



2024 VOM Education Session

As of April 16, 2024

- There are no new rule changes for VOM this year.
Current rules are reviewed in **slides 3-18**.
- Excel templates and the VOM SharePoint site have been retired and replaced with a new tool, Cost Agent.
Cost Agent is reviewed in **slides 19-35**.

Variable Operations and Maintenance (VOM) costs include three distinct components:

1 Major Maintenance

Maintenance expenses that are overhauls, repairs, or refurbishments that require disassembly to complete

2 Minor Maintenance

Maintenance expenses that are repairs or refurbishments on equipment and components directly related to electric production and not otherwise classified as major maintenance

3 Operating Costs

Operating costs are expenses related to consumable materials used during unit operation.

Maintenance Adder

Major Maintenance

Submit for PJM/IMM
Review/Approval

Minor Maintenance

Use Minor
Maintenance
Default Adder

OR

Submit for
PJM/IMM
Review/Approval

Operating Costs

Use Operating Costs
Default Adder

OR

Submit for PJM/IMM
Review/Approval

No VOM submission if using only the default minor maintenance and/or operating costs (effective Jan. 1, 2025)

The adders that represent the three VOM components can be included in the cost-based energy offer:



Market Sellers may elect, but are not required, to include maintenance and operating costs in their cost-based energy offer

Submission of Unit Specific Minor maintenance and/or Operating Cost data to PJM for review prevents ability to utilize default adders for respective year



Minor Maintenance and Operating Cost Default Values

Default VOM Values for use **starting Jan. 1, 2025**

VOM Technology Type	Minor Maintenance Default (\$/MWh)	Operating Cost Default (\$/MWh)
Combined Cycle	\$1.21	\$0.49
Simple Cycle Combustion Turbine	\$4.43	\$0.92
Reciprocating Engine	\$4.97	\$2.00
Fossil Steam	\$2.11	\$3.54

Major components replaced or overhauled

Requires disassembly of the unit

EXAMPLES:

Boiler

Superheater

Reheater

Economizer

Steam drums

Waterwall panels

Scrubber

SCR

Steam Turbine

Turbine blades or buckets

Diaphragms

Casing

Bearing

Seals

Steam nozzle block

Steam stop valves

Steam intercept valve

Steam throttle valve

Generator

Rotor

Stator

Supporting documentation must be provided for all years included in the submission.

Clearly show how each cost submitted for review was calculated:

- maintenance management system records,
- general ledger data, accounting records or invoices.

Maintenance expenses shall include:

- work order and/or
- description of maintenance activities performed.

Operating costs shall include:

- amount of each consumable used while in operation, and
- cost per unit of each consumable.

VOM submissions and supporting documentation must be linked and traceable.

Immature units

(new units with less than 10 years of operating history):

Maintenance costs, operating costs and operating history must correspond to the number of years for which supporting documentation is available.

Mature units
select 10 or 20 years
of Maintenance Period:

- Supporting documentation required for all years.
- Mature units that transferred ownership:
 - Include maintenance and operating costs for which supporting documentation is available.
 - Operating history at least 10 years.

Multiple Maintenance Adders are only allowed if supported by LTSA.

Multiple variable maintenance payment criteria specified.

- Total maintenance dollars must be split based on LTSA.
- The format of adder must be consistent with LTSA (\$/start, \$/hour, N-Ratio, etc.)
 - The format of adder must be consistent with how maintenance expenses vary as defined in LTSA.
 - Can only split major maintenance expenses.

The LTSA fees, as well as the format of the adder, must be supported by providing the fee section of the LTSA or LTSA invoices that break out the variable portion of the fees.

A submission can include one unit or multiple units at the same plant.

If including multiple, units are included in one submission.

Units must:

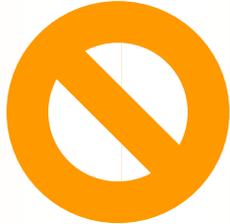
Be in same technology type.

Include total operating history for all units

<p>Cyclic starting and peaking factors</p>	<p>Only LTSA or OEM specified values</p>	<p>Cyclic fuel factor or multiple peaking factor allowed if specified</p>	<p>Only applied to major maintenance</p>
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Annual or time-based, preventative maintenance:

- Vibration surveys
- Oil sampling
- Infrared surveys
- Conditioning monitoring
- Annual condenser cleaning
- Weekly filter changes
- Annual or monthly CT borescope inspection



