






# MSRS Roadmap

As of December 19, 2018

Product - Action Required	Deadline	Who May Be Affected
MSRS - Update processes to use basic authentication	January 24	All MSRS Users. Change is <b>required</b> for continued use of browserless.
MSRS - Org parameter added for SUMA requests via browserless	January 24	MSRS Browserless SUMA Users. Change is <b>optional</b> .
		

	2018 Jul	Aug	Sep	Oct	Nov	Dec	2019 Jan	Feb	Mar	Apr	May	Jun
Browserless Authentication				Train: Oct 1 			 Production: Jan 24 					
SUMA Functionality				Train: Oct 1 			 Production: Jan 24					

**Legend**

- Start Date
- End Date



- The MSRS browserless reporting interface requires username and password in the URL. Example:

<https://msrs.pjm.com/msrs/browserless.do?report=billingreport&version=L&format=C&start=08/01/2018&stop=08/31/2018&username=YourUsername&password=YourPassword>

- Current format fully encrypted via HTTPS in transport
- However -- deprecated practice due to security issues
  - Any visible passwords create a risk

- Browserless requests must change to post credentials using basic authentication
- The filetransfer.jar interface will no longer work for MSRS
  - This will no longer work:** `java -cp oreilly.jar;filetransfer.jar; com.pjm.FileTransfer debug=true username="YourUsername" password="YourPassword" app=msrs action=download format=x version=l report="Billing" start=01/01/2012 stop=01/31/2012 result="billing.csv"`
- Easy replacements for filetransfer.jar include curl and wget, available on both Windows and Linux
- PJM also provides examples in Java 8 and Python 3

## Browser Popup (IE, Chrome, Firefox)

## Java Code Snippet



```
String webURL = "https://msrstrain.pjm.com/msrs/browserless.do?report=arrtargetcredits&version=L&format=C&start=08/01/2018&stop=08/30/2018";
String username = "MyUsername";
String password = "MyPassword";

String authString = username + ":" + password;
String basicAuth = "Basic " + javax.xml.bind.DatatypeConverter.printBase64Binary(authString.getBytes());

URL url = new URL(webURL);
HttpsURLConnection urlConnection = (HttpsURLConnection)url.openConnection();
urlConnection.setRequestProperty("Authorization", basicAuth);

BufferedReader responseBuffer = new BufferedReader(new InputStreamReader(
    urlConnection.getInputStream()));

String reportOutput;

System.out.println("*** Report Request ***");
while ((reportOutput = responseBuffer.readLine()) != null) {
    System.out.println(reportOutput);
}
System.out.println("*** END ***");
```

## Command Line using curl

```
$ curl -u MyUsername "https://msrs.pjm.com/msrs/browserless.do?report=billingreport&version=L&format=C&start=08/01/2018&stop=08/31/2018"
Enter host password for user 'MyUsername':
```

Full examples can be found [here](#)

PJM.com → Markets & Operations → Billing, Settlements & Credit → MSRS Reports Documentation

