLANS FOR COMPLETING 2018 PROJECTS THAT WERE CARRIED OVER INTO 2019?

A. Each of these projects has been integrated into the 2019 outage schedule with plans to place them in-service prior to December 31, 2019. They are projected to be filed as in-service projects in the planned TDSIC-8 recovery request in the spring of 2020.

Q. DOES DUKE ENERGY INDIANA REMAIN ON TARGET TO PERFORM THE WORK IDENTIFIED IN ITS T&D PLAN AS UPDATED IN CAUSE NO. 44720 TDSIC-5?

A. Yes. Duke Energy Indiana remains on target to perform the T&D Plan as most recently summarized in Cause No. 44720 TDSIC-5.

Q. WERE ANY PROJECTS MOVED INTO THE T&D PLAN DURING 2018?

A. No. We incorporated a small portion of one line rebuild from the alternate list into our 2017 plan. The project, TBD-69180-C, added 0.6 miles of line rebuild to coordinate with an REMC project, TIN2060, Line 69180. This project was placed in service in 2017.

III. <u>UPDATED COST ESTIMATES FOR 2018 IN-SERVICE PROJECTS</u>

Q. HAS DUKE ENERGY INDIANA PROVIDED IN-SERVICE COSTS FOR THE PROJECTS PLACED INTO SERVICE BY DECEMBER 31, 2018?

A. Yes. Duke Energy Indiana's costs for projects placed into service by December 31, 2018 have been provided in Petitioner's Exhibits 2-A and Confidential Exhibit 2-B.

Q. WERE THERE ANY 2018 IN-SERVICE TRANSMISSION LINE, AND T&D SUBSTATION PROJECTS THAT REQUIRED CONTINGENCY AND UNDER-RUN TO BRING THEIR VARIANCES WITHIN 20%?

A Yes. There are eight projects that required the application of contingency and under-run in order to bring the variance of a portion of a project to approximately 20% more than the estimated cost. This evaluation of project variance was done within a portion of an overall project, sub-divided by FERC and by Substation or Line. The projects include:

- Bicknell Rlbty Upg TDSIC – TIN1825
- Petersburg Rlbty Upg TDSIC – TIN1749
- Flatrock 5000kV XTR Repl TDSIC – AMIN1214
- GLT circuit 69118 – M180124
- GLT circuit 6945 – M180055
- Bedford 25th St. GND-SWI-RPL – TIN1512
- Lafayette 69 Rpl OCB – TIN1403
- Gallagher P_C Relo – AMIN0766

A summary of each project and variance explanations have been provided in Petitioner's Confidential Exhibit 2-B.

Q. PLEASE EXPLAIN THE VARIANCE IN OPERATIONS AND MAINTENANCE ("O&M") EXPENSE FOR THE T&D SUBSTATIONS AND TRANSMISSION LINE PROJECTS.

A. In our most recent T&D Plan update, we estimated $3,559,177 in O&M expense for T&D Substation and Transmission Line projects through 2018. Our actuals for 2018 were $3,112,966, 13% under estimated value.

Q. ARE THE T&D SUBSTATION AND TRANSMISSION LINE PROJECTS PROVIDING BENEFITS TO CUSTOMERS?

A. Yes. As we move further into the T&D Plan, customers will continue to experience more noticeable benefits of the T&D Plan. Customers will see improving reliability as Duke Energy Indiana continues to replace additional aged and deteriorating equipment. Further, many of the projects include automated functionality that will shorten outage times and increase overall continuity of service.

Q. DO THE BENEFITS OF THE PROPOSED TRANSMISSION PROJECTS CONTINUE TO EXCEED THEIR COSTS?

A. Yes. As discussed more fully below, the T&D Plan remains on target to be completed as set forth in the Settlement Agreement in Cause No. 44720 and as updated in TDSIC-5. The costs of the plan have not materially changed, and the benefits remain the same as they were described in Cause No. 44720. Because we are completing essentially the same scope of work anticipated by our earlier Risk Analysis provided in Cause No. 44720, the benefits of that risk reduction hold true for the actual work performed to date. Ms. Hart includes an updated Risk Analysis in her testimony, which demonstrates that we are right on track.

