



**Exhibit A:
Nodal Exchange Contract Specifications**

NODAL EXCHANGE CONTRACT SPECIFICATIONS

CAISO SYLMARS 2 B1 Monthly Day Ahead On-Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Financial On-Peak Energy + Congestion CAISO SYLMARS_2_B1, Day Ahead
Contract Code	HNC
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of On-Peak hours within the month traded, so in a month with 336 On-Peak hours, the lot size equals 336 MWh. The definition of On-Peak hours is Hour Ending (HE) 0700 – 2200 Monday through Saturday, Pacific Prevailing Time (PPT), excluding NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	The fourth business day of the launch month, which corresponds to the day the current expiring contract is no longer traded. The launch month is 14 months before the expiration date.
Last Trading Day	The third business day following the last calendar day of the month
Contract Series	14 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of CAISO SP15 plus the day-ahead hourly Congestion price of SYLMARS_2_B1 for all On-Peak hours in the contract month. These price files can be found at the following link or at successor location. <a href="http://oasis.caiso.com/mrtu-oasis/SingleZip?resultformat=6&queryname=PRC_LMP&market_run_id=DA M&grp_type=ALL&startdate=<yyyymmdd>&enddate=<yyyymmdd>">http://oasis.caiso.com/mrtu-oasis/SingleZip?resultformat=6&queryname=PRC_LMP&market_run_id=DA M&grp_type=ALL&startdate=<yyyymmdd>&enddate=<yyyymmdd>
Final Settlement (Payment) Date	The first business day following the Last Trading Day
Position Limit	775 MW
Margin Unit	US Dollars

NODAL EXCHANGE CONTRACT SPECIFICATIONS

CAISO SYLMARS 2 B1 Monthly Day Ahead Off-Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Financial Off-Peak Energy + Congestion CAISO SYLMARS_2_B1, Day Ahead
Contract Code	HND
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of Off-Peak hours within the month traded, so in a month with 400 Off-Peak hours, the lot size equals 400 MWh. The definition of Off-Peak hours is Hour Ending (HE) 0100 – 0600 and HE 2300 – 2400, Monday through Saturday, PPT and all hours for Sunday and all NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	The fourth business day of the launch month, which corresponds to the day the current expiring contract is no longer traded. The launch month is 14 months before the expiration date.
Last Trading Day	The third business day following the last calendar day of the month
Contract Series	14 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of CAISO SP15 plus the day-ahead hourly Congestion price of SYLMARS_2_B1 for all Off-Peak hours in the contract month. These price files can be found at the following link or at successor location. <a href="http://oasis.caiso.com/mrtu-oasis/SingleZip?resultformat=6&queryname=PRC_LMP&market_run_id=DA M&grp_type=ALL&startdate=<yyyymmdd>&enddate=<yyyymmdd>">http://oasis.caiso.com/mrtu-oasis/SingleZip?resultformat=6&queryname=PRC_LMP&market_run_id=DA M&grp_type=ALL&startdate=<yyyymmdd>&enddate=<yyyymmdd>
Final Settlement (Payment) Date	The first business day following the Last Trading Day
Position Limit	775 MW
Margin Unit	US Dollars

NODAL EXCHANGE CONTRACT SPECIFICATIONS

PJM LiquidationPortfolio1 PY18-19 Sink OffPeak Monthly Day Ahead Off-Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Day Ahead Energy + Congestion contract settles to the aggregate of PY18-19 OffPeak Sink PNodes of “FTR Positions for Liquidation Resulting From Member Default” published by PJM (https://www.pjm.com/-/media/markets-ops/ptr/ptr-allocation/ptr-positions-for-liquidation-resulting-from-member-default.ashx?la=en). The weight of each PNode is determined based on the share of OffPeak volume of each Sink PNode after netting the volume on Source and Sink PNodes. The weight is adjusted whenever the Sink PNodes are affected by PJM Bus Model Change as defined in “FTRs Affected by LMP Bus Model Updates” (https://www.pjm.com/markets-and-operations/ptr.aspx). The detailed contract definition is available at http://www.nodalexchange.com
Contract Code	LPA
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of Off-Peak hours within the month traded, so in a month with 400 Off-Peak hours, the lot size equals 400 MWh. The definition of Off-Peak hours is Hour Ending (HE) 0100 – 0700 and HE 2400, Monday through Friday, EPT and all hours for Saturday, Sunday, and all NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	December 11, 2018
Last Trading Day	The Sixth business day following the last calendar day of the month
Contract Series	6 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of PJM WESTERN HUB plus the aggregate of day-ahead hourly Congestion price of each Sink PNode as defined in the Contract Description for all Off-Peak hours in the contract month. These price files can be found at the following link or a successor location: https://dataminer2.pjm.com/feed/mnt_ptr_zonal_lmcs (for FTR zonal, residual aggregate, and DA Zonal) http://dataminer2.pjm.com/feed/da_ptr_lmcs (for other PNodes that not in the previous file).