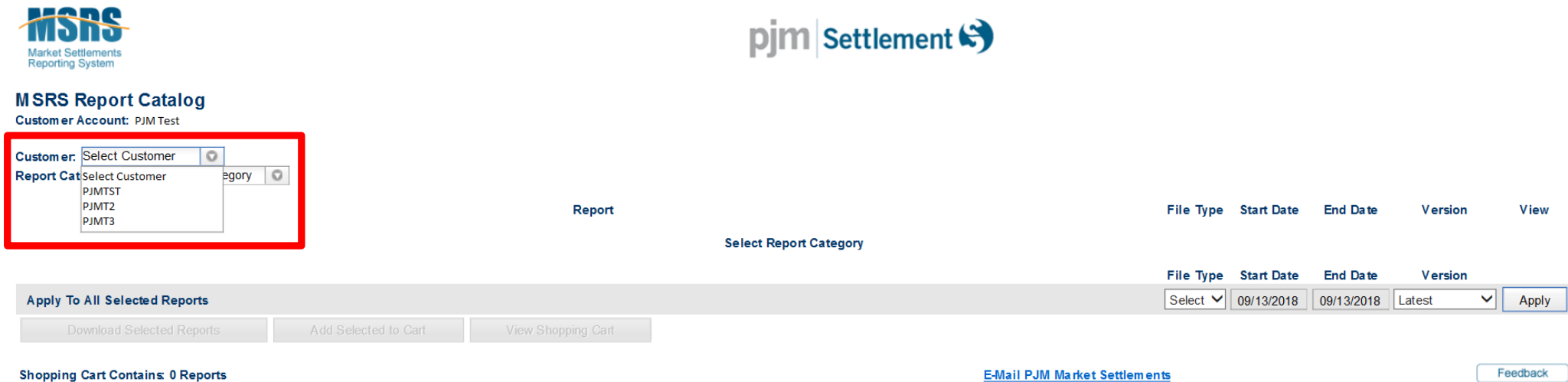
- No change to user interface logins from PJM.com and PJM Tools
- Browserless documentation is currently up to date on [pjm.com](http://pjm.com)
- Implemented with Single User Multi-Account (SUMA) changes to allow users to make changes for both at the same time

Impact	Action Required	Outage
User Interface	n/a	n/a
Browserless	Members will need to update their processes to use basic authentication	1 hour

# MSRS - SUMA Functionality



- Customer dropdown
  - Visible only for SUMA users
  - Displays customer accounts in which the SUMA user has active MSRS access



The screenshot displays the MSRS Report Catalog interface. At the top left is the MSRS logo (Market Settlements Reporting System) and the PJM Settlement logo. The page title is "MSRS Report Catalog" with the subtext "Customer Account: PJM Test". A red box highlights a "Customer:" dropdown menu with a "Select Customer" placeholder and a list of options: PJMTST, PJMT2, and PJMT3. Below this is a "Report Category:" dropdown menu with a "Select Customer" placeholder and a "Report" button. The main content area features a table with columns: File Type, Start Date, End Date, Version, and View. Below the table is a filter bar with "Apply To All Selected Reports" and buttons for "Download Selected Reports", "Add Selected to Cart", and "View Shopping Cart". At the bottom, it shows "Shopping Cart Contains: 0 Reports", a link for "E-Mail PJM Market Settlements", and a "Feedback" button.

- Customers may add reports for multiple accounts to their shopping cart

**MSRS**  
Market Settlements Reporting System

**pjm Settlement**

### MSRS Report Shopping Cart

Customer Account: PJM Test

Customer	Category	Report	File Type	Start Date	End Date	Version
<input type="checkbox"/> PJMT2	Energy	Generator LMP Charges	CSV	09/05/2018	09/05/2018	Latest
<input type="checkbox"/> PJMT2	Transmission Congestion/FTR/ARR	ARR Target Credits	CSV	09/01/2018	09/01/2018	Latest
<input type="checkbox"/> PJMT3	Operating Reserve	Operating Reserve Charge Summary	XML	09/20/2018	09/20/2018	Latest

[\[Add New Report...\]](#)

File Type	Start Date	End Date	Version
Select	10/17/2018	10/17/2018	Latest

[Apply To All Selected Reports](#) [Apply](#)

[Download Selected Reports](#) [Remove Selected Reports](#)

Shopping Cart Contains: 3 Reports

[E-Mail PJM Market Settlements](#)

- Optional ORG parameter available for SUMA browserless
  - Can specify single org shortname (org=PJMTST)
  - Retrieve all associated accounts in one request (org=ALL)

- **Currently:**

[https://msrs.pjm.com/msrs/browserless.do?report=deferredtaxadjustmentchargesummary&version=L&format=C&start=07/01/2018&stop=07/01/2018&username=\\_\\_\\_\\_\\_&password=\\_\\_\\_\\_\\_](https://msrs.pjm.com/msrs/browserless.do?report=deferredtaxadjustmentchargesummary&version=L&format=C&start=07/01/2018&stop=07/01/2018&username=_____&password=_____)

