Primer on
Transmission Formula Rates

prepared for WIRES

February 16, 2023

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1 Executive summary

WIRES commissioned London Economics International LLC ("LEI") to prepare a primer that: (i) explores what transmission formula rates ("TFRs") are; (ii) describes how the Federal Energy Regulatory Commission (referred to interchangeably as "FERC" or "the Commission" throughout this primer) applies such rates; and (iii) assesses in an objective manner the positive ratemaking characteristics inherent in the use of TFRs for customers, regulators, transmission owners, and other industry stakeholders. This primer also provides a brief history of the inception and use of formula rates, as well as a high-level comparison of the use of the traditional stated rates approach and formula rates.

Under the TFR approach, after the utility files an initial application under the Federal Power Act ("FPA") Section 205, the Commission approves a formula for the utility to calculate its costs of service and derive its rates, and in subsequent years, the utility uses the approved formula and updated input data to calculate its new rates each year. The utility submits its annual updates and supporting documentation to the Commission on an informational basis only, and shares the updates with interested parties, who can review, verify, and challenge the inputs used in the calculations pursuant to approved protocols. In contrast, under the stated rates approach, the utility must file an application under FPA Section 205 each time it seeks to change its rates.

TFR use has become widespread across electric utilities under Commission jurisdiction, with recent estimates (as of November 2019) reporting approximately 106 utilities using TFRs, compared to only 31 utilities using transmission stated rates.[1] Based on LEI's analysis, transmission owners using TFRs have service territories encompassing every state in the continental United States.[2]

TFRs gained traction because of their characteristics that advance multiple ratemaking objectives and balance the interests of customers, regulators, transmission owners, and other stakeholders. These characteristics can broadly be grouped into three categories:

- **Transparency, oversight, and stakeholder engagement:** the annual update process provides a transparent, routine way for utilities to disclose and true-up the information and data underlying the resulting rates, while also providing multiple opportunities for significant stakeholder engagement (which can include stakeholder sessions, opportunities to submit information requests, and opportunities to raise informal and formal challenges) as well as Commission oversight (including audits of FERC Form No. 1 data and ensuring compliance with the formula rate and protocols).[3] This enables

[1] FERC. *Order No. 864*. November 21, 2019. P. 68-69. These numbers reflect only entities that are under Commission jurisdiction. Non-jurisdictional entities, such as many cooperatives and municipal power providers, are not included in these figures.

[2] Drawn from various sources, including tariffs filed with the Commission, utility service maps, and state regulators.

[3] Currently, the annual update process does not provide for all of these items in each transmission owners' TFR protocols. However, in recent years, the Commission has issued "show cause" orders seeking to align TFR protocols and requiring utilities to respond to deficiencies in the areas of: (i) the scope of participation; (ii) the

interested parties to gain a better understanding of rate calculations and the underlying inputs (costs). While meaningful participation in this process by both stakeholders and utilities requires a commitment of time, effort, and resources, with information requests and responses numbering in the hundreds and resource-intensive informal and formal challenges, the process ultimately provides a more transparent rate setting process, allowing parties to verify that the costs included in rates are reasonable and prudently incurred;

- **Timeliness of cost recovery:** the annual update process reduces the risk of rate shock (i.e., large step changes in rates) from prolonged periods between rate cases and also reduces regulatory lag, which improves the predictability of a utility's cash flows and reduces its financing costs[4] – an element of formula rates that ultimately flows through to customers in the form of lower rates. Finally, this timely cost recovery provides a supportive process for investment in transmission, which facilitates a variety of reliability, resiliency, and clean energy policy goals at the local, state, and national levels, ensuring customers receive more reliable and cleaner electric service; and

- **Reduced regulatory burden and enhanced administrative efficiency:** the avoidance of frequent and lengthy rate cases under the TFR approach leads to cost savings in terms of time, effort, and resources for all involved, including the utility, the Commission, and intervening parties – cost savings that are realized by customers.

LEI provides a high-level overview of TFRs in the context of ratemaking attributes in Figure 1 on the following page, assessed from the perspective of various stakeholder groups.

transparency of the information exchange; and (iii) the ability to challenge the transmission owners' implementation of the formula rate as a result of the information exchange.

[4] Major credit rating agencies (Fitch, S&P, and Moody's) recognize the importance of timely cost recovery in their credit rating methodologies, acknowledging that the regulatory environment impacts the predictability of a utility's cash flows, which in turn impacts its financial stability and, ultimately, its credit rating. Countervailing Commission policies (e.g., open-ended refund obligations) diminishes rate certainty (and increasingly so, as the formula rate ages).

Figure 1. Overview of TFR characteristics from various stakeholder perspectives

Transparency, oversight, and stakeholder engagement	Timeliness of cost recovery	Reduced regulatory burden and enhanced administrative efficiency
• **Customers**, **FERC**, and **industry stakeholders** have access to annual information filings on costs of service • Regularly scheduled stakeholder engagement per protocols for **customers**, **industry stakeholders**, and **FERC** • TFR protocols enable understanding of rate calculations and underlying inputs (costs) for **all parties** • **Customers** protected by regulatory oversight, including audits under **FERC**	• Annual process means **customers** benefit from greater rate predictability and reduced risk of rate shock by avoiding prolonged periods between rate cases • Annual true-up based on actual costs so that **customers** do not over-pay and **transmission owners** do not under-recover • Reduced regulatory lag minimizes financing costs for **transmission owners** and flows through to **customers** through lower rates • Facilitates transmission investments which enable reliable electric service for **customers**	• Eliminates need for participation in lengthy, often litigated rate cases for **all parties** • Lowers costs of proceedings for **all parties**, including time and resources dedicated to preparing, filing, litigating, and resolving rate cases; cost savings ultimately flow through to **customers**

Note: When referring to "customers", LEI includes transmission customers as well as their representatives, such as ratepayer advocates, state attorneys general, consumer trade associations, and transmission-dependent utilities (who may intervene in rate proceedings on behalf of their end-users). When referring to "industry stakeholders", LEI is referring to other potential stakeholders not covered under the "customer" or "transmission owner" categories, including state regulators, RTOs/ISOs, energy-related trade groups, and other interested parties.

2 Background on transmission formula rates

2.1 Overview

Electric transmission rates for interstate commerce are regulated by the Commission. Pursuant to the FPA,[5] the Commission is responsible for ensuring that electric transmission rates for interstate commerce are just, reasonable, and not unduly discriminatory or preferential.[6] Just and reasonable rates have been interpreted in North America to mean rates which provide an investor the opportunity to achieve a return consistent with that which could be received in an unregulated industry facing a similar level of risk, provided service expectations are met. Returns are not guaranteed, however. Not unduly discriminatory or preferential rates ensure that groups of customers with similar characteristics are treated in the same way.[7]

Electric utilities operating under Commission jurisdiction are generally permitted to set their transmission rates through one of two approaches – either through stated rates or TFRs. Figure 2 below lists the key features of both approaches. Notably, both approaches are meant to achieve just and reasonable and not unduly discriminatory or preferential rates.

Figure 2. Key features of stated rates versus transmission formula rates

Stated rates	Transmission formula rates
• Use historical or projected data to determine costs of service and resulting rates • Commission-approved rates are numerically fixed and stated as-is – rates are not updated as costs of service change, unless the utility files a new rate case	• Commission approves the formula – the utility inputs historical or projected data into the approved formula to calculate costs of service and resulting rates • Annual true-up mechanism reconciles projected data to actual revenues earned and costs incurred in the rate year • The utility enters input data into the approved formula each year to calculate new rates – the annual update is filed with the Commission on an informational basis and does not require submission of a new rate case • Interested parties can review, verify, and challenge the inputs used in calculations and the prudency of costs

[5] Codified in 16 U.S. Code § 824d.

[6] FERC. *Staff's Guidance on Formula Rate Updates.* July 17, 2014.

[7] FERC. *An Overview of the Federal Energy Regulatory Commission and Federal Regulation of Public Utilities.* June 2018.

Both approaches are designed to employ similar principles of cost-of-service ratemaking and accounting.[8] Rates are designed to fully recover the utility's costs of providing safe and reliable transmission service, along with a reasonable return on investment. The differences between the two approaches primarily relate to how and when transmission rates may be updated. Specifically, a utility under stated rates cannot change its rates unless it files a full Section 205 rate case with the Commission. In contrast, a utility under the TFR approach must update its rates each year using a Commission-approved formula and protocols[9] and prepare an annual informational filing; these updated rates do not require a full Section 205 rate case or a separate Commission order for approval.

Stated rates approach

The stated rates approach has been in use since the very early days of the regulated utility model. Under the stated rates approach, rates can only be updated through a Section 205 rate case filing with the Commission. As part of its rate application, the utility uses historical or projected data to calculate its transmission revenue requirement, allocate costs among its customers, and set its transmission rates.[10] If the Commission finds the proposed transmission rates to be just and reasonable, they are numerically fixed (or "stated") until the utility files its next rate application.

However, at any point, the Commission, on its own motion or that made by a party under Section 206 of the FPA, can allege that the stated rates are unjust and unreasonable, and order amendments.[11] More details on the stated rates approach are provided in Section 3.3.

Transmission formula rates approach

Formula rates were introduced by the Commission as early as the 1970s as an alternative to the traditional stated rates approach. Under the TFR approach, after a Section 205 application by the utility, the Commission approves the formula that a utility proposes to calculate its costs of service and determine its resulting transmission rates. Similar to the stated rates approach, the Commission on its own motion or that made by a party under Section 206 of the FPA, can allege that the formula itself is unjust and unreasonable, and order amendments. The formulaic approach consists of two key components: (i) templates outlining the rate calculation and underlying inputs; and (ii) protocols that set out procedures for stakeholder intervention.

Templates: The formula approved by the Commission defines the methodology and various inputs used to determine the utility's costs of service – the utility then enters updated input data

[8] Key principles of regulated rate design, as put forth by Bonbright's primary criteria (see Section 4.2 for further details), are cost recovery (which enables utilities to recover from customers the costs of providing service) and cost causation (which dictates that rates that customers pay should reflect the costs that their usage imposes on the system); together, these two principles ensure efficient and fair rates.

[9] TFR protocols provide robust opportunities for stakeholder engagement and intervention – see Section 3.1.2 for further details.

[10] Federal Register. *Public Utility Transmission Rate Changes to Address Accumulated Deferred Income Taxes.* November 27, 2019.

[11] 16 U.S. Code § § 824e, 825e.

into the approved formula each year to calculate its new transmission rates.[12] Generally, the utility updates its rate base (i.e., net plant in-service plus adjustments), operation and maintenance ("O&M") expenses, income tax rate, and rates for taxes other than income taxes, and depreciation expenses each year. The return on equity ("ROE") is a fixed input to the revenue requirement and is determined in the initial Section 205 proceeding to establish the formula rate, or a separate[13] Commission proceeding.[14] Other inputs and data must either be sourced directly from the utility's annual FERC Form No. 1 filing, or be supported by additional information describing how the input was derived.[15] In the initial proceeding that establishes the TFR, the utility must choose to use either projected or historical data in setting its rates. For those utilities that use projected data in their TFR, an annual true-up mechanism reconciles estimated costs with actual costs, thus enabling full cost recovery for the utility and timely refunds to customers in the event of overcollections.[16] More details on the templates used under the TFR approach are provided in Section 3.1.1.

Protocols: Under the TFR approach, the utility is required to submit annual updates[17] and supporting documentation with the Commission on an informational basis, as well as share the filings with interested parties.[18] Through established protocols, interested parties can submit discovery and review, verify, and challenge these annual updates.[19] More details on the TFR protocols that guide stakeholder intervention procedures are provided in Section 3.1.2.

2.2 Process for transitioning from stated rates to TFRs

Commission-jurisdictional utilities have historically employed stated rates.[20] Over time, many utilities shifted to TFRs. To shift from a stated rate to a formula rate, the utility must first file an application with the Commission, pursuant to FPA Section 205 and Section 35.13 of the Commission's regulations.[21] Once the initial TFR application has been filed, stakeholders may file motions to intervene and protest with the Commission, pointing out where they believe the filing

[12] Utilities operating under a calendar year rate do this twice a year – once as part of their true-up filing for the prior year (typically filed in June), and again for their annual update filing, which forecasts rates for the next rate year and includes the over- or under-collection from the true-up (typically filed in October). For examples, see Section 6.

[13] The ROE is either determined for the individual utility, or the RTO-wide ROE can be used.

[14] FERC. *Formula Rates in Electric Transmission Proceedings: Key Concepts and How to Participate.* July 5, 2022.

[15] FERC. *Staff's Guidance on Formula Rate Updates.* July 17, 2014.

[16] 123 FERC ¶ 61,098. Docket Nos. ER08-92-000 et al. April 29, 2008. Para. 16.

