



**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

**AGREED-UPON PROCEDURES REPORT
FOR SETTLEMENT QUALITY METER DATA PROCESSING**

2020 - 2022 TRADE YEARS

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Contents

2020 - 2022 Trade Years

	Page
Independent Accountant’s Report on Applying Agreed-Upon Procedures	1
Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing	
Section I - Management’s Executive Summary	2-3
Section II - Summary of Findings	4
Section III - Independent Accountant’s Qualifications Summary	5
Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures	6-18



INDEPENDENT ACCOUNTANT'S REPORT ON APPLYING AGREED-UPON PROCEDURES

Daniel Heffernan
Manager-Retail Services, Power Enterprise
San Francisco Public Utilities Commission
City and County of San Francisco

APX, Inc.
San Jose, California

California Independent System Operator
Folsom, California

We have performed the procedures enumerated in Section IV of this report, which were agreed to by the management of San Francisco Public Utilities Commission ("SFPUC"), APX, Inc. ("APX"), and the California Independent System Operator ("CAISO" or "ISO") (the specified parties), solely to assist SFPUC with respect to complying with the "Audit and Testing" requirements of Metering for Scheduling Coordinator Metered Entities as defined in CAISO Tariff section 10.3.10, for the period August 1, 2020 through July 31, 2022 ("Trade Years"). SFPUC's management is responsible for SFPUC's compliance with those requirements. The sufficiency of these procedures is solely the responsibility of the specified parties. Consequently, we make no representation regarding the sufficiency of the procedures detailed in Section IV, either for the purpose for which this report has been requested or for any other purpose.

The procedures and associated findings are presented in Section IV of this report.

We were engaged by APX, Inc. to perform this agreed-upon procedures engagement and conducted our engagement in accordance with attestation standards established by the American Institute of Certified Public Accountants. We were not engaged to and did not conduct an examination or review, the objective of which would be the expression of an opinion or conclusion, respectively, on SFPUC's compliance with the "Audit and Testing" requirements of Metering for Scheduling Coordinator Metered Entities as defined in CAISO Tariff section 10.3.10, for the period August 1, 2020 through July 31, 2022. Accordingly, we do not express such an opinion or conclusion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

We are required to be independent of SFPUC, APC, and CAISO and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements related to our agreed-upon procedures engagement.

This report is intended solely for the information and use of SFPUC, APX and CAISO, and is not intended to be and should not be used by anyone other than these specified parties.

Hutchinson and Bloodgood LLP

Glendale, California
October 17, 2022

SAN FRANCISCO PUBLIC UTILITIES COMMISSION CITY AND COUNTY OF SAN FRANCISCO

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section I - Management's Executive Summary

Background

The San Francisco Public Utilities Commission ("SFPUC") has engaged APX, Inc. ("APX") to provide Scheduling Coordinator services. APX is responsible for obtaining, processing, and submitting generation and load meter data to the California Independent System Operator ("CAISO") for settlement purposes. This data is comprised of interval generation and station load data, interval load data, usage load data, and calculated data for streetlights, traffic signals, and other non-metered load collected from various sources. SFPUC, as a certified Meter Data Management Agent ("MDMA"), self-provides this service by obtaining and processing the meter data and providing it to APX for submission to CAISO.

SFPUC's electric load is metered by a combination of interval load meters and monthly usage, Customer Information System ("CIS") meters. Over 97% of the total SFPUC load is recorded by approximately 229 interval load recorders, all of them currently read and reported by SFPUC, and 1,722 meters which are read and processed by Pacific Gas and Electric Company ("PG&E"; these are PG&E's "Smart Meters"), then provided daily to SFPUC in 15-minute or 60-minute intervals via flat file. Less than 1% of the total SFPUC load is measured by the CIS meters, which are owned by PG&E and read on a monthly cycle as part of PG&E's normal meter reading process. Of these services, ~52 have simple kilowatt hour ("kWh") or kWh-demand combined meters, and the other 2 have time-of-use ("TOU") meters that report reads by PG&E designated periods (on, partial, and off peak). SFPUC receives a daily CIS data feed containing the latest read information available from the PG&E systems. The remaining SFPUC load is "non-metered," and SFPUC has approximately 1673 service points that are metered based on elapsed usage (not including streetlight or traffic signal totals). Most of the non-metered load is calculated from inventories of devices attached to the Streetlight and Traffic Signal circuits (streetlights, traffic signals, bus shelters, etc.) with an additional 141 specific non-metered service points, for which PG&E has established an average monthly use value.