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Final Settlement (Payment) Date	The first business day following the Last Trading Day
Position Limit	20,853 MW
Margin Unit	US Dollars

DELISTED

NODAL EXCHANGE CONTRACT SPECIFICATIONS

PJM LiquidationPortfolio1 PY18-19 Sink Peak Monthly Day Ahead Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Day Ahead Energy + Congestion contract settles to the aggregate of PY18-19 Peak Sink PNodes of “FTR Positions for Liquidation Resulting From Member Default” published by PJM (https://www.pjm.com/-/media/markets-ops/ptr/ptr-allocation/ptr-positions-for-liquidation-resulting-from-member-default.ashx?la=en). The weight of each PNode is determined based on the share of Peak volume of each Sink PNode after netting the volume on Source and Sink PNodes. The weight is adjusted whenever the Sink PNodes are affected by PJM Bus Model Change as defined in “FTRs Affected by LMP Bus Model Updates” (https://www.pjm.com/markets-and-operations/ptr.aspx). The detailed contract definition is available at http://www.nodalexchange.com
Contract Code	LPB
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of On-Peak hours within the month traded, so in a month with 336 On-Peak hours, the lot size equals 336 MWh. The definition of On-Peak hours is Hour Ending (HE) 0800 – 2300 Monday through Friday, EPT, excluding NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	December 11, 2018
Last Trading Day	The Sixth business day following the last calendar day of the month
Contract Series	6 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of PJM WESTERN HUB plus the aggregate of day-ahead hourly Congestion price of each Sink PNode as defined in the Contract Description for all Peak hours in the contract month. These price files can be found at the following link or a successor location. https://dataminer2.pjm.com/feed/mnt_ptr_zonal_lmcs (for FTR zonal, residual aggregate, and DA Zonal) http://dataminer2.pjm.com/feed/da_hrl_lmcs (for other PNodes that not in the previous file)
Final Settlement (Payment) Date	The first business day following the Last Trading Day

NODAL EXCHANGE CONTRACT SPECIFICATIONS

Position Limit	15,787 MW
Margin Unit	US Dollars

DELISTED

NODAL EXCHANGE CONTRACT SPECIFICATIONS

PJM LiquidationPortfolio1 PY18-19 Source OffPeak Monthly Day Ahead Off-Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Day Ahead Energy + Congestion contract settles to the aggregate of PY18-19 OffPeak Source PNodes of “FTR Positions for Liquidation Resulting From Member Default” published by PJM (https://www.pjm.com/-/media/markets-ops/ptr/ptr-allocation/ptr-positions-for-liquidation-resulting-from-member-default.ashx?la=en). The weight of each PNode is determined based on the share of OffPeak volume of each Source PNode after netting the volume on Source and Sink PNodes. The weight is adjusted whenever the Source PNodes are affected by PJM Bus Model Change as defined in “FTRs Affected by LMP Bus Model Updates” (https://www.pjm.com/markets-and-operations/ptr.aspx). The detailed contract definition is available at http://www.nodalexchange.com
Contract Code	LPC
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of Off-Peak hours within the month traded, so in a month with 400 Off-Peak hours, the lot size equals 400 MWh. The definition of Off-Peak hours is Hour Ending (HE) 0100 – 0700 and HE 2400, Monday through Friday, EPT and all hours for Saturday, Sunday, and all NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	December 11, 2018
Last Trading Day	The Sixth business day following the last calendar day of the month
Contract Series	6 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of PJM WESTERN HUB plus the aggregate of day-ahead hourly Congestion price of each Source PNode as defined in the Contract Description for all Off-Peak hours in the contract month. These price files can be found at the following link or a successor location: https://dataminer2.pjm.com/feed/mnt_ptr_zonal_lmcs (for FTR zonal, residual aggregate, and DA Zonal) http://dataminer2.pjm.com/feed/da_hrl_lmcs (for other PNodes that not in the

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	previous file).
Final Settlement (Payment) Date	The first business day following the Last Trading Day
Position Limit	20,853 MW
Margin Unit	US Dollars