[17] As noted previously, utilities operating under a calendar year rate submit two filings per year – the true-up filing (typically filed in June) and the annual update filing (typically filed in October).

[18] 123 FERC ¶ 61,098. Docket Nos. ER08-92-000 et al. April 29, 2008. Para. 16.

[19] FERC. *Formula Rates in Electric Transmission Proceedings: Key Concepts and How to Participate.* July 5, 2022.

[20] Ibid.

[21] 18 Code of Federal Regulations § 35.13. This provision outlines the requirements for a rate filing at FERC.

is not just and reasonable and proposing modifications for the Commission to consider. The utility may also file motions to answer such protests.[22]

The Commission may then either: (i) accept the proposed formula and allow the calculated rates to enter into force; (ii) accept the proposed formula (and thus any transmission rates calculated using it) for filing, but suspend the TFR's implementation for up to five months and establish hearing and settlement proceedings, in order to allow for the resolution of issues between the utility and interested parties; or (iii) reject it.[23, 24] Once all issues have been resolved and the formula has been approved by the Commission, the utility updates input data for the approved formula each year to calculate its new transmission rates (and provides this annual update and supporting documentation to the Commission on an informational basis). Additionally, and unlike stated rates, customers and other interested parties have the opportunity to review and seek information on the implementation of the formula rates each year.

Under the TFR approach, the utility does not need to file a rate application with the Commission to update its annual transmission revenue requirement. In contrast, the stated rates approach requires utilities to file a new transmission rate application pursuant to Section 205 of the FPA every time it seeks to update its costs of service. However, similar to stated rates, if the utility wishes to amend the TFR itself (and not simply update its rates) the utility must file a Section 205 rate application.[25, 26]

2.3 Prevalence of TFRs across the US

Commission-regulated entities have used formula rates since at least the early 1970s.[27] Today, as recognized by the Commission, "*the vast majority of public utilities have transitioned from stated rates to formula rates.*"[28] According to the Commission, as of the latest count completed in November 2019, there were approximately 106 public utilities under Commission jurisdiction using TFRs,

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[22] As a technical matter, 18 Code of Federal Regulations 385.213(a)(2) prohibits any answers to protests. However, parties may still file motions to answer, which FERC may accept if they provide information that is helpful to the Commission. (Source: 165 FERC ¶ 61,194. Docket No. ER19-13-000. November 30, 2018.)

[23] For example, see FERC Docket Nos. ER19-13-000 and ER19-1816-000.

[24] Typically, the requested base ROE is a contentious item and is set for hearing and settlement judge procedures.

[25] For example, see FERC Docket No. ER20-3040-000.

[26] However, a utility's TFR protocols may specify certain exceptions, which would allow the utility to file a limited Section 205 filing in the event that it is seeking changes to certain items (e.g., amortization/depreciation rates, post-retirement benefits other than pensions ("PBOP") accruals, or extraordinary property losses), where the sole issue for examination is whether those limited changes to stated values are just and reasonable and shall not include other aspects of the formula.

[27] 42 FERC ¶ 61,307. Docket No. ER88-202-000. March 15, 1988. P. 9.

[28] Federal Register. *Public Utility Transmission Rate Changes to Address Accumulated Deferred Income Taxes.* November 27, 2019.

compared to only 31 utilities under Commission jurisdiction using transmission stated rates.[29] Based on LEI's analysis, transmission owners using TFRs have service territories encompassing every state in the continental United States.[30] TFRs are used across all of the Commission-jurisdictional regional transmission organizations ("RTOs") or independent system operators ("ISOs"), as described further in Appendix A (Section 6). In addition, major utilities outside of RTO/ISO regions use TFRs, such as Duke Energy Carolinas and Southern Company utilities (in the Southeast), Puget Sound Energy, PacifiCorp, Idaho Power Company (West), as well as Arizona Public Service Company and Public Service Company of New Mexico (Southwest), among others.

[29] FERC. *Order No. 864*. November 21, 2019. P. 68-69. These numbers reflect only entities that are under FERC jurisdiction. Non-jurisdictional entities, such as many cooperatives and municipal power providers, are not included in these figures.

[30] Drawn from various sources, including tariffs filed with FERC, utility service maps, and state regulators.

3 The mechanics of transmission formula rates and stated rates

The TFR approach differs from the stated rate approach in several key respects. This section first presents the mechanics of TFRs, including how TFR templates and protocols operate. We then apply this understanding to a high-level overview of the TFR process. Finally, we explore the stated rates process, which is the only alternative to formula rates and therefore critical for understanding the benefits and challenges of implementing TFRs, which we will focus on in Section 4.

3.1 Key components of the TFR approach

Under the TFR approach, the Commission approves the proposed formula as just and reasonable, rather than a specific fixed schedule of rates, recognizing that rates are a direct result of inputs (from agreed-upon sources). A TFR has two components:

- **templates**, which set forth the calculations and inputs used to determine a utility's revenue requirement and rates (see Section 3.1.1); and
- **protocols**, which set out the procedures for stakeholder intervention (see Section 3.1.2).[31]

The utility must follow the TFR template and protocols to calculate its updated revenue requirement and rates each year.[32] More details on how utilities with TFRs publish their updated rates each year are provided later in Section 3.2.

3.1.1 Templates

A TFR template is comprised of detailed worksheets in Excel format that outline step-by-step how the utility will perform its calculations and define the data sources to be used. The outputs of the template correspond to the utility's revenue requirement and associated transmission rates calculated pursuant to its Commission-approved formula.

As a first step, a TFR template calculates the utility's costs of providing transmission service, which generally includes the high-level elements shown in Figure 3 below.

The TFR template can either use historical data or projections.[33] A template using historical data relies on actual data from prior years. In contrast, projections are typically either determined using an incremental approach (which relies on historical data as a baseline and then attempts to

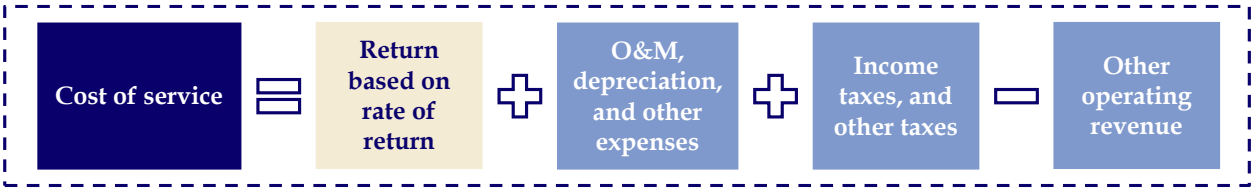
[31] FERC. *Formula Rates in Electric Transmission Proceedings: Key Concepts and How to Participate.* July 5, 2022.

[32] Ibid.

[33] For an example of a TFR using projected data, see: PJM. *PJM Open Access Transmission Tariff – Attachment H-16*. For a TFR using historical data, see MISO's default formula rate template: MISO. *MISO Open Access Transmission Tariff – Attachment O*.

approximate how that data should change over the rate period)[34] or through internally generated values with supporting documentation. If a projected test year is used, rates are reconciled and subject to a true-up mechanism, wherein the amount of over- or under-collection is calculated once the actual costs of service for a rate year are known. This incremental amount is returned to or recovered from ratepayers, as required, in the next rate period.[35] True-up calculations are performed and published as part of the annual TFR process, as discussed further in Section 3.2 below.

Figure 3. Typical elements of a cost-of-service calculation



Source: Adapted from FERC.

The underlying data for the calculation elements shown in Figure 3 are typically drawn from FERC Form No. 1 or other utility sources.[36] FERC Form No. 1 is a report that electric utilities and other entities meeting certain thresholds (e.g., over 1,000,000 MWh of total sales in a year) must file with the Commission each year. FERC Form No. 1 includes financial and operational data[37] and is based on the Uniform System of Accounts ("USofA", 18 Code of Federal Regulations Part 101). The USofA provides detailed instructions on how Commission-jurisdictional public utilities and other entities must record financial information, allowing for consistent reporting and accounting. Some utilities also draw their TFR templates from generic templates, as in the MISO region; this enables a relatively standardized approach to review and oversight on the part of interested parties.

If a utility wishes to use data in its TFR template that is not explicitly listed in its FERC Form No. 1 filing, then the utility must "*support [the data] with sufficient narrative description of the steps taken and calculations performed to derive the input*" along with "*workpapers detailing the derivation of such formula input.*"[38] This means that, ideally, all inputs can be verified and cross-checked by interested parties.

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[34] For example, PG&E in California projects a portion of its revenue requirement by forecasting additions to its transmission infrastructure (known as "transmission plant") and then multiplying the incremental amount by an Annual Fixed Charge Rate ("AFCR"). The AFCR represents the additional cost that each incremental increase in transmission plant is expected to generate, and is calculated by dividing the prior year's value of transmission plant by the same year's actual revenue requirement. (Sources: PG&E. *Offer of Global Settlement. Attachment C – Revised Model – Unpopulated.* Docket Nos. ER19-13-000 et al.; PG&E. *Exhibit PGE-0004 – Formula Transmission Revenue Requirement and Wholesale Rates.* Docket No. ER19-13-000. September 13, 2018.)

[35] 123 FERC ¶ 61,098. Docket Nos. ER08-92-000, et al. April 29, 2008. P. 6-7.

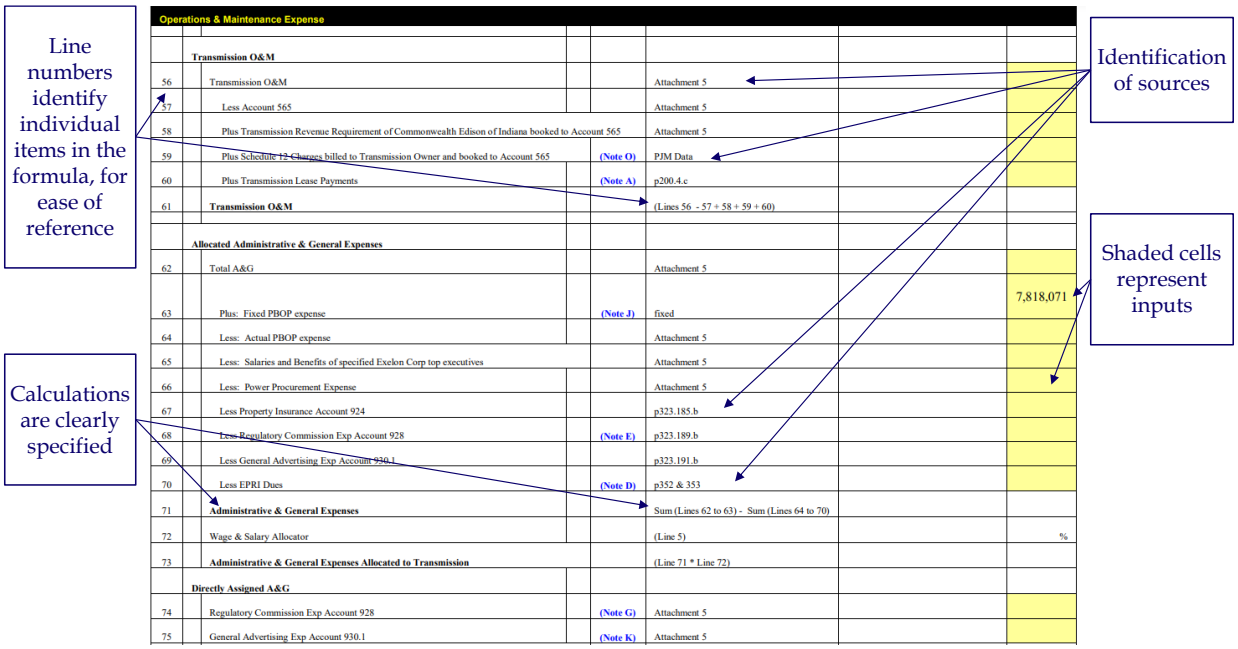
[36] FERC. *Staff's Guidance on Formula Rate Updates.* July 17, 2014. P. 1-2.

[37] FERC. *Form No. 1 – Annual Report of Major Electric Utility.* June 20, 2020.

[38] FERC. *Staff's Guidance on Formula Rate Updates.* July 17, 2014. P. 1-2.

Each year, based on the timelines specified in the TFR protocols (to be discussed later in Section 3.1.2), the utility populates its Commission-approved formula rate using updated data from FERC Form No. 1 and other sources, as applicable. The updated rate must be posted to a public domain and permits interested parties to review. The purpose of this review is typically three-fold: (i) to ensure that the utility has used appropriate input data; (ii) to ensure that the utility has properly applied the approved formula in calculating its revenue requirement and resulting transmission rates; and (iii) to review whether the costs included in rates are reasonable and prudently incurred. If the input data is properly sourced, and calculations are correctly performed, the Commission presumes the resulting rates to be just and reasonable.[39] Figure 4 below shows an example of a TFR template worksheet filed with the Commission as part of PJM's OATT, along with annotations highlighting important components of the sample worksheet.

