

Running Transmission as a Business How G&Ts Can Participate in Today's Transmission Arms Race

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There has been an "arms race" for transmission investments among investor-owned utilities ("IOU") and transmission companies ("Transcos"), resulting in substantial increases in transmission rates for all MISO pricing zones. By contrast, many generation and transmission ("G&T") cooperatives have not increased their transmission investment at the same rate of growth, resulting in substantial exposure to transmission rate increases for their cooperative members. In order to mitigate these rate increases, a G&T needs to run transmission as a business and put in place a business plan and disciplines that focus on creating value for its members.

Surging Nationwide Transmission Investment

From 2011 through 2016, Edison Electric Institute ("EEI") forecasts that IOUs (excluding public and cooperative power) across the country will double their rate of transmission investment from about \$11.9 billion per year to about \$22.1 billion per year (see Figure 1 on the next page)¹; this trend is likely to continue into the foreseeable future.² This massive increase in annual transmission investment is driven by a range of market factors, including the need for reliability and the growth of renewables, most notably wind power. This increase is also part of a "back to basics"

From 2011 through 2016, EEI forecasts that IOUs will double their rate of transmission investment from about \$11.9 billion per year to about \$22.1 billion per year.

¹ Source: Actual and Planned Transmission Investment by Shareholder-Owned Utilities (2009-2018), EEI, October 2015.

 $^{^2}$ As seen in Figure 1, the 2018 fall off in investment level reflects that forecasts are usually known with more certainty over the next few years. The fall-off in 2018 may not occur and the forecast picture may "roll" to the next three years.

Figure 1 Nationwide IOU Transmission Investment (\$ Billions)



Infrastructure strategy whereby IOUs invest in the "wires" side of their business in an effort to drive earnings growth with lower risk than many other generation investments.

The Need for Additional Transmission Investment

The need for additional transmission investment across the US is being driven by a number of policy and operational factors (see Figure 2 on the next page).

Renewables Standards, Wind—The US and individual states have promoted the development of renewable energy, especially wind, through production tax credits and renewable energy standards. Wind generation is generally located a considerable distance from population centers where the energy is needed, thus requiring transmission capacity.

FERC Policies—The Federal Energy Regulatory Commission ("FERC" or "Commission") has promoted investment through the development of Regional Transmission Organizations ("RTO"), postage stamp pricing³ and the granting of high returns, such as MISO's 12.38% return on equity ("ROE") that was in

³ Postage stamp pricing allocates the project costs across all entities; it thus encourages individual utilities to invest, because customers other than their own will pay a portion of the costs.

Figure 2 Policy and Operational Drivers of Transmission Investment



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place from the early 2000s through 2013.⁴ In addition, the Commission has granted various rate incentives to encourage new projects and the formation of dedicated Transcos. These incentives have included granting a hypothetical capital structure to increase the level of equity, incentive ROE adders, allowing construction work in progress ("CWIP") in rate base, recovery of abandoned plant costs, and establishing regulatory assets for new entrants.

NERC Security Requirements—The North American Electric Reliability Corporation ("NERC") has become much more stringent in critical infrastructure protection standards, for example, requiring substantial investments in control centers and substations to reinforce cyber and physical security. The interdependency of the internet and the constant threat of cyber-attacks have vastly raised the bar for utility's and RTO's computer systems to withstand cyber threats.

NERC Reliability Requirements—Utilities must adhere to NERC reliability standards, which have been reinforced over the last 10 years, thus requiring a

⁴ The first MISO complaint was filed in November 2013. Assuming the Commission agrees with the administrative law judge ("ALJ"), refunds will be issued for the 18-month period beginning in November 2013 at a base ROE of 10.32% for those transmission owners who were subject to a refund.

continual focus on reliability and ability to manage contingent events.

Load Growth and Pent-up Demand—Although load growth has been modest recently, there was a pent-up demand to enhance reliability as many IOUs in the 1990s were in an environment of rate freezes and kept their transmission investment relatively low. Moreover, there was no regulatory framework for reliable cost recovery until the early 2000s when RTOs began emerging, which led to additional transmission investment and a structured approach to cost recovery.

Returns for transmission are attractive given today's low cost of capital and returns are often higher than an IOU's state jurisdictions for generation and distribution assets. **Transmission Congestion**—The onset of RTOs and locational marginal pricing that charges for transmission congestion provided an economic advantage to expand transmission in order to lower delivered power prices.

Generation Retirements and EPA Rules—The retiring of older coal units due to more stringent environmental rules from the Environmental Protection Agency ("EPA") has created an additional demand for changes in transmission to help maintain stability of the grid.

New Natural Gas Plants—Inexpensive natural gas prices combined with the impact environmental rules had on coal plants have contributed to the rise of new natural gas plants as a major power supply source. These new plants may be sited in locations without adequate transmission, thus prompting new transmission investment.

The Financial Attractiveness of Transmission Investment

Transmission is FERC-regulated rather than state-regulated and is thus subject to formula rates that automatically update each year without a full rate case. Although stakeholders can question or challenge costs in the annual formula rate update, the probability that significant costs being excluded has thus far been relatively low. Moreover, returns for transmission are attractive given today's low cost of capital⁵ and returns are often higher than an IOU's state jurisdictions for generation and distribution assets. The established ROE cannot be challenged without a formal Section 206 complaint. In addition, most IOUs have a forward-looking (projected) test year, so there is no regulatory lag.

Most IOUs and Transcos in MISO see transmission investment as a major driver of earnings growth with attractive returns. For example, Ameren's CEO, Warner Baxter has highlighted its infrastructure investment, including transmission, in its earnings calls with investment analysts:

⁵ The MISO ROE of 12.38% has been challenged; the recent recommendation from the administrative law judge ("ALJ") for the second (most recent) complaint against MISO TOs provides for a 9.70% base ROE. The ROE adder of 50 basis points for RTO membership is in addition.

