COST OF SERVICE TOOL (COST™)

COST OF SERVICE AND RATE DESIGN:

Meeting the Needs for **Flexibility** and **Transparency**

COST OF **SERVICE** AND **RATE** DESIGN

COST™ was designed by professionals who have extensive experience working in utility rates and regulatory departments and providing consulting services to utilities. It delivers results in a user-friendly Microsoft Excel-based application.

COST™ includes:

✓ Unique structure that requires no coding and allows users to quickly change model logic and reports to address business changes

✓ Flexible data loading using data mapping templates; eliminates most manual inputs with the ability to quickly load data from financial, budget, load forecasting and capital asset systems

✓ Seamless integration with general ledger, budget tools, production cost models and any structured data sources, such as MCR's Financial and Regulatory Strategy Tool (FRST™)

✓ Assessment of the impacts of changes to your data and/or filing with the COST™ scenario analyzer

✓ Built-in data validation and error checking for imported data

✓ Virtually unlimited ability to define time periods, levels of consolidation and numbers of distinct utility services

✓ Easy addition of new cost items or rate classes for use in developing new tariffs

✓ Data filing requirements provided in an easy print function for external and internal stakeholders

COST™ is Excel-based, so it is easy to make changes within the model.

KEY **FEATURES**

Data Import

- Automatically uploads data from multiple sources; no linked files
- Easily changed data sources
- Provides audit trail of data sources
- Logs file source and users' upload information to ensure integrity

Functionalization/Classification

- Utilizes straight-forward and auditable logic for functionalization and classification

Rate Design Module

- Develops logic to model current rates; meets current regulatory reporting requirements
- Provides flexibility to analyze and accommodate future rate design options
- Provides customized internal and external reports, including typical bill analysis

Data Mapping

- Maps to filing requirements, rate design modules, and financial and operating data
- Maps from Cost of Service to rate design module

Scenario Tool

- Develops alternative runs for review across multiple scenarios
- Compares live model changes to a fixed dataset
- Allows third parties access to a limited set of adjustments that provide accurate results

Earnings Model

- Provides insights into return requirements across multiple utilities
- Develops forecasts of revenue requirements using budget and actual uploads

MEETING TODAY'S UTILITY NEEDS FOR **FLEXIBILITY** AND **TRANSPARENCY**

Regulators and intervenors are seeking greater insights into utility Cost of Service and are pushing for greater access to the inner-workings of utility Cost of Service models. MCR's Cost of Service Tool (COST™) is a fully functioning Cost of Service model that is built with the regulatory professional in mind. COST™ allows utilities to provide a working copy of the model to external parties.