Figure 4. Annotated example of a TFR template worksheet



	Operations & Maintenance Expense				
	Transmission O&M				
56	Transmission O&M			Attachment 5	
57	Less Account 565			Attachment 5	
58	Plus Transmission Revenue Requirement of Commonwealth Edison of Indiana booked to Account 565			Attachment 5	
59	Plus Schedule 12 Charges billed to Transmission Owner and booked to Account 565		(Note O)	PJM Data	
60	Plus Transmission Lease Payments		(Note A)	p200.4.c	
61	**Transmission O&M**			(Lines 56 - 57 + 58 + 59 + 60)	
	Allocated Administrative & General Expenses				
62	Total A&G			Attachment 5	
63	Plus: Fixed PBOP expense		(Note J)	fixed	7,818,071
64	Less: Actual PBOP expense			Attachment 5	
65	Less: Salaries and Benefits of specified Exelon Corp top executives			Attachment 5	
66	Less: Power Procurement Expense			Attachment 5	
67	Less Property Insurance Account 924			p323.185.b	
68	Less Regulatory Commission Exp Account 928		(Note E)	p323.189.b	
69	Less General Advertising Exp Account 930.1			p323.191.b	
70	Less EPRI Dues		(Note D)	p352 & 353	
71	**Administrative & General Expenses**			Sum (Lines 62 to 63) - Sum (Lines 64 to 70)	
72	Wage & Salary Allocator			(Line 5)	%
73	**Administrative & General Expenses Allocated to Transmission**			(Line 71 * Line 72)	
	Directly Assigned A&G				
74	Regulatory Commission Exp Account 928		(Note G)	Attachment 5	
75	General Advertising Exp Account 930.1		(Note K)	Attachment 5	

Note: The worksheet above is just one part of a larger TFR template.

Source: PJM. *PJM Open Access Transmission Tariff – Attachment H-13A*. February 1, 2022.

In addition to the posting referenced above, updated rate calculations must be submitted with the Commission on an informational basis, which allows Commission Staff to perform their own review of the utility's calculations. As part of these annual updates, Commission Staff have instructed utilities to provide populated TFR templates as well as any source workpapers. Utilities are required to submit these files in their native format (Excel) with formulas preserved. This measure, among others, was directed by Commission Staff to alleviate past issues that "*have impeded the ability to review the annual updates and verify that the resulting rates have been developed*

[39] FERC. *Formula Rates in Electric Transmission Proceedings: Key Concepts and How to Participate.* July 5, 2022.

consistent with the requirements of the filed rate (i.e., the formula rate)."[40] The process for preparing these annual updates is discussed in more detail in Section 3.2 below.

3.1.2 Protocols

The TFR protocols, which are a component of the filed rate, set forth the terms of stakeholder discovery, review, interaction with the transmission owners, and oversight of the annual process for updating transmission rates under the TFR approach.[41] The protocols set out the timelines and procedures through which interested parties can review the utility's TFR template calculations, ask for more information, and, if necessary, raise challenges.

TFR protocols typically cover the following elements:

- **definitions** of key terms, such as "Interested Party," which is the designation for entities that have the right to review and challenge a utility's calculations under its TFR template;

- provisions for calculating the **revenue requirement** each year (and **true-up** for utilities operating under a forward-looking TFR), including how the calculations will be performed, how and when the **informational updates** with results will be posted (in both draft and final form), how and when notice of publication will be provided, the contents of the annual update, provisions for any meetings convened by the utility to discuss the filings, and requirements for filing annual updates with the Commission;

- procedures for **information exchange**, including rules as to which interested parties can submit information requests, the deadlines for submitting these requests, specifications regarding which aspects of a TFR filing the requests can address, the utility's duties in responding to the same, and any requirements for providing details of requests publicly;

- procedures for filing **informal and formal challenges** to an annual update, including filing deadlines, the information that must be provided as part of a challenge, procedures for responding to a challenge on the part of the utility, and steps to follow if the issue(s) cannot be resolved;

- procedures for **making corrections to annual updates**, including how such corrections will apply to current and future rate years; and

- other **legal issues**, such as the procedure for challenging and/or modifying the formula itself, how information provided through information requests may and may not be used, and more.

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[40] FERC. *Staff's Guidance on Formula Rate Updates.* July 17, 2014.

[41] As FERC has stated, "*formula rate protocols … play an important role in ensuring just and reasonable rates.*" *See* 178 FERC ¶ 61,207. Docket No. EL22-27-000. March 24, 2022.

A formal challenge cannot be used to contest the TFR itself;[42] rather a formal challenge under the TFR protocols can only be used to contest the way in which the TFR is being implemented. If an interested party wishes to challenge the utility's TFR protocols (or TFR template) as unjust and/or unreasonable, it must file a complaint pursuant to FPA Section 206.[43] Over the past decade, the Commission has also issued "show cause" orders, requiring utilities to respond to certain deficiencies in their protocols that the Commission has identified. The Commission has done so on its own initiative, initiating investigations pursuant to FPA Section 206 (16 US Code § 824e).[44]

The Commission established its current policy regarding TFR protocols through a series of orders issued to the MISO transmission owners, beginning in 2012.[45] In those orders, the Commission provided a set of criteria to apply when evaluating TFR protocols, which include the following:

- **stakeholder participation:** TFR protocols must allow all interested parties to participate in information exchange and review processes, including but not limited to customers under the TFR, state attorneys general, consumer advocacy groups, and state utility regulatory commissioners;[46]

- **information dissemination:** transmission owners must post/publish their annual revenue requirement updates and associated information in various ways (including online) and hold an annual meeting open to interested parties to review the underlying calculations. These annual updates must provide "*information about the … implementation of the formula rate in sufficient detail and with sufficient explanation to demonstrate that each input to the formula rate is consistent with the requirement of the formula rate*";[47]

- **accounting and organizational changes:** transmission owners must disclose any accounting changes that occurred during the rate period that affect the underlying inputs or transmission rates, including explaining the effects of any mergers or reorganizations;[48]

- **prudency:** interested parties must be able to obtain information regarding the utility's cost control methodologies and procurement practices, to assess whether costs were prudently incurred;[49]

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[42] FERC has rejected formal challenges that have attempted to do so. For example, see 156 FERC ¶ 61,209. Docket No. ER16-1169-000. September 22, 2016. In this decision, FERC rejected a formal challenge partly because it took issue with the TFR itself.

[43] FERC. *Formula Rates in Electric Transmission Proceedings: Key Concepts and How to Participate.* July 5, 2022.

[44] FPA Section 206 gives FERC the right to find that rates filed with it, including TFR protocols, are "*unjust, unreasonable, unduly discriminatory or preferential*" and to determine how they must be changed to remedy the issue.

[45] 178 FERC ¶ 61,207. Docket No. EL22-27-000. March 24, 2022. P. 3-4.

[46] 143 FERC ¶ 61,149. Docket No. EL12-35-000. May 16, 2013. P. 15.

[47] Ibid. P. 34-35.

[48] Ibid. P. 35-36.

[49] Ibid. P. 37.

- **information requests:** TFR protocols must specify the period during which interested parties can review information and ask for further relevant information and documentation. TFR protocols must also include a requirement that the utility respond to such information requests in good faith and within a reasonable amount of time;[50]

- **annual information filings:** transmission owners must prepare and submit annual information filings with the Commission, with contents sufficient to verify the accuracy of the underlying data and calculations and their consistency with the filed TFR. The same requirements apply to the information that transmission owners must provide to interested parties during the review period;[51] and

- **challenge procedure:** TFR protocols must provide a pathway for interested parties to raise an **informal** challenge on proposed inputs and calculations, usually directly with the utility.[52] TFR protocols must also allow interested parties to raise a **formal** challenge directly with the Commission if the dispute is not resolved through an informal challenge; in a formal challenge, the utility bears the burden to show that its TFR implementation is just and reasonable.[53] The Commission makes determinations based on the record and may, for example, require changes to accounting, disallow costs, or require refunds.

3.2 TFR process overview

The initial process for establishing a TFR was described previously in Section 2.2. Rate calculations for the first year of the TFR are typically filed alongside the utility's initial application with the Commission. Once a TFR rate case is resolved, either through a Commission order or a Commission-approved settlement, a utility's first-year rates go into effect on the effective date specified in the initial application. In subsequent years under the TFR approach, the utility calculates its new rates each year using the Commission-approved formula and, if operating under a forward-looking TFR, performs true-up calculations on an annual basis. We describe the main stages of the annual update process in the subsections below (see Figure 5 for a high-level summary).

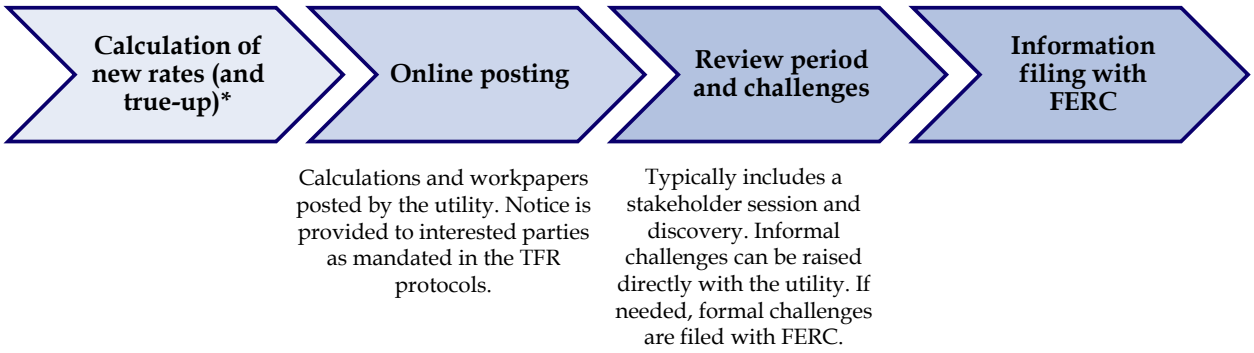
[50] Ibid. P. 37-38.

[51] Ibid. P. 38.

[52] Ibid. P. 50.

[53] Ibid. P. 50-51.

Figure 5. Key stages of the annual update process



* A true-up mechanism only applies to utilities employing a forward-looking TFR.

3.2.1 Calculation of new rates (and true-up)

Each year under the TFR approach, a utility must perform calculations to determine: (i) its new transmission rates; and (ii) if the utility is operating under a forward-looking TFR, its annual true-up for the prior rate year.

The utility's new transmission rates are calculated each year by populating its TFR template with either historical data or projections. For utilities employing a forward-looking TFR, the annual true-up is calculated by comparing the projected revenue requirement for the prior rate year against the actual revenue requirement. The interest on such over- or under-collections is determined according to Commission regulations. Adding the interest to the base excess or shortfall amount yields the total annual true-up. This true-up amount is added to the revenue requirement for the next rate period used to set rates.

3.2.2 Online posting

The new transmission rates and/or true-up calculation (for utilities employing a forward-looking TFR) must be posted on the utility's website and/or the website of its RTO by a certain deadline, usually around the middle of the year. This posting must include detailed information as to how the utility calculated its new transmission rates and/or annual true-up, including workpapers in their native format (Excel) with all formulas and links intact, supporting documentation, and anything else that an interested party would need to independently verify the calculations. The utility must also notify certain interested parties of the posting, including its customers, the applicable state utility regulatory commissions, and others. This posting triggers the review period.

3.2.3 Review period and challenges

Once the revenue requirement and/or annual true-up calculations (for utilities employing a forward-looking TFR) and associated materials have been posted, the review period begins.

The utility typically convenes a meeting with interested parties to discuss and provide an overview and walk-through of the calculations.[54] At this time, interested parties also have an opportunity to provide feedback and ask any clarifying questions. The revenue requirement and/or annual true-up calculations may be discussed in the same session, or two separate meetings may be convened.

Pursuant to the protocols, interested parties may begin submitting information requests during a specified period of time about the data used and/or the calculations performed. Information requests must be focused on certain topics, as outlined in Section 3.1.2 above. The utility must make a good faith effort to respond to information requests within a certain number of days, as outlined in its TFR protocols (e.g., 10 to 15 business days).

Also pursuant to the protocols, interested parties have a right to raise informal challenges with the utility after the review period is over. An informal challenge permits an interested party to raise its concerns directly with the utility (without Commission involvement) and requires the utility to respond within a certain time period (e.g., 20 business days). Depending on the conditions in the TFR protocols, the utility may also appoint a company representative to liaise with the interested party raising the challenge to resolve it.