Load Data Processing

CIS meter read data provided by PG&E is received into SFPUC's Meter Data Management System ("MDMS"), which exports the data into a file format consumable by Honeywell's EIServer MDM platform ("EIServer"), subjecting it to an automated Validating, Editing, and Estimating ("VEE") process. This is followed by manual staff review of any reads that failed validation. Reads from interval load meters are either read directly by EIServer, or, in the case of PG&E's "Smart Meters," are first imported into MDMS and then 1) transformed into a file format consumable by EIServer, 2) exported to EIServer, and 3) subjected to EIServer's VEE process. As described in the documentation provided, PG&E's "Smart Meters" are provided following PG&E's own VEE process, which follows CPUC guidelines, and are thus subjected to only a limited set of SFPUC validation rules compared to other interval data. Processed interval read data is exported from EIServer via CMEP file format and loaded into MDMS. Processed CIS meter read data is pulled directly from the EIServer database into MDMS, which then i) profiles the CIS metered usage, ii) calculates interval load for streetlights, traffic signals and other non-metered load, iii) aggregates both based on load distribution factors, iv) applies loss factors as specified in the PG&E Wholesale Distribution Tariff, FERC Electric Tariff Volume No. 4, v) consolidates the metered load by scheduling point and vi) creates 60-minute interval Operational Meter Analysis and Reporting ("OMAR") formatted files, which are

SAN FRANCISCO PUBLIC UTILITIES COMMISSION CITY AND COUNTY OF SAN FRANCISCO

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing
2020 - 2022 Trade Years

Section I - Management's Executive Summary (Continued)

Load Data Processing (continued)

submitted to APX for reporting to the CAISO. EIServer also reads and performs the VEE process on all interval meters that record generation and station load for the Hetch Hetchy Water and Power ("HHWP") hydro generation facilities. This data is aggregated by MDMS at 5-minute intervals and submitted to APX for reporting to the CAISO. SFPUC has an exclusive power purchase agreement for the Sunset photovoltaic generation plant located on SFPUC property; however, this is a CAISO metered facility and SFPUC is not required to submit generation data.

File transfer of metered data to APX is via a SFPUC FTP server. The files are loaded to one high availability server in San Francisco to ensure that APX will always be able to retrieve the files when required. In addition, the metered data files are prepared and exported over 3 consecutive days for each required submission; this ensures that metered data will be available for reporting to the CAISO even if SFPUC systems should be disabled for up to 48 hours. In the remote event that files fail posting, there are enough buffer days to manually send the files to APX.

Scope of Procedures

The objective of the engagement was to perform an agreed-upon procedures engagement of SFPUC's procedures to comply with the CAISO requirements. This report includes the results of procedures performed by the independent accountant on the process controls at the Settlement Quality Meter Data Processing Level during the period of August 1, 2020 through July 31, 2022.

Summary of Results

Our review of the Settlement Quality Meter Data Processing Level controls at SFPUC indicated that the process controls are adequate and functioning as documented.

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing
2020 - 2022 Trade Years

Section II - Summary of Findings

There was one finding noted for the period of August 1, 2020 through July 31, 2022. (See Section IV – Root Cause Analysis on Page 18).