Q. DO YOU BELIEVE THESE PROJECTS ARE STILL IN THE PUBLIC INTEREST?

A. Yes. We are extremely happy with our performance during the first three years of the T&D Plan. We have performed the scope as outlined in Cause No. 44720, and our forecast at this point has us staying close to the capital cost caps set forth in the Settlement Agreement we entered into in Cause No. 44720. The total plan is tracking on target for all seven years, and these projects benefit Indiana customers.

Q. ARE THE WORK ORDERS FOR EACH IN-SERVICE PROJECT AVAILABLE FOR DISCOVERY?

A. Yes. Individual work orders are available for discovery.

IV. DUKE ENERGY INDIANA HAS MET STATUTORY REQUIREMENTS

Q. HAS DUKE ENERGY INDIANA PROVIDED THE BEST ESTIMATE OF THE COSTS OF THE ELIGIBLE TRANSMISSION IMPROVEMENTS?

A. Yes. Cost estimates have been generated for all T&D Substation and Transmission Line projects included in the T&D Plan. No budgetary estimates were utilized in creating this T&D Plan. Further, in Cause No. 44720, Black & Veatch validated Duke Energy Indiana's estimates and confirmed that they are the best estimate of the costs of the eligible improvements.

Q. DOES PUBLIC CONVENIENCE AND NECESSITY REQUIRE EACH COMPONENT OF THE T&D PLAN?

A. Yes. The T&D Plan supports a significant reduction of operational risk through replacement of aging infrastructure. Additionally, the T&D Plan improves the operational efficiency of Duke Energy Indiana's transmission and distribution system. Finally, the T&D Plan addresses and improves upon the overall customer experience and will enable a number of customer benefits and programs in this filing and in future years.

Q. DO THE ESTIMATED COSTS OF THE T&D PLAN JUSTIFY THE INCREMENTAL BENEFITS OF THE PLAN?

A. Yes. The transmission reliability and integrity projects included in the T&D Plan are justified based on the overall system risk reduction model created by Black & Veatch. As detailed in Ms. Hart's testimony, the risk model was updated to reflect assets that have gone into service through the first three years of the TDSIC plan as well as updating actual and estimated cost and project timing reflected in the TDSIC-5 filing. By executing the T&D Plan, the system risk profile of the transmission and distribution system can be reduced by approximately 30% versus not implementing the T&D Plan. All of this combined demonstrates that the projects and programs included in the T&D Plan are reasonable, necessary, and justified by providing increased reliability and modernization benefits to all Duke Energy Indiana customers.

V. CONCLUSION

Q. WERE PETITIONER'S EXHIBIT 2-A AND CONFIDENTIAL EXHIBIT 2-B PREPARED BY YOU OR AT YOUR DIRECTION?

A. Yes, they were.

Q. DOES THIS CONCLUDE YOUR PREFILED TESTIMONY?

A. Yes, it does.

PETITIONER'S EXHIBIT 2-A (DEB)
IURC Cause No. 44720 TDSIC-6

Summary by Functional Category - D-Sub, T-Line, T-Sub
Cumulative Investments for Projects In-service by 12/31/18

	Capital						O&M			
Project Category	**Cumulative In-Service Investments through 2018**	**Cumulative Filed TDSIC-5 Plan (In-Service Investments)[1]**	**Contingency and Under-Run Applied[2]**	**Filed TDSIC-5 Plan with Contingency and Under-Run Applied**	**Actual vs. Fined TDSIC-5 Plan Variance**	**% Variance**	**Cumulative In-Service Investments through 2018**	**Cumulative Filed TDSIC-5 Plan (related to In-Service Investments)[1]**	**Actual vs. Filed TDSIC-5 Plan Variance**	**% Variance**
Distribution										
Distribution System Substation Improvements[3]	83,468,584	84,616,660	485,713	85,102,373	1,633,789	2%	54,231	52,061	-2,171	-4%
Transmission										
Transmission System Line Improvements	140,262,599	147,108,873	112,344	147,221,217	6,958,617	5%	8,360,237	10,336,241	1,976,005	19%
Transmission System Substation Improvements	80,842,681	80,626,384	1,567,606	82,193,989	1,351,309	2%	441,275	437,507	-3,768	-1%
Grand Total	**304,573,864**	**312,351,917**	**2,165,663**	**314,517,579**	**9,943,715**	**3%**	**8,855,743**	**10,825,809**	**1,970,066**	**18%**