If the utility and the interested party are unable to resolve the issue(s) raised through the informal challenge, then the interested party may file a formal challenge with the Commission by the prescribed deadline.[55] Formal challenges typically have prescribed information that must be included, such as the precise violations of the TFR template or protocols that an interested party claims the utility has committed, as well as the interested party's best efforts to quantify any financial impact to it as a result of the violation. During the Commission proceeding, the utility bears the responsibility to demonstrate that it has correctly applied the TFR template and protocols.

Informal and formal challenges are generally limited to the topics outlined in Section 3.1.2 above. An interested party may not attempt to challenge the TFR itself through an informal or formal challenge, because the Commission has already approved the TFR through the initial Section 205 application establishing the TFR. Furthermore, any changes to an annual update because of an informal or formal challenge are likely to be applied as components in the following year's true-up calculation – although they may still be applied to the current annual update provided that the issue is resolved early enough, either by Commission order or by an agreement between the interested party and the utility.

[54] As per FERC's order after its MISO investigation. (Source: 143 FERC ¶ 61,149. Docket No. EL12-35-000. May 16, 2013. P. 34.)

[55] However, these deadlines can be extended, which may lead to discovery and challenge obligations from one rate year spilling over and overlapping with the next rate year.

3.2.4 Information filing with the Commission

The annual information update is submitted to the Commission by a certain date, as specified in the utility's TFR protocols. The number of filings made with the Commission each year differs by utility:

- for utilities that use **historical data** to populate their TFR templates, they submit one annual update filing to the Commission which does not include a true-up;
- for utilities that use **partially projected data** to populate their TFR templates, they submit one annual informational filing to the Commission, which includes the annual update and a true-up; and
- for utilities that use **fully projected data** to populate their TFR templates, they typically submit two filings to the Commission each year – a true-up filing (typically submitted in June), and an annual update filing (typically submitted in October) that rolls in the most recent true-up over- or under-collection.[56]

The annual information update specifies the utility's revenue requirement and transmission rates for the next rate-setting period[57] and details the underlying calculations.[58] Importantly, the annual information update is not a full rate case filing, as would be required to update rates under the stated rates approach – rather, it is a formal statement of the rates that have been calculated using the approved formula for the next year.[59] Unless the Commission delays enactment of the calculated rates, these automatically go into effect at the start of the next rate year (e.g., January 1st for utilities on calendar-year cycles).

3.3 Stated rates approach

Under the stated rates approach, the utility files a rate application through which it proposes its revenue requirement and resulting rates – the application is subject to Commission approval, and if approved, the transmission rates go into effect and cannot be changed unless the utility files a new rate application.

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[56] However, in MISO, both the annual update and true-up calculations are submitted together in one filing in March.

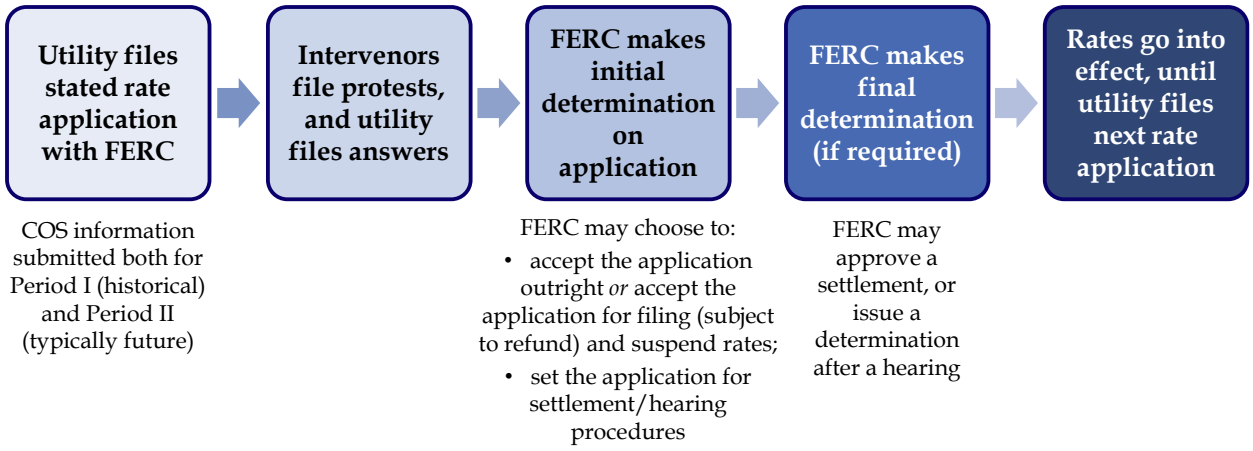
[57] However, in MISO, while the annual information filing is submitted in March, the rates at that point have already been in effect since June of the prior year (for utilities using historical data) or January (for utilities using projected data).

[58] These calculations may be modified pursuant to an informal or formal challenge that is resolved after the information update is submitted (see Section 3.2.3 for further details). However, the modifications are typically applied in the following year's true-up calculation.

[59] As an example, PG&E in its last stated rates case (TO19, filed with the Commission on July 27th, 2017) submitted a rate application consisting of a transmittal letter and 37 exhibits totaling 2,881 pages. In contrast, PG&E's most recent draft annual update under the TFR approach (posted on its website on June 15th, 2022) consisted of a summary document and a PDF version of its TFR template totaling 50 pages, alongside an Excel version of its TFR template and a set of 20 workpapers (mostly in Excel format). *See* FERC Docket No. ER17-2154-000 and PG&E. *Draft Annual Update: Transmission Owner Tariff Rate Year 2023.* June 15, 2022, respectively.

3.3.1 Process overview

Figure 6. Stated rates case process



To establish or update a stated rate, a utility must file an application with the Commission pursuant to FPA Section 205.[60] The application sets out how the utility has calculated its costs of service and derived its proposed transmission rates. Costs of transmission service include the expenses to construct, maintain, and operate a utility's transmission assets, plus a return on investment to a utility's shareholders and debtholders that accounts for the risk of their investment.[61]

Title 18, Section 35.13 of the Code of Federal Regulations outlines 38 separate "statements" that a utility must submit alongside its rate application, including income statements, and allocation demand and capability data, among others.[62] Most of these statements must be prepared for two periods: Period I, i.e., "*the most recent twelve consecutive months, or the most recent calendar year, for which actual data are available*"; and Period II, i.e., "*any period of twelve consecutive months after the end of Period I that begins*" sometime between the nine months prior to, and the three months following, the effective date of a rate change. Given that Period II typically pertains to a future period, the utility must develop forecasts of its anticipated costs and electricity sales.[63] The Period II data is generally the test year for the rate application.[64]

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[60] 16 U.S. Code § 824d. 18.

[61] FERC. *Formula Rates in Electric Transmission Proceedings: Key Concepts and How to Participate.* July 5, 2022.

[62] These requirements apply to TFR applications as well. However, depending on the details of either the TFR or stated rates application, some statements may not need to be filed. For example, *Statement BI – Fuel cost adjustment factors*, need only be submitted if the rate filing "embodies a fuel cost adjustment clause." (Source: 18 Code of Federal Regulations § 35.13.h(34).) Furthermore, a utility may request that FERC waive filing requirements, as appropriate.

[63] PG&E. *Exhibit PGE-001 – Formula Rate Overview and Policy*. Docket No. ER19-13-000. September 24, 2018.

[64] 18 Code of Federal Regulations 35.13(d)(4).

The procedural steps once an application for stated rates has been filed with the Commission are similar to the steps for a TFR application, described previously in Section 2.2.

If a utility's application involves a rate decrease, or if a rate decrease is possible due to changes that occur during the proceeding, then an investigation under FPA Section 206 may be required.[65] Intervenors may ask the Commission to initiate such an investigation, or the Commission may do so on its own initiative. The point of such an investigation would be to safeguard customer interests if an even greater rate reduction is warranted.[66]

Once the rate case concludes, either through a Commission final decision or Commission-approved settlement, and the approved rates go into effect, a utility cannot update its rates without starting the rate filing process over again.

3.3.2 Ratemaking characteristics of stated rates

A defining feature of the stated rates approach is that rates do not change until a utility files another rate case. This provides customers with stability in their transmission rates, and the utility with relatively stable revenues. Particularly for a utility that does not experience significant changes in the various components of its costs of service year over year – including its assets and operating expenses – stated rates may be sufficient to meet its revenue requirement over extended periods of time. Under the stated rates approach, the utility does not prepare annual updates.

However, there are several challenges associated with the stated rates approach. As the Commission has observed, this approach involves "*typically lengthy, expensive proceedings … and requires[s] discovery of evidence and expert testimony – like a court trial*"[67] every time a utility needs to change its rates to reflect updated costs of service. Indeed frequent rate cases may be necessary for a utility whose costs of service demonstrate consistent growth; for example, before switching to the TFR approach, PG&E, a California utility, had to file full stated rate cases with the Commission nearly every year to ensure that its rates reflected its growing costs of service (for further background on PG&E's historical situation, please see Appendix B, Section 7).[68] The use of projections also raises the potential for under- or over-recovery of costs from ratepayers, due to discrepancies between forecast data and actual costs and sales data. As a result, stated rate cases can lead to drawn-out disputes between the utility, Commission staff, and other interested parties, thus increasing the costs associated with litigation and/or settlement negotiations.[69]

Finally, because stated rates are not updated automatically as costs of service change, prolonged periods of time between rate cases may lead to rate shock – i.e., significant and abrupt increases

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[65] 16 U.S. Code § 824e. This legislation grants FERC the authority to find that a rate is "*unjust, unreasonable, unduly discriminatory or preferential*" and to "*determine the just and reasonable rate … to be thereafter observed and in force.*"

[66] 156 FERC ¶ 61,238. Docket No. ER16-2320-000. September 30, 2016. P. 12-13; Transcript of the March 30, 2017 prehearing conference held in Washington, DC re the Pacific Gas & Electric Company under ER16-2320. P. 35.

[67] FERC. *Formula Rates in Electric Transmission Proceedings: Key Concepts and How to Participate.* July 5, 2022.

[68] Ibid. P. 4.

[69] PG&E. *Exhibit PGE-001 – Formula Rate Overview and Policy*. Docket No. ER19-13-000. September 24, 2018. P. 3-4.

in transmission rates. For example, in a recent stated rate application filed by Portland General Electric Company (in FERC Docket No. ER22-233-000), the utility proposed a 355% increase in its annual transmission revenue requirement, after around 20 years had elapsed since its previous rate case.[70]

[70] Portland General Electric. *Rate Case Filing Letter.* FERC Docket No. ER22-233-000. October 28, 2021.

4 Ratemaking characteristics of transmission formula rates

There are many characteristics inherent in the use of TFRs that advance ratemaking objectives. These attributes lead to a ratemaking structure that balances multiple objectives and stakeholder interests that is ultimately beneficial to customers, the Commission, transmission owners, and other industry stakeholders involved in transmission rate proceedings (including interveners such as state regulators, RTOs/ISOs, and trade groups). These characteristics can be grouped into three key categories, which are discussed in turn below:

- transparency, oversight, and stakeholder engagement (see Section 4.1);
- timeliness of cost recovery (see Section 4.2); and
- reduced regulatory burden and enhanced administrative efficiency (see Section 4.3).

4.1 Transparency, oversight, and stakeholder engagement

Utilities have an obligation to appropriately charge their cost of service in compliance with Commission regulation and policy. The resulting rates under the TFR reflect this objective. In addition to the obligations held by utilities to properly calculate annual rates, under the TFR approach, review mechanisms in place serve as "safeguards" to ensure the rates calculated and charged under the TFR approach are just and reasonable. The safeguard mechanisms include:

- the **TFR protocols**, which ensure transparency in the ratemaking process and enable robust opportunities for stakeholder engagement on an annual basis (which can include stakeholder sessions, opportunities to submit information requests, and opportunities to raise informal and formal challenges). Formal challenges filed as a result of this process provide the Commission an opportunity to review and weigh issues raised and challenged by interested parties. In addition, the Commission can initiate FPA Section 206 proceedings to revise the formula rates and customers can also submit Section 206 complaints if they believe the templates have become unjust and unreasonable; and
- the **Commission's audit process**, which involves an inspection of FERC Form No. 1 data and a review and confirmation that the annual updates comply with the formula rate and protocols.

We discuss each of these mechanisms in turn below.