Buildings

HVAC

Compressed air

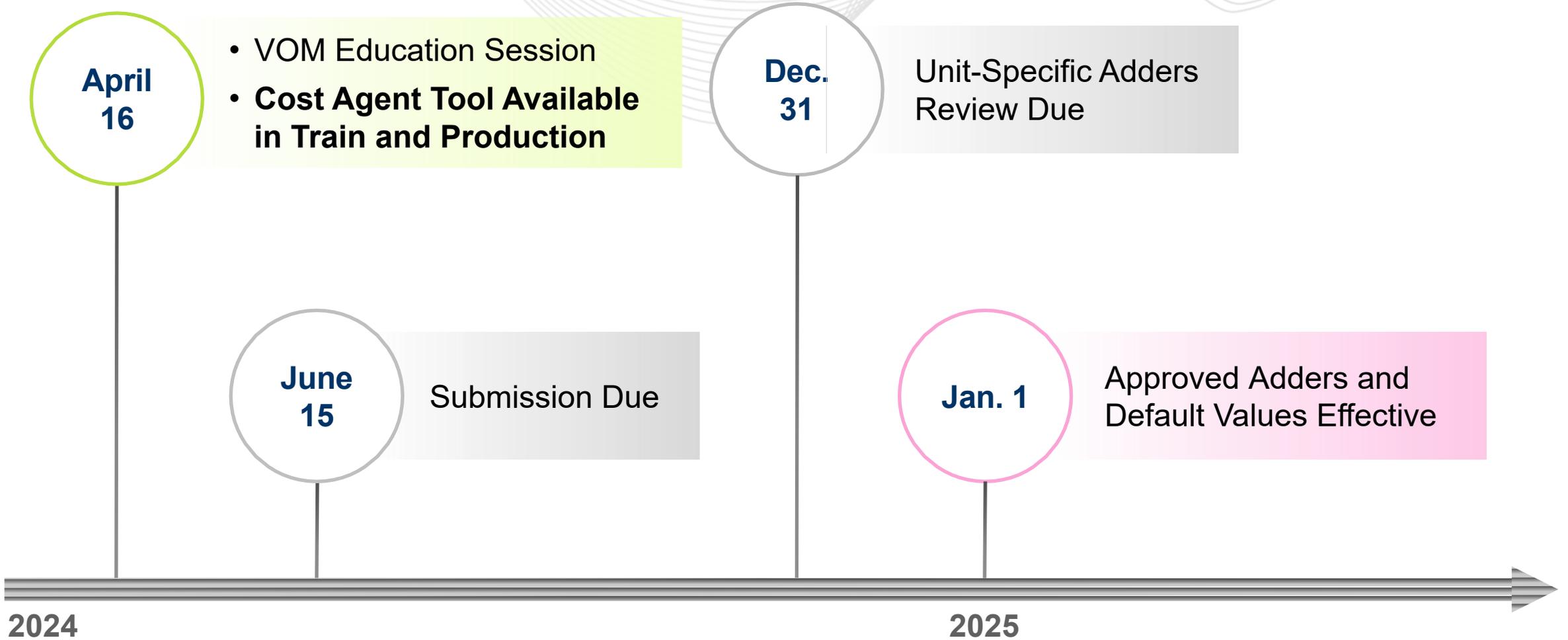
Closed cooling water

Heat tracing/freeze protection

Control room equipment and software

Reactor safety system

Plant water treatment systems



Q1 When do the new VOM adders go into effect?

A: All* new VOM adders, both default and unit-specific, will go into effect Jan. 1, 2025

*Unless there is a previously specified, alternate, expiration date for **major** maintenance adders only

Q2 Do I have to use the default adders?

A: No, you can still submit unit-specific information for major maintenance expenses, minor maintenance expenses, and operating costs.

Q3 Do I have to use *both* default adders?

A: No, you can use just the minor maintenance default or just the operating cost default value. You can use both or neither.

Q4 If I only want to use the default adders for minor maintenance and operating costs, and not have an adder for major maintenance, do I need to do anything else?

A: No action is required to use the minor maintenance and operating cost default adders. Just start incorporating the adders into your cost offer starting on **Jan. 1, 2025**.

Q5 If I choose to use the default adders this year, can I return to using unit-specific adders in the future?

A: Yes, you may change that election at the start of each year, but can not change mid-year.

Q6 When submitting a unit-specific major maintenance adder, do I need to strip minor maintenance activities out of my previously submitted maintenance history?

A: Yes.

Q7 How many years of supporting documentation do I need to provide?

A: You need to provide supporting documentation for **all** maintenance expenses and operating costs included in the maintenance history used in the submission. If supporting documentation cannot be found and you believe you already provided to PJM in the past, please contact PJM to seek those documents.

Q7 Can I still have multiple maintenance adders? For example, one for starts and one for run hours?

A: This is permissible only in cases when your LTSA billing is broken out in this way and multiple maintenance adders can only be applied to major maintenance expenses covered by the LTSA.

Q8 Can I still use Equivalent Service Hours (ESH) as a basis for my maintenance adder?

A: Yes, if specified in your LTSA or OEM, but ESH would only be available for use with the major maintenance adder as it can only apply to major maintenance expenses.

Q9 Do I have to separate my major and minor maintenance? Can't I submit my maintenance expenses as before?

A: It is recommended to have major and minor maintenance separated out as it supports easily using default adder in future years. Including major and minor maintenance in one submission might be allowed under special circumstances, such as the default minor maintenance adder is unavailable for your unit's technology type. Please contact PJM for further guidance.