1. Only includes projects from TDSIC-5 Plan that did go into service in 2017 and excludes Contingency.
2. Contingency and Under-Run applied to capital Actuals exceeding the Approved TDSIC-5 Plan by more than 20%; application of Contingency and Under-Run bring variance to 20%. Contingency and Under-Run applied at the Filing Project level.
3. $62,064 in O&M costs will be moved from O&M to Capital costs. This will be filed in TDSIC-6 for recovery correction, and will eliminate the variance.

PETITIONER'S EXHIBIT 2-B (DEB)
IURC CAUSE NO. 44720 TDSIC-6

Detail by Functional Category - D-Sub, T-Line, T-Sub by Project
Cumulative Investments for Projects In-service by 12/31/18

			Capital								O&M						
			Actuals			Estimate			Variance		Actuals			Estimate	Variance		
Project Category	Funding Project	Funding Project Desc	Prior Project Recovery Value	Total TDSIC 4 Recovery[1]	Total Project Recovery Value	Filed TDSIC-5 Plan (In-Service Investments)[2]	Contingency and Under-Run Applied[3]	Filed TDSIC-5 Plan with Contingency and Under-Run Applied	Actual vs. Filed Plan Variance	% Variance	Prior Project Recovery Value	Total TDSIC 4 Recovery[1]	Total Project Recovery Value	Approved TDSIC-3 Plan (related to In-Service Investments)[1]	Actual vs. Approved TDSIC-3 Plan Variance	% Variance	Comments
Distribution System Substation Improvements	AMIN1207	Azalia Wd Sub Struct Rbld VCR Repl	[redacted]	0	[redacted]	[redacted]		[redacted]	0	0%	[redacted]	0	[redacted]	[redacted]	0	0%	
	AMIN1224	Harodsbg_13834 Tranruptr TDSIC		0					0	0%	0	0		0	0		
	AMIN1229	Hanover_138kV Transrupter Rpl TDSIC		0					0	0%	[redacted]	0	[redacted]	[redacted]	0	0%	
	AMIN1230	New Alb Cent_138kV Transrupter Rpl		0					0	0%	0	0		0	0		
	AMIN1241	Grncas Cem Rd_1201 Disc Rpl TDSIC		0					0	0%	0	0		0	0		
	AMIN1242	Kok Delco Transrupter Rpl		0					0	0%	0	0		0	0		
	ESODEIFUN	ESO Control Center Facilities -IND.		0					0	0%		0		0	0		
	TIN1542	BLM Rogers St XTR CB Rpl TDSIC		[redacted]					[redacted]	-2%		0		0	0		
	SGIDASUBF	North Madison_DA TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	0%	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	79%	After further investigation O&M was not required on this project. Costs are currently being transferred to the correct accounts. This will be addressed in TDSIC-8.
	SGIIVVCSF	IN Kokomo SE_IVVC TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	1%	[redacted]	[redacted]	0	0	0		
	AMIN1440	Kokomo Apperson New Sub TDSIC								-1%	[redacted]	[redacted]	0	0	0		
	AMIN1193	Whitfield 34.5kV CB-Rel Repl TDSIC								-2%		0		0	0		
	TIN1742	Greencastle Ind Rlbty Upg TDSIC								0%		0	0	0	0		
	TIN1476	Kok Chrys So Upg Sub TDSIC							0	0%		0		0	0		
	AMIN1290	Fairview 138 CB_Rel Rpl TDSIC							0	0%		0		0	0		
	TIN1458	Paragon Repl Fdn TDSIC							0	0%		0		0	0		
	AMIN1298	Shbyv Southwest Rel Repl TDSIC								2%		0		0	0		
	TIN1046	BLM Dunn St 69kv Bus Upg								-2%		0		0	0		
	TIN1733	Martinsvl East Rlbty Upg TDSIC								12%		0		0	0		
	AMIN1257	Fountain City_Rpl Trf Sw TDSIC							0	0%	[redacted]	[redacted]	0	0	0		
	TIN1750	Plainfld South Rlbty Upg TDSIC							0	0%		0		0	0		
	TIN1734	Spencer 69KV Rlbty Upg TDSIC								3%		0		0	0		
	TIN1475	Loganspt Coplay 69kV Upg TDSIC								4%		0	0	0	0		
	TIN1751	Rossville Rlbty Upg TDSIC								-6%		0		0	0		
	TIN1469	Bedford345_XTR CB Rel Rpl TDSIC								0%		0		0	0		
	TIN1544	Oakland City CB Rel Repl TDSIC								40%		0		0	0		Previous filing costs had Transmission FERC included in the distribution estimate. This was corrected creating an underage in the distribution FERC. The Overall project is within tolerance.