4.1.1 TFR protocols: facilitating transparency and stakeholder engagement

As described by Commission Staff in a 2014 guidance document on the annual update process under the TFR approach, "*[t]he Commission recognizes that the integrity and transparency of formula rates and their implementation are critically important in ensuring just and reasonable rates. Therefore, the Commission's policy is that utilities include safeguards in their transmission formula rate protocols to provide transparency in the utilities' implementation of their transmission formula rates, to ensure that the input data is the correct data and that calculations are performed consistent with the formula. Among these safeguards is a requirement for utilities to share the annual updates to their transmission rates determined*

pursuant to their formulas, with appropriate support, with all interested parties and to file such annual updates with the Commission on an informational basis."[71]

As discussed previously in Section 3.1.2, protocols are an important component of the TFR approach, and establish the procedures through which interested parties may review TFR template calculations, file information requests, and if necessary, raise challenges. As a result, TFR protocols enhance transparency by enabling interested parties to gain a better understanding of rate calculations and the underlying inputs (costs). Ultimately, a more transparent rate setting process benefits and protects customers, as it allows parties to verify that the costs included in rates are reasonable and have been prudently incurred.

TFR protocols also provide ample opportunities for stakeholder engagement and intervention on a regular basis (i.e., every year). Specifically, interested parties can get involved in the TFR process at the following stages of the review period (see Section 3.2.3 for further details):

- during **stakeholder sessions**, where the utility convenes meetings to discuss and walk-through the revenue requirement update and/or the annual true-up calculation;

- by submitting **information requests**, which can, among other topics (see Section 3.1.2 for a complete list), request documentation or information on the prudency of a utility's actual costs and expenditures, request details on the recording and accounting of specific costs, or request evidence of the accuracy of certain data inputs and calculations; and/or

- by either raising **informal challenges** directly with the utility (without Commission involvement), or if the utility and the interested party are unable to resolve the issues among themselves, raising a **formal challenge** with the Commission, where the Commission directly weighs in on the issues.

The robust information exchange process and challenge provisions allow interested parties to review and assess on an annual basis whether the proposed rates are just and reasonable.

While TFR protocols importantly enable transparency in the rate setting process, they require both stakeholders and utilities to dedicate sufficient – and often significant – time, effort, and resources to ensure meaningful participation. While it is appropriate for utilities to address these issues and dedicate time and resources to the process, it can also be particularly taxing for utilities that face substantial and increasing intervenor involvement each year. For example, through a review of recent annual update processes, LEI has found TOs that have received hundreds of data requests from interested parties as well as dozens of preliminary challenges on a single annual update.

To further inform the discussion, LEI conducted a survey of transmission owners who are under TFRs.[72] LEI asked about the annual discovery process. Nearly half of the respondents reported typically receiving over 100 information requests during the annual review period, some with

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[71] FERC. *Staff's Guidance on Formula Rate Updates.* July 17, 2014. PDF P. 3.

[72] The survey was distributed in October 2022. LEI received responses from 20 transmission owners.

multiple subparts or several rounds of follow-up. Several transmission owners responding to the survey also documented how the extent of discovery has evolved over time; all experienced an increase in the number of information requests received year over year. Indeed, in recent years, the number of information requests for those transmission owners increased by 29% per year on average. The relative volume of information requests each year shows that the TFR itself and the protocol processes are working to provide customers and regulators with timely information on costs, opportunities for customers to seek detailed data on costs, and for transmission owners to explain the basis of the costs incurred. Importantly, the extent of discovery requests has in some instances required transmission owners to agree to an extension of deadlines to avoid cutting off the flow of information to interested parties.[73] However, this impacts the efficiency of the TFR process, at times resulting in rate cycles melding, negating the benefits of a TFR process intended to provide smooth updating of rates on a regular basis, avoiding the lag or rate shock associated with stated rates.

4.1.2 The role of Commission audits in the context of TFRs

TFRs are subject to the Commission's oversight rules and requirements, including through established protocols which enable stakeholders to verify and challenge annual updates (described above), as well as through audits of FERC Form No. 1 data. Commission Staff within the Division of Audits and Accounting ("DAA") are responsible for reviewing FERC Form No. 1 data and ensuring compliance with the formula rate and protocols.

The FERC Form No. 1 data also has an additional layer of review and oversight from the requirement to submit a CPA Certification Statement within 30 days after filing the FERC Form No. 1. The CPA Certification Statement must attest to the conformity, in all material aspects, of the listed schedules and pages with the Commission's applicable Uniform System of Accounts (including applicable notes relating thereto and the Chief Accountant's published accounting releases), and be signed by an independent certified public accountant or an independent licensed public accountant certified or licensed by a regulatory authority of a State or other political subdivision.

In FY2022, the Commission's DAA "*participated in 79 rate proceedings that continued to predominately involve electric formula rate proceedings.*" Specifically, the DAA's formula rates audit branch is focused on ensuring "*compliance with the Commission's accounting and FERC Form No. 1 ... requirements for costs that are included in formula rate recovery mechanisms used to determine billings to wholesale customers.*" Among other responsibilities, the DAA audits seek to "*prevent the recovery of costs that should have been excluded from the formula rate*."

In recent years, DAA has focused on several areas that include:[74]

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[73] Many transmission owners also noted that a substantial portion of information requests are submitted close to or at the deadline, which can place a significant strain on utility resources when trying to ensure timely responses within the annual cycle.

[74] FERC. *2022 Staff Report on Enforcement (FERC Docket No. AD07-13-016).* November 17, 2022.

- understating revenue credits;
- incorrectly recording income tax overpayments for which utilities have elected to receive a refund;
- improper adjustments of accumulated deferred income taxes balances, leading to overstated rate base;
- improper accounting of internal merger costs;
- including asset retirement obligation amounts without explicit Commission approval;
- including amortized regulatory assets without explicit Commission approval;
- improper accounting of administrative and general expenses; and
- including electric vehicle charging stations as part of general plant, even though they serve a distribution function.

If audits identify areas of noncompliance and overcollections from ratepayers, utilities may be directed to issue refunds. For example, as noted in the *2022 Report on Enforcement* prepared by staff from FERC's Office of Enforcement, the DAA completed two formula rate audits in FY2022. Together, the FY2022 TFR audits identified 64 recommendations that required corrective action by the two utilities, and both utilities were required to issue refunds to customers.[75]

LEI surveyed transmission owners on their experiences with TFR audits. More than half of the survey respondents reported having undergone a formula rate audit in the last five years. With only one exception, these audits resulted in determinations that required the utility to issue retroactive refunds, sometimes going back many years. The risk of retroactive refunds as a result of these audits can be substantial and material, and may be based on the auditors' judgment and interpretations of accounting guidance. Although utilities have a right to contest audit determinations, the recourse is limited and infrequently exercised. As such, this aspect of TFR audits may undermine some of the intended goals of the TFR approach, such as stability and rate certainty.

4.2 Timeliness of cost recovery

TFRs support timely recovery of the costs of providing safe and reliable transmission service from customers, consistent with Bonbright's principles of effective regulation and ratemaking. Professor James C. Bonbright published his seminal work, *Principles of Public Utility Rates*, in 1961 and through it, established several frequently cited principles for effective rate design. We introduce here what Bonbright refers to as the "three primary criteria" of a sound rate structure for a regulated utility – these three fundamental ratemaking objectives are:

[75] Ibid.

1. **recovery of the revenue requirement:** ultimately, rates should be effective in "*yielding total revenue requirements under the fair-return standard*";[76]

2. **fair or equitable apportionment of costs among customers:** this objective "*invokes the principle that the burden of meeting total revenue requirements must be distributed fairly among the beneficiaries of the service*";[77] and

3. **efficiency:** whereby rates should be designed to "*discourage the wasteful use of public utility services while promoting all use that is economically justified in view of the relationships between costs incurred and benefits received.*"[78]

Consistent with criterion (1) above, TFRs ensure timeliness of cost recovery through the annual update process and true-up mechanism. The true-up mechanism (which applies to utilities operating under a forward-looking TFR) reconciles estimated costs with actual costs of service once they are known, and ensures customers are not over-paying (by issuing refunds in the event of over-collections) and utilities are not under-recovering, ultimately ensuring that transmission rates accurately track changes in the costs of service. As noted by one observer, "*if the formula is properly designed, it helps ensure that the utility's rates do not become too high or too low as costs and loads change over time, protecting buyer and seller alike,*" adding that "*[i]f a utility is planning any significant transmission build-out, the formula rate is the most advantageous ratemaking tool available.*"[79] Importantly, the annual update process and true-up mechanism also adjusts rates to account for changes in actual system usage, providing a mechanism through which transmission owners operating under TFRs are protected from under-recovery (if volumes decrease) and customers are protected from over-paying (if volumes increase).[80]

In addition, the annual update process under the TFR approach ensures that costs of service are up to date and reflected in transmission rates, thus reducing regulatory lag (or the time between when a utility's costs of service increase and when it is allowed to raise its rates). Regulatory lag is undesirable as it negatively affects full cost recovery – as rates are less than what they should be – thus negatively impacting the utility's financial health and possibly leading to increased customer costs (as credit risk, discussed below, will translate into higher borrowing costs for the utility).

Major credit rating agencies (Fitch, S&P, and Moody's) recognize the importance of timely cost recovery in their credit rating methodologies and commentary, acknowledging that the regulatory environment impacts the predictability of a utility's cash flows, which in turn impacts a utility's financial stability and, ultimately, its credit rating. For example, Moody's credit rating methodology for the "*Regulated Electric and Gas Networks*" sector (which includes companies that

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[76] Bonbright, James C. *Principles of Public Utility Rates.* 1961 (Reprinted in 2005). P. 291 (PDF P. 155).

[77] Ibid. P. 292 (PDF P. 156).

[78] Ibid. P. 292 (PDF P. 156).

[79] Public Utilities Fortnightly. *FERC Formula Rate Resurgence: Transmission Cost Recovery Revisited.* July 2020.

[80] In contrast, under the stated rates approach, a utility would have to file a new FPA Section 205 application in order to change the billable units (volumes) underpinning its rates.

are "*primarily engaged in the transmission or distribution of electricity or natural gas or both*") uses a scorecard approach, where the "*Cost and Investment Recovery (Ability and Timeliness)*" sub-factor accounts for 15% of the overall score. As noted by Moody, "*[t]he ability to recover prudently incurred costs in a timely manner is extremely important because a delay in cost recovery may cause financial stress. Therefore, the predictability and supportiveness of the regulatory framework in which a network operates, as well as the legal and political framework that underpins it, are key credit considerations.*"[81]

According to Moody's methodology, a regulated transmission utility would earn a credit rating of Aaa if, on the "*Cost and Investment Recovery*" sub-factor, it is found to operate in an environment where there is "*[n]o regulatory or contractual impediment to adjust tariffs (no approval or reviews required).*"[82] The range of credit ratings for this "*Cost and Investment Recovery*" sub-factor are listed in Figure 7 on the following page. Higher credit ratings result in reduced financing costs, which ultimately flows through to customers in the form of lower rates. A strong credit rating also adds value to customers in the form of reliable electric service, as reduced financing costs enable utilities to make necessary investments in the transmission system at a lower effective cost.[83]

In fact, this positive characteristic (i.e., more timely cost recovery reducing the cost of doing business for utilities, thus aiding with financing and capital investment) was raised by a utility in its TFR application as one of the reasons why it was seeking to shift away from the stated rates approach. The utility, El Paso Electric Company ("EPE") noted: "*EPE must maintain its ability to access capital at all times to plan, construct, maintain, and operate its transmission system. To do so at reasonable cost, EPE needs to demonstrate solid capital structure ratios, predictable and stable cash flows, and a competitive and reasonable rate of return, among other factors. A formula rate will promote financial stability, enhance predictable and stable cash flows, and support [its] debt coverage and repayment, thereby enhancing EPE's ability to access credit on reasonable terms, which is favorable to both EPE and its customers.*"[84]

The annual update process in TFRs also reduces the risk of rate shock for customers (i.e., large step changes in rates) from prolonged periods between rate cases. Furthermore, because these annual updates offer utilities more timely cost recovery, there is a supportive process for utilities to invest in transmission. A stronger transmission system in turn supports a variety of reliability, resiliency, and clean energy policy goals at the local, state, and national levels, which ultimately benefits customers who are receiving cleaner and reliable electric service.

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[81] Moody's Investors Service. *Rating Methodology: Regulated Electric and Gas Networks.* April 13, 2022. P. 9.

[82] Ibid. P. 4.

[83] These investments can support service during normal operating conditions, as well as exceptional operating conditions, such as during extreme weather events.

[84] EPE. *Exhibit EPE-0002: Transmission Investment, Prepared Direct Testimony of James A. Schichtl (FERC Docket No. ER22-282-000).* October 29, 2021. P. 5-6 of 6.

