

Markit Auctions

markit[®]

PENNVEST Nutrient Credit Trading: Spot Auction Participation Phase

Markit / New York / October 2016

Leading provider of financial information services globally

2003
founded

10
countries

22
offices

3,000+
institutional customers

3,616+
employees

\$1.07bn
2014 revenue

\$488m
2014 adjusted EBITDA

Organisations



Banks	Corporates
Asset managers	Insurance companies
Hedge funds	Securities firms
Private equity funds	Clearing firms
Venture capital funds	Software / data vendors

Coverage



Equities	FX
Credit	Structured finance
Loans	Commodities
Rates	CDS
Bonds	Environmental

Individuals



Traders	Compliance officers
Risk managers	Valuation analysts
IT professionals	Actuaries
Investment professionals	Research analysts
Portfolio managers	Trading operations

Enhancing transparency | Reducing risk | Improving operational efficiency

Markit's Role in Nutrient Credit Trading:

- Offer Enrollment & Eligibility services through our Markit Counterparty Manager(MCM) system
- Provide auction services, including training on Submitting Bids and Offers using Markit Environmental Registry

PENNVEST's Role in Nutrient Credit Trading:

- Provide public operated treatment works and regulated point sources with a cost-effective alternative to meet their nutrient discharge permit requirements
- Reduce risk perceived by credit sellers and buyers that may inhibit growth of the nutrient credit market



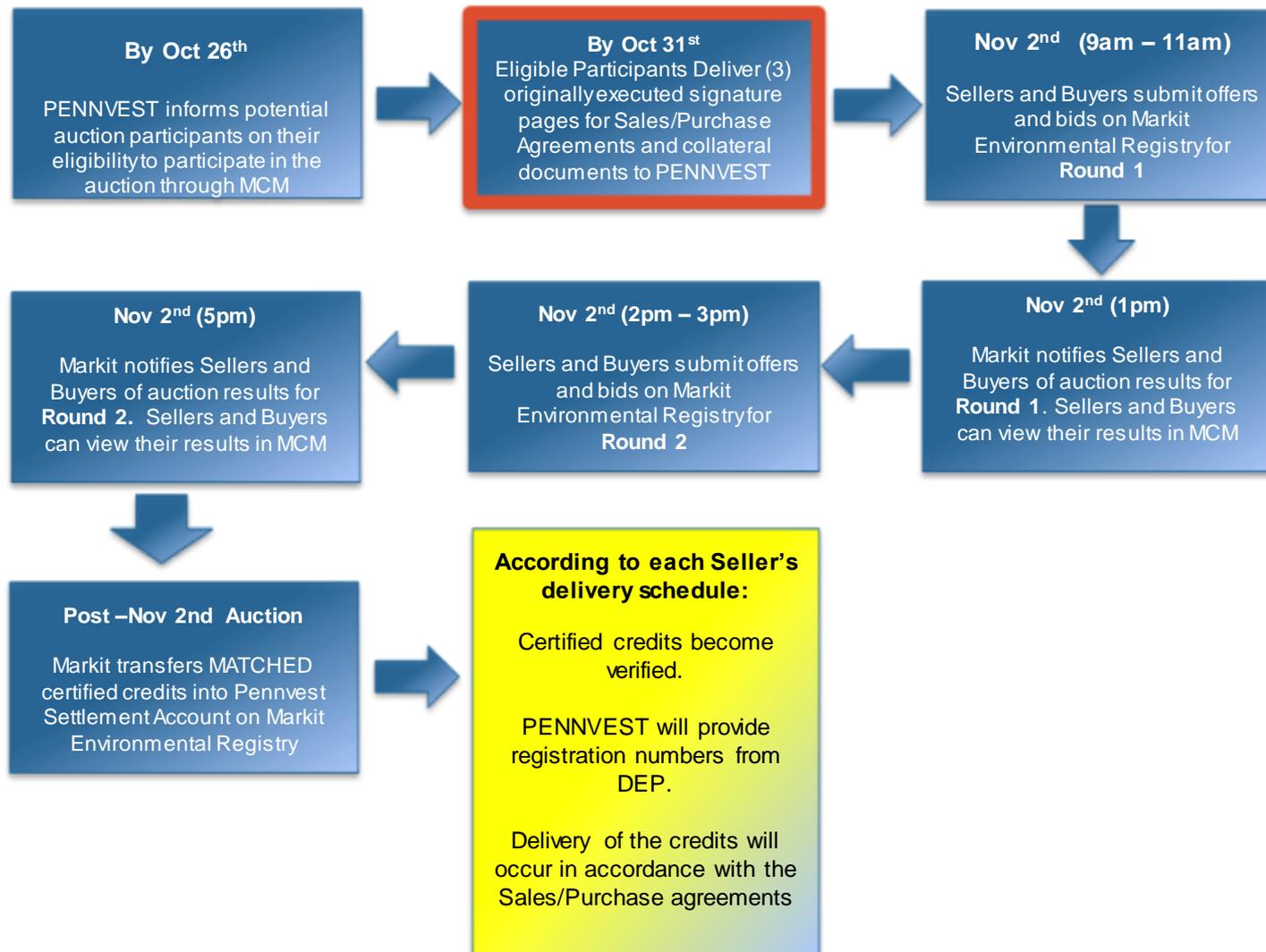
1. Markit Environmental Spot Auction Participation Process Overview
2. 2-Round Auction Guidelines
3. Logging into Markit Environmental Registry
4. Sellers
 - Accept certified credit transfers into their Registry accounts
 - Submit single-year offers on Markit Environmental Registry*
 - Update offers on Markit Environmental Registry
5. Buyers
 - Submit single-year bids on Markit Environmental Registry*
 - Update bids on Markit Environmental Registry
6. Participants view auction results
7. Settlement Cycle

*Note: 3-year strips will not be available in this Spot Auction



Markit Environmental Spot Auction Participation Process Overview

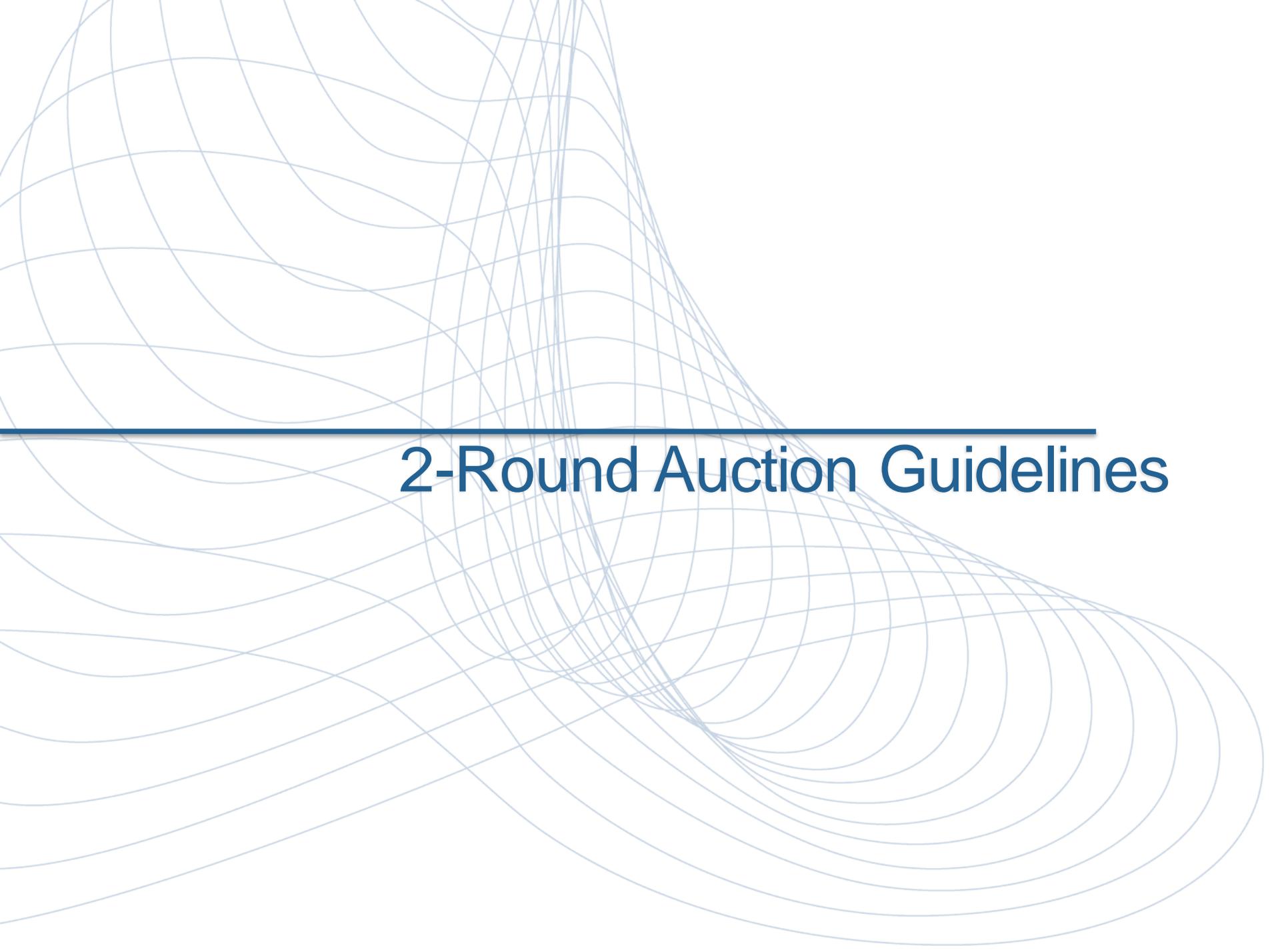
Markit Environmental Spot Auction Participation Process Overview