Built in Microsoft Excel, COST™ is a spreadsheet model with open logic for audit, review and user editing. The model does not require IT support, nor an external vendor to make updates and changes. All model logic is clearly identified in the spreadsheet, allowing for quick turnaround to incorporate any required updates. Users can decide how much or how little of the model is locked down through Excel's native protection capabilities.
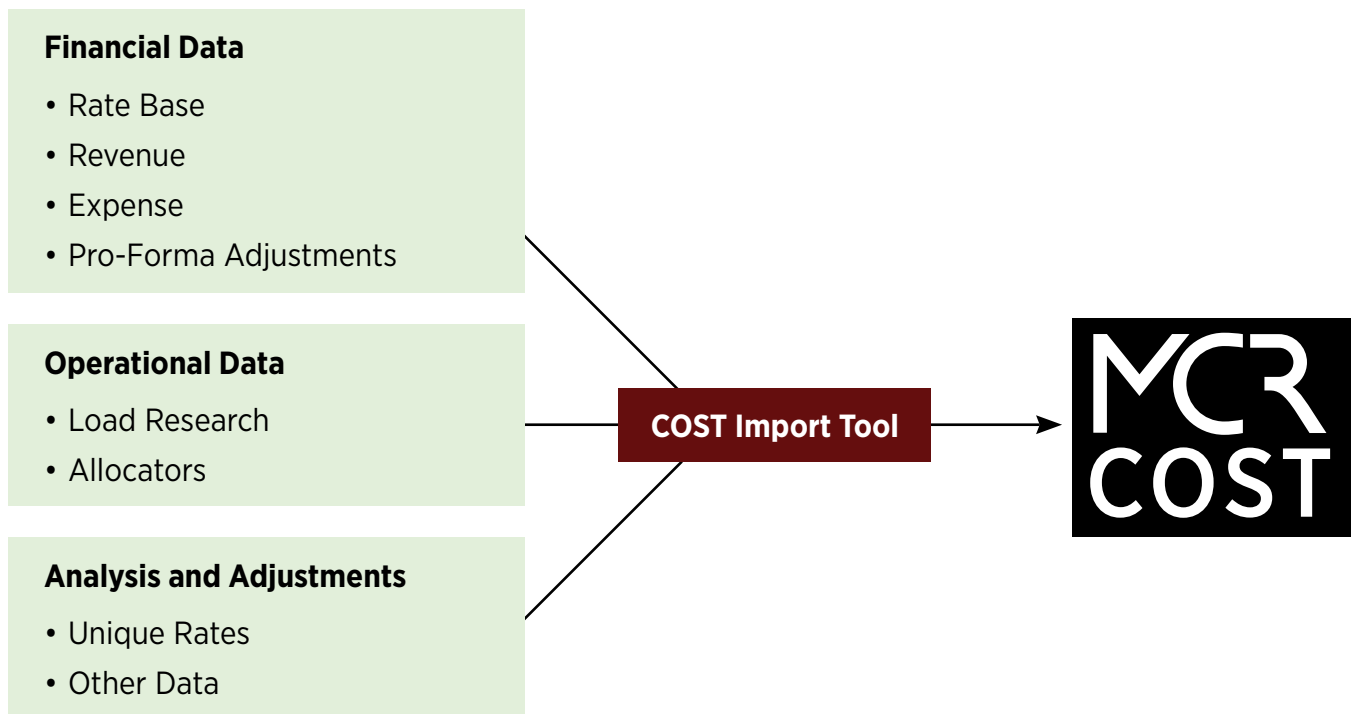
COST™ allows for development of the Cost of Service without any buried code or time-consuming run-time macros. New cost elements, revenues or rate base items can be quickly integrated into the analysis; adding new rate schedules is as simple as inserting a column into Excel.

COST™ SUMMARY RESULTS – ILLUSTRATIVE

	TOTAL ELECTRIC	TOTAL OTHER	TOTAL STATE JURISDICTION	TOTAL RESIDENTIAL	TOTAL GENERAL SERVICE
TOTAL RATE BASE	9,863,544,924	1,550,617,996	8,312,926,929	5,434,665,019	2,878,261,910
OPERATING INCOME	526,589,745	97,916,096	428,673,649	151,067,710	277,605,939
RATE OF RETURN (PRESENT)	5.3%	6.3%	5.2%	2.8%	9.6%
INDEX RATE OF RETURN (PRESEN	1.00	1.18	0.97	0.52	1.81
Requested Rate of Return	8.13%	8.13%	8.13%	8.13%	8.13%
Revenue Requirement	4,214,553,102	101,684,774	4,112,868,327	2,452,677,186	1,660,191,142
TOTAL REVENUES (PRESENT)	3,893,265,927	60,263,332	3,833,002,595	2,033,832,073	1,799,170,522
Requested Revenue Increase	321,287,174	41,421,442	279,865,732	418,845,113	(138,979,381)
% Difference to Present	8.25%	68.73%	7.30%	20.59%	-7.72%

COST™ IMPORT TOOL

COST™ allows users to manage data sources seamlessly with COST's import tool. Users are able to quickly select data sources while ensuring the integrity of the model. Source information is clearly marked to assist in file and data management.