"The strong 2015 earnings growth compared to 2014, <u>reflected</u> increased FERC-regulated transmission in Illinois Electric delivery <u>earnings</u>, resulting from infrastructure investment made under constructive regulatory frameworks in order to better serve our customers."⁶

"Our list of transmission projects is projected to increase FERCregulated rate base by approximately <u>20% compounded annually</u> over the 2016 through 2020 period."⁷

The Transmission Arms Race in MISO

Given the need for, and financial attractiveness of, transmission investment, it is not surprising that investment in MISO has been substantial. Since 2003, transmission owners of all types in MISO (IOUs, Transcos, G&Ts, joint action agencies, municipals, and transmission and distribution cooperatives) have constructed about \$10.5 billion in transmission projects.⁸

This high level of investment in MISO will continue for the foreseeable future. There are now 863 total approved projects in the MISO Transmission Expansion Plan ("MTEP") in various stages of planning or construction, amounting to \$12.9 billion (see Table 1 below).

Analyzing MISO transmission investment over the last three years, it is evident that G&Ts have made lower absolute dollar investments than IOUs (as

Since 2003, MISO transmission owners have constructed about \$10.5 billion in transmission projects.

Table 1MISO MTEP Projects (2015)

MISO Region	Approved Projects in Various Stages	Estimated Cost
Central	170	\$3,095,150,000
East	196	\$1,603,368,000
West	368	\$6,931,160,000
South	129	\$1,228,188,000
Total	863	\$12,857,866,000
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⁶ Source: Warner Baxter, Chairman, President and CEO, Ameren 4Q 2015 Earnings Call Transcript

7 Ibid

⁸ Source: 2015 MISO Transmission Expansion Plan Executive Summary

Figure 3 Change in Gross Transmission Plant Balance for MISO IOUs and Transcos (2014-2016)¹¹



expected given the size differences). Looking at the change in gross transmission plant over the past three years provides a good proxy for the absolute levels of transmission capital investment.⁹ The analysis in Figure 3 (above) shows that the change in gross transmission plant for MISO IOUs and Transcos was nearly \$10 billion over the last three years.¹⁰ In this timeframe, four of the top six companies have been Transcos. This dominance by Transcos reflects their business model, which is based solely on transmission and largely on increasing their asset base.

The average change in gross transmission plant over the last three years for each IOU/Transco was about \$425 million, or about \$142 million per year. The median, however is much lower at \$220 million over three years, or about \$73

⁹ Source: June 2013-2016 MISO Attachment O Net Plant Tab. Formula = change in gross plant + change in CWIP in rate base. Does not match annual capital expenditures, because it includes transfers and retirements and does not include any change in CWIP that is not in rate base.

¹⁰ IOUs and Transcos are categorized together because the MISO Transcos are largely owned by IOUs.

¹¹ Source: June 2013-2016 MISO Attachment O Net Plant Tab. Covers Schedule 9, 26 and 26-A investments. For those companies using a projected test year, captures the change in projected data for each year. For those companies using an historical test year, captures the change in previous end-of-year data for each year.

Figure 4 Change in Gross Transmission Plant Balance for MISO G&Ts (2014-2016)¹²



million per year. This difference between the average and the median reflects that NSP (an Xcel subsidiary) had a relatively large change and that multiple IOUs (including some of the Entergy operating companies) had little change in their gross transmission plant, reflecting Entergy's recent entrance in MISO.

Figure 4 (above) shows the change in gross transmission plant for G&T transmission owners ("TO") in MISO, which was about \$620 million over the last three years. Great River Energy ("GRE") and Dairyland Power Cooperative ("DPC")¹³ comprised 55% of the total G&T change in gross transmission plant over the last three years. A significant portion of their investments included their participation in CapX2020 projects.¹⁴

¹³ Dairyland switched from an historical test year used for their June 2013 Attachment O (based on end of year 2012 data) to a projected test year beginning January 1, 2014, which is based on the projected monthly average of gross plant for 2014. Therefore, their gross plant balance effectively reflects an additional half year of investment for the 2014 figures compared to the prior year.

¹⁴ The CapX2020 Initiative is a comprehensive regional planning initiative by 11 utilities in the region known as the Transmission Capacity Expansion Initiative by the Year 2020 ... *(continued)*

¹² Reflects the 10 MISO G&T transmission owners. Does not include Minnkota Power Cooperative (which is not a MISO TO) and Central Iowa Power Cooperative (which files an Attachment O, but is not a MISO TO).

Figure 5

Cumulative 3-Year Change in Gross Transmission Plant Compared to 2013 Ending Net Transmission Plant for MISO IOUs/Transcos and G&Ts (2013-2016)¹⁵



The average change in gross transmission plant over the last three years for each G&T was about \$62 million, or about \$20.7 million per year. The median is lower at \$42 million over three years, or about \$14 million per year, reflecting the concentration of GRE and DPC in those three years.

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Compared to their 2013 ending net transmission plant balance, IOUs have increased their gross transmission plant balance by 63% compared to 38% for G&Ts.