Tool/Documentation

Link

Cost Agent tool:

To be updated when deployed

Cost Agent User Guide:

To be updated when available

**VOM Review
Guidelines:**

<https://www.pjm.com/-/media/markets-ops/energy/fuel-cost-policy/vom-review-guidelines.ashx>

M15 Redlines:

<https://www.pjm.com/-/media/committees-groups/committees/mc/2022/20221221/consent-agenda-c---3-manual-15-revisions---redline.ashx>

Default Values:

<https://www.pjm.com/-/media/markets-ops/energy/fuel-cost-policy/vom-default-values.ashx>



Cost Agent Introduction

A new web application designed for Variable Operating Cost and Maintenance Adder (VOM) submission and review process

KEY FEATURES:

- Single Sign-On
- Web forms
- Historical approved adders visible
- Review comments trackable

PJM Connect

Excel Form

Template submitted in versions

Approved adders in Excel template

Communications by Emails

No database – historical data entered annually

Cost Agent

Web Form

No versions - All edits will be tracked within the same submission

Approved adders displayed on home page

Comments saved in submission and auto email notification

Database driven – historical data archived and retrievable

pjm | Single Sign-On

Sign In

[Forgot password](#) | [Register](#)

NOTICE: This system and the information processed or contained within is for the use of authorized users only. At any time, and for any lawful purpose, PJM may monitor, intercept, record and search any communications or data transiting or stored on this information system. At PJM's sole discretion, PJM may disclose pertinent information to the U.S. Government and its authorized representatives to protect the security of critical infrastructure and key resources, ensure information security, or to comply with any applicable law, regulation, legal process, or enforceable governmental request. User expressly consents to the terms and conditions contained in this notice. User has no reasonable expectation of privacy regarding communications or data transiting or stored on this information system. Unauthorized use of this system may be subject to criminal prosecution or civil proceedings.

- PJM Single Sign-On
- Read/Write Access managed by CAMs

pjm | Account Manager

User Profile - [request SSO Grant](#)

User Profile

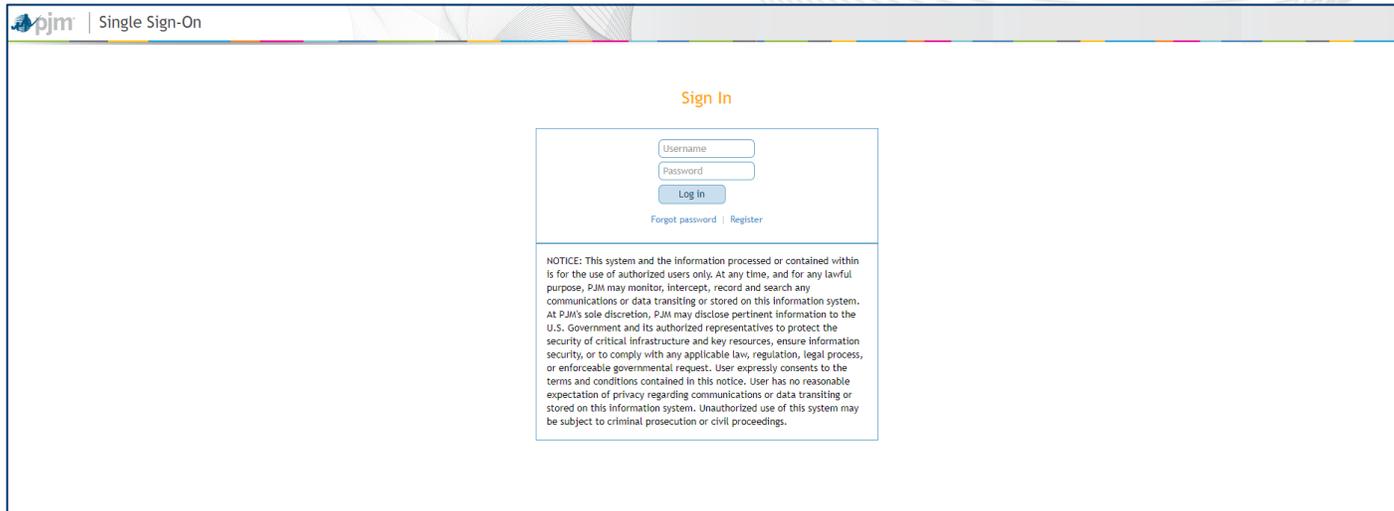
Profile Information | **Account Access** | PKI Certificates | Stakeholder Profile