Markit Environmental Spot Auction Participation Process Overview



1. **On or before Nov 2nd:** Deadline to deliver (3) originally executed signature pages for Sales/Purchase Agreements and Collateral documents (if applicable) to PENNVEST (Forum Building, Room 434, 607 South Drive, Harrisburg, PA 17120 Attn: Heather Myers). **Note:** You cannot submit bids/offers until executed signature pages are received.
2. Once Agreements and Collateral documents are signed by PENNVEST, a PDF version will be uploaded into MCM and accessible for printing.
3. Once credits become verified and registered, PENNVEST will provide registration numbers for payments made on the delivery dates set forth in the agreement.
4. For questions regarding this process, contact Robert Boos @ 717-783- 4493 or rboos@pa.gov



2-Round Auction Guidelines

Auction Style

- Auction will consist of two sealed bid and offer auction rounds
- Both Round 1 and Round 2 will result in settlement prices and transaction of credits
- In Auction Round 2, Buyers and Sellers can only bid or offer for the same combination of compliance year/watershed and nutrient type as Round 1

2-round Auction Guidelines – Auction Participation Examples



Example 1:

- Buyer or Seller participated in Spot Auction Round 1
- Buyer or Seller submitted a 2016 PARTIAL Potomac Phosphorus bid or offer
- This participant can submit any combination of the following products in Spot Auction Round 2:
 - 2016 PARTIAL Potomac Phosphorus
 - 2016 All/NONE Potomac Phosphorus
- This participant will be allowed to change the quantity and price for their bid or offer

Example 2:

- Buyer or Seller participated in Spot Auction Round 1
- Buyer or Seller submitted a 2016 ALL/NONE Potomac Phosphorus bid or offer
- This participant can submit any combination of the following products in Spot Auction Round 2:
 - 2016 PARTIAL Potomac Phosphorus
 - 2016 All/NONE Potomac Phosphorus
- This participant will be allowed to change the quantity and price for their bid or offer

2-round Auction Guidelines – Auction Participation Examples

Example 3:

- Buyer or Seller didn't participate in Spot Auction Round 1
- This buyer or seller cannot participate in Spot Auction Round 2

Example 4:

- Buyer or Seller participated in Spot Auction Round 1
- This buyer or seller can choose to participate or not in Spot Auction Round 2

2-round Auction Guidelines

Basic Auction guidelines:

- The goal of the auction is to maximize fills.
- Suggestion to participants: *partial bids and offers will increase the likelihood of your auction success.*
- If a participant is participating in the auction as both a buyer and a seller, he/she cannot submit bids and offers for the same product type/water year (watershed/nutrient type/water year). E.g. if a participant submits a bid and offer from his/her account for Susquehanna Nitrogen credits for water year 2016, both the bid and the offer will be discarded.
- Buyers can only bid up to the dollar amount limit established in their eligibility letter.
- Sellers can only offer credits up to the credit limit established in their eligibility letter.
- For further details on auction rules, please consult the PENNVEST Nutrient Credit Clearinghouse Rulebook which can be found at:

http://www.portal.state.pa.us/portal/server.pt/community/nutrient_credit_trading/&popUp=true



Logging into the Markit Registry

Logging into Markit Registry



1. Navigate to www.markit.com.
2. Click LOG IN.

The screenshot shows the Markit website homepage. At the top right, there is a navigation menu with 'PRODUCTS', 'COMPANY', and 'CONTACT US'. To the left of this menu are a search icon and 'SIGN UP'. A red box highlights the 'LOGIN' button, which is connected by a red line to the 'Click LOG IN.' instruction in the list above. The main content area features a large blue banner with a white search bar containing the text 'Explore Markit'. Below the banner, there is a 'RECENT HIGHLIGHTS' section with three featured articles and a 'News' section. The footer contains a sitemap, terms of use, privacy policy, disclaimer, and copyright information, along with social media icons for Facebook, Twitter, RSS, and LinkedIn.

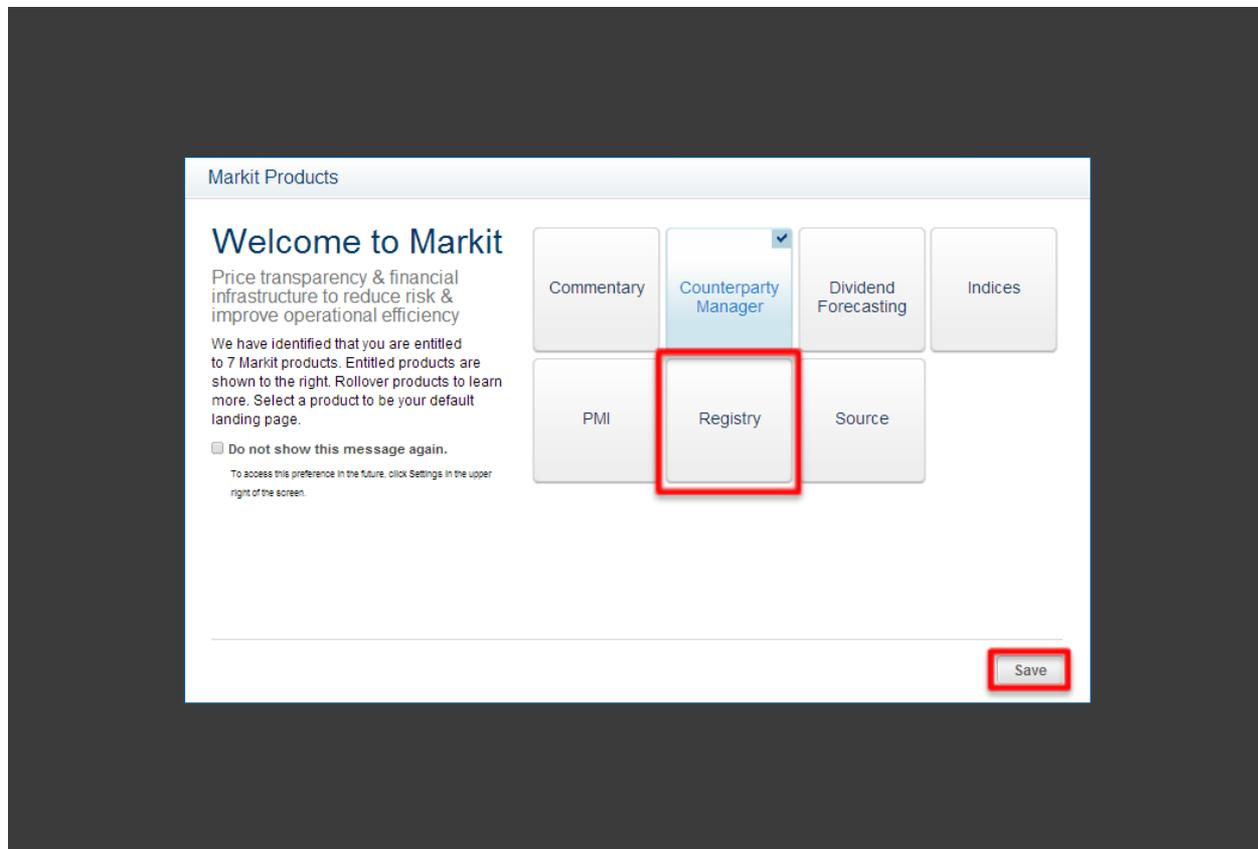
Logging into Markit Registry

- This will call up a Login screen. Insert your email address and password and press the “Login” box.

The screenshot shows the Markit login interface. At the top left is the Markit logo. The main heading is "Login to Markit products". Below this is a list of product categories: CDS, CDS Reference Data, Commentary, Counterparty Manager, Directory Admin, Environmental Registry, Equity Volatility Data, ETP, Indices, Loans, MSA, PMI, Pricing, Source, Structured Finance, and Valuations Manager. To the right of this list is a "Login" button. Below the button are links for "Forgot my password" and "Terms of Use", and a checkbox for "Keep me logged in". At the bottom of the screen, there are several dropdown menus for product selection, including "MarkitSERV", "Pricing Data - Securities Finance", "Portfolio Management - WSO", and "Transaction Cost Analysis/Factors". Red arrows point from the text above to the Username field, Password field, and Login button.

Logging into Markit Registry

4. After logging in, you will be prompted to select your Markit Product. Click “Registry” and then on the “Save” button.



Logging into Markit Registry

5. To confirm your identity, you will be prompted to enter a unique session code by clicking 'Generate Session Code'

The screenshot displays the Markit Registry user interface. At the top, the 'markit' logo is on the left, and 'Welcome, Scm Test4' with a dropdown arrow and 'Support' link are on the right. Below this is a navigation bar with several menu items: 'My Account Summary' (highlighted in dark blue), 'Manage My Units', 'My Projects and Issuances', 'RFI', 'Bids/Offers', 'User Admin', 'Reports', 'Activity Log', and 'Registry'. Below the navigation bar is a light blue header area with the text 'Authorization Code'. The main content area is white and contains a message: 'Your session has either expired or not been set. Please press 'Generate Session code' button in order to access your account.' Below this message is a button labeled 'Generate Session Code', which is highlighted with a red rectangular border.