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section III - Independent Accountant's Qualifications Summary

Luba Kvitchko, CPA - Partner

Ms. Kvitchko is a Partner at Hutchinson and Bloodgood LLP's Audit and Assurance Group. She has supervised this agreed-upon procedures engagement for SFPUC.

Ms. Kvitchko has over 18 years of experience in the field of public accounting. Her areas of expertise are in auditing, and review and evaluations of internal control engagements.

Since 1922, Hutchinson and Bloodgood LLP has been providing assurance, attestation, tax, consulting, and management advisory services to businesses located throughout California. Hutchinson and Bloodgood LLP has the qualifications and experience required to perform engagements of this nature.

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures (Continued)

PROCESS CONTROLS

No	CAISO requirement	Description of controls	Procedures performed	Results
1 (cont)	Verify documented procedures for meter data processing are up to date and are being followed.	<p>SFPUC–CIS Meter Read Processing in MDMS</p> <ol style="list-style-type: none"> 1. Overview <ol style="list-style-type: none"> a. Background---CIS Meters 2. CIS Meter Reads and VEE <ol style="list-style-type: none"> b. Identification of New Meter Reads c. System VEE Processing (MDMS provides raw reads received from PG&E to EIServer, wherein automated and staff VEE is conducted. Final VEE reads are imported back to MDMS) d. SFPUC Staff VEE Review <p>EIServer Procedures for Interval Meter Data</p> <ol style="list-style-type: none"> 1. Daily Checklist 2. Device Communications Review – re-interrogation and/or troubleshooting 3. Confirming success of Daily Smart Meter Data Imports 4. Reviewing intervals failing validation rules <ol style="list-style-type: none"> a. Researching and Confirming Validation Failures b. Editing and Estimating Missing Reads 5. Importing meter data – eMons, hhf files and mdef files 6. Confirming CMEP Export success <ol style="list-style-type: none"> a. Manually exporting/re-exporting CMEP data 7. Logging communication issues and VEE 		

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures (Continued)

PROCESS CONTROLS

No.	CAISO requirement	Description of controls	Procedures performed	Results
1 (cont)	Verify documented procedures for meter data processing are up to date and are being followed.	<p>EIServer Procedures for Interval Meter Data (continued)</p> <p>8. Weekly Processes 9. Monthly Processes 10. Ad-hoc Processes</p> <p>High-Low Check Procedures</p> <p>This check is part of the monthly billing determinant process conducted by MDMS, and is more broadly monitored on a daily basis in a report comparing daily OMAR submittals, as described in Interval Meter/EIServer Register VEE Documentation for Monthly Processes and Procedures.</p>		

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures (Continued)

PROCESS CONTROLS

No.	CAISO requirement	Description of controls	Procedures performed	Results
2	Verify load profiles, if applicable, are applied properly. Also verify and document the process for handling missing or incomplete load profiles.	<p>SFPUC – CIS Meter Read Processing</p> <p>1. Reporting CIS Metered Load</p> <ul style="list-style-type: none"> • Profile Factors • Profiling Logic – KWH Meter Read • Profiling Logic – TOU KWH Meter Read • Aggregation of Profiled Meter Data <p>For reporting CIS metered load to the Meter Data Management Agent (“MDMA”), SFPUC applies a profile to each meter’s reported usage, allocating the metered monthly usage to hour intervals based on the profile of the aggregate interval load data.</p> <p>EIServer Procedures for periodic read data</p> <p>The processes of applying loss factors are detailed in ISO Meter Data Submission Overview document.</p>	<p>We read load profiling documentation as included in the SFPUC - CIS Meter Read Processing document. We ascertained that the documentation addresses profile factors, profiling logic, as well as aggregation of profiled meter data.</p> <p>We observed performance of the procedures, and ascertained that procedures are performed as documented.</p> <p>We observed that profiles were automatically applied to each meter’s reported usage.</p> <p>We ascertained that the procedures are being followed by interviewing the Utility Specialists and manager of EDS group.</p>	<p>No exceptions were noted.</p> <p>Load profiles were applied properly.</p>