- **Updated:**

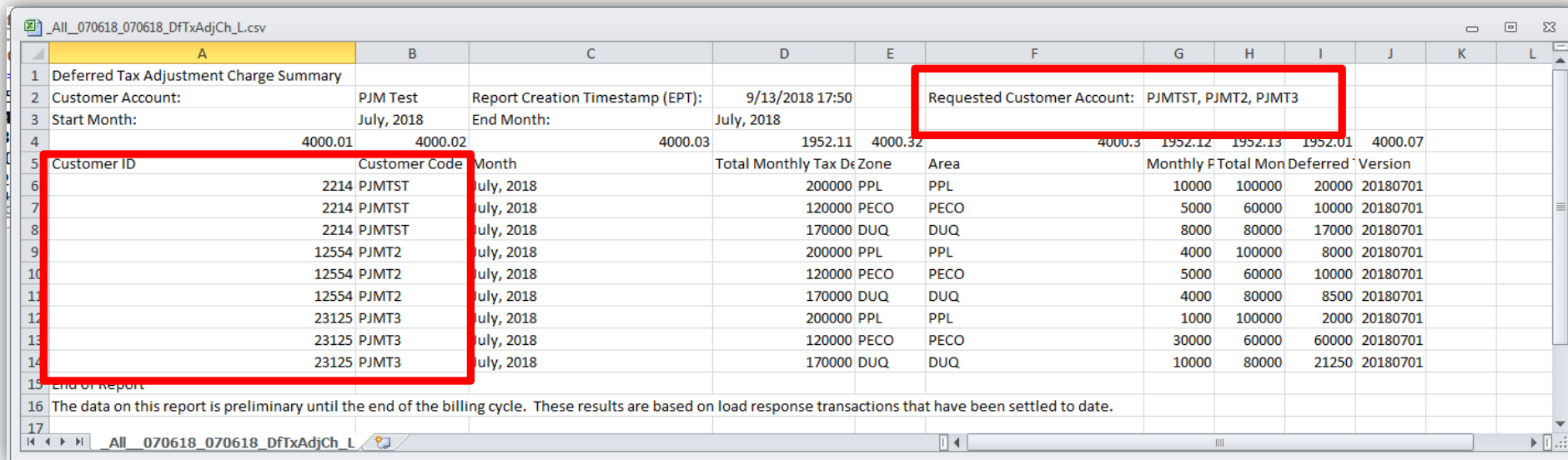
<https://msrs.pjm.com/msrs/browserless.do?report=deferredtaxadjustmentchargesummary&version=L&format=C&start=07/01/2018&stop=07/01/2018&org=PJMTST>

- MSRS Report Dictionary is updated with report specific SUMA information
  - SUMA = Y denotes ability to request report for multiple accounts
  - Max Orgs denotes the maximum number of accounts tied to a SUMA user
- PJM.com → Markets & Operations → Billing, Settlements & Credit → MSRS Reports Documentation

Report Long Name	Query Interval	SUMA	Max Orgs
Advanced Second Control Center Charge Details	D	Y	25
ARR Target Credits	D	Y	25
Auction Specific MW Transaction Charges and Credits (formerly Non-Unit Specific Capacity Transaction Charges and Credits)	D	Y	25
Low Voltage Network Integration Transmission Service Charge Summary	D	Y	25
LSE InSchedule and NSPL Activity Summary	M	N	1
Market-to-Market Adjustment to Transmission Congestion Credit Details	M	Y	25
Meter Correction Allocation Charge Summary	M	Y	25
Meter Correction Charge Summary	M	Y	25
Monthly Billing Statement - CSV and XML	M	N	1
Monthly Billing Statement - Online and PDF	M	Y	25
Monthly Billing Statement Recipients	BM	N	1
Monthly Congestion Credit Summary	M	Y	25
Monthly Load Reconciliation Billing Determinants	M	Y	25
Month-to-Date Billing Summary - CSV and XML	BD	Y	25
Month-to-Date Billing Summary - Online	BD	Y	25