Logging into Markit Registry

- You will be emailed a session code that you will then enter “Enter Session Code” field on the landing page, and click ‘Verify’

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My Account Summary Manage My Units My Projects and Issuances RFI Bids/Offers User

Authorization Code

Sending your session code
Email has been sent.

Please enter session code that you've received. Please note that session code will expire after '3' minutes. If code is not used within '3' minutes, a new code will need to be generated.

Enter Session Code:

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Markit Registry Session Authorization Code

Dear JH Test User 3,

You have requested an authorization code to verify your new session for the Markit Environment Registry. Please enter the code into your account online when prompted.

Session Code: CoLSoO

Please note that this code is case-sensitive.
If you did not request a new session authorization code, please contact the Markit Operations team at the contact information listed below.

Kind Regards,
Markit Environmental Registry Operations Team

Logging into Markit Registry

- Once you are successfully logged into Markit, you will be presented with the Markit Registry landing screen.

The screenshot shows the Markit Registry landing screen. The top navigation bar includes 'My Account Summary', 'Manage My Units', 'My Projects and Issuances', 'RFI', 'Auctions', 'User Admin', 'Reports', and 'Activity Log'. The 'My Account Summary' section is active, showing the current user as 'JH Test User 4' and options to 'Request New User' or view the 'User Guide'. The 'Credit Summary' section displays a table with columns for Standard, Measure, Issuances, Holdings, Retirement, Pending Issuance, and Pending Transfer. A single account, 'DEP VOSTRO (1 Item)', is listed with the following data:

Standard	Measure	Issuances	Holdings	Retireme...	Pending Issua...	Pending Transf...
Account: DEP VOSTRO (1 Item)						
PA PENNVEST / DEP Chesapeake Bay Nutr...	lbs/year	58,030,957.906	22,563,028.906	5,000.000	44,000.000	4,824,789.000
		58,030,957.9...	22,563,028.9...	5,000.000	44,000.000	4,824,789.000

Note: Only Sellers will have populated fields in the credit summary field.



**Sellers accept credit transfers into
their registry accounts**

Sellers accept credit transfers into their registry accounts

Sample Email Notification

1. PA Department of Environmental Protection (DEP) will post seller's credits in Markit Registry 2 to 3 days prior to the auction
2. Amount of credits that will be posted into Seller's registry account will equal the amount that was confirmed by DEP and approved by PENNVEST in accordance with the enrollment eligibility letter.
3. Once credits are posted, they will be transferred into Seller's registry account
4. Seller will receive the email notification of the incoming transfer. See sample email 

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Transfer Pending Notification

Dear JH Test User 4,

Thank you for your request to Transfer credits on the Markit Environmental Registry.

The following is a copy of the transfer details:

Common Transfer Details:

Target Account ID: 100000000047774
Target Account Name: MER2.9 Auctions
Transfer Date: 2015-05-22 17:41:45
Comments:

Transfer Details:

Source Account ID: 100000000001953
Source Account Name: DEP VOSTRO
Project Name: CCTest 4-29 Potomac
Standard Name: PA PENNVEST / DEP Chesapeake Bay Nutrient Trading
Vintage Year: 2015
Quantity: 500
Credit Type: lbs/year
Serial number: PENNV-SCU-US-100000000078047-01102014-30092015-72145370.466-72145869.466-MER-0-P
Unit Class: CERTIFIED

Additional Information:

Nutrient Type : Nitrogen
Watershed : Potomac

Sellers accept credit transfers into their registry accounts

5. To accept transfer, log into Markit Registry
6. Navigate to 'Manage My Units' Page
7. Click on 'Pending Transfer (Customer)' button

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Welcome, Jh Test3 | Support

My Account Summary **Manage My Units** My Projects and Issuances RFI Auctions User Admin Reports Activity Log Registry

Find Units By

More Options.. Show All Units

Project

Account

Search..

Transfer RFI Stand For Trees Auction Retire Assign Cancel Convert Discard Export New

Project	Account	Vintage	Country	Hol...	Measurement	Public Visibil	Status
CCTest 4-29 Potomac	DEP VOSTRO	2015	United States	500	lbs/year	No	Pending Transfer (Customer)

PA PENNVEST / DEP Chesapeake Bay Nutrient Trading - Nitrogen Removal in Potomac region (PN) (CERTIFIED)
PENNV-SCU-US-10000000078047-01102014-30092015-72145370.466-72145869.466-MER-0-P

Sellers accept credit transfers into their registry accounts

8. The following form will display
9. Confirm Transfer amount and click on the 'Approve' button

Transfer Details

Transfer Details:
Date Listed: 22 May 2015
Comment:

Transfer Units

Account	Project	Transfer Amount	Price	Currency	Measure
<input checked="" type="checkbox"/> DEP VOSTRO	<input checked="" type="checkbox"/> CCTest 4-29 Potomac	500	0	Choose One..	lbs/year (CERTIFI...

PA PENNVEST / DEP Chesapeake Bay Nutrient Trading - Nitrogen Removal in Potomac region (PN)
PENNV-SCU-US-100000000078047-01102014-30092015-72145370.466-72145869.466-MER-0-P

Destination Account:
To: MER2.9 Auctions
My Accounts Registry Accounts Inter-Registry
Find Account (by code or id)..

Sellers accept credit transfers into their registry accounts



10. Credits will become active in your account
11. Please note that you will have separate credit blocks for different combinations of Watershed/Nutrient Type that were verified by DEP.



Sellers submit offers on Markit Registry

Sellers submit offers on Markit Registry

1. Log into Markit Registry
2. Click on 'Manage My Units' Page
3. Select block of credits that you want to offer on the auction by highlighting the row
4. Select 'Auction' icon from the sub-menu bar
5. Select 'Enter Auction Offer'

The screenshot shows the Markit Registry interface. The top navigation bar includes 'My Account Summary', 'Manage My Units' (highlighted), 'My Projects and Issuances', 'RFI', 'Auctions', 'User Admin', 'Reports', 'Activity Log', and 'Registry'. Below this, there's a 'Find Units By' section with search filters. The main area displays a table of units. A red box highlights the 'Auction' dropdown menu, which is open to show 'Enter Auction Offer' and 'Enter Auction Bid' options. A red arrow points from the fifth step of the instructions to the 'Enter Auction Offer' option.

Project	Unit	Vintage	Country	Hol...	Measurement	Public Visibil...	Status
CCTest 4-29 Potomac	9 Auctions	2015	United States	500 lbs/year	No	Active	

PA PENNVEST / DEP Chesapeake Bay Nutrient Trading - Nitrogen Removal in Potomac region (PN) (CERTIFIED)
PENN-SCU-US-10000000078047-01102014-30092015-72145370.466-72145869.466-MER-0-P

Sellers submit offers on Markit Registry

6. The following form will display
7. Populate all fields marked with an asterisk
8. Enter Auction name from the drop-down list
9. Enter quantity of credits and offer price (Note: You do not have to offer all of available credits)
10. Select “Partial” or ‘All or None’.
11. Agree to the “Auctions Terms of Use”; click on ‘OK’ button

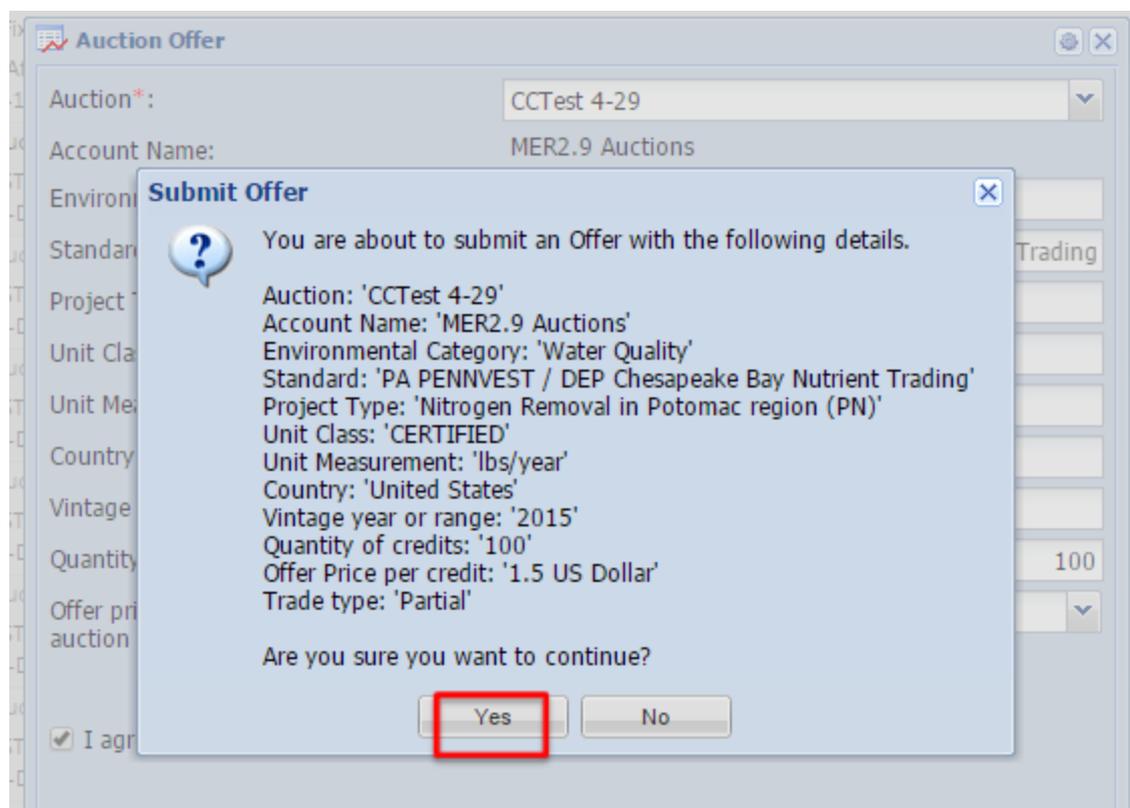
The screenshot shows the 'Auction Offer' form with the following fields and values:

Auction*	CCTest 4-29
Account Name:	MER2.9 Auctions
Environmental Category:	Water Quality
Standard:	PA PENNVEST / DEP Chesapeake Bay Nutrient Trading
Project Type:	Nitrogen Removal in Potomac region (PN)
Unit Class:	CERTIFIED
Unit Measurement:	lbs/year
Country:	United States
Vintage year or range:	2015
Quantity of credits*	100
Offer price per credit (does not include auction fee)*:	1.5 US Dollar
<input checked="" type="radio"/> Partial <input type="radio"/> All or None	
<input checked="" type="checkbox"/> I agree to the following Auctions Terms Of Use	

Buttons:

Sellers submit offers on Markit Registry

12. A confirmation offer form will display.
13. Review and confirm details; then click “Yes” button – the offer is now submitted.



Sellers submit offers on Markit Registry

13. Navigate to the “Auctions” menu to view your submitted offer
14. Click on “Choose Auction” drop-down to select the auction name
15. ‘Delta’ column will indicate how much of the pre-qualified quantity amount remains, based on the submitted offer amounts

The screenshot shows the Markit Registry interface. The top navigation bar includes 'My Account Summary', 'Manage My Units', 'My Projects and Issuances', 'RFI', 'Auctions', 'User Admin', 'Reports', 'Activity Log', and 'Registry'. The 'Auctions' menu is highlighted with a red box. Below the navigation bar, there are options for 'Un-list', 'Export to Excel', and 'Export to PDF'. A dropdown menu is open, showing 'JH Test_May 28' selected, also highlighted with a red box. The main table displays auction data with columns: ID, Status, Account Name, Listed Date, Product Name, Vintage, Bid or Offer, Partial or All or None, Auctioned Quantity, Auctioned Price, Final Quantity, Final Price, Pre-qualified purchase amount limit, Pre-qualified quantity limit, and Delta. The 'Delta' column header is highlighted with a red box.

ID	Status	Account Name	Listed Date	Product Name	Vintage	Bid or Offer	Partial or All or None	Auctioned Quantity	Auctioned Price	Final Quantity	Final Price	Pre-qualified purchase amount limit	Pre-qualified quantity limit	Delta
100000000012233	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 08:43:34 PM	SU-N-15	2015	Offer	Partial	45	2.00				500	355
100000000012232	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 08:42:40 PM	SU-P-15	2015	Offer	Partial	35	0.50				500	405
100000000012231	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:53:31 PM	SU-N-15	2015	Offer	Partial	100	0.75				500	355
100000000012230	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:52:46 PM	SU-P-15	2015	Offer	Partial	60	0.50				500	405
100000000012229	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:49:53 PM	PO-N-15	2015	Offer	Partial	75	1.00				500	375

Sellers submit offers on Markit Registry – What is the Product Name?



The Product Name provides information about the credit that is being offered at the auction. Product Name captures the watershed, nutrient type and vintage year.

markit						
My Account Summary Manage My Units My Projects and Issuances RFI Auctions						
Auctions						
Un-list Export to Excel Export to PDF						
ID	Status	Account Name	Listed Date	Product Name	Vintage	
<input type="checkbox"/>	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 08:43:34 PM	SU-N-15	2015	
<input type="checkbox"/>	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 08:42:40 PM	SU-P-15	2015	
<input type="checkbox"/>	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:53:31 PM	SU-N-15	2015	
<input type="checkbox"/>	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:52:46 PM	SU-P-15	2015	
<input type="checkbox"/>	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:49:53 PM	PO-N-15	2015	
<input type="checkbox"/>	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:48:55 PM	PO-N-15	2015	

For the Nov. 2nd Spot Auction, the Product Names will be reflected as noted in the table below.

Product Name	Description
SU-N-16	Susquehanna Nitrogen 2016
SU-P-16	Susquehanna Phosphorus 2016
PO-N-16	Potomac Nitrogen 2016
PO-P-16	Potomac Phosphorus 2016



Sellers update offers on Markit Registry

Sellers update offers on Markit Registry

1. Please note that **Sellers are able to change their offers, while auction window is open (Nov 2nd : Round 1 from 9am – 11am; Round 2 from 2pm – 3pm)**
2. In order to change your offer, you must first “un-list” it from the auction and then create a new one
3. To un-list an offer, navigate to ‘Auctions’ menu
4. Identify the offer that you wish to un-list and check the box. Click on the “Un-list” button

The screenshot shows the Markit Registry interface. The 'Auctions' menu item is highlighted with a red box. Below the menu, the 'Un-list' button is highlighted with a red box and a red arrow. The table below shows a list of auction offers with columns for ID, Status, Account Name, Listed Date, Product Name, Vintage, Bid or Offer, Partial or All or None, Auctioned Quantity, Auctioned Price, Final Quantity, Final Price, Pre-qualified purchase amount limit, Pre-qualified quantity limit, and Delta. The first row is highlighted with a red box.

ID	Status	Account Name	Listed Date	Product Name	Vintage	Bid or Offer	Partial or All or None	Auctioned Quantity	Auctioned Price	Final Quantity	Final Price	Pre-qualified purchase amount limit	Pre-qualified quantity limit	Delta
<input checked="" type="checkbox"/> 100000000012233	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 08:43:34 PM	SU-N-15	2015	Offer	Partial	45	2.00				500	355
<input type="checkbox"/> 100000000012232	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 08:42:40 PM	SU-P-15	2015	Offer	Partial	35	0.50				500	405
<input type="checkbox"/> 100000000012231	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:53:31 PM	SU-N-15	2015	Offer	Partial	100	0.75				500	355

Sellers update offers on Markit Registry

5. The following form will display; click on the “Yes” button once you have confirmed
6. Navigate back to ‘Manage My Units’ Page to list a different offer

The screenshot shows the Markit Registry interface. The top navigation bar includes 'My Account Summary', 'Manage My Units', 'My Projects and Issuances', 'RFI', 'Auctions', 'User Admin', 'Reports', 'Activity Log', and 'Registry'. The 'Auctions' tab is active. Below the navigation bar, there are options to 'Un-list', 'Export to Excel', and 'Export to PDF'. The main content area displays a table of auction items with columns for ID, Status, Account Name, Listed Date, Product Name, Vintage, Bid or Offer, Partial or All or None, Auctioned Quantity, Auctioned Price, Final Quantity, Final Price, and Pre-qualified purchase amount limit. A dialog box titled 'Un-list auction Items' is overlaid on the table, asking for confirmation to un-list a specific item. The 'Yes' button in the dialog box is highlighted with a red box.

ID	Status	Account Name	Listed Date	Product Name	Vintage	Bid or Offer	Partial or All or None	Auctioned Quantity	Auctioned Price	Final Quantity	Final Price	Pre-qualified purchase amount limit
<input checked="" type="checkbox"/> 100000000012233	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 08:43:34 PM	SU-N-15	2015	Offer	Partial	45	2.00			
<input type="checkbox"/> 100000000012232	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 08:42:40 PM	SU-P-15	2015	Offer	Partial	35	0.50			
<input type="checkbox"/> 100000000012231	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:53:31 PM	SU-N-15	2015	Offer	Partial	100	0.75			
<input type="checkbox"/> 100000000012230	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:52:46 PM	SU-P-15	2015	Offer	Partial	60	0.50			
<input type="checkbox"/> 100000000012229	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:49:53 PM	SU-N-15	2015	Offer	Partial	75	1.00			
<input type="checkbox"/> 100000000012228	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:49:53 PM	SU-N-15	2015	Offer	Partial	75	1.00			

Un-list auction Items

Are you sure you want to Un-list the following auction items:

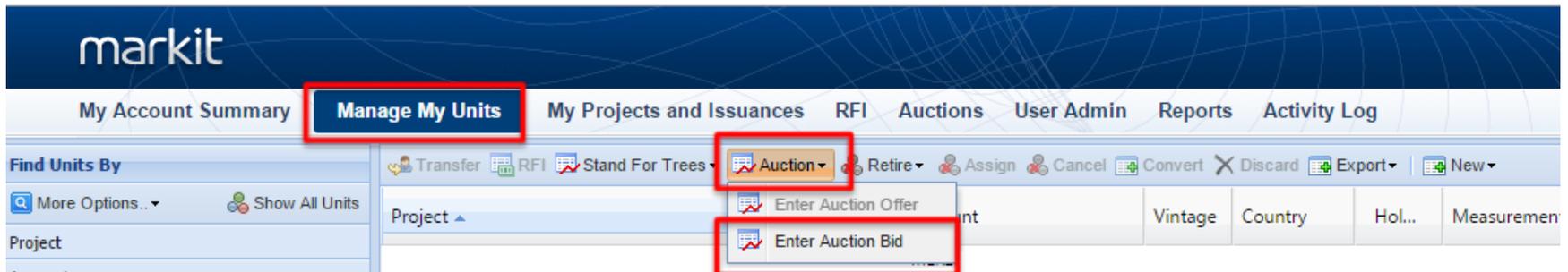
Offer, Account:'Pennvest sellerTest account forward account Nov 10 AD', Product:'SU-N-15', Vintage:'2015', Quantity: '45'



Buyers submit bids on Markit Registry

Buyers submit bids on Markit Registry

1. Log into Markit Registry
2. Click on 'Manage My Units' Page
3. Hover over 'Auction' on the sub-menu bar
4. Click on 'Enter Auction Bid' menu item



Buyers submit bids on Markit Registry

5. The following form will display.
6. All fields marked with an asterisk **must** be populated.
7. Indicate whether the bid is 'Partial' or 'All or None'
8. Agree to the "Auctions Terms of Use"
9. Click on 'OK' button

Auction Bid

Auction*: CCTest 4-29

Account Name*: MER2.9 Auctions

Environmental Category*: Water Quality

Standard*: PA PENNVEST / DEP Chesapeake Bay Nutrient Trad

Project Type*: Nitrogen Removal in Susquehanna region (SN)

Unit Class*: CERTIFIED

Unit Measurement*: lbs/year

Country*: United States

Vintage year or range*: 2015

Quantity of credits*: 150

Bid price per credit (does not include auction fee)*: 1.75 US Dollar

Partial All or None

I agree to the following [Auctions Terms Of Use](#)

Buyers submit bids on Markit Registry

10. A confirmation submit bid form will display
11. Confirm details and click “Yes” button. The bid is now submitted

The screenshot shows the 'Auction Bid' form in the Markit Registry interface. A confirmation dialog box titled 'Submit Bid' is overlaid on the form. The dialog box contains the following text:

Submit Bid

You are about to submit a Bid with the following details.

Auction: 'CCTest 4-29'
Account: 'MER2.9 Auctions'
Environmental Category: 'Water Quality'
Standard: 'PA PENNVEST / DEP Chesapeake Bay Nutrient Trading'
Project Type: 'Nitrogen Removal in Susquehanna region (SN)'
Unit Class: 'CERTIFIED'
Unit Measurement: 'lbs/year'
Country: 'United States'
Vintage year or range: '2015'
Quantity of credits: '150'
Bid price per Credit: '1.75 US Dollar'
Trade type: 'Partial'

Are you sure you want to continue?

I agree

Buyers submit bids on Markit Registry

12. Bid will be visible on Auctions page
13. Select the auction from the 'Choose Auction' drop-down
14. 'Delta' column will indicate how much of the pre-qualified dollar amount remains, based on the submitted bid amounts and bid prices

The screenshot shows the Markit Auctions page. The 'Auctions' menu item is highlighted with a red box. A dropdown menu is open, showing 'JH Test_May 28' selected, also highlighted with a red box. The 'Delta' column in the table is highlighted with a red box.

ID	Status	Account Name	Listed Date	Product Name	Vintage	Bid or Offer	Partial or All or None	Auctioned Quantity	Auctioned Price	Final Quantity	Final Price	Pre-qualified purchase amount limit	Pre-qualified quantity limit	Delta
100000000012021	Auction Listed	MER2.9 Auctions	28 May 2015 08:51:51 PM	PO-N-15	2015	Bid	Partial	20	1.00			50,000.00		49,897.5
100000000012020	Auction Listed	MER2.9 Auctions	28 May 2015 08:51:04 PM	PO-N-15	2015	Bid	All or None	15	1.10			50,000.00		49,897.5
100000000012019	Auction Listed	MER2.9 Auctions	28 May 2015 08:50:03 PM	SU-N-15	2015	Bid	Partial	15	1.00			50,000.00		49,897.5
100000000012018	Auction Listed	MER2.9 Auctions	28 May 2015 08:49:06 PM	SU-P-15	2015	Bid	Partial	10	0.35			50,000.00		49,897.5
100000000012017	Auction Listed	MER2.9 Auctions	28 May 2015 08:48:19 PM	SU-P-15	2015	Bid	Partial	10	0.75			50,000.00		49,897.5
100000000012016	Auction Listed	MER2.9 Auctions	28 May 2015 08:47:27 PM	SU-N-15	2015	Bid	Partial	10	1.75			50,000.00		49,897.5
100000000012015	Auction Listed	MER2.9 Auctions	28 May 2015 08:46:41 PM	SU-N-15	2015	Bid	Partial	10	2.25			50,000.00		49,897.5

Buyers submit bids on Markit Registry – What is the Product Name?



The Product Name provides information about the credit that is being bid for at the auction. Product Name captures the watershed, nutrient type and vintage year.

ID	Status	Account Name	Listed Date	Product Name	Vintage
100000000012233	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 08:43:34 PM	SU-N-15	2015
100000000012232	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 08:42:40 PM	SU-P-15	2015
100000000012231	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:53:31 PM	SU-N-15	2015
100000000012230	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:52:46 PM	SU-P-15	2015
100000000012229	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:49:53 PM	PO-N-15	2015
100000000012228	Auction Listed	Pennvest sellerTest account forward account Nov 10 AD	28 May 2015 06:48:55 PM	PO-N-15	2015

For the Nov. 2nd Spot Auction, the Product Names will be reflected as noted in the table below.

Product Name	Description
SU-N-16	Susquehanna Nitrogen 2016
SU-P-16	Susquehanna Phosphorus 2016
PO-N-16	Potomac Nitrogen 2016
PO-P-16	Potomac Phosphorus 2016



Buyers update bids on Markit Registry

Buyers update bids on Markit Registry

1. Please note that **Buyers are able to change their bids, while auction window is open (Nov 2nd : Round 1 from 9am – 11am; Round 2 from 2pm - 3pm)**
2. In order to change your bid, you must first “un-list” it from the auction and then create a new one
3. To un-list a bid, navigate to the “Auctions’ menu
4. Identify the bid that you wish to un-list and click on the “Un-list” box on the sub-menu bar

markit

My Account Summary Manage My Units My Projects and Issuances RFI **Auctions** User Admin Reports Activity Log Registry

Auctions

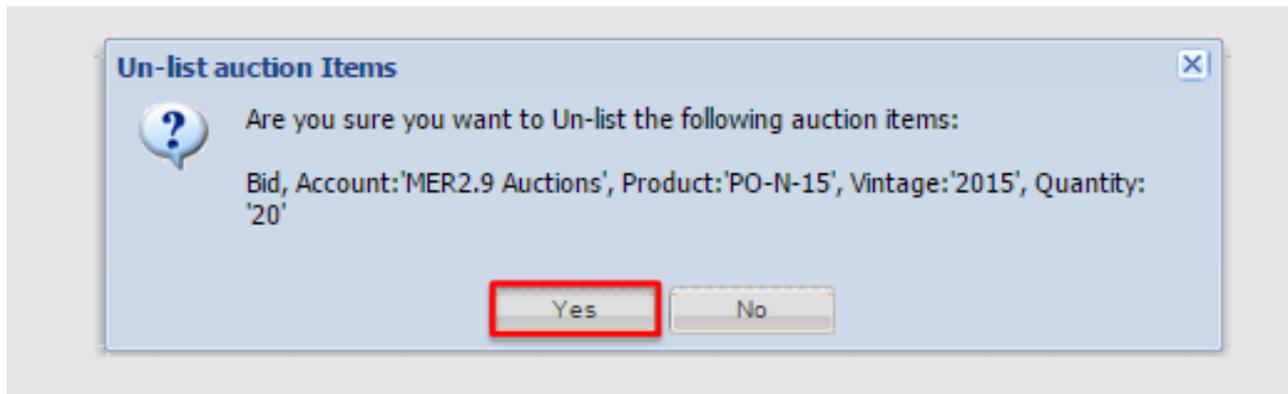
Un-list Export to Excel Export to PDF

JH Test_May 28 1st Round

ID	Status	Account Name	Listed Date	Product Name	Vintage	Bid or Offer	Partial or All or None	Auctioned Quantity	Auctioned Price	Final Quantity	Final Price	Pre-qualified purchase amount limit
<input checked="" type="checkbox"/> 100000000012021	Auction Listed	MER2.9 Auctions	28 May 2015 08:51:51 PM	PO-N-15	2015	Bid	Partial	20	1.00			50,000.00
<input type="checkbox"/> 100000000012020	Auction Listed	MER2.9 Auctions	28 May 2015 08:51:04 PM	PO-N-15	2015	Bid	All or None	15	1.10			50,000.00
<input type="checkbox"/> 100000000012019	Auction Listed	MER2.9 Auctions	28 May 2015 08:50:03 PM	SU-N-15	2015	Bid	Partial	15	1.00			50,000.00
<input type="checkbox"/> 100000000012018	Auction Listed	MER2.9 Auctions	28 May 2015 08:49:06 PM	SU-P-15	2015	Bid	Partial	10	0.35			50,000.00