Financial Data

- Rate Base
- Revenue
- Expense
- Pro-Forma Adjustments

Operational Data

- Load Research
- Allocators

Analysis and Adjustments

- Unique Rates
- Other Data

COST Import Tool

MCR COST

COST™ IMPORT TOOL – ILLUSTRATIVE

		Last Update	Loaded by	Upload File		Source Sheet	Rows from Source	Target Sheet	Paste To Row
Load	Browse	11/25/2017 8:45	User1	Plant		COST Export	300	Import	300
Load	Browse	11/25/2017 8:45	User1	G&I		COST Export	300	Import	600
Load	Browse	12/12/2017 15:38	User1	Wages and Salaries		COST Export	300	Import	900
Load	Browse	11/25/2017 8:45	User1	Accumulated Depreciation		COST Export	300	Import	1200
Load	Browse	11/24/2017 16:06	User1	Other Deferred Credits		COST Export	300	Import	1500
Load	Browse	11/25/2017 8:46	User1	Working Cash		COST Export	300	Import	1800

COST™ DATA MAPPING

Flexible, built-in data mapping logic captures dynamic data sets and helps users quickly integrate data into the analysis. When new data is loaded, the mapping tool identifies the new elements, allowing for a quick integration into the analysis through drop-down menus. The mapping tool identifies functionalization method, cost classification and rate schedule allocation. FERC account codes and internal account code information are incorporated. The mapping tool can be configured for any complex dataset, including output from financial systems, asset management, load forecast models and similar large complex sets of information.

COST™ DATA MAPPING TOOL – ILLUSTRATIVE

Cost Element	FERC Account or Description	Function	Subfunction	Rate Class if Directly Assigned	Value	
O&M	598	Distribution	Demand - Substation		$	348,403
O&M	598	Distribution	OH Primary/Secondary/Services		$	2,101,891
O&M	598	Distribution	UG Primary/Secondary/Services		$	1,019,670
O&M	598	Distribution	Demand - OH and UG Transformer		$	280,524
O&M	598	Distribution	Street Lighting		$	55,580
O&M	598	Distribution	Dusk to Dawn		$	40,861
O&M	598	Distribution	Dusk to Dawn		$	496,016
O&M	908	Customer and Sales	Customer Service & Information (DSM)	STREET LIGHTING	$	300,521
O&M	908	Customer and Sales	Customer Service & Information (DSM)	DUSK TO DAWN	$	47,019
O&M	908	Customer and Sales	Customer Service & Information (DSM)	PL-2	$	156,852
O&M	908	Customer and Sales	Customer Service & Information (DSM)	PL-3 TOU	$	75,300
O&M	908	Customer and Sales	Customer Service & Information (DSM)	PL-4 TOU	$	133,221
O&M	908	Customer and Sales	Customer Service & Information (DSM)	LPL-5 TOU	$	470,939
O&M	908	Customer and Sales	Customer Service & Information (DSM)	School TOU	$	374,536
O&M	908	Customer and Sales	Customer Service & Information (DSM)	PL-3	$	9,716,400
O&M	908	Customer and Sales	Customer Service & Information (DSM)	PL-4	$	7,022,523
O&M	908	Customer and Sales	Customer Service & Information (DSM)	LPL-5	$	6,102,146
O&M	908	Customer and Sales	Customer Service & Information (DSM)	LPL-6	$	1,241,559
O&M	908	Customer and Sales	Customer Service & Information (DSM)	LPL-7	$	2,224,631
O&M	908	Customer and Sales	Customer Service & Information (DSM)	Residential Solar (Energy Ra	$	375,009
O&M	908	Customer and Sales	Customer Service & Information (DSM)	Residential Solar (Demand I	$	36,558
O&M	908	Customer and Sales	Customer Service & Information (DSM)	Residential R1	$	7,512,395

COST™ **RATE DESIGN**

The COST™ rate design module connects seamlessly with the model's Cost of Service functions. Rate schedule revenue requirements are imported from the Cost of Service and rate design personnel can choose to manually adjust the proposed rate increase for each class or have the model run the calculations. Choose how to recover your costs with just a few clicks.