More importantly, on a relative basis, G&Ts have invested at a lower rate as compared to IOUs (see Figure 5 above). Compared to their 2013 ending net transmission plant balance, IOUs have increased their gross transmission plant balance by 63% compared to 38% for G&Ts. Looking at this disparity in transmission investment from a different angle, Figure 6 (on the next page) shows that MISO IOUs and Transcos are making investments at a rate of approximately 5 times their transmission depreciation expense. In contrast, G&Ts are investing at about 3 times their depreciation. Note, however, that eight of the 23 IOUs/Transcos had a ratio less than the G&T average ratio of about

...continued ("CapX2020 Initiative"). The utilities involved with the CapX2020 Initiative include Central Minnesota Municipal Power Agency, Dairyland Power Cooperative, Great River Energy, Minnesota Power, Minnkota Power Cooperative (not a MISO TO), Missouri River Energy Services, Otter Tail Power, Rochester Public Utilities, Southern Minnesota Municipal Power Agency, WPPI Energy, and Xcel Energy Services, Inc. For a detailed report of the CapX2020 initiative, see

https://www.hhh.umn.edu/sites/hhh.umn.edu/files/capx2020_final_report.pdf

¹⁵ Source: June 2013-2016 MISO Attachment O Net Plant Tab

Figure 6 Change in Gross Transmission Plant Balance Compared to Depreciation Expense for MISO IOUs/Transcos and G&Ts (2014-2016)¹⁶



3 highlighting that Transcos (e.g., Ameren Transmission Company of Illinois "ATXI") had very high ratios, whereas other IOUs had a relatively low ratios (e.g., 1.3 for Southern Indiana Electric and Gas Company, a Vectren subsidiary). Excluding ATXI, which is an outlier because it is a new company, the IOU/Transco ratio comes down to an average of 4.5 from 4.9.

G&Ts, themselves, have been investing at much differing rates (see Figure 7 on the next page). The ratio of net transmission plant to gross transmission plant provides an indication of the age of each G&T's transmission facilities. The G&Ts with the lowest ratio (an indicator of older plant) tend to be those where the G&T has their own pricing zone and where their load is a significant portion of the total in the pricing zone (e.g., Big Rivers Electric, Southern Illinois Electric Cooperative and Hoosier Energy). That is, a contributing reason to their relatively low level of investment may include receiving little or no "payments from others" for transmission investment as compared to a G&T that is part of a joint pricing zone and has a relatively small portion of the total load in the zone. Prairie Power and Wolverine, both high investors, fall into this latter category. Other G&Ts with high levels of investment include GRE and Dairyland who

¹⁶ Sources: June 2013-2016 MISO Attachment O Net Plant Tabs and 2014-2016 Individual Attachment Os for Depreciation Expense.

Figure 7 2016 Net Transmission Plant as a Percent of Gross Transmission Plant for MISO G&Ts¹⁷



have invested in some cost-shared projects spread across pricing zones.

... over the last three years, G&Ts as a whole in MISO have not been investing at a rate consistent with their load ratio share. The bottom line, however, is that overall, G&Ts are investing at a lower rate than IOUs. Focusing on the last three years, G&Ts represent about 12.5% of the total IOU/Transco and G&T load in MISO, but only represent about 6% of the new transmission investment for these entities over the last three years (see Table 2 on the next page).¹⁸ That is, over the last three years, G&Ts as a whole in MISO have not been investing at a rate consistent with their load ratio share. As a result, and as discussed in the next section, G&Ts are paying for a significant amount of transmission investment made by others.

The Impact of Transmission Investment on Rates

In order to understand how transmission projects increase rates, it is important to understand how costs are shared in transmission projects. That is, we need

¹⁷ Source: March 2016 MISO Attachment O Net Plant Tab

¹⁸ Excludes joint action agencies, municipals and T&D cooperatives. Figures are based on total load for each G&T and are MCR estimates. Note that the load reported in the June 2016 MISO Attachment O Report Tab may be adjusted upward in those instances where the G&T's load is in multiple pricing zones, but the reported load only reflects the G&T's load in their own pricing zone. Additional sources for IOU and G&T load estimates include the 2015 FERC Form 1s, page 400, column e, "firm service for self" and the RUS Form 12. Transmission service provided for others' load is not included in a company's estimate.

Table 2

Comparison of Change in Gross Transmission Plant Balance to Current Load Ratio Share for MISO IOUs/Transcos vs. MISO G&Ts (2014-2016)

	3-Year Change in Trans. Gross Plant Balance (Proxy for Cap Expenditures) (\$ Millions)	% of Total Gross Plant Change	Estimated Load ¹⁹ (MWs)	Estimated % of Total Load
IOU, Transcos	\$9,767	94%	78,329	87.5%
G&Ts	\$621	6%	11,276	12.5%
Total	\$10,388	100%	89,605	100.0%

to look at whose customers pay for what portion of costs when a transmission project is built and put into service. Over the past few years, a significant portion of the transmission costs (and therefore the impact on transmission rates) have been due to 17 multi-value projects ("MVPs").

In 2012, the MISO Board approved a portfolio of MVPs totaling about \$6.4 billion²⁰ that are allocated based on MWh across all MISO North pricing zones. Nine of the 17 projects have completed construction or are underway with the remaining pending construction. Many of these projects are large (most are 345 kV), regional backbone projects and do not necessarily directly support local reliability needs at the sub-transmission level. The ability to invest in these types of large, cost-shared projects significantly changed, however, with the introduction of FERC Order 1000 in 2012/2013, which requires that any newly proposed project that has a cost-sharing mechanism across pricing zones must be competitively bid rather than built by the local or nearby incumbents.