- No changes for non-SUMA users
- SUMA users will see slight changes in their report headers
  - Login account displayed
  - Requested account(s) displayed
- CSV/XML for Weekly and Monthly Invoice
  - No changes for non-SUMA
  - New reports created for SUMA with account specific data denoted in the body

- No change to non-SUMA CSV format
- Requested Customer Account will display a comma separated list of the orgs in which the SUMA user has MSRS access
- Employer (from Account Manager) is displayed in the header as Customer Account



Customer ID	Customer Code	Month	Total Monthly Tax De	Zone	Area	Monthly P	Total Mon	Deferred	Version
2214	PJMTST	July, 2018	200000	PPL	PPL	10000	100000	20000	20180701
2214	PJMTST	July, 2018	120000	PECO	PECO	5000	60000	10000	20180701
2214	PJMTST	July, 2018	170000	DUQ	DUQ	8000	80000	17000	20180701
12554	PJMT2	July, 2018	200000	PPL	PPL	4000	100000	8000	20180701
12554	PJMT2	July, 2018	120000	PECO	PECO	5000	60000	10000	20180701
12554	PJMT2	July, 2018	170000	DUQ	DUQ	4000	80000	8500	20180701
23125	PJMT3	July, 2018	200000	PPL	PPL	1000	100000	2000	20180701
23125	PJMT3	July, 2018	120000	PECO	PECO	30000	60000	60000	20180701
23125	PJMT3	July, 2018	170000	DUQ	DUQ	10000	80000	21250	20180701

```
<?xml version="1.0" encoding="UTF-8"?>
<MSRS xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  - <HEADER>
    <REPORT_NAME>Deferred Tax Adjustment Charge Summary</REPORT_NAME>
    <CUSTOMER_ACCOUNT>PJM Test</CUSTOMER_ACCOUNT>
    <REPORT_CREATION_TIMESTAMP_EPT>2018-09-13T17:57:53</REPORT_CREATION_TIMESTAMP_EPT>
    <START_DATE_INTERVAL="MONTH">2018-07</START_DATE>
    <END_DATE_INTERVAL="MONTH">2018-07</END_DATE>
    - <REQUEST_CUSTOMER_ACCOUNT>
      <ORG>PJMTST</ORG>
      <ORG>PJMT2</ORG>
      <ORG>PJMT3</ORG>
    </REQUEST_CUSTOMER_ACCOUNT>
  </HEADER>
  - <ROWSET>
    - <ROW>
      <CUSTOMER_ID COL_ID="4000.01">2214</CUSTOMER_ID>
      <CUSTOMER_CODE COL_ID="4000.02">PJMTST</CUSTOMER_CODE>
      <MONTH COL_ID="4000.03">2018-07</MONTH>
      <TOT_MONTHLY_TAX_DEF_AMOUNT COL_ID="1952.11" UOM="$">200000.00</TOT_MONTHLY_TAX_DEF_AMOUNT>
      <ZONE COL_ID="4000.32">PPL</ZONE>
      <AREA_NAME COL_ID="4000.30">PPL</AREA_NAME>
      <MONTHLY_PEAK_LOAD COL_ID="1952.12" UOM="MW-days">10000.000</MONTHLY_PEAK_LOAD>
      <TOT_MONTHLY_PEAK_LOAD COL_ID="1952.13" UOM="MW-days">100000.000</TOT_MONTHLY_PEAK_LOAD>
      <DEF_TAX_ADJUSTMENT_CHARGE COL_ID="1952.01" UOM="$">20000.00</DEF_TAX_ADJUSTMENT_CHARGE>
      <VERSION COL_ID="4000.07">20180701.000</VERSION>
    </ROW>
    - <ROW>
      <CUSTOMER_ID COL_ID="4000.01">2214</CUSTOMER_ID>
      <CUSTOMER_CODE COL_ID="4000.02">PJMTST</CUSTOMER_CODE>
      <MONTH COL_ID="4000.03">2018-07</MONTH>
      <TOT_MONTHLY_TAX_DEF_AMOUNT COL_ID="1952.11" UOM="$">120000.00</TOT_MONTHLY_TAX_DEF_AMOUNT>
      <ZONE COL_ID="4000.32">PECO</ZONE>
      <AREA_NAME COL_ID="4000.30">PECO</AREA_NAME>
      <MONTHLY_PEAK_LOAD COL_ID="1952.12" UOM="MW-days">5000.000</MONTHLY_PEAK_LOAD>
      <TOT_MONTHLY_PEAK_LOAD COL_ID="1952.13" UOM="MW-days">60000.000</TOT_MONTHLY_PEAK_LOAD>
      <DEF_TAX_ADJUSTMENT_CHARGE COL_ID="1952.01" UOM="$">10000.00</DEF_TAX_ADJUSTMENT_CHARGE>
      <VERSION COL_ID="4000.07">20180701.000</VERSION>
    </ROW>
  </ROWSET>
</MSRS>
```