Account Access

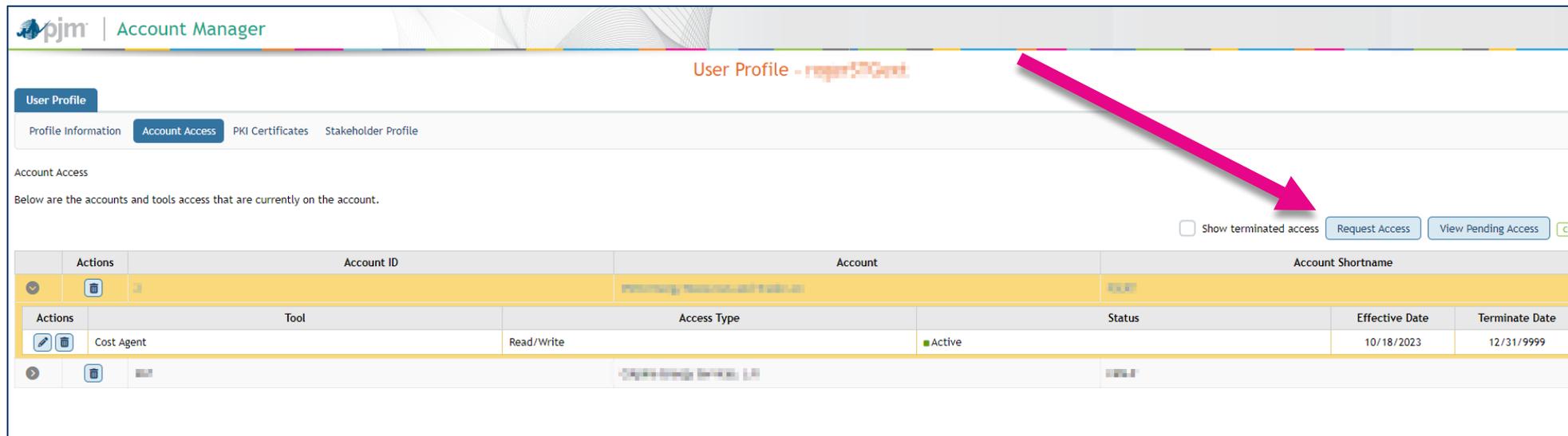
Below are the accounts and tools access that are currently on the account.

Show terminated access | | | [CSV](#)

Actions	Account ID	Account	Account Shortname		
<input type="checkbox"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>		Account ID	Account Shortname		
Actions	Tool	Access Type	Status	Effective Date	Terminate Date
<input type="checkbox"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>	Cost Agent	Read/Write	Active	10/18/2023	12/31/9999
<input type="checkbox"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>		Account ID	Account Shortname		



- PJM Single Sign-On
- Read/Write Access managed by CAMs



User can designate one or many point of contact by clicking on “Settings” and check “Primary” for intended user

Cost Agent

+ Create New Submission
Select Columns
XLS

Actions	Submission ID	Submission Alias	Number of Units	Company Name	Review Year	Major Maint. Adder	Minor Maint. Adder	Combined Maint. Adder	Operating Cost Adder	Submitted	Status	Status dated
	13	Major Maintenance and operating costs	1	CECLA	2024	N/A	\$2.38/MWh	N/A	\$0.01/mmBTU	11/20/2023	Re-Submitted	11/20/2023
	12	Major Maintenance Costs	1	CECLA	2024	\$33.27/MWh	N/A	N/A	N/A	11/15/2023	Submitted	11/15/2023

Records Per Page: 15 << < 1-2 of 2 records > >>

Settings

Contact Information

Primary	First Name	Last Name	Email Address	Phone Number
<input checked="" type="checkbox"/>	John	Lee	john.lee@pjm.com	410-440-1000
<input type="checkbox"/>	John	Wright	john.wright@pjm.com	410-440-1000
<input type="checkbox"/>	John	Wright	john.wright@pjm.com	410-440-1000
<input type="checkbox"/>	John	Wright	john.wright@pjm.com	410-440-1000
<input type="checkbox"/>	John	Wright	john.wright@pjm.com	410-440-1000

Records Per Page: 15 << < 1-5 of 5 records > >>

Back Save

View All Submissions from Company Home Page

Click "Create New Submission" to start a new submission

User can hide/unhide columns

pjm | Cost Agent Feedback

[+ Create New Submission](#)
[Select Columns](#)
[XLS](#)

Actions	Submission ID	Submission Alias	Number of Units	Company Name	Review Year	Major Maint. Adder	Minor Maint. Adder	Combined Maint. Adder	Operating Cost Adder	Submitted	Status	Status Updated
	34	Testing average submission	1	XXXX	2024	N/A	N/A	\$0.73/ESH	\$11.25/MWh	02/26/2024	Submitted	02/26/2024
	44	Testing average	1	XXXX	2024	N/A	N/A	\$0.00/ESH	\$0.00/MWh		In Progress	02/26/2024
	43	Testing	1	XXXX	2024	N/A	N/A	\$0.73/ESH	\$11.25/MWh		In Progress	02/26/2024
	22	Testing	1	XXXX	2024	\$10.02/MWh	\$9.63/MWh	N/A	\$11.25/MWh	02/25/2024	Approved	02/25/2024
	33	Testing	1	XXXX	2024	N/A	N/A	\$0.73/ESH	\$11.25/MWh	02/25/2024	Approved	02/25/2024
	32	Testing	0	XXXX	2023	N/A	N/A	\$1.01/ESH	\$10.42/MWh		In Progress	02/25/2024
	31	Testing	1	XXXX	2024	N/A	\$14.37/MWh	N/A	\$13.29/MWh	02/23/2024	Rejected	02/23/2024
	30	Testing	1	XXXX	2024	N/A	N/A	\$1.15/ESH	\$11.92/MWh	02/23/2024	Canceled	02/23/2024
	29	Testing	1	XXXX	2024	N/A	\$11.59/mmBTU	N/A	\$12.08/mmBTU	02/23/2024	Waiting on Market Seller	02/23/2024
	28	Testing	1	XXXX	2024	\$1.37/ESH	N/A	N/A	\$13.75/MWh	02/23/2024	Under PJM Review	02/23/2024
	27	Testing	2	XXXX	2024	\$9.26/MWh	N/A	N/A	\$9.64/MWh	02/23/2024	Re-Submitted	02/23/2024
	26	Testing	1	XXXX	2024	\$0.90/ESH	\$12.63/MWh	N/A	\$11.25/MWh	02/23/2024	Submitted	02/23/2024
	25	Testing	1	XXXX	2024	N/A	N/A	\$0.00/ESH	\$0.00/MWh		In Progress	02/23/2024
	24	Testing	1	XXXX	2024	N/A	N/A	\$0.00/MWh	\$0.00/MWh		In Progress	02/23/2024
	23	Testing	2	XXXX	2024	N/A	\$12.11/MWh	N/A	\$10.21/MWh		In Progress	02/20/2024