Figure 7. Moody's scorecard on the "Cost and Investment Recovery" sub-factor

Credit rating	*Cost and Investment Recovery (Ability and Timeliness)* criteria
Aaa	No regulatory or contractual impediment to adjust tariffs (no approval or reviews required).
Aa	Tariff formula is expected to allow for timely recovery of operating expenditure including depreciation, electricity losses and balancing costs/shrinkage gas and a fair return on all investment. All capital expenditure is included in asset base as incurred. Unanticipated expenditure quickly reflected in allowed revenue with low, if any, efficiency assessment.
A	Tariff formula is expected to allow for recovery of operating expenditure including depreciation based on allowances set at frequent price reviews (5-yearly intervals or shorter) and a fair return on all efficient investment. Capital expenditure is included in asset base as incurred. Opex and capex subject to efficiency tests; electricity losses and balancing costs/shrinkage gas subject to efficiency test on volumes only (price is a pass through). Unanticipated expenditure generally quickly reflected in allowed revenue although this may not be until the following regulatory period and may be subject to a degree of regulatory scrutiny or sharing factor with customers. Performance is likely to be in line with regulatory expectations.
Baa	Tariff formula is expected to allow for recovery of operating expenditure including depreciation and return on investment but subject to retrospective regulatory approval or infrequent price reviews (> 5-yearly intervals); recovery of electricity losses and balancing costs/shrinkage gas is somewhat exposed to price. Some instances of revenue backloading expected (e.g. depreciation allowance set below asset consumption or operating expenditure is capitalized). Unanticipated expenditure slow to be reflected in allowed revenue or may be subject to a stringent efficiency assessment / low sharing factor. Performance may be below regulatory expectations.
Ba	Tariff formula is not expected to take into account all cost components and depreciation is set below asset consumption; recovery of electricity losses and balancing costs/shrinkage gas has large exposure to price. Revenues expected to cover most operating expenditure but investment is not clearly or fairly remunerated. Overspend either not recognized in allowed revenue or there is high uncertainty about its future recognition. Operational underperformance likely to be significantly impacting the returns achieved by the business.
B	Tariff formula is not expected to take into account all cost components and depreciation is set below asset consumption; recovery of electricity losses and balancing costs/shrinkage gas is fully exposed to price. Revenues expected to cover cash operating expenditure.
Caa	Revenues expected to only partially cover cash operating costs.

Source: Moody's Investors Service. *Rating Methodology: Regulated Electric and Gas Networks.* April 13, 2022.

4.3 Reduced regulatory burden and enhanced administrative efficiency

As discussed previously in Section 3.3, the regulatory process under the stated rates approach entails an extensive FPA Section 205 filing each time a utility wishes to update its rates, which among other things, requires the preparation and submission of a complete rate application, to be accompanied by 38 separate "statements", and often involves litigation. As recognized by the Commission, these full rate cases "*are typically lengthy, expensive proceedings overseen by an administrative law judge and require discovery of evidence and expert testimony – like a court trial*" and therefore "*[a] formula rate reduces the expense and burden for FERC and the utility to update transmission rates.*"[85]

The improved administrative efficiency achieved by requiring less burdensome regulation under the TFR approach through avoidance of frequent, lengthy rate cases ultimately leads to cost savings in terms of time, effort, and resources. These cost savings are realized for all parties involved, including the Commission, the utility, and intervening parties, and ultimately customers.

[85] FERC. *Formula Rates in Electric Transmission Proceedings: Key Concepts and How to Participate.* July 5, 2022.

5 Concluding remarks and recommendations

Overall, and as discussed throughout this primer, TFRs have characteristics that advance ratemaking objectives of transparency and oversight, timeliness of cost recovery, as well as reduced regulatory burden and enhanced administrative efficiency (particularly when compared to full, lengthy stated rate cases). These attributes result in benefits that flow through to customers, the Commission, transmission owners, and other industry stakeholders involved in transmission rate proceedings.

Having provided an extensive background on formula rates and associated processes, we close by acknowledging several criticisms of TFRs and placing them in the context of this factual framework. We also identify potential areas for improvement to the Commission's formula rate policy based on our observations and research.

Criticisms regarding TFRs suggest that:

(i) the formulaic nature of the annual update process "*put[s] ratemaking on autopilot*";[86]

(ii) avoiding full rate cases "*shrink[s] stakeholder input*";[87]

(iii) the reduced regulatory lag decreases the utility's incentive for efficiency;[88] and

(iv) there is "*[n]o meaningful opportunity to review [the] reasonableness of costs*."[89]

These criticisms are largely addressed through TFR protocols. To point (i), while the annual update process involves a relatively routine procedure of inputting data into the FERC-approved formula each year to calculate updated rates, these annual updates are not only subject to review, verification, and challenge by interested parties, but are also subject to Commission oversight through FERC's audit process.[90]

To point (ii), while full rate cases are indeed avoided under the TFR approach, the annual update process provides ample opportunities for stakeholder intervention. Interested parties can review and verify a utility's input data and calculations at various points in the review period, including during stakeholder sessions (where the utility convenes meetings to discuss and walk-through the annual update and associated calculations), by submitting information requests, and by raising concerns and issues through informal challenges directly with the utility (without Commission involvement), or through formal challenges with FERC (if the utility and interested party cannot resolve the issues among themselves).

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[86] Public Utilities Fortnightly. *FERC Formula Rate Resurgence: Transmission Cost Recovery Revisited.* July 2020. PDF P. 2.

[87] Ibid.

[88] USAID and NARUC. *Ratemaking's Impact on Investment Levels.* September 9, 2014. P. 8.

[89] Ibid.

[90] *See for example* FERC. *Staff's Guidance on Formula Rate Updates.* July 17, 2014.

Finally, to points (iii) and (iv), TFR protocols specifically allow interested parties to submit information requests and raise challenges to verify whether a utility's costs and expenditures were prudently incurred.

However, these criticisms highlight areas for improvement of the TFR process, specifically as it relates to educating stakeholders and enhancing transparency.

First, it is clear that **some stakeholders are not aware of the opportunity they have to review** the templates and information filing and informally or formally challenge. This could be addressed through increased efforts by transmission owners and the Commission to expand awareness of available data and processes.

Second, as demonstrated through the various "show cause" orders issued by the Commission over the past decade,[91] which require utilities to respond to certain deficiencies identified by the Commission, **TFR protocols do not always adhere to the Commission's current criteria**, specifically in the areas of: (i) the scope of participation; (ii) the transparency of the information exchange; and (iii) the ability to challenge the transmission owners' implementation of the formula rate as a result of the information exchange.[92] While further show cause orders may ensure that the protocols of more utilities operating under the TFR approach come into alignment with the Commission's current criteria, it does suggest that some utilities may be operating under TFR protocols that enable fewer opportunities for stakeholder intervention than others.

Third, in compiling data on the prevalence of TFR use across the country, it became clear that **a publicly available, comprehensive list of all FERC-jurisdictional utilities that use TFRs versus stated rates does not exist**. This type of resource could aid interested parties in understanding how their transmission rates are formulated and could help to identify where the opportunities for intervention lie.

Finally, based on a survey of transmission owners, LEI learned that there are **challenges in TFR administration that sometimes increase, rather than reduce, the regulatory burden and regulatory risks**. This has consequences not only for utilities, but also for customers and other interested parties. Information requests submitted during the annual review process have become more voluminous over time, and sometimes have resulted in a situation where rates are not finalized timely. It would be beneficial for the Commission to consider ways to refine the annual review and audit process to streamline and eliminate unnecessary administrative burdens. For example, to ensure utilities are able to respond to information requests adequately and within the timeframes established under their TFR protocols, interested parties should look to submit any common requests collectively and sufficiently ahead of deadlines. This would reduce instances of duplicate information requests and improve compliance with deadlines, which would ultimately enhance the efficiency of the stakeholder intervention process.

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[91] Such as the series of orders issued to the MISO transmission owners beginning in 2012, or the more recent series of orders issued to SPP in July 2022.

[92] 139 FERC ¶ 61,127. Docket No. EL12-35-000. May 17, 2012. P. 5.

6 Appendix A: Comparing TFRs across RTOs/ISOs

TFRs are used by transmission owning entities that are members of the six FERC-jurisdictional RTOs/ISOs:

- **California ISO ("CAISO")**: in the CAISO region, all three of the large investor-owned utilities ("IOUs") use formula rates – Pacific Gas and Electric Co. ("PG&E"), Southern California Edison Co. ("SCE"), and San Diego Gas & Electric Co. ("SDG&E"). PG&E transitioned to formula rates most recently in 2019;[93]

- **ISO New England ("ISO-NE"):** in the ISO-NE region, there are separate TFRs for regional and local network service. All active transmission owners listed under the ISO-NE Open Access Transmission Tariff ("OATT") use TFRs to calculate their local network service rates, while regional network service has a separate TFR, which aggregates revenue requirements from all the involved transmission owners for facilities used in providing regional network services;[94]

- **Midcontinent ISO ("MISO")**: all but one of the transmission owners in the MISO region employ formula rates;[95]

- **New York ISO ("NYISO"):** among the incumbent transmission owners in the state, only one operates under a TFR – Niagara Mohawk Power Corporation, a subsidiary of National Grid. Aside from the incumbent transmission owners, LS Power Grid New York Corporation, New York Transco LLC, NextEra Energy Transmission New York, Inc., and the Power Authority of the State of New York (or NYPA), and the Long Island Power Authority ("LIPA") also employ TFRs for projects that resulted from Order 1000 competitive procurements;[96]

[93] 165 FERC ¶ 61,194. Docket No. ER19-13-000. November 30, 2018.

[94] Based on ISO New England's OATT as of July 28, 2022, particularly Schedule 21 and Attachment F. (Source: FERC eTariff).

[95] LEI compared the entities listed as a transmission owner under the MISO "Stakeholder Groups" webpage against the entities listed under the "Formula Rate Protocols" webpage. Michigan South Central Power Agency is the only entity to appear on the former list, but not on the latter. Based on this, LEI concluded that Michigan South Central Power Agency does not use TFRs. (Sources: MISO. *MISO Region Engagement*. Undated; MISO. *Transmission Owner Rate Data*. Undated.)

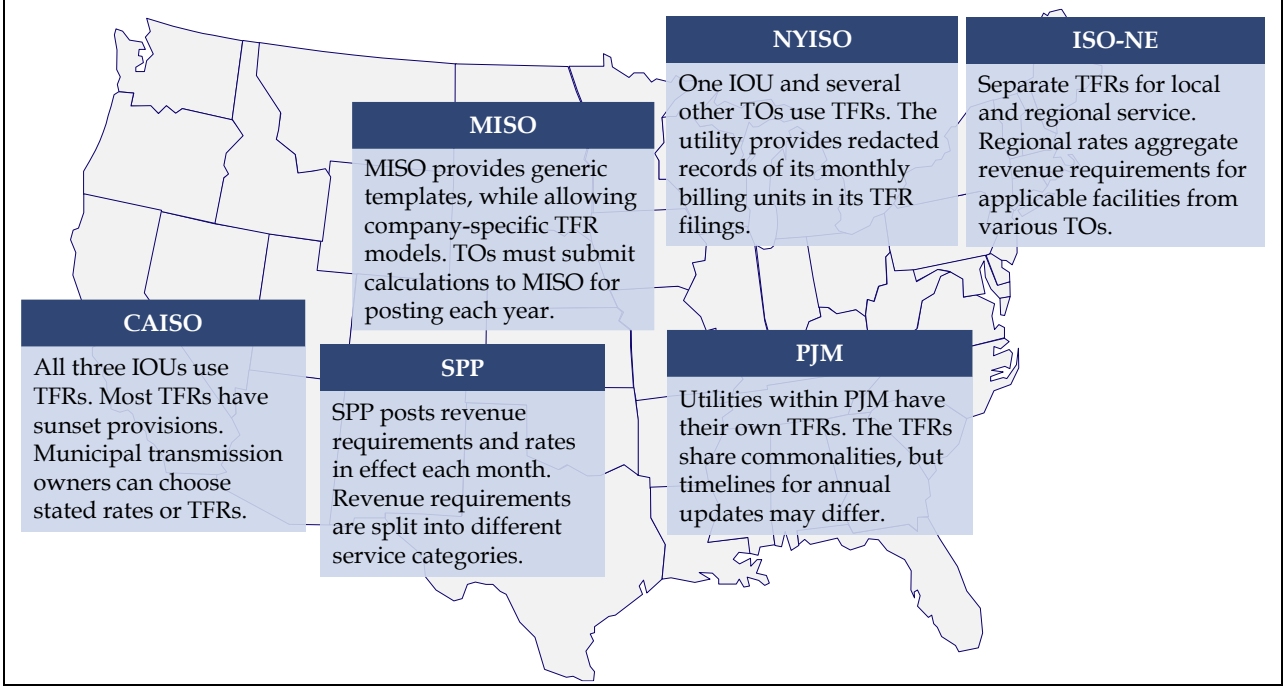
[96] NYISO OATT, Section 14, Attachment H.