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures (Continued)

PROCESS CONTROLS

No.	CAISO requirement	Description of controls	Procedures performed	Results
3	Verify Distribution Loss Factors (“DLF”) are applied properly. Also verify and document the process for handling missing or incomplete DLFs.	<p>All interval reads, calculated loads, and profiled usage are associated with a PG&E grid code as follows:</p> <ul style="list-style-type: none"> • P – Primary • S – Secondary • T – Transmission <p>The loss factors are specified in the Wholesale Distribution Tariffs. Transmission-level facilities (including the Airport) have no distribution loss factors.</p> <p>During the data preparation process for submitting metered data, the DLF value is applied to the metered load. In other words, metered load multiplied by DLF results in reportable load. Please see the ISO Meter Data Submission Overview for a description of how DLFs are applied. There are no instances of missing or incomplete DLFs.</p>	<p>We identified and documented the procedures used to apply the DLF value to the metered load.</p> <p>We ascertained that these procedures are being followed by interviewing the Utility Specialists and manager of EDS group. We observed that the procedures are applied as documented.</p>	<p>No exceptions were noted.</p> <p>DLFs were applied properly.</p>

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures (Continued)

PROCESS CONTROLS

No.	CAISO requirement	Description of controls	Procedures performed	Results
4	Verify that estimation performed is controlled and documented.	<p>EIServer Procedures for interval meter data</p> <ol style="list-style-type: none"> 1. Researching and Resolving Validation Errors <ol style="list-style-type: none"> a. Reviewing Channels with Suspect Reads in "Validation Overview" b. Validation Errors 2. Editing/Estimation <ol style="list-style-type: none"> c. Data Estimation in EIServer <ol style="list-style-type: none"> i. Using SFPUC Estimation task ii. Using Substitution method d. Data Interpolation e. Copy & paste data from historical actuals f. Zero fill <p>EIServer Register VEE</p> <ol style="list-style-type: none"> 1. Review (suspect reads) and modifying/editing 2. Review and Estimate <ol style="list-style-type: none"> a. Demand methods b. Usage Methods c. Running the system estimator and reviewing results d. Using the VEE Calculator Excel File 	<p>We identified and documented the procedures used to estimate meter data, as described in the following documentation:</p> <ul style="list-style-type: none"> - EIServer Procedures for interval meter data - EIServer Register VEE <p>We ascertained that these procedures are being followed by interviewing the Utility Specialists and manager of EDS group. We observed that the procedures are being performed as documented.</p> <p>The sample data was tested to ascertain that estimation performed is controlled and documented.</p>	<p>No exceptions were noted.</p> <p>The estimation process was functioning as required.</p>

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures (Continued)

PROCESS CONTROLS

No.	CAISO requirement	Description of controls	Procedures performed	Results
4 (cont)	Verify that estimation performed is controlled and documented.	<p>Interval Meter Data Estimation in MDMS (where actuals have not been received by EIServer)</p> <p>The MDMS prepares estimated interval reads for all interval load meters based on a 3-day average interval value for 12-month prior reads for comparable days. For work days, the average uses the work day 365 days prior (shifts if the day happens to be a holiday), the year-ago prior work day, and the year-ago next work day. For Saturday, it uses the year-ago Saturday, the year-ago prior Saturday, and the year-ago next Saturday. For Sunday or a holiday, it uses the year-ago Sunday or holiday, the year-ago prior Sunday, and the year-ago next Sunday or holiday.</p> <p>Estimated reads are developed prior to the beginning of each month for the full month. Thereafter, as reported read data are processed, any missing intervals for unreported meters are populated with the estimated interval values for the meter, and identified as missing (VEE code 'M'). If no estimated interval reads are available for a meter, the interval values are set to zero and identified as missing.</p>		No exceptions were noted.