Records Per Page: 15 << < 1-15 of 30 records > >>

Create New Submission

From *

Changes to the adder unit of measure can be requested by sending an email to PerfComp@pjm.com

Cancel Submit

Create New Submission

From

- 000317 (Titan - 3 units)
- 000315 (Titan - 2 units)
- 000205 (Panama - Units 1-4)
- Blank form

Cancel Submit

Create New Submission

From * Blank Form

Submission alias *

Maintenance Adder Major and minor

Adder unit of measure (Major) *

Adder unit of measure (Minor) *

Operating costs

Adder unit of measure *

Calculation basis *

Changes to the adder unit of measure can be requested by sending an email to PerfComp@pjm.com

Cancel Submit

Create New Submission

From * Blank Form

Submission alias * Valley Forge CT 1-4

Maintenance Adder Major and minor

Adder unit of measure (Major) * S/Start

Adder unit of measure (Minor) * S/MWh

Operating costs

Adder unit of measure * S/MWh

Calculation basis * Fixed Average

Changes to the adder unit of measure can be requested by sending an email to PerfComp@pjm.com

Cancel Submit

New Submission

Unit Information

Market Unit ID	Unit Name	Unit Type
<input type="text"/>	<input type="text"/>	<input type="text"/>

No records found.

Records Per Page: << < 0-0 of 0 records > >>

Use 1% maintenance adder as variable black start service cost *

Yes No



Add Unit ×

Market unit name *

“Use 1% as VBSSC” will populate only when major and minor maintenance have the same unit of measure selected or a combined maintenance adder selected.

New Submission

Unit Information

Market Unit ID	Unit Name	Unit Type
<input type="text"/>	<input type="text"/>	<input type="text"/>

No records found.

Records Per Page: << < 0-0 of 0 records > >>

Use 1% maintenance adder as variable black start service cost *

Yes No

Add Unit

Market unit name *

“Use 1% as VBSSC” will populate only when major and minor maintenance have the same unit of measure selected or a combined maintenance adder selected.

2023 Cost Details

Do not include any fixed costs or any costs that are already included in the Avoidable Cost Rate template.

Major Maintenance Costs

Actions	Maintenance System	Maintenance Expense Type	Description	Cost
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
No records found.				
				Total
				\$0.00

Add Expense

Minor Maintenance Costs

Actions	Maintenance System	Maintenance Expense Type	Description	Cost
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
No records found.				
				Total
				\$0.00

Add Expense

Operating Costs

Actions	Operating Cost Type	Cost
	<input type="text"/>	<input type="text"/>
No records found.		
		Total
		\$0.00

Add Cost

Add Expense

Maintenance system *

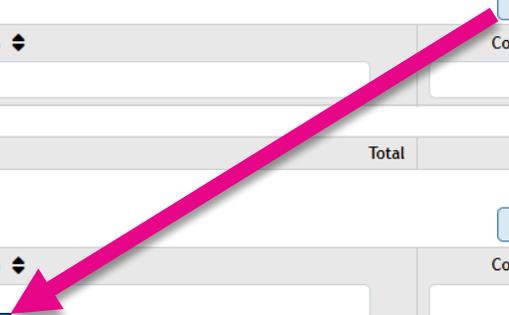
Expense type *

Description *

Cost *

Documentation ref.

Cancel Submit



Total Historical Costs

Total Major Maintenance Costs

Maintenance period * 10 years

Actions	Year	Annual Dollars (\$)	Operating History (Start)
	2023	50.00	
	2022		
	2021		
	2020		
	2019		
	2018		
	2017		
	2016		
	2015		
	2014		
	Total		0.000

[View Escalation Index](#)

Edit Total Maintenance Cost

Year: 2023

Annual dollars (\$) *

Operating history (Start) *

View Escalation Index

Handy Whitman Table

Year	Index	Escalation Factor
2024	1061	1.000
2023	1015	1.045
2022	953	1.113
2021	861	1.232
2020	779	1.362
2019	760	1.396
2018	745	1.424

Supporting Documentation Add Delete

<input type="checkbox"/>	Filename	Upload Timestamp
<input type="checkbox"/>	VOM Review Guidelines Rev 2.pdf	03/01/2024 15:55:46

Records Per Page: 15 << < 1-1 of 1 records > >>

Submission Comments Add Delete

<input type="checkbox"/>	Comments	Username	Organization	Date Posted
No records found.				