- **PJM Interconnection LLC ("PJM")**: over 85% of transmission owners in PJM, including both incumbent utilities and merchant operators, use TFRs to calculate their annual transmission revenue requirements and related rates;[97, 98] and

- **Southwest Power Pool ("SPP")**: over 87% of transmission owners in SPP, including investor-owned utilities, municipal utilities, cooperatives, and non-incumbent transmission developers, use TFRs to calculate their zonal annual transmission revenue requirements ("ATRRs") and related rates.[99]

The differences in the application of TFRs across RTOs/ISOs broadly relate to how and when transmission rates are updated. Figure 8 lists notable features in each region at a high level, with more details presented below the figure. While there may be further differences between utilities within each RTO/ISO region, that is beyond the scope of this primer and therefore the description below focuses on a comparison at the RTO/ISO level.

Figure 8. Summary of high-level TFR distinctions across RTOs/ISOs



[97] Based on PJM's most recent OATT. (Source: PJM. *PJM Open Access Transmission Tariff – Attachment H*. February 1, 2022.)

[98] Among 35 transmission owners in PJM, only five employ stated rates: (i) Allegheny Electric Cooperative, Inc., (ii) Essential Power Rock Springs, LLC, (iii) Ohio Valley Electric Corporation, (iv) Rockland Electric Company, and (v) Southern Maryland Electric Cooperative, Inc. (Source: PJM. *2022 Informational Filing (Docket No. ER19-2105-000 and -001).* December 8, 2021.)

[99] Based on Attachment H of SPP's OATT, effective June 6, 2022. (Source: FERC eTariff.)

6.1 CAISO

In the CAISO region, most formula rates have sunset provisions, requiring utilities to file a new formula (or a stated rate) after three to six years. The steps for the three main IOUs (PG&E, SCE, and SDG&E) to update their base transmission revenue requirements are the same. Similar to the procedure outlined in Section 3.2, the first step involves posting a draft annual update, which sets forth the base transmission revenue requirement for the upcoming rate year and is accompanied by populated versions of all schedules comprising the formula rate. This is then followed by information requests, a draft annual update conference, and finalized annual update filings. The annual update includes the true-up calculation. The timelines for these steps, however, vary for each utility. For example, the posting date of the draft annual update is June 15th for SCE, but July 1st for SDG&E. The last day to submit information requests is October 15th for PG&E, but October 31st for SDG&E.[100]

Municipal transmission owners, serving cities such as Anaheim, Azusa, Banning, Colton, and Pasadena, are participating transmission owners ("PTOs") in CAISO. As such, they file their transmission tariffs with FERC, as well as their transmission revenue requirements. The Commission approves the revenue requirements and gross load predictions, but each municipal utility's governing body develops its own retail rates.[101] Each entity selects (on its own accord) whether to use a stated rates or a formula rate approach for its revenue requirement approved by FERC.

6.2 ISO-NE

In the ISO-NE region, service rates are divided into local service and regional service, both of which are calculated using TFRs. Regional service uses pool transmission facilities ("PTFs") while local service uses non-PTFs.[102] For local service, each transmission owner individually calculates its rates based on its TFR filed in the ISO-NE OATT. For regional service, there is one formula under which all regional network service revenue requirements are calculated. Each transmission owner submits its calculations to ISO-NE, and ISO-NE aggregates them to reach the total annual transmission revenue requirement.[103] ISO-NE's protocols state that the annual update and the

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[100] Based on SCE, SDG&E and PG&E's OATTs, respectively.

[101] California ISO. *How Transmission Cost Recovery Through the Transmission Access Charge Works Today*. April 12, 2017. P. 10.

[102] PTFs are facilities at and over 69 kV (pre-2004), or at and over 115 kV (2004 and later), over which ISO-NE has operating authority under the terms of the applicable Transmission Operating Agreement. These facilities are used to provide regional network service, moving electricity out of or through the New England Balancing Authority Area. Regionalized costs associated with PTFs are apportioned to each New England region, based on the region's proportion of electricity demand. (Sources: ISO New England. *New England Control Area Transmission Services and ISO-NE Open Access Transmission Tariff General Business Practices -- Section 1: Overview of Transmission Services offered under the ISO-NE Open Access Transmission Tariff*. June 15, 2022; ISO New England. *Transmission Service Types*. Undated; ISO New England. *Transmission Cost Allocation.* Undated.)

[103] ISO-NE. *Rate Development of Regional Transmission Charges*. 2022/2023 OATT Schedule 1 & 9 Rate Development Worksheets and Supporting Documents. June 15, 2022.

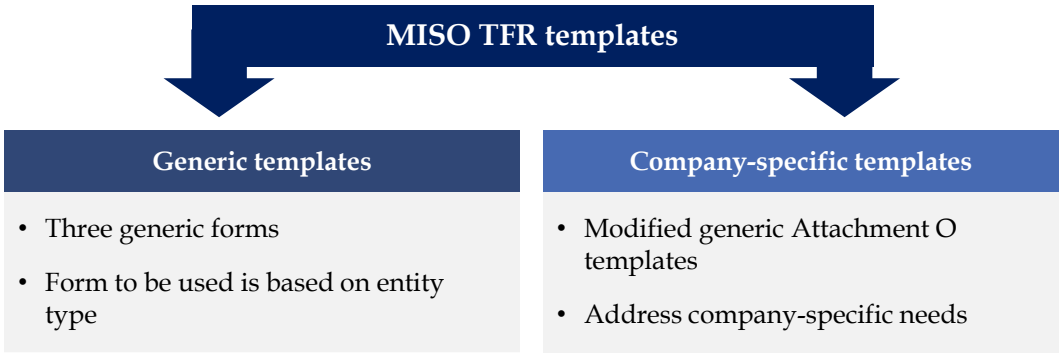
draft informational filings shall identify all system planning costs included in operating expenses by project.[104]

6.3 MISO

In the MISO region, there are two types of TFR templates included in the MISO OATT Attachment O: (i) generic templates, and (ii) company-specific templates.[105] Figure 9 provides a high-level overview of the two. The generic templates use historical data. In addition to a template based on FERC Form No. 1 data, there are two additional templates for use by cooperatives and municipal utilities. A company-specific template is a modified template that is created by a transmission owner to address its specific needs.[106]

Each transmission owner completes the appropriate formula rate template, and is responsible for providing MISO with its completed template for posting.[107] MISO will review the transmission owner's submission to ensure it complies with tariff requirements and may request further information, if necessary.[108]

Figure 9. Overview of MISO TFR templates



Source: Adapted from MISO.

6.4 NYISO

In the NYISO region, the only incumbent transmission owner with a TFR is Niagara Mohawk Power Corporation, a subsidiary of National Grid. Niagara Mohawk calculates and updates its annual transmission revenue requirement, scheduling system control and dispatch costs ("Component CCC"), and annual billing units ("Component BU") using its TFR. Except for forecasted data, the cost information used in the TFR is pulled from Niagara Mohawk's annual FERC Form No. 1 filing, its official books or record, or its annual report to the New York State

[104] ISO-NE. *OATT Att. F - Appendix C, Formula Rate Protocols (1.0.0).* January 27, 2021.

[105] Attachment O is the mechanism used by transmission owners to annually report their transmission revenue requirements to MISO.

[106] MISO. *Level 100 – Transmission Pricing: Attachment O*. P. 9.

[107] Ibid. P. 10.

[108] Ibid. P. 16.

Public Service Commission.[109] Niagara Mohawk recalculates its annual revenue requirement and Components CCC and BU on or before June 14th of each year.[110] As part of the supporting documentation for these calculations, Niagara Mohawk provides monthly records of its billing units for the most recent concluded calendar billing year. The names and reference numbers for the entities listed in the documents are redacted to preserve confidentiality.[111]

Aside from Niagara Mohawk, LS Power Grid New York Corporation, New York Transco LLC, NextEra Energy Transmission New York, Inc., the Power Authority of the State of New York (or NYPA), and the Long Island Power Authority ("LIPA") also employ TFRs.

6.5 PJM

Each utility within PJM has its own TFR template and protocols, which may differ in terms of specific details but share some commonalities. One distinction to be noted is the procedural timeline. Some utilities have been migrating to a calendar year rate year, which involves two filing deadlines – (i) the true-up filing for the prior year, which is typically submitted in June; and (ii) the annual update filing, which is typically filed in October and forecasts the rates for the next rate year and rolls in the over- or under-recovery from the true-up filed in June. For example, AEP East Companies are required to provide their true-up calculations for the prior rate year on or before May 25th of each year, while the projections for the next rate year must be provided by October 31st.[112]

6.6 SPP

Similar to MISO, SPP has both general requirements for administering TFRs and separate TFRs in the OATT for individual transmission owners. In addition, SPP posts on a monthly basis a series of spreadsheets detailing the revenue requirements and rates in effect for that month, known as its "Revenue Requirements and Rates" ("RRR") files.[113] These files include data for utilities that use TFRs as well as those on stated rates – although over 87% of the transmission owners in SPP use formula rates to calculate their zonal ATRR.[114] Similar to ISO-NE's approach of separating facilities and service charges into different service components, an SPP utility's

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[109] NYISO. *14.1 OATT Attachment H - § 14.9.1.* November 1, 2021.

[110] NYISO. *14.1 OATT Attachment H - § 14.9.1.4.* November 1, 2021.

[111] Ibid.

[112] AEP East Operating Companies are Appalachian Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company, and Wheeling Power Company. (Source: PJM. *OATT Attachment H-14A*. January 1, 2017.)

[113] See the SPP Documents page, "*Governing (Tariff, Bylaws, Articles, Criteria, Membership/Seams Agreements, Market Protocols, Business Practices)*" folder, "*RRR for Billing Documents and Link to TO Formula Rate Postings*" subfolder. While the SPP spreadsheet is updated on a monthly basis, the revenue requirements and rates do not necessarily change month-to-month.

[114] LEI calculations based on Attachment H of SPP's OATT, effective June 6, 2022. (Source: FERC eTariff.)

transmission revenue requirement is subdivided into different categories, including Network Integration Transmission Service[115] and Base Plan Upgrade charges.[116]

[115] Network Integration Transmission Service is an open access provision under the SPP tariff, pursuant to which a transmission owner delivers capacity and energy from generation to load for other parties "*on a basis that is comparable to the Transmission Owner(s') use of the Transmission System to reliably serve*" its own load. (Source: SPP. *OATT Section 28.3.* July 26, 2010.)

[116] Base Plan Upgrades are "*upgrades included in and constructed pursuant to the SPP Transmission Expansion Plan in order to ensure the reliability of the Transmission System.*" SPP utilities that must recover Base Plan Upgrade costs calculate ATRRs for these facilities, and then derive rates to be recovered per zone and regionwide. (Sources: SPP. *OATT Section 1 – Definitions B.* June 1, 2022; SPP. *OATT Schedule 11.* July 1, 2018.)

7 Appendix B: Case studies related to transitioning from stated rates to TFRs

We present below two case study examples of utilities that have recently sought to transition from stated rates to TFRs:

- Pacific Gas and Electric Company ("PG&E"), who submitted its TFR application on October 1st, 2018, which was finalized via settlement and approved by FERC on December 30th, 2020; and

- El Paso Electric Company ("EPE"), who submitted its TFR application on October 29th, 2021, and is currently undergoing settlement procedures.

These examples highlight the theoretical case for TFRs from the perspective of utilities (as well as the benefits that are expected to flow through to other stakeholders), while also representing two extreme ends of the stated rates approach. On the one hand, PG&E utilized the stated rates approach for around 21 years before seeking to transition to the TFR approach (with its first stated rate case filing in 1997), and during that time submitted 19 rate cases with FERC, equating to almost one stated rate case filed each year. In contrast, EPE utilized the stated rates approach for around 24 years before seeking to transition to the TFR approach, but only submitted the one rate case during that time.

7.1 Pacific Gas and Electric Company

PG&E is one of three IOUs operating in California, owning an extensive electric transmission and distribution system that extends across northern and central California. PG&E submitted its TFR application on October 1st, 2018 (in FERC Docket No. ER19-13-000), after having used the stated rates approach for its previous 19 transmission tariff proceedings (dating as far back as 1997).[117] PG&E sought to move away from the stated rates approach for the following reasons.

PG&E argued the TFR approach is "*consistent with Commission precedent and policy*", citing to previous FERC decisions, such as a 2008 case involving Niagara Mohawk in New York (in FERC Docket No. ER08-552).[118] There, the Commission stated that it "*[agrees] ... that having a formula cost recovery system in place should eliminate the need for frequent rate adjustment filings, ensure that rates reflect the actual cost of providing transmission service, and incent needed transmission investment. The Commission has found that the use of formula rates encourages the construction and timely placement into service of needed transmission infrastructure and has approved the use of formula rates by a number of transmission-owning utilities.*"[119]

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[117] PG&E. *Exhibit PGE-0001: Formula Rate Overview and Policy, Prepared Testimony of Lanette Kozlowski (FERC Docket No. ER19-13-000).* October 1, 2018.