	TIN1732	Jeffl KY Ave Rlbty Upg TDSIC								-5%		0		0	0		
	TIN1814	Sellersburg Rlbty Upg TDSIC								12%		0		0	0		
	TIN1800	Arcadia Rlbty Upg TDSIC								0%		0		0	0		
	TIN1825	Bicknell Rlbty Upg TDSIC					[redacted]			-20%		0		0	0		The outage was extended causing additional change orders from our contractors. This created an increase of [redacted]. In a review the prior estimate it was found that there was an error in the estimate that removed about [redacted] from the overall project estimate.
	TIN1813	Plainfield 69 Rlbty Upg TDSIC								-5%		0		0	0		
	TIN1811	New Palestine Rlbty Upg TDSIC								0%		0		0	0		
	TIN1744	Jeffvl Potter Rlbty Upg TDSIC								0%		0		0	0		
	TIN1752	Sullivan Rlbty Upg TDSIC								14%	[redacted]	[redacted]		0	[redacted]		After further investigation O&M was not required on this project. Costs are currently being transferred to the correct accounts. This will be addressed in TDSIC-8.
	TIN1746	Mitchell 69kV Rlbty Upg TDSIC								6%		0		0	0		
	TIN1831	Connersvl30thST Rlbty Upg TDSIC								10%		0		0	0		
	AMIN1231	Mad-MichRd_Bk1 Trnrup Rpl TDSIC								7%		0		0	0		
	TIN1835	Laf south Rlbty Upg TDSIC								41%		0		0	0		Due to the AISD being late in the year not all costs were realized in 2018. An Additional [redacted] has been charged to this project in 2019. This was included in the TDSIC-5 filing and will be updated in the TDSIC-7 Plan update and recovered in TDSIC-8.
	TIN1841	TH S Vigo Rlbty Upg TDSIC								20%		0		0	0		Indirects variances are summarized at the portfolio level in testimony.
	TIN1736	TH Honey Crk Rlbty Upg TDSIC								-3%		0		0	0		
	TIN2085	W Laf Cumberlnd Rlbty Upg TDSIC								16%		0		0	0		Indirects variances are summarized at the portfolio level in testimony.
	AMIN1292	Kokm Hi Pk 69kV CB_Rel Rpl TDSIC								17%		0		0	0		Indirects variances are summarized at the portfolio level in testimony.
	TIN1512	Bedford 25TH_Gnd Swi Rpl TDSIC								36%		0		0	0		Due to the AISD being late in the year not all costs were realized in 2018. An Additional [redacted] has been charged to this project in 2019. This was included in the TDSIC-5 filing and will be updated in the TDSIC-7 Plan update and recovered in TDSIC-8. The overall project is forecasted to have final costs of [redacted], bringing this project within class 2 tolerance.
	TIN1472	Clark Maritime XTR 1 Repl TDSIC								6%		0		0	0		
	TIN1749	Petersburg Rlbty Upg TDSIC								-20%		0		0	0		The estimate had an error between the Install and retire costs. Actual costs were charged correctly and the Install estimate was underestimated by approximately [redacted] and the Retirement was overestimated by [redacted]
	TIN1468	Staunton Sub Rbld TDSIC								-7%		0		0	0		
	TIN1735	TH 6th St Rlbty Upg TDSIC								-15%		0		0	0		
	TIN1728	Columbus E25th Rlbty Upg TDSIC								-4%		0		0	0		
	TIN1477	Loogootee Wd Struc Rbld TDSIC								4%		0		0	0		
	TIN1812	N Manchester Rlbty Upg TDSIC								11%		0		0	0		
	TIN1837	Milan Rlbty Upg TDSIC								-6%		0		0	0		
	TIN1827	Brazil East Rlbty Upg TDSIC								3%		0		0	0		
	AMIN1214	Flat Rock_5000kV XTR Repl TDSIC								-20%		0		0	0		Relay was estimated to use internal resources. Due to scheduling constraints this scope was contracted out. The estimate for the contractor was [redacted] more than the initial estimate.
	TIN1540	Bethlehem Xtr 1 Repl TDSIC								6%		0		0	0		
	TIN2123	Carthage Rlbty Upg TDSIC								12%		0		0	0		