Records Per Page: 15 << < 0-0 of 0 records > >>

2024 Requested Adders

Major Maintenance Adder:	/Start
Minor Maintenance Adder:	\$1.17/MWh
Operating Costs:	\$1.33/MWh

Cancel Save for Later Submit

Supporting Documentation

<input type="checkbox"/>	Filename	Upload Timestamp
<input type="checkbox"/>	VOM Review Guidelines Rev 2.pdf	03/01/2024 15:55:46

Records Per Page: 15 << < 1-1 of 1 records > >>

Submission Comments

<input type="checkbox"/>	Comments	Username	Organization	Date Posted
No records found.				

Records Per Page: 15 << < 0-0 of 0 records > >>

2024 Requested Adders

Major Maintenance Adder:	/Start
Minor Maintenance Adder:	\$1.17/MWh
Operating Costs:	\$1.33/MWh

Cancel Save for Later Submit

Supporting Documentation

<input type="checkbox"/>	Filename	Upload Timestamp
<input type="checkbox"/>	VOM Review Guidelines Rev 2.pdf	03/01/2024 15:55:46

Records Per Page: 15 << < 1-1 of 1 records > >>

Submission Comments

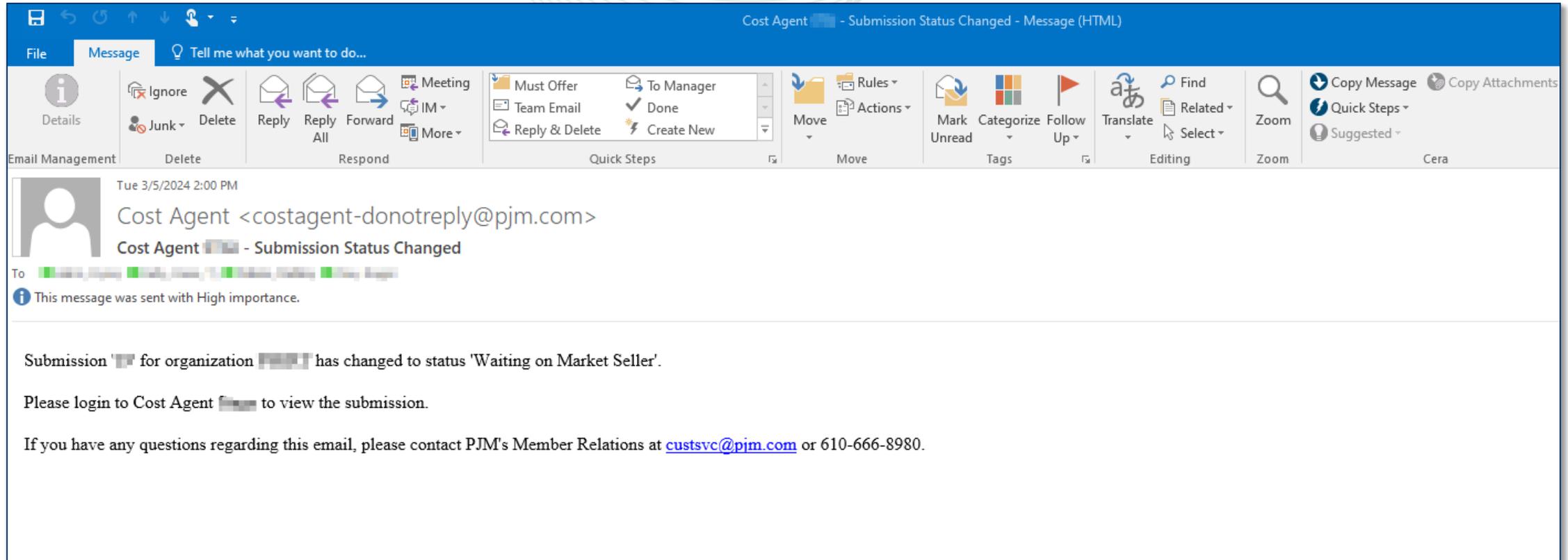
<input type="checkbox"/>	Comments	Username	Date Posted
No records found.			

Records Per Page: 15 << < 0-0 of 0 records > >>

2024 Requested Adders

Major Maintenance Adder:	/Start
Minor Maintenance Adder:	/MWh
Operating Costs:	/MWh

Cancel Save for Later Submit



pjm | Cost Agent

[+ Create New Submission](#) |
 [Select Columns](#) |
 [XLS](#)

Actions	Submission ID	Submission Alias	Number of Units	Company Name	Review Year	Major Maint. Adder	Minor Maint. Adder	Combined Maint. Adder	Operating Cost Adder	Submitted	Status	Status Updated
	28		1		All		N/A	N/A		02/23/2024	Waiting on Market Seller	03/05/2024

2023 Cost Details

Do not include any fixed costs or any costs that are already included in the Avoidable Cost Rate template.