[118] PG&E. *Transmittal Letter (FERC Docket No. ER19-13-000).* October 1, 2018. P. 1.

[119] Ibid. P. 2.

PG&E also highlighted that under the stated rates approach, it forecasted all elements of its base transmission revenue requirement for a future test year, which often led to protracted proceedings due to disagreements with FERC Staff and intervenors regarding the underlying assumptions, thus impacting the pace of negotiations and at times resulting in litigation. As such, PG&E argued the TFR approach "*mitigates concerns about cost and sales forecasts being different than actuals because formula rates provide a mechanism for truing up rates based on actual cost and sales information*" and similarly ensures that "*customers ... pay actual costs*", while also providing "*more predictability as inputs to the formula rate are made in accordance to the approved formula rate protocols, which will be in effect for the duration of the formula rate.*"[120]

Furthermore, PG&E argued that the TFR approach would "*reduce parties' litigation costs compared to the typical annual "stated" rate case filing*", by avoiding the need to "*[expend] significant resources evaluating PG&E's filing and participating in settlement and/or litigation processes.*"[121] PG&E noted it faced a significant cost – in terms of time, effort, and resources – to compile and file each stated rates case, due to extensive submission requirements (including testimony and the need to file around 35 separate "statements"). Recognizing that TFR filings still involve stakeholder review, PG&E contended "*it expects that over time the Formula Rate will involve less resources and effort by all concerned.*"[122]

FERC accepted PG&E's TFR filing on November 30th, 2018, and established hearing and settlement judge procedures. PG&E submitted a partial settlement to FERC resolving certain TFR template and protocol issues on March 31st, 2020 (approved by FERC on August 17th, 2020), and later filed an unopposed settlement with FERC resolving all outstanding issues on October 15th, 2020 (approved by FERC on December 30th, 2020).[123]

7.2 El Paso Electric Company

El Paso Electric Company is a vertically integrated electric utility serving approximately 446,000 retail customers across southern New Mexico and west Texas. EPE's service territory extends across a roughly 10,000 square mile area.[124]

EPE submitted its TFR application on October 29th, 2021 (in FERC Docket No. ER22-282-000), after its stated rates had not been updated since they were first established through a "black-box" settlement approved by the Commission on June 10th, 1998.[125] Given this significant lag between rate cases, EPE found that its outdated stated rates "*fail to recover [it's] costs of providing*

[120] Ibid. P. 2.

[121] Ibid. P. 2.

[122] Ibid. P. 2.

[123] PG&E. *Summary Description of the Draft Annual Update for the Rate Year 2023.* June 15, 2022.

[124] EPE. *Transmittal Letter (FERC Docket No. ER22-282-000).* October 29, 2021.

[125] EPE. *Exhibit EPE-0001: Overview and Transmission Service Provided, Prepared Direct Testimony of David C. Hawkins (FERC Docket No. ER22-282-000).* October 29, 2021.

transmission service."[126] As noted in its application "*at the time EPE last filed rates for transmission service with the Commission in the mid-1990s, EPE's total transmission plant account balance was $238,822,547, and that balance has since grown to $572,495,263*" – a nearly 140% increase.[127]

Given this context, EPE argued that moving to a "*forward-looking formula rate will enable EPE to recover its capital investments in the system on a timely basis*"[128] and "*thereby avoid the regulatory lag associated with preparing, filing, litigating and resolving individual section 205 stated rate proceedings, which can be extensive and costly in both resources and time. Through a formula rate, EPE's transmission rates will more accurately and timely reflect the actual costs EPE incurs to provide transmission service.*"[129]

EPE cited other benefits of the TFR approach as reasons for the requested transition. Specifically, EPE argued that "*aligning EPE's transmission rates with its costs through an updated and projected formula rate tends to reduce "rate shock" or sudden jumps in rates that can occur when stated rate cases are filed years apart. Thus, transmission formula rates allow customers greater regulatory certainty and the ability to more accurately budget for transmission costs. A formula rate should also help EPE to minimize its financing costs, which, in turn, mitigates the costs of providing service.*"[130]

Furthermore, in contrast to the "black-box" settlement that determined EPE's stated rates, the "*proposed transmission formula rate structure incorporates transparency to transmission customers and the Commission. For example, the formula rate protocols require the submittal of annual information filings, as well procedures for data and information exchange regarding EPE's implementation of the formula*."[131]

Several EPE customers filed protests regarding EPE's proposal, citing substantial rate increases (which arose as a result of the prolonged period since the utility's last rate update). FERC accepted EPE's TFR filing on December 30th, 2021, and established hearing and settlement judge procedures.[132]

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[126] EPE. *Transmittal Letter (FERC Docket No. ER22-282-000)*. October 29, 2021. P. 2.

[127] Ibid. P. 2-3.

[128] Ibid. P. 3.

[129] EPE. *Exhibit EPE-0002: Transmission Investment, Prepared Direct Testimony of James A. Schichtl (FERC Docket No. ER22-282-000)*. October 29, 2021. P. 5 of 6.

[130] Ibid. P. 5 of 6.

[131] Ibid. P. 5 of 6.

[132] S&P Capital IQ Pro. *Focus on FERC – Democrat Willie Phillips sworn in; transmission issues heat up*. December 16, 2021.

8 Appendix C: List of acronyms

AEP	American Electric Power Service Corporation
AFCR	Annual Fixed Charge Rate
ATRR	Annual transmission revenue requirement
CAISO	California Independent System Operator
DAA	Division of Audits and Accounting
EPE	El Paso Electric Company
FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act
IOU	Investor-owned utility
ISO	Independent system operator
ISO-NE	Independent System Operator New England
LEI	London Economics International LLC
MISO	Midcontinent Independent System Operator
NYISO	New York Independent System Operator
NYPA	New York Power Authority
O&M	Operation and maintenance
OATT	Open Access Transmission Tariff
PG&E	Pacific Gas and Electric Company
PJM	Pennsylvania-Jersey-Maryland Interconnection
PTF	Pool transmission facilities
PTO	Participating transmission owner
ROE	Return on equity
RRR	Revenue Requirements and Rates
RTO	Regional transmission organization
SCE	Southern California Edison
SDG&E	San Diego Gas and Electric
SPP	Southwest Power Pool
TFR	Transmission formula rate
USofA	Uniform System of Accounts

9 Appendix D: List of works cited

123 FERC ¶ 61,098. Docket Nos. ER08-92-000 et al. April 29, 2008.

124 FERC ¶ 61,106. Docket Nos. ER08-552-000/001. July 29, 2008.

139 FERC ¶ 61,127. Docket No. EL12-35-000. May 17, 2012.

143 FERC ¶ 61,149. Docket No. EL12-35-000. May 16, 2013.

146 FERC ¶ 61,212. Docket Nos. ER13-2379-000 et al. March 20, 2014.

148 FERC ¶ 61,035. Docket No. EL14-71-000. July 17, 2014.

156 FERC ¶ 61,209. Docket No. ER16-1169-000. September 22, 2016.

156 FERC ¶ 61,238. Docket No. ER16-2320-000. September 30, 2016.

16 U.S. Code § 824.

165 FERC ¶ 61,194. Docket No. ER19-13-000. November 30, 2018.

173 FERC ¶ 61,290. Docket No. ER21-00253-000. October 29, 2020.

178 FERC ¶ 61,207. Docket No. EL22-27-000. March 24, 2022.

18 Code of Federal Regulations § 35.13.

18 Code of Federal Regulations § 385.603.

42 FERC ¶ 61,307. Docket No. ER88-202-000. March 15, 1988.

Bonbright, James C. *Principles of Public Utility Rates.* 1961 (Reprinted in 2005).

California ISO. *How Transmission Cost Recovery Through the Transmission Access Charge Works Today.* April 12, 2017.

EPE. *Exhibit EPE-0001: Overview and Transmission Service Provided, Prepared Direct Testimony of David C. Hawkins (FERC Docket No. ER22-282-000).* October 29, 2021.

EPE. *Exhibit EPE-0002: Transmission Investment, Prepared Direct Testimony of James A. Schichtl (FERC Docket No. ER22-282-000).* October 29, 2021.

EPE. *Exhibit EPE-0004: Formula Rate Template and Protocols, Prepared Direct Testimony of John Wolfram (FERC Docket No. ER22-282-000).* October 29, 2021.

EPE. *Tariffs and Pending Tariff Filings*.

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10 Appendix E: LEI's qualifications

10.1 Background on the firm

London Economics International LLC is a global economic, financial, and strategic advisory professional services firm specializing in energy and infrastructure. The firm combines detailed understanding of specific network and commodity industries, such as electricity transmission, distribution, and generation, sophisticated analysis and a suite of proprietary quantitative models that together produce reliable and comprehensible results. LEI is active across the power sector value chain and has a comprehensive understanding of the issues faced by investors, utilities, and regulators alike.

LEI's areas of expertise are briefly described in Figure 10.

Figure 10. LEI's areas of expertise

Asset Valuation, Price Forecasting & Market Analysis

- Exhaustive sector knowledge and a suite of state-of-the-art proprietary quantitative modeling tools
  - Wholesale electricity market models
  - Valuation and economic appraisal
  - Due diligence support
  - Cost of capital database
  - Contract configuration matrices

Regulatory Economics, Performance-based Ratemaking & Market Design

- Market design, market power and strategic behavior advisory services
  - Electricity
  - Natural Gas
  - Water
- Incentive ratemaking
  - Quantify current and achievable efficiency levels for regulated industries
  - Convert findings into efficiency targets mutually acceptable to utilities and regulators

Expert Testimony & Litigation Consulting

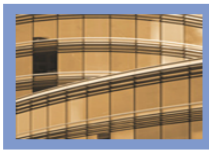
- Reliable testimony backed by strong empirical evidence
- Expert witness service
  - Material adverse change
  - Materiality
  - Market power
  - Contract frustration
  - Cost of capital
  - Tax valuations

Transmission

- Creating detailed market simulations to identify beneficiaries and quantify costs and benefits from proposed transmission lines
  - Valuing transmission
  - Transmission tariff design
  - Procurement process and contract design

Renewable Energy

- Renewable energy policy design, procurement, modeling, and asset valuation
  - Solar, wind, biomass, and small hydro
  - Demand response
  - Energy efficiency
  - Emissions credits trading
  - Energy storage technologies
  - Cogeneration
  - Micro-grids



Procurement

- Designing, administering, monitoring, and evaluating competitive procurement processes
  - Auction theory and design
  - Process management
  - Document drafting and stakeholder management

10.2 LEI's expertise related to transmission assets

LEI has extensive, in-depth experience in the transmission sector, spanning a broad array of regulatory, market, and economic topics. LEI has worked with a variety of stakeholders and institutions on electric transmission engagements including RTOs and ISOs, regulators, vertically integrated utilities and transmission owners, merchant transmission developers, independent power producers, environmental groups, and coalitions of consumers. LEI Principals have also testified on a variety of transmission related topics before policymakers, regulators, and siting organizations. LEI has advised on many facets of transmission, from rate design and regulation, to planning and investment analysis.

LEI's key areas of work in the electricity transmission sector include:

- **transmission rate design and regulation:** LEI has extensive experience analyzing tariff designs and developing new transmission tariffs using well-established techniques for cost-of-service ratemaking, including empirically supported analysis of the cost of capital and efficient cost allocation. LEI has also performed several productivity and benchmarking studies to better understand the cost of service for RTOs and transmission owners. Furthermore, LEI has worked on policy issues related to the introduction of competition in transmission investment and the alignment of RTO practices (inter-regional planning). LEI has also examined different methods for instituting market-compatible transmission use charges and transmission congestion pricing. Finally, LEI Principals have also testified on the topic of weighted average cost of capital and appropriate risk compensation.

- **valuing transmission assets:** LEI creates meaningful simulations of transmission investment impacts using proprietary tools, conducts related cost-benefit analysis, provides advice and analysis related to the valuation of congestion contracts, and has performed several economic development studies to investigate the positive externalities of infrastructure investment on local and regional economies;

- **evaluating transmission alternatives:** LEI's expertise includes assessing and quantifying the value of conventional and distributed energy resources as non-transmission alternatives to regulated transmission solutions, through analysis of the different generation technologies' costs, siting requirements, generation patterns, reliability implications to the system, and practical factors related to policy compliance and alignment with timing of needs; and

- **procurement process and contract design:** LEI applies fundamental economic principles and an exhaustive knowledge of electricity markets to help governments, regulators, and private companies create effective, rational, and transparent procurement processes, including competitive solicitations for transmission capacity, and independent management of open seasons and open solicitations.