Detail by Functional Category - D-Sub, T-Line, T-Sub by Project
Cumulative Investments for Projects In-service by 12/31/18

			Capital								O&M						
			Actuals			Estimate			Variance		Actuals			Estimate	Variance		
Project Category	Funding Project	Funding Project Desc	Prior Project Recovery Value	Total TDSIC 4 Recovery[1]	Total Project Recovery Value	Filed TDSIC-5 Plan (In-Service Investments)[2]	Contingency and Under-Run Applied[3]	Filed TDSIC-5 Plan with Contingency and Under-Run Applied	Actual vs. Filed Plan Variance	% Variance	Prior Project Recovery Value	Total TDSIC 4 Recovery[1]	Total Project Recovery Value	Approved TDSIC-3 Plan (related to In-Service Investments)[1]	Actual vs. Approved TDSIC-3 Plan Variance	% Variance	Comments
Distribution System Substation Improvements Total			**36,012,583**	**47,456,001**	**83,468,584**	**84,616,660**	**485,713**	**85,102,373**	**1,633,789**	**2%**	**116,166**	**-61,935**	**54,231**	**52,061**	**-2,171**	**-4%**	
Transmission System Line Improvements	AMIN0705	6935 IN Rebuild Pt 2 TDSIC		0					0	0%					0	0%	
	AMIN1207	Azalia Wd Sub Struct Rbld VCR Repl		0					0	0%		0			0	0%	
	AMIN1244	Lincoln WVPA_Rpl 69 Sws-Fuse TDSIC		0					0	0%	0	0		0	0		
	AMIN1279T	6951 Edwprt HE Rgrsict Rbld TDSIC		0					0	0%					0	0%	
	PRTIN-A	Various Lines - Project # PRTIN-A - GLT Pole Rep								0%						5%	
	AMIN0706	6936 IN Rbld Pt 2 TDSIC		0					0	0%					0	0%	
	AMIN1148	34521 IM Dead Strucs TDSIC							0	0%					0	0%	
	ESODEIFUN	ESO Control Center Facilities -IND.		0					0	0%		0		0	0		
	TIN1542	BLM Rogers St XTR CB Rpl TDSIC							0	0%			0	0	0		
	TIN1539	13832 Insulator Rpl TDSIC							0	0%		0		0	0		
	TIN1473	Kok HaynesInt Rpl WdStruc TDSIC								3%					0	0%	
	PRTIN-B	Various Lines - Project # PRTIN-B - GLT Pole Rep								0%						-1%	
	AMIN1056	6929 Static Repl TDSIC								1%						0%	
	AMIN1440	Kokomo Apperson New Sub TDSIC								0%		0			0	0%	
	TIN1532	69154 Crwdvl_ChryGrv Stac TDSIC								1%					0	0%	
	TIN1538	34540 IM Dead TDSIC							0	0%		0			0	0%	
	TIN1756	34528 IM Dead End TDSIC								0%					0	0%	
	TIN1530	69174 Shrpsvl_Kok SE Rbld TDSIC								10%						-11%	
	TIN1529	69174 Shrpsvl_Wndfl Rbld TDSIC								0%					0	0%	
	TIN1283	6952 Medora Browntwn Rbld TDSIC							0	0%		0			0	0%	
	TIN2060	69180 Prtl Rbld Tipton-823-2016								22%						96%	During the last plan update the costs were over estimated to complete this project. After the last plan update the project was reviewed and costs were reduced on this project
	AMIN1290	Fairview 138 CB_Rel Rpl TDSIC							0	0%					0	0%	
	AMIN1314	69134 Rbld Adv_Dover REMC TDSIC								0%					0	0%	
	TIN1046	BLM Dunn St 69kv Bus Upg								0%					0	0%	
	TIN1734	Spencer 69KV Rlbty Upg TDSIC								-13%						-5%	
	TIN1710	6933 Rbld Pt1 Gcst N-Mrtn TDSIC							0	0%			0	0	0		
	AMIN1278	69153_NewPekin-Salem Rbld TDSIC								-5%						64%	More transfer work had been estimated on this project. With the replacement of the conductor less O&M was required on this project than estimated.
	TIN1869	34531 IM Dead Strucs TDSIC								1%					0	0%	
	TIN1475	Loganspt Coplay 69kV Upg TDSIC							0	0%					0	0%	
	TIN1528	6988 MdFrk_DeerCrJct Rbld TDSIC								12%					0	0%	
	TIN1861	69134 Rbld Jmstwn Mar_Adv TDSIC								1%						10%	
	TIN1533	6975 LewCr_Flt Rck Rpl Pl TDSIC								19%						-6%	Additional restoration activities are to be completed in 2019 due to weather conditions. These costs will be captured in the TDSIC-8 recovery filing.
	TIN1544	Oakland City CB Rel Repl TDSIC								9%					0	0%	