Major Maintenance Costs

[Add Expense](#)

Actions	Maintenance System	Maintenance Expense Type	Description	Cost
	Reactor	Pendant or super heater replacement	ok	\$175.00
Total				\$175.00

Operating Costs

[Add Cost](#)

Actions	Operating Cost Type	Description	Cost
	Lubricants	ok	\$165.00
Total			\$165.00

User can delete an expense record and leave a comment in 'Submission Comments' section if desired

2023 Cost Details
Do not include any fixed costs or any costs that are already included in other submissions

Major Maintenance Costs Add Expense

Actions	Maintenance System	Maintenance Expense Type	Description	Cost
  	Reactor	Pendant or super heater replacement	ok	\$175.00
Total				\$175.00

Operating Costs Add Cost

Actions	Operating Cost Type	Description	Cost
  	Lubricants	ok	\$165.00
Total			\$165.00

Add and View Comments

Comment *

Add

Comment	Posted By	Date Posted
Please provide more details on this expense.	ROGERSTGPJM	03/05/2024 13:59

Records Per Page: 15 << < 1-1 of 1 records > >>

Close

Edit Expense

Maintenance system *

Expense type *

Description *

Cost *

Documentation ref.

Cancel Submit

Submission Comments

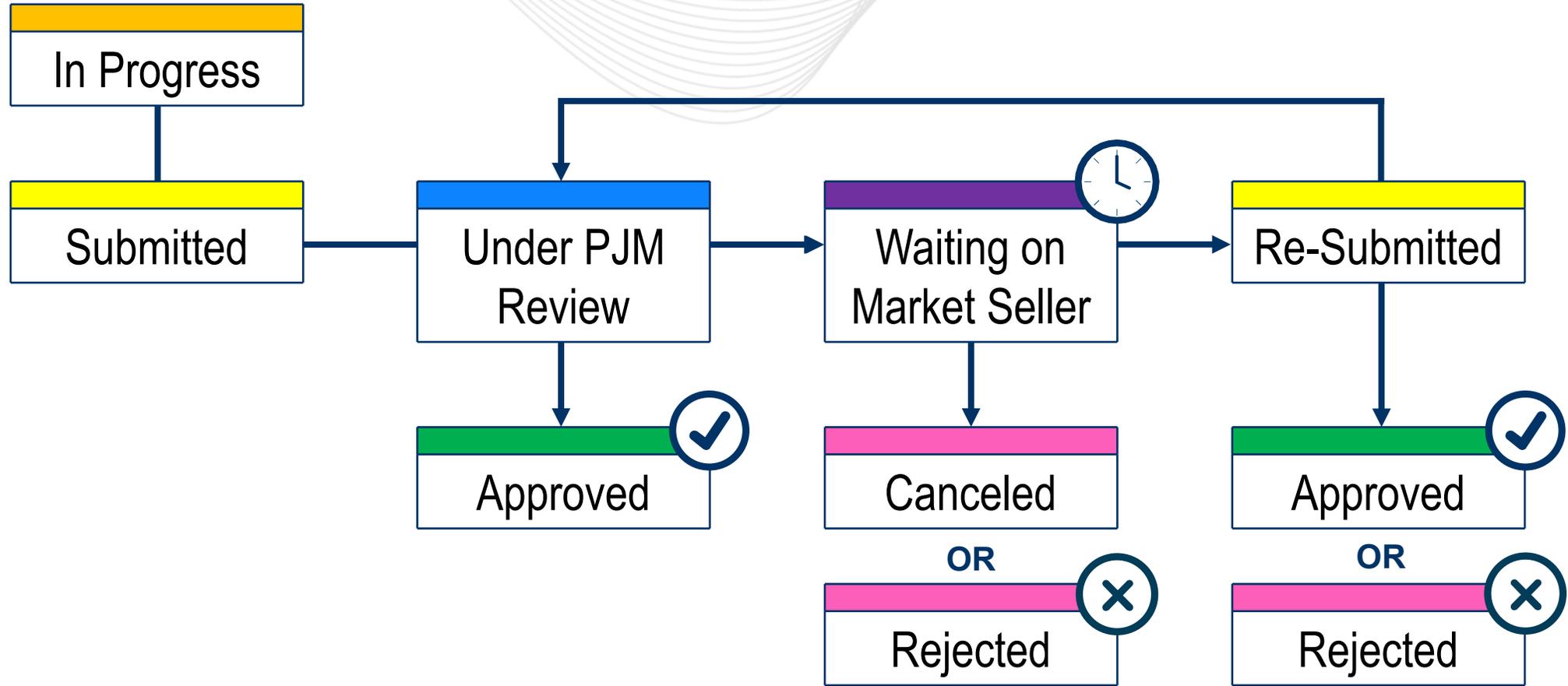
<input type="checkbox"/>	Comments	Username	Organization	Date Posted
<input type="checkbox"/>	we have a general comment	ROGERSTGPJM	PJM	03/05/2024 15:19:36
<input type="checkbox"/>	ok	[REDACTED]	[REDACTED]	02/23/2024 17:22:49