Buyers update bids on Markit Registry

5. The following form will display
6. Click on 'Yes' button to un-list your bid.
7. Navigate back to 'Manage My Units' Page to list a different bid





Participants view auctions results

Participants view auctions results

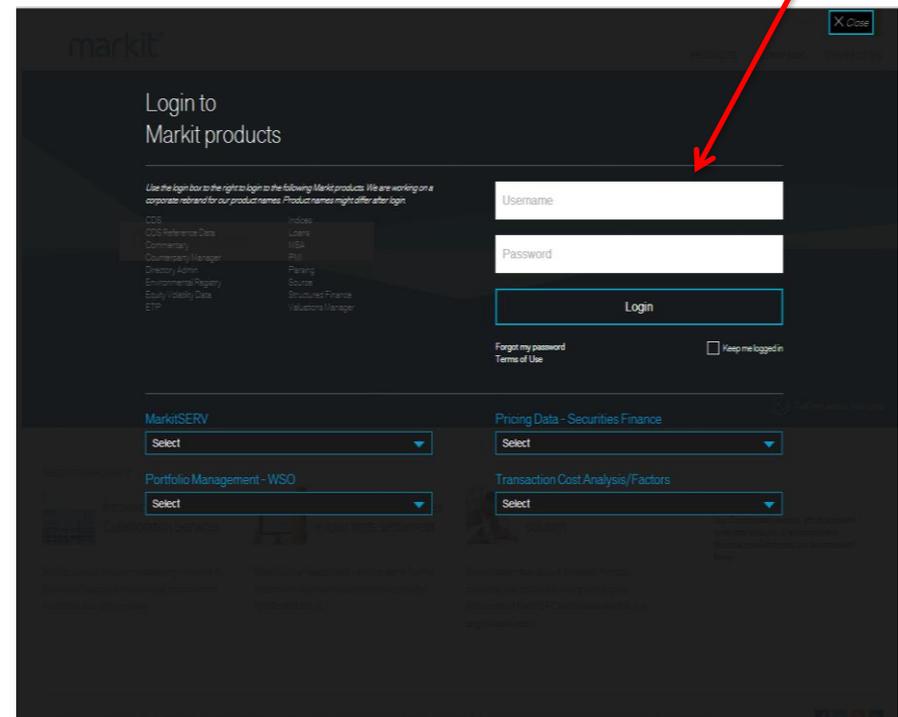
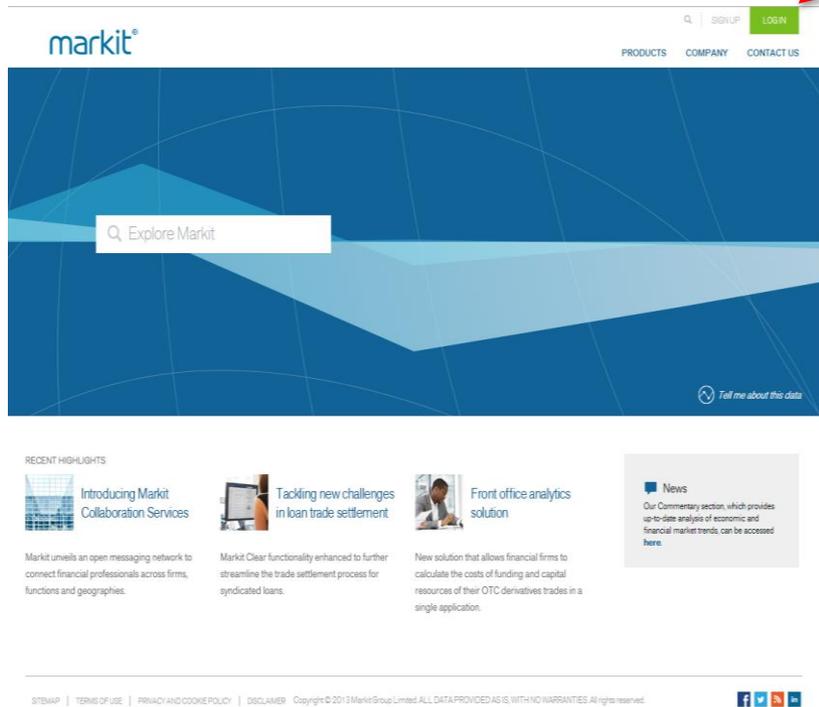


1. After each auction round is completed, Markit will notify all auction participants via email that their results are available in their 'My Counterparty Documents' folder on Markit Counterparty Manager (MCM)
2. Expect to receive notification on **Nov 2nd** at approx. **1:00pm for Round 1**
3. Expect to receive notification on **Nov 2nd** at approx. **5:00pm for Round 2**

Participants view auctions results

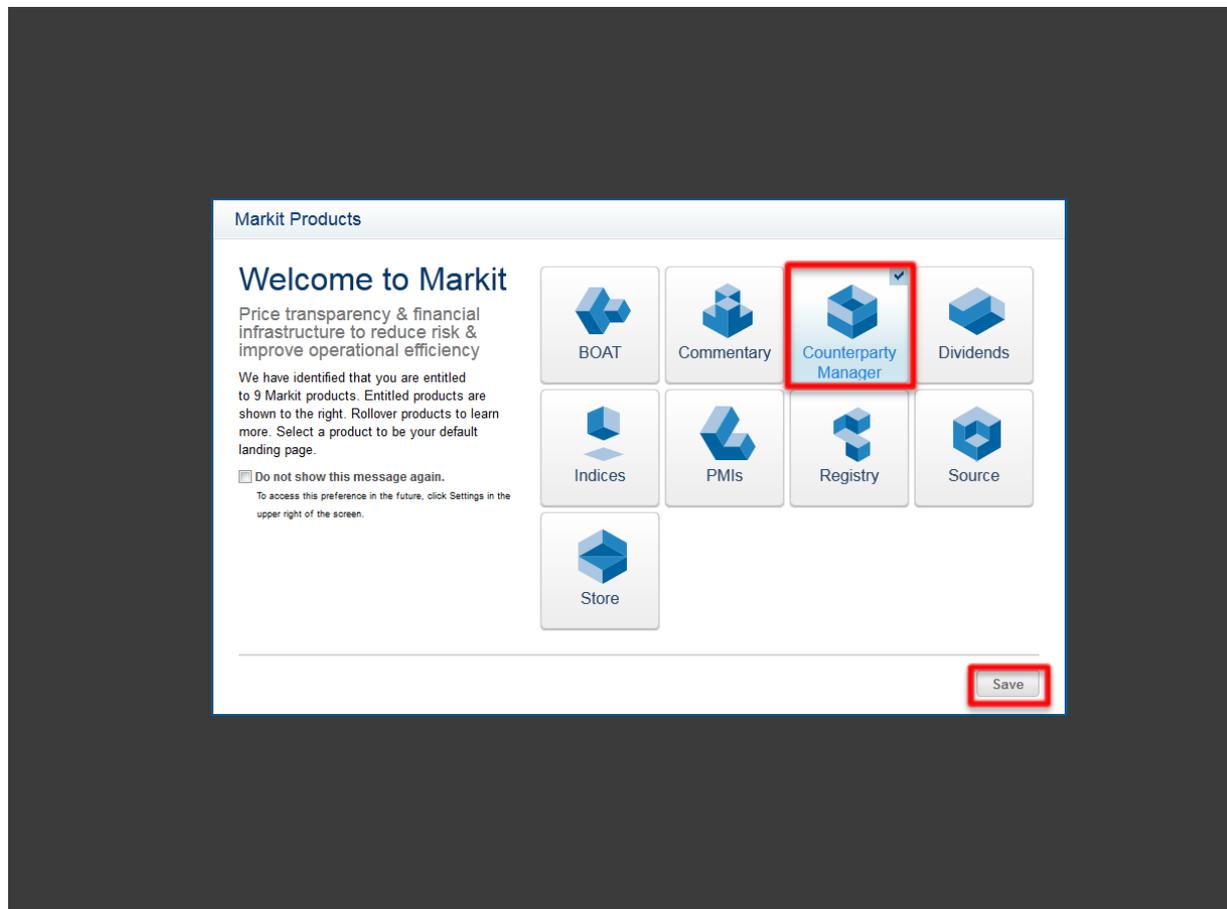


4. To view your auction results, navigate to www.markit.com website
5. Click on the green “Login” box
6. Insert your email address and password.



Participants view auctions results

7. After logging in, you will be prompted to select your Markit Product. Click on “Counterparty Manager” and then click “Save.”