	TIN1862	69140 Rbld HE Rysvl-Ktwn TDSIC								0%						-1%	
	AMIN1315	Lake Holiday Jct Sw Rpl							0	0%		0		0	0		
	PRTIN-C	Various Lines - Project # PRTIN-C - GLT Pole Rep	0							14%	0					68%	Due to the nature of this work there are additional costs that are to come in 2019.
	TIN1505	Darlington_Swi Repl TDSIC								-10%					0	0%	
	TIN1744	Jeffvl Potter Rlbty Upg TDSIC								18%						-149%	Labor estimate was overstated, forecasted estimate at completion [redacted] .
	TIN1863	69166 Rbld Grnfld Ftntown TDSIC								16%						-3%	Due to final restoration requirements and a delay in the Distribution Line portion of the work final invoices were carried over to 2019. This project is forecasted to complete at a total of [redacted] .
	TIN1886	6952 HE Leesville Swi Rpl TDSIC								51%						75%	Labor estimate was overstated, forecasted estimate at completion [redacted] .
	TIN1841	TH S Vigo Rlbty Upg TDSIC								-9%		0	0			100%	No transfer work was needed on this project.
	TIN1281	6919 Hillnbrnd_Andersonvl TDSIC								14%						-18%	
	TIN1512	Bedford 25TH_Gnd Swi Rpl TDSIC								-20%						-81%	This is a portion of the overall [redacted] project for a Distribution Substation. The estimate was based on internal crews to complete the work and this was then handed to a vendor creating the cost overrun.
	TIN1729	Cov-Muni IMPA Rlbty Upg TDSIC								14%						60%	
	TIN1468	Staunton Sub Rbld TDSIC								38%						-30%	Project was completed in December, because of the late In Service not all invoices were processed for this project.
	TIN1759	Middletown Rlbty Upg TDSIC								63%		0				100%	Due to the AISD being late in the year not all costs were realized in 2018. An Additional [redacted] has been charged to this project in 2019. This was included in the TDSIC-5 filing and will be updated in the TDSIC-7 Plan update and recovered in TDSIC-
	TIN1809	Nashville Rlbty Upg TDSIC						0				0			0		In the last filing a Transmission Line project was not required. This scope has been added and is necessary to complete the work included in the TDSIC plan at the Nashville Substation.
Transmission System Line Improvements Total			**79,598,957**	**60,663,642**	**140,262,599**	**147,108,873**	**112,344**	**147,221,217**	**6,958,617**	**5%**	**5,457,455**	**2,902,782**	**8,360,237**	**10,336,241**	**1,976,005**	**19%**	
Transmission System Substation Improvements	AMIN1152	Kok Hi Pk 230k CB_Rel Rpl TDSIC		0					0	0%	0	0		0	0		
	AMIN1211	Batesvl 345 138kV TrfSwi Rpl TDSIC		0					0	0%		0			0	0%	
	AMIN1215	Crane Metr_Repl 69kV Pots TDSIC		0					0	0%	0	0		0	0		
	AMIN1296	New Castle Rel Repl TDSIC		0					0	0%	0	0		0	0		
	PRTIN-C	Various Lines - Project # PRTIN-C - GLT Pole Replacements - Yr 3								47%						86%	The estimate was to replace a standard GLT pole. These costs are for the replacement of a static pole. The costs have come in less due to the reduction of estimated scope.
	AMIN1300	Mitchell Lost River Rel Repl TDSIC		0					0	0%	0	0		0	0		
	AMIN0464	Wabash River 138KV Gen Sta. Phase I		0					0	0%	0	0		0	0		
	AMIN1124	Greentown_765kV Spare XTR TDSIC		0					0	0%	0	0		0	0		
	AMIN1191	Frankfort Westside Sw Rpl TDSIC	0	0	0	0		0	0			0			0	0%	
	ESODEIFUN	ESO Control Center Facilities -IND.		0					0	0%		0		0	0		
	AMIN1236	Spelterville SS Tap Swi Rpl TDSIC		0					0	0%		0			0	0%	
	TIN1473	Kok HaynesInt Rpl WdStruc TDSIC								1%		0		0	0		
	AMIN1110	Cayuga GenSta 345kV CBRepl TDSIC		0					0	0%		0	0	0	0		
	AMIN0913	Cayuga CT Swyd REL MDAR Repl TDSIC		0					0	0%		0	0	0	0		