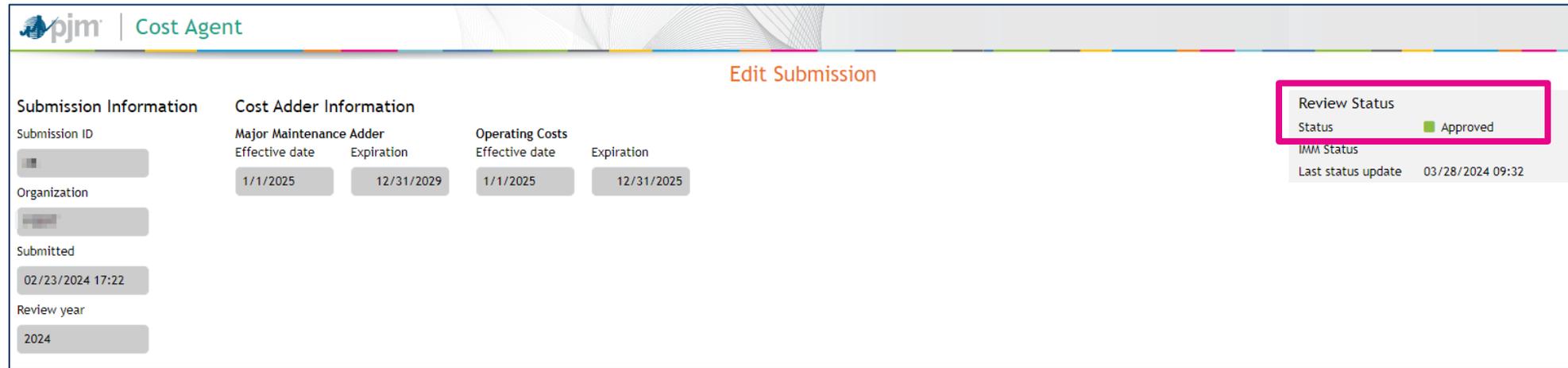
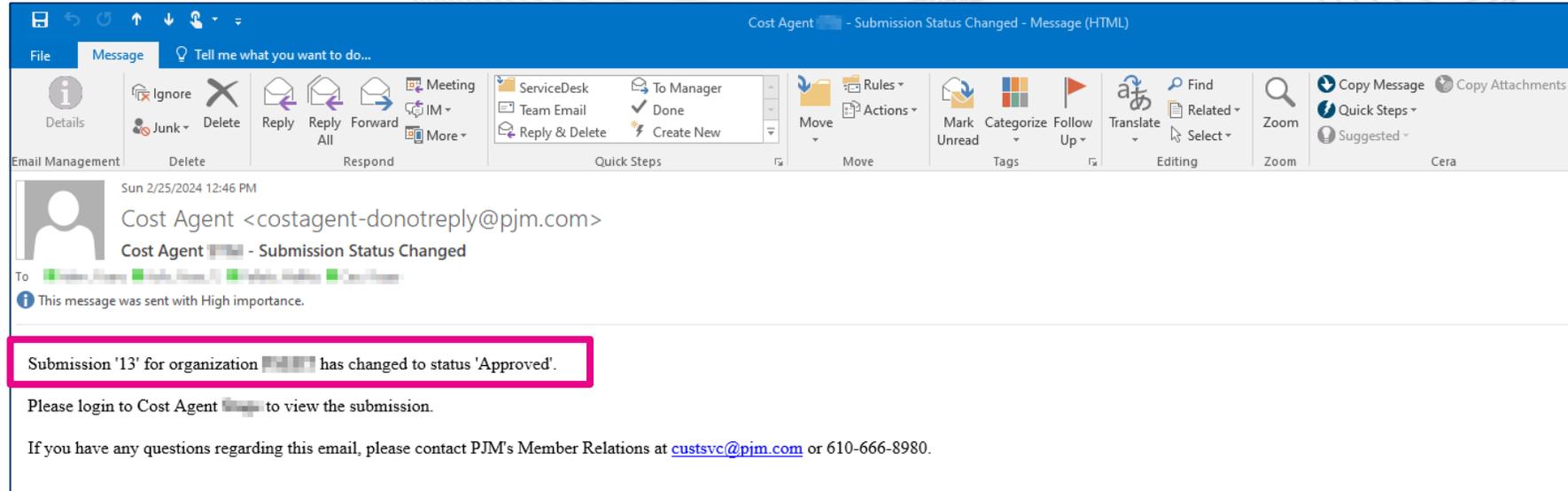
Records Per Page: 15 << < 1-2 of 2 records > >>

2024 Requested Adders

Major Maintenance Adder: [REDACTED]
Operating Costs: [REDACTED]







Facilitator:

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Cost Agent Introduction



Member Hotline

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