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures (Continued)

PROCESS CONTROLS

No.	CAISO requirement	Description of controls	Procedures performed	Results
4 (cont)	Verify that estimation performed is controlled and documented.	<p>Interval Meter Data Estimation in MDMS (where actuals have not been received by EIServer) (continued)</p> <p>The MDMS interval estimated values are interim values pending final VEE by EIServer. When EIServer reports out actual reads, or at the point they determine that the read data are unrecoverable and report estimated reads, the EIServer reads replace the MDMS entries.</p>		

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures (Continued)

PROCESS CONTROLS

No.	CAISO requirement	Description of controls	Procedures performed	Results
5	Verify that any SQMD submitted after T+52B days is documented and controlled to assure accurate and correct meter data is submitted to APX prior to resubmittal deadline.	<p>SFPUC has no automatic re-submission process. In any case where SFPUC determines that previously reported read data was incorrect (for example, PG&E determines that they programmed a meter incorrectly, and it should have been reporting 10 times the load), after the corrected reads are posted to the MDMS, SFPUC would (1) add SC export schedule entries for the dates that need to be resubmitted, which would trigger new exports for the dates, and (2) notify APX that new file(s) had been generated for re-submission.</p> <p>See ISO Meter Data Submission Overview for a description of how submissions of SQMD are performed.</p>	<p>We ascertained that these procedures are documented.</p> <p>Per our inquiry with the manager of EDS group, there were no late data submission instances (submission after T+52B days) during the 2020-2022 trade years, other than late meter data for three trade dates between January 1, 2021 and January 3, 2021.</p>	<p>Overall, the submission process functioned as described.</p> <p>See Page 18 for Finding.</p>

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures (Continued)

PROCESS CONTROLS

No.	CAISO requirement	Description of controls	Procedures performed	Results
6	Verify that contingency plans are in place to ensure that if systems go down, data can still be submitted to APX in a timely manner.	<p>EIServer Technical Support Document</p> <ol style="list-style-type: none"> 1. Energy Data Systems Support 2. Honeywell EIServer Support Information Technology Services Support <ol style="list-style-type: none"> a. Backup b. Server Updates c. IT Staff 3. Software <p>ISO Meter Data Submission Overview</p> <ol style="list-style-type: none"> 1. Process for Metered Data Submittal to the ISO 	<p>We interviewed the Utility Specialists and manager of EDS group responsible for system contingency plans. Per our inquiries, procedures are in place to ensure regular backup, as well as safeguarding the data.</p> <p>Per inquiry with the manager of EDS, there were no significant system downtimes during the 2020-2022.</p> <p>We identified and documented the contingency procedures used to determine that the meter data is submitted to APX timely.</p>	<p>No exceptions were noted.</p> <p>Contingency plans and data recovery procedures were in place to ensure that data can be submitted to APX in a timely manner.</p>

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures (Continued)

VERIFICATION TESTING

No	CAISO requirement	Description of controls	Procedures performed	Results
1	When reporting SQMD during Daylight Savings Time (“DST”), verify the data submitted to APX is in GMT and is correctly converted from local time.	<p>The MDMS does not store any interval read data as local time. All interval read data sourced into the MDMS is assigned interval IDs during load processing; the interval IDs are unique keys to time dimension tables, which contain the corresponding times for UTC, PST, and PDT.</p> <p>All reads from EIServer are exported in CMEP interval data format, where the end time for the first interval of each row is in UTC; the MDMS attaches the corresponding interval ID for each imported UTC time. CIS meter reads are in local time, but when profiled to intervals, the interval time is identified by the interval ID. The only point an error could be introduced would be if a meter was read during the duplicate hour in the 2 a.m. fall back period in November, since there is no indication in the data source from PG&E whether the reported date/time is PST or PDT. However, this does not happen since the PG&E reads are taken during normal business hours. Even if it did occur, the maximum error would be 1 hour over an approximately 30 day period. Since most systems use only read dates and not times, SFPUC still has a greater degree of accuracy.</p> <p>The use of time dimension interval IDs facilitates all data preparation and reporting, since data can be selected by trade date (based on local time) or metered data submission date (based on PST time).</p>	<p>We identified and documented procedures that are in place to ensure that all data is submitted to APX in GMT (based on PST conversion).</p> <p>The sample data was tested to verify that data submitted to APX was in GMT (based on PST conversion).</p>	<p>No exceptions were noted.</p> <p>No exceptions were noted.</p> <p>Sample testing results indicate that all data submitted to APX was in GMT (based on PST conversion).</p>