Detail by Functional Category - D-Sub, T-Line, T-Sub by Project
Cumulative Investments for Projects In-service by 12/31/18

			Capital									O&M						
			Actuals			Estimate			Variance			Actuals			Estimate	Variance		
Project Category	Funding Project	Funding Project Desc	Prior Project Recovery Value	Total TDSIC 4 Recovery[1]	Total Project Recovery Value	Filed TDSIC-5 Plan (In-Service Investments)[2]	Contingency and Under-Run Applied[3]	Filed TDSIC-5 Plan with Contingency and Under-Run Applied	Actual vs. Filed Plan Variance	% Variance	Prior Project Recovery Value	Total TDSIC 4 Recovery[1]	Total Project Recovery Value	Approved TDSIC-3 Plan (related to In-Service Investments)[1]	Actual vs. Approved TDSIC-3 Plan Variance	% Variance	Comments
	TIN1406	Walton 69kV CB Repl TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	23%		0		[redacted]	[redacted]	100%	Labor was overstated in the estimate. Based on the current project estimate the Estimate At Complete is equal to the total actual costs.
	AMIN1440	Kokomo Apperson New Sub TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	-6%	[redacted]	[redacted]	0	0	0		
	TIN1532	69154 Crwdvl_ChryGrv Stac TDSIC	[redacted]	0	[redacted]	[redacted]		[redacted]	0	0%		0		0	0		
	AMIN1193	Whitfield 34.5kV CB-Rel Repl TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	0	0%		0		0	0		
	AMIN1192	Seymour 138KV LTC Repl TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	0	0%		0		0	0		
	TPEQUIPIN	Indiana Trans Equip Failure	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	0	0%	[redacted]	0	[redacted]	[redacted]	0	0%	
	TIN1529	69174 Shrpsvl_Wndfl Rbld TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	7%		0		0	0		
	TIN1476	Kok Chrys So Upg Sub TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	3%		0		0	0		
	AMIN1290	Fairview 138 CB_Rel Rpl TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	0%		[redacted]	[redacted]	0	[redacted]		After further investigation O&M was not required on this project. Costs are currently being transferred to the correct accounts. This will be addressed in TDSIC-8.
	TIN1403	LAF 69kV Rpl Rel - OCB TDSIC	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	-20%		[redacted]	[redacted]	0	[redacted]		In the TDSIC-5 filing and error was made in the estimate to exclude the 2018 carryover spend. After further investigation O&M was not required on this project. Costs are currently being transferred to the correct accounts. This will be addressed in TDSIC-8.
	AMIN1298	Shbyv Southwest Rel Repl TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	0	0%		0		0	0		
	TIN1046	BLM Dunn St 69kv Bus Upg	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	-1%		[redacted]	[redacted]	0	[redacted]		After further investigation O&M was not required on this project. Costs are currently being transferred to the correct accounts. This will be addressed in TDSIC-8.
	AMIN1330	Bean Blossom_RTU Rpl TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	-1%		0		0	0		
	TIN1750	Plainfld South Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	0	0%		0		0	0		
	TIN1734	Spencer 69KV Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	6%		0		0	0		
	TIN1475	Loganspt Coplay 69kV Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	1%		0		0	0		
	TIN1751	Rossville Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	0%		0		0	0		
	TIN1469	Bedford345_XTR CB Rel Rpl TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	-8%		[redacted]	[redacted]	0	[redacted]		After further investigation O&M was not required on this project. Costs are currently being transferred to the correct accounts. This will be addressed in TDSIC-8.