Participants view auctions results

8. Hover over 'View'
9. Navigate to 'Counterparty Documents' page
10. Click on 'all document(s)' hyperlink
11. Look for the document type: "Auction Results (Private)"
12. Click on the document's icon

To view all counterparty documents click on the **all document(s)** link
Summary of Top 20 Accounts By Document Count

Account Name	Entity Count	Document Count
Pennsylvania Infrastructure Investment Authority Company	1	7
Markit Group Limited	1	2

Counterparty Documents

Apply Reset

Account:

Fund Name:

★ All Documents +

View Invite a User Download Download to FTP Download All to FTP

<input type="checkbox"/>	Account Name	Fund Name	Category	Document Type	Description	View	Upload Date	Umbrella
<input type="checkbox"/>	Markit Group Li...	Markit Group L...	Stand...	Auction Results (Private)	Your Auction...	<input type="button" value="v"/>	19-Oct-2011	Markit Group L...

Participants view auctions results



13. If successful, Seller's Auction results document will look like this:

Winning offers										
Credit: SU-P-14		Offer Price (\$)	Offer Quantity	Offer Type	Final Price (\$)	Quantity Sold	Amount	Fee Per credit	Total Fee	Total Amount Owed from Pennvest (\$)
		3.60	1,500.00	ALL/NONE	5.30	1,500.00	7,950.00	0.025	37.50	7,912.50
										Amount=Quantity Won*Final Price
										Total Fee=Quantity Won*Fee per credit
										Amount Owed from Pennvest= Amount - Total Fee
										SU-P-12 - Susquehanna Phosphorus 2012

14. If successful, Buyer's Auction results document will look like this:

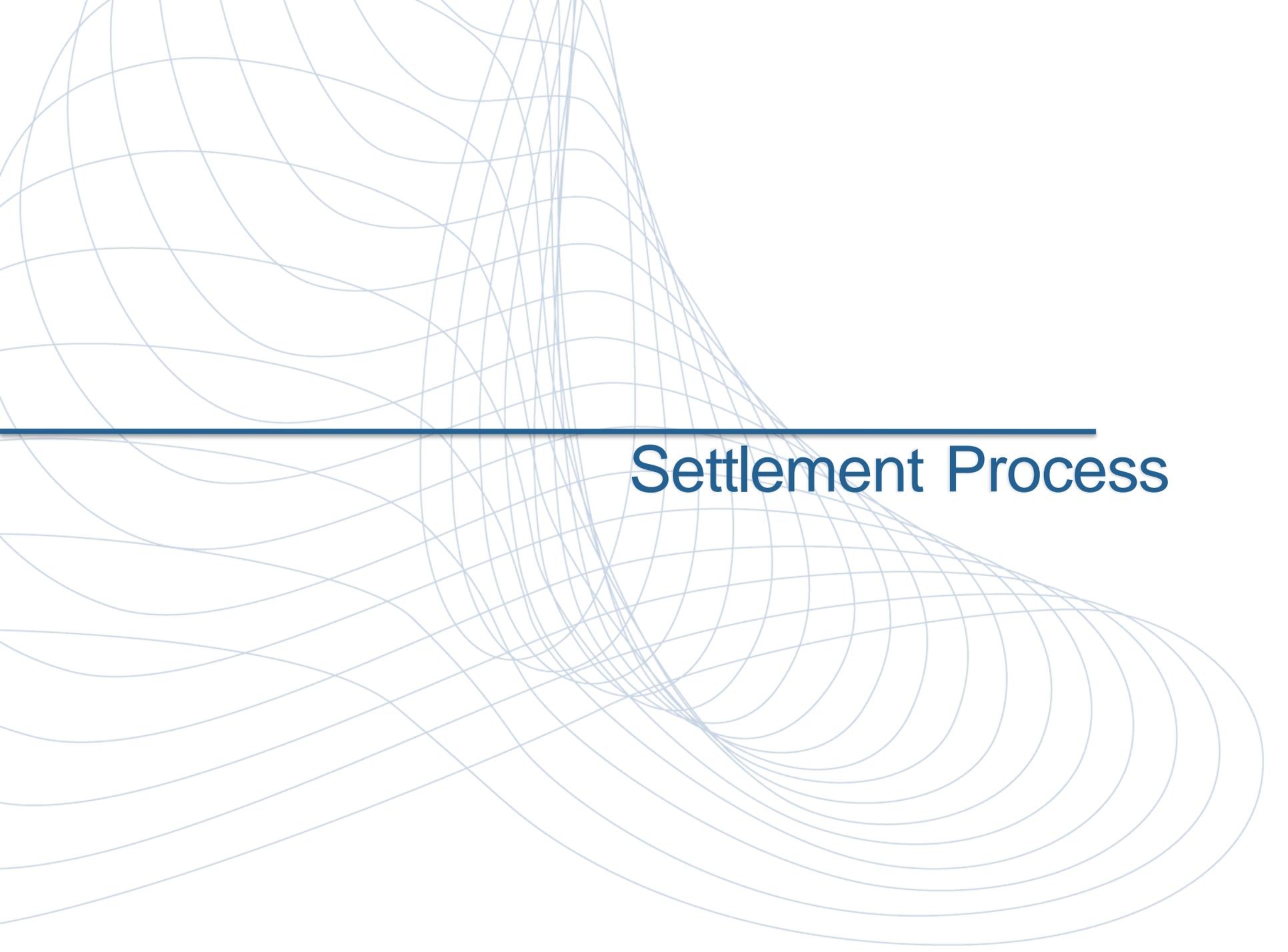
Winning bids										
Credit: SU-P14		Bid Price (\$)	Bid Quantity	Bid Type	Final Price (\$)	Quantity Won	Amount	Fee Per credit	Total Fee	Total Amount Owed to Pennvest (\$)
		7.00	1,500.00	ALL/NONE	5.30	1,500.00	7,950.00	0.025	37.50	7,987.50
										Amount=Quantity Won*Final Price
										Total Fee=Quantity Won*Fee per credit
										Amount Owed to Pennvest= Amount + Total Fee
										SU-P-12 - Susquehanna Phosphorus 2012
										SU-P-13 - Susquehanna Phosphorus 2013
										SU-P-14 - Susquehanna Phosphorus 2014

Participants view auctions results



15. Please note that results will show 0 in total amounts and final quantities columns for buyers and sellers who did not win any bids or offers:

TEST SELLER Private Results for Pennvest Forward Auction March 19 th , 2014									
Winning offers									
Credit: PO-N-14	Offer Price (\$)	Offer Quantity	Offer Type	Final Price (\$)	Quantity Sold	Amount	Fee Per credit	Total Fee	Total Amount Owed from Pennvest (\$)
	3.20	2,000.00	PARTIAL	0.00	0.00	0.00	0.025	0.00	0.00
									Amount=Quantity Won*Final Price
									Total Fee=Quantity Won*Fee per credit
									Amount Owed from Pennvest= Amount - Total Fee
									SU-P-12 - Susquehanna Phosphorus 2012
Winning bids									
Credit: PO-N-14	Bid Price (\$)	Bid Quantity	Bid Type	Final Price (\$)	Quantity Won	Amount	Fee Per credit	Total Fee	Total Amount Owed to Pennvest (\$)
	2.00	2,000.00	PARTIAL	0.00	0.00	0.00	0.025	0.00	0.00
									Amount=Quantity Won*Final Price
									Total Fee=Quantity Won*Fee per credit
									Amount Owed to Pennvest= Amount + Total Fee
									SU-P-12 - Susquehanna Phosphorus 2012



Settlement Process

Definition: Auction Settlement Price

The definition for settlement price is listed in the PENNVEST Nutrient Credit Clearinghouse Rulebook (Version 7) on page 43:

- The settlement price is calculated on a **weighted average** basis between the **lowest bid** and **highest offer prices** that either **cross or touch** in the auction.