As a result of FERC 1000, there is now a built-in incentive for a utility interested in investing in transmission to define a project as a "reliability project" within its own zone as opposed to a "cost-shared project" in order to avoid the FERC MCR

¹⁹ Sources: June 2013-2016 MISO Attachment O Net Plant Tabs and Report Tab from June 2016 for Load. Sources also include MCR estimates based on FERC Form 1, page 400, column e, "firm service for self" and RUS Form 12. Change in gross plant also includes any change in CWIP in rate base. Does not include joint action agencies, T&D cooperatives and municipals. ²⁰ See 2015 MTEP

Order 1000 competitive bid requirement. In fact, since FERC Order 1000 was approved, MISO has defined only one project as cost-shared, thus requiring a competitive bid.²¹

However, it is still possible for public and cooperative power entities that reside in a joint pricing zone with multiple TOs to benefit from cost sharing without defining a transmission project as a "cost shared" project. To illustrate this seemingly contradictory statement, consider the example where a G&T has no grandfathered agreements and has the ability to invest in a necessary transmission reliability project in a pricing zone where it has only 25% of the total load in the zone with the remaining load split among an IOU (60%) and a joint action agency (15%). In this case, being a "small fish in a big pond" pays off. The MISO tariff calls for the G&T's project costs to be shared by all load in the joint pricing zone and thus the revenue it obtains from the project will be paid 25% by its own cooperative members and 75% by the customers of the IOU and joint action agency (see Figure 8 below). This creates an incentive for the G&T to invest in their own transmission projects rather than rely on the incumbent IOU to address the G&T's transmission reliability issues in the zone. At the same time, the IOU in this example still has an incentive to invest, because their customers only pay 60% of the costs and the project increases the IOU's rate base and earnings.

Figure 8 Favorable Impacts of Load in a Joint Pricing Zone



G&T is 25% of total load in joint pricing zone ("JPZ")

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Although rates are determined by the total cost of service (including return, depreciation, transmission O&M and allocated A&G, property taxes and income taxes), the considerable transmission investment in MISO has correspondingly led to a significant rise in transmission rates for many pricing zones²² within MISO. Thus, transmission rates have become a significant and increasing

²¹ Duff-Coleman project in 2016. MISO is evaluating 11 responses and expects to announce the winner at the end of 2016.

²² Pricing zones often consist of multiple participants. For example, the Duke Energy-Indiana ("DEI") pricing zone consists of assets of DEI, Indiana Municipal Power Agency and Wabash Valley Power Association.

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Being a "small fish in a big pond" pays off. portion of the total power bill. As investment increases, depreciation and the dollar return on rate base increase along with allocators.²³ Table 3 (on the next page) shows the average system-wide MISO network (Schedule 9) transmission rate has increased from \$1.51 per kW/month in June 2005 to \$3.31 per kw/month in June 2016, an increase of 119% or 7.4% compound annual growth.²⁴ This compares with an average Consumer Price Index in the same period of only 2.2% per year. Across the sampled pricing zones,²⁵ there is an extremely wide range in both the 2016 absolute <u>network</u> rates (\$1.08–\$9.82) and the percentage rate increase since 2005 (-8% to 360%). The top three percentage rate increases in the sample were for pricing zones that included Transcos (ITC-Midwest, Michigan Electric Transmission Company "METC" and Ameren-IL, which includes ATXI). Note that these figures are only for Schedule 9 zonal projects, such as local reliability projects, and do not include the rate impacts of cost-shared projects.

With the impacts of cost-shared regional projects (Schedule 26 and Schedule 26-A) layered on top of the Schedule 9 costs,²⁶ the rate increases become even more substantial. For example, when adding in the rate impact of cost-shared projects, MCR estimates the MISO system average rate increase jumps from 7.4% annually to 10.1% annually with an even more stunning range of cumulative percentage increases of 13% to 452% across the sampled pricing zones (see Table 4 on the next page).²⁷ These cost-shared projects include the previously discussed 17 large MVPs²⁸ that are allocated based on MWh across all MISO zones using Schedule 26-A.²⁹ The estimated total cost of these MVP projects have increased about 23% from an initial estimate of \$5.2 billion in the 2011 MTEP to the latest estimate of \$6.4 billion in the 2015 MTEP. Cost-shared projects also include other Schedule 26 projects³⁰ that are cost-allocated 20%

²³ For example, the gross plant allocator used to allocate property taxes to transmission will rise as transmission gross plant increases (all other gross plant being equal). Also, the wage and salary allocator based on transmission wages as a percentage of total functional wages will likely increase as gross transmission plant increases.

²⁴ Does not reflect the impact of the impending refunds for reduced ROEs in MISO.

²⁵ Sampled pricing zones include those G&Ts, IOUs and Transcos in existence from 2005.

²⁶ Schedule 26 (recovered through Attachment GG) began in 2007 and Schedule 26-A (recovered through Attachment MM) began in 2012.

²⁷ MISO publishes indicative charges for both Schedule 26 and 26-A. Schedule 26 is in \$/kW/month whereas Schedule 26-A is in \$/MWh. Note that MCR estimated the cost impacts of MVP projects (Schedule 26-A) based on a load factor of 50% in order to be able to sum the total of Schedule 9, 26 and 26-A and place them on an equal basis of \$/kW/month.

²⁸ See 2015 MTEP.

²⁹ The MWh for calculating the rate per MWh has included exports and wheel-throughs, excluding those that sink in PJM. On July 13, 2016, however, FERC ruled that MVP costs should also be applied to MWh that sink in PJM.

³⁰ These Schedule 26 projects were mainly Regional Expansion Criteria and Benefits ("RECB") projects, but also included generator interconnection projects and market efficiency projects. Post FERC Order 1000, Schedule 26 has fewer projects and only includes generator interconnection and market efficiency projects.

There is an extremely wide range in both the 2016 absolute <u>network</u> rates (\$1.08–\$9.82) and the percentage rate increase since 2005 (-8% to 360%).