COST™ RATE SCHEDULE – ILLUSTRATIVE

SCHEDULE:		R	GSND	GSD	LP	T
Revenues at Existing Rates	136,385,006	105,457,550	5,448,569	21,141,828	2,340,109	39,376
Proposed Revenues at Full Cost of Service	158,006,485	121,295,477	6,526,980	24,474,426	2,640,628	82,230
Adjustments to Revenues at Full Cost of Service	1,993,515					
Adjusted Proposed Revenues	160,000,000	122,825,821	6,609,329	24,783,212	2,673,944	83,267
Total Non-Fuel Revenue Deficiency	(23,614,995)	(17,368,272)	(1,160,759)	(3,641,384)	(333,835)	(43,892)
% Increase Required at Adj Proposed Revenue	(17.31%)	(16.47%)	(21.30%)	(17.22%)	(14.27%)	(111.47%)
		Solve	Lock	Solve	Solve	Lock
Target Increase Percentage for Banded Classes		0.00%	20.00%	0.00%	0.00%	0.00%
Proposed Revenues at Banded Increase	160,000,000	122,917,906	6,538,283	24,801,792	2,675,949	39,376
% Proposed Increase (Decrease) at Banded Increase	17.31%	16.56%	20.00%	17.31%	14.35%	0.00%

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CUSTOMER REVENUE ALLOCATION					
Starting Customer Revenue Requirement	80,619,555	66,688,417	3,968,959	6,952,614	430,265
Customer Revenue Allocation Methodology		Set Value	% Inc	% Inc	% Inc
% Proposed Increase (Decrease) to Customer Revenue		0.00%	10.00%	10.00%	10.00%
Set Charge Values					
Secondary		11.00000			
Single Phase			0.00000	0.00000	
Three Phase			0.00000	0.00000	0.00000
Primary				0.00000	0.00000
Transmission					
Current Customer Revenue	23,186,910	16,713,027	1,919,196	2,060,692	28,428
Proposed Customer Revenue Allocation	**26,339,818**	**19,351,926**	**2,111,115**	**2,266,761**	**31,271**
Proposed Customer Revenue Increase/(Decrease)	3,152,908	2,638,899	191,920	206,069	2,843

98,994

Schedule	Description	Actual Billing Units		Proposed Rate	Proposed Revenue	Difference - Amount	Difference - Percentage
R	**Residential Service**						
	Facilities Charge	1,759,266	$	11.00000	19,351,926	2,638,899	
	Energy Charge	1,000,000,000	$	0.10194	101,943,551	58,943,551	
	Franchise Taxes	2,095,175,812	$	0.00062	1,299,009	-	
	Subtotal				**122,594,486**	**61,582,450**	
	BSA Revenue					(5,107,928)	
	Unbilled Revenue					(1,210,097)	
	Total Schedule R				**122,594,486**	**55,264,425**	**82.08%**

COST™ **TYPICAL BILL ANALYSIS**

The COST™ bill comparison function auto calculates bills at every stipulated level of usage for the defined tariffs, making this common filing requirement easy to fulfill once the rate design has been finalized. This typical bill analysis can also be used for rate design changes, such as when individual bills need to be analyzed. Usage levels are easily modified if requested by stakeholders.

COST™ TYPICAL BILL COMPARISON – ILLUSTRATIVE

Schedule	Description	Current Rate	Proposed Rate	Difference	% Diff	Usage
R	**Residential Service**					
	Facilities Charge	$ 9.50000	$ 11.00000			
	Energy Charge	$ 0.04300	$ 0.10194			
	Franchise Taxes	$ 0.00062	$ 0.00062			
	R Typical Bill	$ 13.86	$ 21.26	$ 7.39	53.34%	100
		$ 18.22	$ 31.51	$ 13.29	72.92%	200
		$ 22.59	$ 41.77	$ 19.18	84.93%	300
		$ 26.95	$ 52.03	$ 25.08	93.06%	400
		$ 31.31	$ 62.28	$ 30.97	98.92%	500
		$ 35.67	$ 72.54	$ 36.87	103.35%	600
		$ 40.03	$ 82.79	$ 42.76	106.81%	700
		$ 44.40	$ 93.05	$ 48.65	109.59%	800
		$ 48.76	$ 103.31	$ 54.55	111.88%	900
		$ 53.12	$ 113.56	$ 60.44	113.79%	1000
		$ 57.48	$ 123.82	$ 66.34	115.41%	1100
		$ 61.84	$ 134.08	$ 72.23	116.80%	1200
		$ 66.21	$ 144.33	$ 78.13	118.01%	1300
		$ 70.57	$ 154.59	$ 84.02	119.06%	1400
		$ 74.93	$ 164.85	$ 89.92	120.00%	1500
		$ 79.29	$ 175.10	$ 95.81	120.83%	1600
		$ 83.65	$ 185.36	$ 101.70	121.58%	1700
		$ 88.02	$ 195.61	$ 107.60	122.25%	1800
		$ 92.38	$ 205.87	$ 113.49	122.86%	1900
		$ 96.74	$ 216.13	$ 119.39	123.41%	2000