Settlement Process

Example

Only Matched Quantities are included in calculations

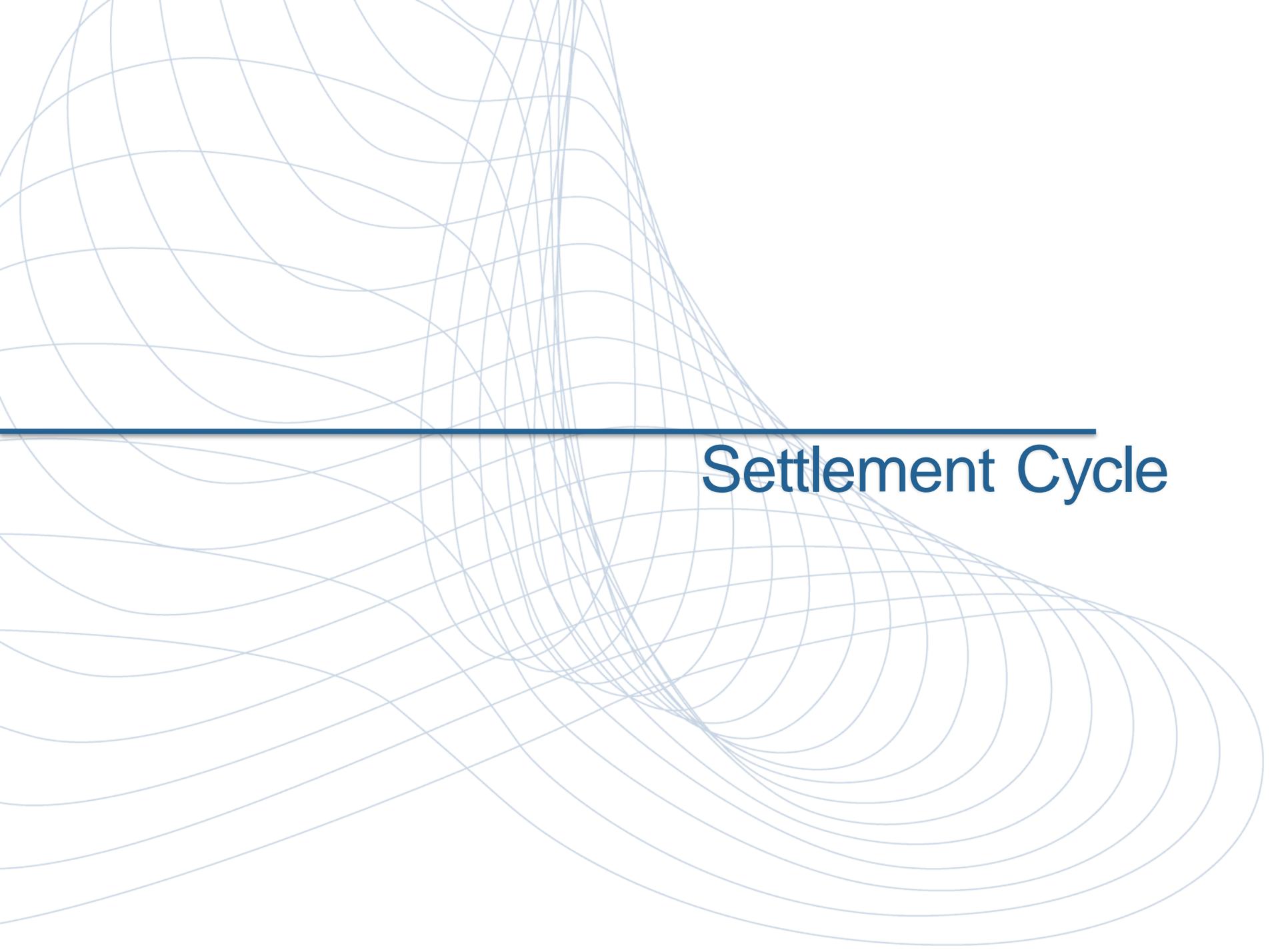
Buyers		Bid Price	Quantity	Matched/ Quantity Won	Amount	Fee per credit \$0.025	Total Amount Owed to PENNVEST
bid 1	partial	\$3.40	70000	70000	\$ 135,700	\$ 1,750	\$ 135,310
bid 2	partial	\$3.03	40000	40000	\$ 76,400	\$ 1,000	\$ 77,320
bid 3	partial	\$2.49	10000	10000	\$ 19,100	\$ 250	\$ 19,330
bid 4	partial	\$2.38	90000	90000	\$ 171,900	\$ 2,250	\$ 173,970
bid 5	partial	\$2.13	70000	20000	\$ 38,200	\$ 500	\$ 38,660
bid 6	partial	\$1.20	10000		\$ -		Unmatched Bid

Sellers		Offer Price	Quantity	Matched/ Quantity Won	Amount	Fee per credit \$0.025	Total Amount Owed by PENNVEST
offer 1	partial	\$0.80	20000	20000	\$ 38,200	\$ 500	\$ 37,660
offer 2	partial	\$1.50	90000	90000	\$ 171,900	\$ 2,250	\$ 169,470
offer 3	partial	\$1.63	90000	90000	\$ 171,900	\$ 2,250	\$ 169,470
offer 4	partial	\$1.76	30000	30000	\$ 57,300	\$ 750	\$ 56,490
offer 5	partial	\$2.56	80000		\$ -		Unmatched Offers
offer 6	partial	\$2.73	80000		\$ -		Unmatched Offers

Settlement: $(2.13 \times 20000 + 1.76 \times 30000) / (20000 + 30000) = \1.91



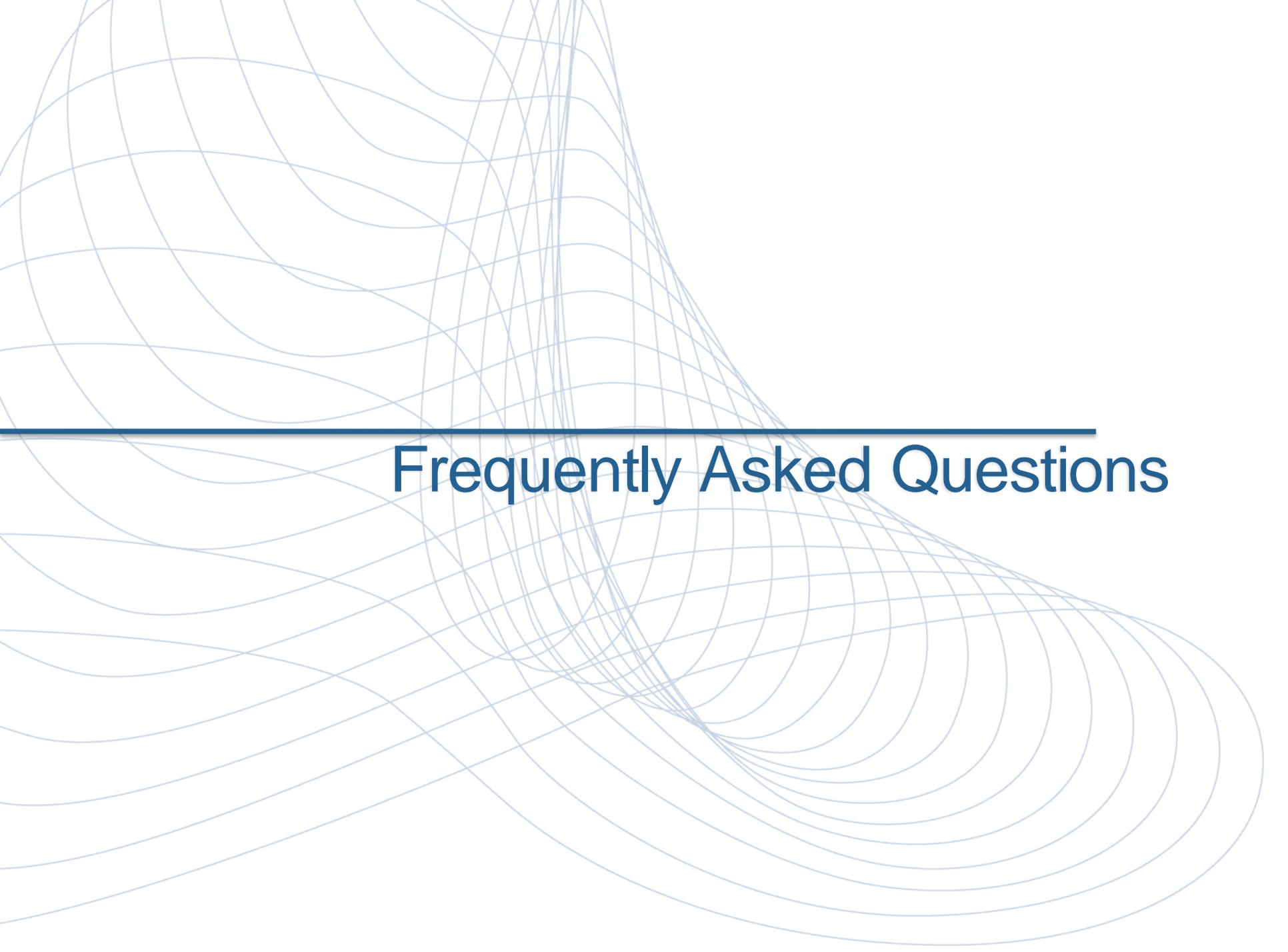
The settlement price is calculated on a **weighted average** basis between the **lowest bid** and **highest offer prices** that either **cross or touch** in the auction.



Settlement Cycle

Settlement Cycle





Frequently Asked Questions

Q: How much should I offer my credits for?

A: While PENNVEST and Markit are unable to consult on pricing your credits, results from previous auctions are available on Markit's website: <http://www.markit.com/Product/Pennvest>

Q: What is the difference between listing my credits as “ALL/NONE” or “PARTIAL”?

A: The way you list your credits will determine how they are matched. Credits that are listed as “ALL/NONE” will only be sold or purchased if the entire quantity can be sold or purchased, while credits that are listed as “PARTIAL” will be matched up to the amount that is available.

Q: How is it that my offer price was lower than the final settlement price but I wasn't successful?

A: The final settlement price is the weighted average between the lowest bid and the highest offer. Therefore, it's possible your offer, while being below the settlement price, doesn't fit within the range calculated for the quantities matched based on bids submitted.

Markit Counterparty Manager (MCM) and Markit Registry:

- www.markit.com
- Click on “LOG IN” box in upper right-hand corner 

PENNVEST Nutrient Credit Trading Program:

- For historical auction results, auction timeline, training materials, please visit: <http://www.markit.com/Product/Pennvest>

Markit Environmental Auctions Team:

- environmental.auctions@markit.com
- Telephone: 917-441-6668



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