Table 3Transmission Schedule 9 Network Rate Increases31MISO Average and Select Pricing Zones2005-2016

	\$/kW/Month		Cumulative %	Compound	
Index/Pricing Zone	2005	2016	Change	Annual % Increase	
Consumer Price Index				2.2%	
MISO System Average	1.51	3.31	119%	7.4%	
MDU	3.05	2.80	-8%	-0.8%	
Otter Tail	3.39	3.32	-2%	-0.2%	
Southern IL Power Coop	2.20	2.45	11%	1.0%	
IP&L	0.79	1.08	37%	2.9%	
NIPSCO	2.20	3.50	59%	4.3%	
ITC	1.61	2.58	61%	4.4%	
Minnesota Power (Allete)	1.61	2.77	72%	5.1%	
Ameren-MO	0.83	1.49	79%	5.4%	
Hoosier	3.27	5.94	82%	5.6%	
Duke-Indiana	1.25	2.42	94%	6.2%	
GRE	2.15	4.68	118%	7.3%	
ATC	2.27	5.06	123%	7.6%	
NSP (Xcel)	1.87	4.55	143%	8.4%	
SIGECO (Vectren)	0.90	2.62	192%	10.2%	
Ameren-IL	0.88	2.62	199%	10.5%	
METC	0.98	3.38	245%	11.9%	
ITC-Midwest	2.13	9.82	360%	14.9%	
				MCR	

³¹ Source: MCR Analysis based on June 2005 MISO Attachment O Files and June 2016 MISO Attachment O Files. Note that 2016 rates do not include any MISO ROE rate refund due to likely lower ROE.

across MISO and 80% to local or adjacent zones based on load flow.32

Interestingly, member load of select G&Ts with grandfathered agreements (e.g., Hoosier Energy, Dairyland, Southern Illinois Power Cooperative and Big Rivers Electric) has been exempted from Schedule 26 and 26-A charges in their pricing zones as FERC ruled that transmission expansion and transmission upgrades were not substantially different than the types of bundled services traditionally offered by these companies to their full requirements members.³³ Conversely, relatively low rate pricing zones, such as Indianapolis Power and Light, have seen substantial rate increases due to these cost-shared projects. MVPs are particularly attractive investments, because the entity(s) making the investment receive(s) a healthy return on these investments but pays only their load ratio share of the entire MISO load.³⁴ Where else could someone make 12.38% return on their equity³⁵ and typically have 90% or greater of their project revenue paid for by customers other than their own?

How a G&T Can Create Value for its Members from Transmission Investment

As discussed previously, IOUs can create value for shareholders by having transmission investment increase rate base and thus be a major contributor to incremental earnings growth. The business model of G&Ts is, of course, much different than IOUs in that G&T customers are their member-owners. That is, generating higher earnings for a G&T does not necessarily create value for a member cooperative if the increased earnings are fully paid by the members of the G&T—simply moving money from the "left pocket to the right pocket." Ultimately, what matters is whether a G&T is creating real value for its members.

While there is no "one size fits all" answer for G&Ts to create value from transmission investment, there are five common approaches that should be explored to determine the best fit given the G&T's unique situation. These are:

- 1. Participate in projects where customers other than your own pay a portion of your transmission costs
- 2. Achieve higher returns from transmission investment vs. current cost of capital, so the difference can be used to help offset transmission rate increases

³² The local portion of the allocation (80% of total) is now allocated based on MISO Resource Zones.

While there is no "one size fits all" answer for G&Ts to create value from transmission investment, there are five common approaches that should be explored to determine the best fit given the G&T's unique situation.

³³ 138 FERC ¶ 61,142, February 28, 2012 P. 41.

³⁴ MISO South companies are exempted from most cost-shared projects in MISO North for a transition period.

³⁵ The MISO standard return on equity is being reduced pending Commission approval of ALJ decisions. The median IOU/Transco actual equity ratio is about 53% and the median G&T actual equity ratio is about 21%. The ALJ for the second (latest) MISO ROE complaint recommended a 9.7% base ROE, which does not include the RTO membership adder of 50 basis points.

Table 4Total Estimated Transmission Rate Increases36MISO Average and Select Pricing Zones (Schedules 9, 26 and 26-A)2005-2016

	\$/kW/Month		Cumulative %	Compound
Index/Pricing Zone	2005	2016	Change	Annual % Increase
Consumer Price Index				2.2%
MISO System Average	1.51	4.35	188%	10.1%
Southern IL Power Coop	2.20	2.49	13%	1.1%
MDU	3.05	4.01	31%	2.5%
Otter Tail	3.39	5.71	69%	4.9%
Hoosier Energy	3.27	6.27	92%	6.1%
NIPSCO ³⁷	2.20	4.56	107%	6.9%
ITC	1.61	3.48	116%	7.3%
IP&L	0.79	2.07	162%	9.1%
Minnesota Power (Allete)	1.61	4.74	195%	10.3%
ATC	2.27	6.71	196%	10.4%
Duke-Indiana ³⁸	1.25	3.72	198%	10.4%
Ameren-MO ³⁹	0.83	2.52	202%	10.6%
GRE	2.15	6.77	215%	11.0%
NSP (Xcel)	1.87	6.45	245%	11.9%
Ameren-IL ⁴⁰	0.88	3.74	327%	14.1%
SIGECO (Vectren)	0.90	4.44	395%	15.6%
ITC-Midwest	2.13	11.61	444%	16.7%
METC	0.98	5.41	452%	16.8%
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³⁶ 2016 rates based on latest available MISO Attachment O of June, 2016 and indicative MISO Schedule 26 and 26-A rates. MISO Schedule 26-A indicative rate is based on \$ per MWh. MCR converts this to \$ per Kw/Mo based on an assumed 50% load factor. Note that 2016 rates do not include the likely MISO ROE refund.