- No change to non-SUMA XML
- <REQUEST\_CUSTOMER\_ACCOUNT> tag added to header for SUMA requests

INVOICE NUMBER: XXXXX  
 CUSTOMER ACCOUNT: PJM TEST1  
 CUSTOMER IDENTIFIERS: PJMTST1 (XXX)  
 FINAL BILLING STATEMENT ISSUED: 09/04/2018 08:57:21  
 BILLING PERIOD: 08/01/2018 to 08/29/2018

Weekly Billing Total: (\$28.48)  
 Previous Weekly Billing Total: \$0.00

Weekly Billing Statement Summary	Total
Total Net Credit to You. Please Do Not Pay	\$28.48

TERMS: PAYABLE IN FULL BY 12:00 PM EPT ON 09/07/2018  
 Fed Wire/ACH Bank Instructions: PJM SETTLEMENT, INC.  
 PNC Bank, N.A.  
 Pittsburgh, PA

CUSTOMER ACCOUNT: PJM TEST1  
 CUSTOMER IDENTIFIERS: PJMTST1 (XXX)  
 FINAL BILLING STATEMENT ISSUED: 09/04/2018 08:57:21  
 BILLING PERIOD: 08/01/2018 to 08/29/2018

CHARGES	BILLING LINE ITEM NAME	AMOUNT
1100	Network Integration Transmission Service	\$0.00
1200	Day-ahead Spot Market Energy	\$118.50
1205	Balancing Spot Market Energy	\$(144.40)
1210	Day-ahead Transmission Congestion	\$0.15
1215	Balancing Transmission Congestion	\$0.00
1220	Day-ahead Transmission Losses	\$3.17
1225	Balancing Transmission Losses	\$(5.90)
<b>Total Charges</b>		<b>(\$28.48)</b>

CUSTOMER ACCOUNT: PJM TEST1  
 CUSTOMER IDENTIFIERS: PJMTST1 (XXX)  
 FINAL BILLING STATEMENT ISSUED: 09/04/2018 08:57:21  
 BILLING PERIOD: 08/01/2018 to 08/29/2018

CREDITS	BILLING LINE ITEM NAME	AMOUNT
2100	Network Integration Transmission Service	\$0.00
2220	Transmission Losses	\$0.00
<b>Total Credits</b>		<b>\$0.00</b>

INVOICE NUMBER: XXXXX  
 CUSTOMER ACCOUNT: PJM TEST2  
 CUSTOMER IDENTIFIERS: PJMTST2 (XXX)  
 FINAL BILLING STATEMENT ISSUED: 09/04/2018 08:57:21  
 BILLING PERIOD: 08/01/2018 to 08/29/2018

Weekly Billing Total: \$0.00  
 Previous Weekly Billing Total: \$0.00

Weekly Billing Statement Summary	Total
Total Net Credit to You. Please Do Not Pay	\$0.00

TERMS: PAYABLE IN FULL BY 12:00 PM EPT ON 09/07/2018  
 Fed Wire/ACH Bank Instructions: PJM SETTLEMENT, INC.  
 PNC Bank, N.A.  
 Pittsburgh, PA