DELISTED

NODAL EXCHANGE CONTRACT SPECIFICATIONS

PJM LiquidationPortfolio1 PY18-19 Source Peak Monthly Day Ahead Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Day Ahead Energy + Congestion contract settles to the aggregate of PY18-19 Peak Source PNodes of “FTR Positions for Liquidation Resulting From Member Default” published by PJM (https://www.pjm.com/-/media/markets-ops/ptr/ptr-allocation/ptr-positions-for-liquidation-resulting-from-member-default.ashx?la=en). The weight of each PNode is determined based on the share of Peak volume of each Source PNode after netting the volume on Source and Sink PNodes. The weight is adjusted whenever the Source PNodes are affected by PJM Bus Model Change as defined in “FTRs Affected by LMP Bus Model Updates” (https://www.pjm.com/markets-and-operations/ptr.aspx). The detailed contract definition is available at http://www.nodalexchange.com
Contract Code	LPD
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of On-Peak hours within the month traded, so in a month with 336 On-Peak hours, the lot size equals 336 MWh. The definition of On-Peak hours is Hour Ending (HE) 0800 – 2300 Monday through Friday, EPT, excluding NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	December 11, 2018
Last Trading Day	The Sixth business day following the last calendar day of the month
Contract Series	6 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of PJM WESTERN HUB plus the aggregate of day-ahead hourly Congestion price of each Source PNode as defined in the Contract Description for all Peak hours in the contract month. These price files can be found at the following link or a successor location. https://dataminer2.pjm.com/feed/mnt_ptr_zonal_lmcs (for FTR zonal, residual aggregate, and DA Zonal) http://dataminer2.pjm.com/feed/da_hrl_lmcs (for other PNodes that not in the previous file)

NODAL EXCHANGE CONTRACT SPECIFICATIONS

Final Settlement (Payment) Date	The first business day following the Last Trading Day
Position Limit	15,787 MW
Margin Unit	US Dollars

DELISTED

NODAL EXCHANGE CONTRACT SPECIFICATIONS

PJM LiquidationPortfolio1 PY19-20 Sink OffPeak Monthly Day Ahead Off-Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Day Ahead Energy + Congestion contract settles to the aggregate of PY19-20 OffPeak Sink PNodes of “FTR Positions for Liquidation Resulting From Member Default” published by PJM (https://www.pjm.com/-/media/markets-ops/ptr/ptr-allocation/ptr-positions-for-liquidation-resulting-from-member-default.ashx?la=en). The weight of each PNode is determined based on the share of OffPeak volume of each Sink PNode after netting the volume on Source and Sink PNodes. The weight is adjusted whenever the Sink PNodes are affected by PJM Bus Model Change as defined in “FTRs Affected by LMP Bus Model Updates” (https://www.pjm.com/markets-and-operations/ptr.aspx). The detailed contract definition is available at http://www.nodalexchange.com
Contract Code	LPE
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of Off-Peak hours within the month traded, so in a month with 400 Off-Peak hours, the lot size equals 400 MWh. The definition of Off-Peak hours is Hour Ending (HE) 0100 – 0700 and HE 2400, Monday through Friday, EPT and all hours for Saturday, Sunday, and all NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	December 11, 2018
Last Trading Day	The Sixth business day following the last calendar day of the month
Contract Series	18 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of PJM WESTERN HUB plus the aggregate of day-ahead hourly Congestion price of each Sink PNode as defined in the Contract Description for all Off-Peak hours in the contract month. These price files can be found at the following link or a successor location: https://dataminer2.pjm.com/feed/mnt_ptr_zonal_lmcs (for FTR zonal, residual aggregate, and DA Zonal) http://dataminer2.pjm.com/feed/da_ptr_lmcs (for other PNodes that not in the previous file).

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Final Settlement (Payment) Date	The first business day following the Last Trading Day
Position Limit	6,968 MW
Margin Unit	US Dollars

DELISTED

NODAL EXCHANGE CONTRACT SPECIFICATIONS

PJM LiquidationPortfolio1 PY19-20 Sink Peak Monthly Day Ahead Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Day Ahead Energy + Congestion contract settles to the aggregate of PY19-20 Peak Sink PNodes of “FTR Positions for Liquidation Resulting From Member Default” published by PJM (https://www.pjm.com/-/media/markets-ops/ptr/ptr-allocation/ptr-positions-for-liquidation-resulting-from-member-default.ashx?la=en). The weight of each PNode is determined based on the share of Peak volume of each Sink PNode after netting the volume on Source and Sink PNodes. The weight is adjusted whenever the Sink PNodes are affected by PJM Bus Model Change as defined in “FTRs Affected by LMP Bus Model Updates” (https://www.pjm.com/markets-and-operations/ptr.aspx). The detailed contract definition is available at http://www.nodalexchange.com
Contract Code	LPF
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of On-Peak hours within the month traded, so in a month with 336 On-Peak hours, the lot size equals 336 MWh. The definition of On-Peak hours is Hour Ending (HE) 0800 – 2300 Monday through Friday, EPT, excluding NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	December 11, 2018
Last Trading Day	The Sixth business day following the last calendar day of the month
Contract Series	18 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of PJM WESTERN HUB plus the aggregate of day-ahead hourly Congestion price of each Sink PNode as defined in the Contract Description for all Peak hours in the contract month. These price files can be found at the following link or a successor location. https://dataminer2.pjm.com/feed/mnt_ptr_zonal_lmcs (for FTR zonal, residual aggregate, and DA Zonal) http://dataminer2.pjm.com/feed/da_ptr_lmcs (for other PNodes that not in the previous file)
Final Settlement (Payment) Date	The first business day following the Last Trading Day