³⁷ 2016 GridAmerica-Northern Indiana Public Service in 2005/2006 and NIPSCO thereafter.

³⁸ In 2005, calculated based on Duke-Cinergy. Includes IMPA and WVPA.

³⁹ GridAmerica-Ameren (included AmerenUE and AmerenCIPS) in 2005/2006 and Ameren-MO thereafter.

⁴⁰ In 2005, calculated as the weighted average of the CILCO and Illinois Power pricing zones. In 2007, includes CIPS.

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- 3. Enhance reliability at the member cooperative local load level, not just at the regional backbone level
- Improve access to wholesale markets to reduce power costs and/or to lower congestion costs
- 5. Capitalize on a G&T having a lower requirement than an IOU by being a sole or major investor in all projects affecting the G&T's load

1. Other customers pay a portion of your costs—As mentioned previously, MISO cost-shared projects (e.g., MVPs) are particularly attractive investments because a large portion of the total costs are paid by other customers. Also, projects in a joint pricing zone can often be financially very attractive because the costs are paid by all customers in the pricing zone.⁴¹ The lower the percentage a company has of the entire load in the joint pricing zone, the more attractive their investment is, because other customers will pay a portion of the costs. This tends to be the number one economic factor for a G&T to create value for its members. Nevertheless, even if a G&T has a relatively high percentage of the load in their pricing zone, it can still create value by other ways discussed below.

2. Substantial returns, higher than the cost of capital—Because a G&T currently has a relatively low incremental cost of capital (e.g., Rural Utilities Service ("RUS") long-term debt is less than 2% and other sources are about 3.5%), the G&T can produce substantial margin for the investment. The overall return in MISO is based on a weighted average of debt and equity. The percentage equity on the balance sheet is combined with the MISO ROE and the percentage long-term debt is combined with the average, historical cost of debt. This produces an overall rate of return of about 6%⁴² vs. a cost of incremental debt of about 2.0%-3.5%, resulting in a margin of about 2.5%-4%, which is very high in today's low interest rate environment. This margin can be used to help partially offset the rising transmission rates faced by all G&Ts and their members.

FERC has consistently encouraged public and cooperative power investment in various landmark orders, such as FERC Orders 2000, 890, 1000 and 679.⁴³ Indeed, under Order 679, for certain types of projects, G&Ts can apply at FERC

⁴³ For example, Order 679 states, in part: "We agree with comments that public power participation can play an important role in the expansion of the transmission system....the Commission will entertain appropriate requests for incentive ratemaking for investment in new transmission projects when public power participates with jurisdictional entities ... for a particular joint project."

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⁴¹ This may not be the case if the participants in the zone have contractual true-up features that equalize investment based on load ratio share.

⁴² Assumes 10.2% total ROE, 76% equity, 4.9% average historical cost of debt

for rate incentives, such as a hypothetical capital structure. For example, Dairyland was granted a hypothetical capital structure of 35% equity for its portion of the Hampton-Rochester-La Crosse investment and 40% equity for its investment in the Badger-Coulee project. This raised its overall return and margin on these investments, because the ROE for the project costs is calculated on a higher amount of equity than Dairyland's current equity ratio of 22%. FERC requires, however, that each incentive request under Order 679 be analytically substantiated based on, for example, the company's unique financial characteristics and credit rating impacts on the utility plus the risks of the project.

G&Ts have significantly lower revenue requirements than IOUs and Transcos for the same level of transmission investment.

3. Reliability at the local level—A G&T can focus its investment to improve reliability of its members. Although G&T member cooperatives are paying for large, regional backbone projects, such as the MISO MVPs, these projects do not necessarily penetrate down to the local level to enhance reliability of the sub-transmission level (e.g., 69 kV or 34 kV). Examples of the types of reliability projects that can be undertaken to improve local reliability include:

- Looping a radial line and connecting to the MISO network
- Adding a substation and lines to create redundancy and mitigate a catastrophic scenario
- Re-conductoring an existing line
- Replacing poles/structures
- Investing in a new or spare transformer
- Deploying fiber optics for transmission purposes

4. Improved wholesale access and/or lower congestion costs—A G&T can participate in projects to better interconnect to the MISO network in order to provide a more liquid market that can lower overall power supply costs in the RTO. They can also invest in specific projects that are designed to reduce congestion on a nearby line or overloading of a substation.

5. Lower revenue requirements for the same transmission investment—

G&Ts have significantly lower revenue requirements than IOUs and Transcos for the same level of transmission investment. Assuming that a G&T's incremental operation and maintenance expense to service a new transmission investment is comparable to an incumbent, the G&T's revenue requirement will be considerably lower than the IOU's. The revenue requirement will be lower because:

 G&Ts do not pay state or federal income taxes; whereas IOUs do pay taxes and those costs are included in the IOU's cost of service

- The typical equity ratio for G&Ts is lower than IOUs (median of 21% vs. 53%), so the G&T's weighted average cost of capital, which is also referred to as the overall rate of return, is lower
- The cost of incremental long-term debt can be lower if the G&T finances through the RUS

For the same investment, and assuming a 12.38% ROE, the typical IOU's revenue requirement has been about 60% higher than the typical G&T. This means for example, that if the IOU's incremental revenue requirement for a particular transmission investment is \$1.6 million, the corresponding G&T's revenue requirement is \$1 million for the same investment. Assuming a reduced ROE reflecting the latest ALJ ruling, the difference is about 45% to 50%.⁴⁴

Running Transmission as a Business

Being successful in the transmission business will require putting in place a new culture, developing a deep understanding of MISO's policies, establishing a transmission business plan that links to the capital budget and instituting key disciplines—all focusing on creating value for members.