	AMIN1055	Noblesville - Tipton Reco TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	0	0%		0		0	0		
	TIN1544	Oakland City CB Rel Repl TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	-2%		0		0	0		
	AMIN0766	Gallagher P_C Relo TDSIC	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	-20%		[redacted]	[redacted]	0	[redacted]		After further investigation O&M was not required on this project. Costs are currently being transferred to the correct accounts. This will be addressed in TDSIC-8.
	TIN1732	Jeffl KY Ave Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	0%		0		0	0		
	TIN1814	Sellersburg Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	48%		0		0	0		Current Estimate to complete for this project is [redacted]. Project labor came in under the estimate.
	TIN1813	Plainfield 69 Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	-4%		0		0	0		
	TIN1811	New Palestine Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	-1%		0		0	0		
	AMIN1040	Franklin Forsythe St MDAR Repl	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	0%		0		0	0		
	TIN1752	Sullivan Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	-9%		0		0	0		
	AMIN1205	Gwynvill_GCB 34523-22 Rpl TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	-10%		0		0	0		
	TIN1389	Gwynneville LTC Repl	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	65%		0		0	0		Contractor estimate for the LTC was more than necessary. The estimate included Turnkey material that was purchased by Duke.
	TIN1835	Laf south Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	37%		0		0	0		
	TIN1804	Grnwd ValleVsta Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	29%		0		0	0		
	TIN1841	TH S Vigo Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	12%		0		0	0		
	AMIN1292	Kokm Hi Pk 69kV CB_Rel Rpl TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	5%		0		0	0		
	TIN1749	Petersburg Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	-20%		0		0	0		Work for Motor Mec was estimated as internal. Due to schedule constraints this was completed by a contractor, causing a large increase.
	TIN1812	N Manchester Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	25%		0		0	0		
	AMIN1214	Flat Rock_5000kV XTR Repl TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	27%		0		0	0		
	AMIN1206	Gwynvill_GCB 345B1-15 TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	5%		0		0	0		
	AMIN1151	Laf 230_Rpl 138 OCBRelay TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	11%		0		0	0		
	AMIN1741	Gallagher Gen Rlbty Upg TDSIC	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	-1%		0		0	0		
Transmission System Substation Improvements Total			**28,077,341**	**52,765,340**	**80,842,681**	**80,626,384**	**1,567,606**	**82,193,989**	**1,351,309**	**2%**	**433,560**	**7,714**	**441,275**	**437,507**	**-3,768**	**-1%**	

1. Includes 2016-2017 In Service Project Carryforward values
2. Only includes projects from TDSIC-5 Plan that did go into service through 2018 and excludes Contingency.
3. Contingency and Under-Run applied to capital Actuals exceeding the Approved TDSIC-5 Plan by more than 20%; application of Contingency and Under-Run bring variance to 20%. Contingency and Under-Run applied at the Filing Project level.

VERIFICATION

I hereby verify under the penalties of perjury that the foregoing representations are true to the best of my knowledge, information and belief.

Signed: Donald E. Broadhurst Dated: 6-4-2019

Donald E. Broadhurst