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures (Continued)

VERIFICATION TESTING

No.	CAISO requirement	Description of controls	Procedures performed	Results
2	<p>Verify system testing is completed prior to implementation of any meter data processing system change or modification. Validate appropriate documentation supporting the change has been created and that a comparative review was conducted prior to and after the system changes occurred.</p>	<p>For any meter data processing system change or modification, SFPUC is required to test the system before and after implementation to verify that MDMS behaves in the new environment in the same manner as it did in the current production environment. Proper proof of testing is required by CAISO for all software changes that affect SQM data processing.</p>	<p>We interviewed the Utility Specialists and manager of EDS group and noted that the procedures are in place for system testing prior to implementation of data processing system changes or modifications.</p> <p>There were no major meter data processing system changes or major modifications during 2020-2022.</p> <p>However, per inquiries with manager of EDS group, to comply with CAISO requirement related to submission of Excess Behind the Meter Production (EBTMP), SFPUC moved from OMAR data transmission format, which does not support EBTMP data, to submission of Load and Generation data in MRI-S format. This requirement became effective starting January 1, 2021.</p> <p>To respond to CAISO specifications, SFPUC modified the computer code for the submission format and added the EBMP data calculation. Per further inquiries with manager of EDS group, code changes were developed in the test environment and tested prior to the implementation.</p> <p>We ascertained that:</p> <ul style="list-style-type: none"> - test results showing the comparison between new and old formats were documented, - both the evidence of testing as well as review of the test results were documented, and - only after successful testing in test environment, code changes went live. 	<p>No exceptions were noted.</p> <p>Processes were adequately documented and procedures were in place to test system changes or modifications prior to implementation.</p>

**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO**

Agreed-Upon Procedures Report for Settlement Quality Meter Data Processing

2020 - 2022 Trade Years

Section IV - Description of Controls at SFPUC, Procedures Performed, and Results of Procedures (Continued)

ROOT CAUSE ANALYSIS

Summary of Results			
	Finding	Identification of the finding	Corrective actions
1	<p>Document the audit finding, how it was identified, the cause for the finding, what effects the finding had on meter data submitted to APX, and the corrective actions taken to prevent recurrence.</p> <p>Process Controls #5 - SFPUC is required to submit accurate and timely actual SQMD per ISO Tariff Section 10.3.6.</p> <p>SFPUC was penalized under RoC ID LMD_887_CCSF Description of Penalty for Late Meter Data for Resource ID DLAP_PGAE_CCSF for three trade dates between January 1, 2021 and January 3, 2021.</p> <p>As part of the implementation of CAISO initiative EBTMP¹, SFPUC and APX had been working since late 2020 on switching to sending EBTMP, and change to MRI-S format. For three trade dates as described above, while MRI-S load data was sent timely, the EBPTM portion of the data was not provided timely by SFPUC, and was not uploaded timely to CAISO by APX. The EBTMP data became available one day after the deadline. SFPUC was not alerted by APX that “zero” data was not uploaded to CAISO while the EBPTM data was not available.</p>	<p>This finding was determined as a result of inquiries and discussions with manager of EDS group regarding timeliness of data submission during 2020-2022.</p>	<p>APX has since built a process to alert their team and SFPUC if a meter data file is not received.</p>

¹ Values for EBTMP are extremely low and are typically zero.