Create a new culture

The starting point for running transmission as a business is to create a "state of mind" that thinks of transmission as a high visibility business rather than only a responsibility. This means considering transmission ownership rather than "renting" and seeking investment opportunities that will create margin to hedge against rising transmission rates. This means thinking of not just reaching a load ratio share of investment, but rather thinking about total transmission revenue received less transmission tariff paid—the true neutral investment position to totally offset rising transmission rates.

Viewing this state of mind as a Transmission Vision, Figure 9 shows the dozen characteristics of companies that view transmission primarily as a responsibility compared to companies that view it as a business.

Develop a deep understanding of MISO transmission policies

The knowledge needed to run transmission as a business is significant. An important element to obtaining this knowledge is to become an active

Being successful in the transmission business will require putting in place a new culture, developing a deep understanding of MISO's policies, establishing a transmission business plan that links to the capital budget and instituting key disciplines-all focusing on creating value for members.

⁴⁴ Source: MCR analysis. Equity ratio for MISO G&T assumes a median of 21% with a 4.9% historical cost of debt. Equity ratio for IOU assumes a median of 53% with a 5.0% historical cost of debt. Assumes same incremental O&M and other taxes of 2.3% of gross plant for incremental investment. Uses combined MISO average IOU federal/state income tax rate of 39.1%. Assumes past MISO ROE of 12.38%. At 10.2% ROE (9.7% plus 50 basis point RTO adder), the ATRR difference is lowered to about 48%. Under certain circumstances, G&Ts and joint action agencies can apply to FERC for a higher equity ratio in order to increase their return on a particular project investment, which would lower but not eliminate the difference in revenue requirement. For example, with a 40% hypothetical equity ratio for the G&T and a 10.2% ROE, the ATRR difference is about 35%.

Figure 9 12 Characteristics Comprising the Transmission Vision

Transmission as a "Responsibility"

- 1. "Renter" of transmission, where tariff costs are greater than revenue
- 2. Visibility at mid-manager level with a focus on reliability
- 3. Transmission—stepchild to generation
- 4. Relying on MISO committee reports
- 5. "Fill out" the Attachment O
- 6. Focus on native load cost impacts and reliability
- 7. Tactical plan; reliability projects
- 8. Playing "defense;" deferring to IOU incumbents and reacting to competition
- 9. Reactive approach to risk
- 10. Reliability problems drive capital budget
- 11. "Going it alone"
- 12. Disparate functions

Transmission as a "Business"

- 1. Owner of transmission with returns, where revenue received = tariff paid
- 2. Visibility at senior mgt. level with a focus on business development
- 3. Transmission—equal status to generation
- 4. Seat at table; active participant in MTEP
- 5. Optimize the Attachment O
- 6. Focus on pricing zone cost allocation and eligibility of investment
- 7. Business plan; creating value and margin
- 8. Going on "offense"; optimize existing assets & identify new opportunities
- 9. Proactive, portfolio impact of risk
- 10. Business plan, value drives capital budget
- 11. Exploring partnership options
- 12. Dedicated transmission disciplines

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transmission owner participant in the MTEP process rather than relying on an incumbent TO or committee reports. It will be important to also develop a complete and detailed understanding of the MISO Attachment O cost recovery process, including for example, an understanding of the detailed formula rate impacts on allocators of increasing transmission staff and investing in new projects using debt vs. equity—regardless of whether these projects are transmission or generation. This, along with an understanding of the tariff creates an important foundation to understanding the probability/threat of the direct assignment of project costs to the company rather than the costs being placed in the pricing zone. Equally important is understanding eligibility criteria for existing and new transmission investment (different voltages, radial vs. looped facilities and the FERC 7-factor test).

Develop a transmission business plan

A five-year transmission business plan defines how the G&T will create value for its members from existing or new transmission assets. This business plan needs to capture the ambition of G&T senior management that reflects being an owner rather than renter and "going on offense" with regard to transmission. This also means staffing transmission with dedicated disciplines and allocating management resources on par with generation. The business plan recognizes

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Figure 10 Five-Year Transmission Business Plan Steps

Step 1	Step 2	Step 3	Step 4	Step 5
Gain alignmen on industry issues; develo vision and goa for transmissio	t Develop objectives ar high-level strategies fo n creating valu	Identify, evaluate and rank project opportunities	Define disciplines and staffing to achieve vision and goal	Recommend capital budget and present results
 Understand investment and rate trends Discuss value creation opportunities Determine neutral investment calculations by pricing zone Develop vision statement and quantitative goal for transmission business 	 Develop objectives Develop key highlevel strategies to meet objectives and create value Understand impacts of strategies on reaching overall goal 	 Define project evaluation criteria for transmission Further discuss/define project opportunities Estimate capital budget Evaluate and rank projects against project prioritization criteria; determine timing 	 Define responsibilities of key disciplines necessary for success Transmission engineering planning Intelligence Economic analysis Regulatory support RTO participation Revenue requirement optimization Understand staffing levels and any organizational structure 	 Assemble five-year transmission plan Industry issues/trends Vision statement and goal Objectives, high-level strategies Project opportunities and priorities Disciplines, staffing Value created Recommended five-year and annual budget Present results to senior

the portfolio of possible company investments or resource allocations that take into account the risk profile of transmission investments compared to other investment opportunities for the G&T. It is important to always keep in mind that transmission opportunities included in the plan should reflect opportunities that create value for its members.

Instead of going at it alone in transmission or deferring to the incumbent utility to decide what investment will be made, the business plan should also determine what partnership options might make sense after consideration of competition, economics and risk. Developing a transmission business plan is a 5-step approach (see Figure 10 above).