COST™ SCENARIO ANALYZER

COST™ has a built-in scenario analyzer that is structured to permit third parties to test alternatives while ensuring the results are accurate. The scenario analyzer allows for multiple adjustments to rate base and expenses tied to specific functionalization options. Adjustments are calculated instantaneously and allocated to rates.

Other adjustments can also be quickly modeled, including rates of return, tax rates and other high-level drivers. The adjustments are compared to the "as-filed" case, which is controlled by the utility. Results are shown as a summary, as well as with more details.

In addition, the model comes with a supporting tool that compares multiple alternatives. This tool is a separate workbook, not accessible by third parties, that allows the utility to develop multiple cases and test potential rate case strategies.

COST™ SCENARIO ANALYZER – ILLUSTRATIVE

Rate Base Adjustments

	Amount	Functionalization	Type		Functionalization Options
1			RBADJ		Production
2			RBADJ		Transmission
3			RBADJ		Distribution
4			RBADJ		Customer and Sales
5			RBADJ		Wages & Salaries
					Wages & Salaries less Trans.

Expense Adjustments

	Amount	Functionalization	Type		
					P T & D
1			EXPADJ		P T & D less Land
2			EXPADJ		P & D
3			EXPADJ		
4			EXPADJ		
5			EXPADJ		

COST™ CASE STUDY

Helping an Investor-Owned Electric Utility
Implement COST™ to Achieve Greater Cost Transparency

Background

An investor-owned utility was involved in a complex rate case involving significant shifts in rate structure across all classes. The initial Cost of Service filing was prepared using a database tool that provided output without the underlying logic.

Intervenors and commission staff expressed **frustration with their lack of access to the underlying logic** of the model. The issue became more pronounced as the potential outcomes of the rate case included new rate schedules and a unique proposal to address net metering issues.

The resulting rate order included a provision for the company to adopt a more transparent Cost of Service model.

The utility engaged MCR to provide a solution allowing for robust, error-free modeling of the Cost of Service while providing third parties the access they were promised via the rate order.

Solution

To implement the Cost of Service Tool (COST™), MCR made use of its proprietary mapping tool, which meant **minimal changes to the client's existing datasets.** MCR was then able to quickly roll-out COST™, providing an accurate Cost of Service model with the flexibility needed for unknowns of the future.

The built-in scenario capability met third party needs to test alternative allocations and adjustments while ensuring an accurate result. MCR provided the client a separate tool enabling comparison of multiple alternatives.

> **Results**
>
> COST™ supported the utility for its most recent rate case. The flexible architecture allowed for a series of last-minute changes required by the process and ensured a timely submittal.

COST™ **CASE STUDY**

Helping a Water Conglomerate
Utilize COST™ to Achieve Budget Forecasts in Multiple Territories

Background

A large water company needed a Cost of Service model to provide full details over 20 jurisdictions and to easily expand when additional properties were acquired.

The conglomerate's individual territories and acquired companies each had unique models that could not be directly compared to each other. Analysts **had to spend valuable time learning each model** in order to cross-train with the other areas.

The utility engaged MCR to provide a solution allowing for a single model to be used throughout the company's 20+ jurisdictions.