CUSTOMER ACCOUNT: PJM TEST2  
 CUSTOMER IDENTIFIERS: PJMTST2 (XXX)  
 FINAL BILLING STATEMENT ISSUED: 09/04/2018 08:57:21  
 BILLING PERIOD: 08/01/2018 to 08/29/2018

CHARGES	BILLING LINE ITEM NAME	AMOUNT
1100	Network Integration Transmission Service	\$0.00
1200	Day-ahead Spot Market Energy	\$0.00
1205	Balancing Spot Market Energy	\$0.00
1210	Day-ahead Transmission Congestion	\$0.00
1215	Balancing Transmission Congestion	\$0.00
1220	Day-ahead Transmission Losses	\$0.00
1225	Balancing Transmission Losses	\$0.00
<b>Total Charges</b>		<b>\$0.00</b>

CUSTOMER ACCOUNT: PJM TEST2  
 CUSTOMER IDENTIFIERS: PJMTST2 (XXX)  
 FINAL BILLING STATEMENT ISSUED: 09/04/2018 08:57:21  
 BILLING PERIOD: 08/01/2018 to 08/29/2018

CREDITS	BILLING LINE ITEM NAME	AMOUNT
2100	Network Integration Transmission Service	\$0.00
2220	Transmission Losses	\$0.00
<b>Total Credits</b>		<b>\$0.00</b>

# PDF Example

- No change to non-SUMA PDF
- SUMA accounts can retrieve multiple invoices in one PDF file



# MSRS SUMA - Sorting

- Issue
  - MSRS requests become very resource intensive when sorting large quantities of data
    - If unchanged, SUMA reports require Maximum Orgs and Maximum Days limits
- Proposed solution
  - Eliminate sorting on all 5-min reports and large hourly reports such as ARR and FTR Target Credits
- Impacts
  - Any application that expects sorted data will be impacted
  - Increase or possibly remove the Maximum Orgs restriction on SUMA reports

- TBD. Any 5 minute interval and some hourly reports will have the sorting removed to increase system throughput
  - MSRS Report Dictionary will be updated
    - Remove Max Orgs column, add Sorting designation

Report Long Name	Query Interval	SUMA	Max Orgs
Advanced Second Control Center Charge Details	D	Y	25
ARR Target Credits	D	Y	25
Auction Specific MW Transaction Charges and Credits (formerly Non-Unit Specific Capacity Transaction Charges and Credits)	D	Y	25
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Monthly Load Reconciliation Billing Determinants	M	Y	25
Month-to-Date Billing Summary - CSV and XML	BD	Y	25
Month-to-Date Billing Summary - Online	BD	Y	25

MSRS requests become very resource intensive when sorting large quantities of data. PJM is proposing a solution of eliminating sorting on some of the larger data reports. If sorting is removed, any application that expects sorted data will be impacted. If unchanged, SUMA reports will require Maximum Orgs and Maximum Days limits.

**Question:** Would you be in favor of removing sorting from some reports in order to minimize or possibly remove the Maximum Orgs and Maximum Days limitations?

- Yes
- No
- (Optional Comment Field)

**Results:**

- Yes – 15
- No – 4

- MSRS UI
  - [esuitetrain.pjm.com](https://esuitetrain.pjm.com)
- Browserless
  - [msrstrain.pjm.com](https://msrstrain.pjm.com)
- Sandbox usernames and passwords are separate from production
  - Work with your Company Account Manager to establish SUMA access
  - Employer account must have MSRS access
- Sandbox currently available for testing
  - All SUMA enabled reports are available for August 2018

- Training Environment - October 1st
- Additional discussion at Tech Change Forums and Market Settlement Subcommittee meetings
- Production – January 24, 2019
- Email [mss@pjm.com](mailto:mss@pjm.com) with questions/comments
  - FAQs are available on MSRS Reports Documentation page



# Product Details

[Market Settlements Reporting System](#) (MSRS) is a tool used by market participants to retrieve market settlements reports and monthly billing statements.

## Key Product Features

- 200+ settlement reports
- Provide settlement and billing details
- Viewable in the browser
- CSV and XML download capability