Presuming there is a multi-functional team approach to developing the transmission business plan, then gaining alignment of key issues and trends is a critical first step, because it puts everyone on the same footing regardless of functional or technical knowledge. Step 1 also conducts high-level analysis of the G&T's neutral investment position (e.g., load ratio share vs. gross plant in the zone(s) or zonal tariff paid vs. zonal revenue received). This common appreciation of the issues then sets the stage for the team's development of a vision statement and quantitative goal for the transmission business. Defining

the vision involves examining the 12 characteristics of the Transmission Vision to examine what side the G&T currently resides vs. where it wants to be. In turn, this vision informs the development of key objectives and high-level strategies in Step 2. These objectives and strategies are often linked to the five value-creation methods discussed above.

Step 3 evaluates the specific project opportunities (e.g., upgrade existing or propose new assets) and ranks the opportunities according to the agreed upon high-level ranking criteria. This ranking criteria may have elements of an existing company-wide project ranking process, but will also be tailored for transmission (e.g., reliability). The amount and timing of the capital dollars required are also determined by project, by year and for the transmission business as a whole. Step 4 examines the five key disciplines for running transmission as a business and further defines the responsibilities and staffing required to achieve the goal and strategies. At that point, any organizational changes are also identified. Step 5 then assembles the proposed Five-Year Transmission Business Plan and presents the results, including a summary of the value created and a proposed capital expenditure level for the next five years, to senior management and the board.

<u>Reflect the transmission business plan in the company-wide capital</u> <u>budget</u>

The transmission capital budget is driven by the value creation opportunities defined in the business plan. Figure 11 (on the next page) shows how the five-year transmission business plan fits into the overall G&T company-wide capital planning process. The transmission business plan produces proposed capital budgets that must be vetted through the company-wide project evaluation and prioritization process, ultimately leading to a final five-year transmission capital budget that is also translated into the annual capital budget. The proposed transmission projects must be concurrently coordinated/reviewed with other affected transmission owners and proposed through the MTEP planning process to gain approval from MISO.

Establish required disciplines

Beyond traditional necessary transmission functions, thinking of transmission as a business requires dedicated staffing and disciplines to "go on offense," rather than react to transmission needs. To ensure action is taken in a timely and effective manner, it is important to have accountability for results. This means, for example, determining which disciplines immerse themselves in the MISO market to capture the information needed to run this business, who will focus on developing transmission investments and ensuring optimal cost recovery, and what organization or committee will analyze opportunities and make decisions.

Beyond traditional necessary transmission functions, thinking of transmission as a business requires dedicated staffing and disciplines to "go on offense," rather than react to transmission needs.

Figure 11 Overall Transmission Capital Planning Process



The six required disciplines are:

- **Transmission Engineering Planning**—Optimizing existing assets; actively identifying and proposing new projects; coordinating with surrounding utilities and MISO (e.g., MTEP planning) and understanding the ramifications of existing contracts, and tariff language (e.g., ownership rules regarding who has rights to build between substations)
- **Intelligence**—Thoroughly understanding the issues that impact the industry, including cost allocation, return, tariff changes, competition, partnerships, etc.
- Economic Analysis—Understanding the economics and cost allocation aspects of specific project options and the proper valuation methods for projects and transmission assets (e.g., net present value of incremental cash flows)
- **Regulatory Support**—Interacting with the regulatory community to ensure the most favorable revenue requirement possible while protecting against unwarranted transmission costs of other utilities (e.g., FERC filings and interventions)

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- **RTO Participation**—Actively participating in MISO committees to influence policy and to be able to anticipate and mold changes rather than react to them
- Revenue Requirement Optimization—Optimizing the Attachment O revenue requirement process and protecting cost recovery in the open stakeholder meeting process

Most IOUs have already made the switch to running transmission as a business. G&Ts are also well-suited to make this transition and participate in new transmission investment, because they (or their members) have existing transmission assets. These existing assets are valuable, because upgrading or building new additional transmission is much easier if there are already existing transmission facilities (lines or substations) to connect to. Moreover, as mentioned previously, G&Ts have an inherent revenue requirement advantage over IOUs and Transcos, leading to lower transmission rates for all customers in a joint pricing zone, or across all of MISO for cost-shared projects. Further, member cooperatives can play an important role in permitting new transmission facilities and in the acquisition of right of way.

Moving Forward

Actively participating in today's large transmission investments and running transmission as a business requires G&Ts to initiate a mindset change, thoroughly understand MISO's policies, establish a business plan that lays out a vision and ambition for the transmission business that integrates with the company's capital budget, and put in place the disciplines to ensure results. The transmission business plan includes how G&Ts will create value for members by wringing every inch of value out of existing assets and proactively identifying opportunities for new transmission investment. This has become an imperative as transmission rates continue to rise at rapid pace and become a significant portion of the customer's total power bill. This vision of a transmission business with equal stature to generation includes defining the appropriate strategies, and putting in place and implementing the disciplines to ensure that transmission is run like a business.

The transmission business plan includes how G&Ts will create value for members by wringing every inch of value out of existing assets and proactively identifying opportunities for new transmission investment.

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MCR provides transmission strategy support to G&T and T&D cooperatives, joint action agencies and municipals in MISO and SPP. Our services include:

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- Formula rate education workshops

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- Section 205 filing testimony and support
- Transmission incentive rate filings at FERC
- Cost of capital expert testimony
- Intervention and mediation support

Strategic Analysis

- Economic evaluation of new transmission projects
- RTO membership economic evaluation
- Development of business plan and evaluation of transmission investment strategies
- Analysis and development of negotiating strategies with incumbents
- Evaluation of the purchase and sale of transmission assets

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