Solution

To implement the Cost of Service Tool (COST™), MCR developed a revenue requirements model, complete with standard filing schedules for water and wastewater that could be adapted, as needed, to each jurisdiction's specific requirements while maintaining a single model's programming.

The model's revenue requirement feature also **allowed the company to develop a forecast** for a 2-year budget throughout its territories.

> **Results**
>
> The COST™ model's easily adaptable formulas and layout allowed the company to have a singular model for various territories.

COST™ **CASE STUDY**

Helping a Large Gas Utility Implement COST™ to Allow In-house Development of Cost of Service and Rate Design

Background

A large gas utility serving over 750,000 customers wanted to purchase a study to run scenarios in house. They also had a desire to be able to run scenarios in two other jurisdictions for rate cases.

The utility engaged MCR to develop the Cost of Service Tool (COST™) to **enable the utility to run these scenarios in-house.** Ultimately the client wanted to run the model in future proceedings for their rate proceedings and special studies.

Solution

MCR developed their COST™ model using the client's revenue requirements as an input and created the study as well as integration into the rate design. **MCR also provided expert testimony** for the rate case regarding the COST™ model and associated rate design. Hands-on training and documentation were provided to the company for their use in the future.

> **Results**
>
> The COST™ model took direct feed from the financial records and revenue requirements model to create an in-house model that was used in a current rate case. At the client's direction, the COST™ model has the capability to be used in future rate cases in the same jurisdiction as well as two other jurisdictions in which they provide service. Having an in-house model allows the client to continue to use and customize it, freeing them of using consultants on a long-term basis.

COST™ FEEDBACK

MCR Client Interviews Reveal Impressions of COST™ Implementation and Results

"Our current cost of service model is not user friendly; we hired MCR to implement a cost of service model, so it's easier for all parties in a rate case to run scenarios."

"MCR never missed a deadline."

"They're awesome regarding modeling and analytical skills."

"Doing this remotely during the pandemic was a challenge. In a normal world, we would have sat face to face in a conference room. Even in a 100% remote environment, the knowledge, responsiveness, and customer service were really exceptional."

"MCR was very responsive and very thorough. We're continuously impressed with how quickly they were able to implement the model; it was much shorter than other vendors' estimates. I think they did a tremendous job"

"What was appealing, in addition to the automation, was the direct link to a rates model as well as a product for our financial model. One-stop shop was appealing."

"MCR's project management and organization is great."

"Their project management and organization was great. When we were implementing the model, they broke it into phases and told us when each phase / part of the model would be complete. They met the deadlines; they never missed one."

"The model was very easy to use, so we were able to pull the numbers from the larger model seamlessly and easily."

ABOUT MCR

MCR Performance Solutions was founded in 1999 on the principle our clients deserve the industry's best insights delivered through the highest quality and innovative solutions. Our founding partners have maintained that mission in every engagement our firm completes. MCR industry experience spans investor owned utilities, G&T cooperatives, and public power agencies. MCR combines its industry knowledge with its unique elements of economic analysis, regulatory process, strategic insight, organizational change, and information management. MCR focuses exclusively on the utility industry, providing services in the following areas:

Regulatory Services offers services in regulatory and rate case strategy, regulatory process, rate case management and innovative rate design for electric, natural gas and water utilities.

Financial Advisory works with clients on enterprise risk management, financial planning and modeling, capital management and project evaluation. MCR's FRST™ model is used by dozens of utilities for short- and long-term financial forecasting.

Energy Efficiency supports utility clients in EE strategy, program development, program management and implementation, and EM&V planning and execution.

Transmission provides support in transmission rate and cost analysis, FERC filings and strategic economic analysis.

Nuclear Generation offers consulting solutions in the areas of zero base budgeting, capital project evaluation, life cycle management planning, long range planning, management reporting, staffing optimization, and capitalization policies & procedures.

Utility Transformation helps clients navigate policy, technology and market challenges in the areas of electric vehicle strategy & development, C&I customer onsite product development, customer experience strategies and product financing strategies.

TO SCHEDULE A **DEMO OF COST,**™ PLEASE CONTACT:

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