NODAL EXCHANGE CONTRACT SPECIFICATIONS

Position Limit	5,208 MW
Margin Unit	US Dollars

DELISTED

NODAL EXCHANGE CONTRACT SPECIFICATIONS

PJM LiquidationPortfolio1 PY19-20 Source OffPeak Monthly Day Ahead Off-Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Day Ahead Energy + Congestion contract settles to the aggregate of PY19-20 OffPeak Source PNodes of “FTR Positions for Liquidation Resulting From Member Default” published by PJM (https://www.pjm.com/-/media/markets-ops/ptr/ptr-allocation/ptr-positions-for-liquidation-resulting-from-member-default.ashx?la=en). The weight of each PNode is determined based on the share of OffPeak volume of each Source PNode after netting the volume on Source and Sink PNodes. The weight is adjusted whenever the Source PNodes are affected by PJM Bus Model Change as defined in “FTRs Affected by LMP Bus Model Updates” (https://www.pjm.com/markets-and-operations/ptr.aspx). The detailed contract definition is available at http://www.nodalexchange.com
Contract Code	LPG
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of Off-Peak hours within the month traded, so in a month with 400 Off-Peak hours, the lot size equals 400 MWh. The definition of Off-Peak hours is Hour Ending (HE) 0100 – 0700 and HE 2400, Monday through Friday, EPT and all hours for Saturday, Sunday, and all NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	December 11, 2018
Last Trading Day	The Sixth business day following the last calendar day of the month
Contract Series	18 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of PJM WESTERN HUB plus the aggregate of day-ahead hourly Congestion price of each Source PNode as defined in the Contract Description for all Off-Peak hours in the contract month. These price files can be found at the following link or a successor location: https://dataminer2.pjm.com/feed/mnt_ptr_zonal_lmcs (for FTR zonal, residual aggregate, and DA Zonal) http://dataminer2.pjm.com/feed/da_hrl_lmcs (for other PNodes that not in the

NODAL EXCHANGE CONTRACT SPECIFICATIONS

	previous file).
Final Settlement (Payment) Date	The first business day following the Last Trading Day
Position Limit	6,968 MW
Margin Unit	US Dollars

DELISTED

NODAL EXCHANGE CONTRACT SPECIFICATIONS

PJM LiquidationPortfolio1 PY19-20 Source Peak Monthly Day Ahead Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Day Ahead Energy + Congestion contract settles to the aggregate of PY19-20 Peak Source PNodes of “FTR Positions for Liquidation Resulting From Member Default” published by PJM (https://www.pjm.com/-/media/markets-ops/ptr/ptr-allocation/ptr-positions-for-liquidation-resulting-from-member-default.ashx?la=en). The weight of each PNode is determined based on the share of Peak volume of each Source PNode after netting the volume on Source and Sink PNodes. The weight is adjusted whenever the Source PNodes are affected by PJM Bus Model Change as defined in “FTRs Affected by LMP Bus Model Updates” (https://www.pjm.com/markets-and-operations/ptr.aspx). The detailed contract definition is available at http://www.nodalexchange.com
Contract Code	LPH
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of On-Peak hours within the month traded, so in a month with 336 On-Peak hours, the lot size equals 336 MWh. The definition of On-Peak hours is Hour Ending (HE) 0800 – 2300 Monday through Friday, EPT, excluding NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	December 11, 2018
Last Trading Day	The Sixth business day following the last calendar day of the month
Contract Series	18 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of PJM WESTERN HUB plus the aggregate of day-ahead hourly Congestion price of each Source PNode as defined in the Contract Description for all Peak hours in the contract month. These price files can be found at the following link or a successor location. https://dataminer2.pjm.com/feed/mnt_ptr_zonal_lmcs (for FTR zonal, residual aggregate, and DA Zonal) http://dataminer2.pjm.com/feed/da_hrl_lmcs (for other PNodes that not in the previous file)

NODAL EXCHANGE CONTRACT SPECIFICATIONS

Final Settlement (Payment) Date	The first business day following the Last Trading Day
Position Limit	5,208 MW
Margin Unit	US Dollars

DELISTED

NODAL EXCHANGE CONTRACT SPECIFICATIONS

PJM LiquidationPortfolio1 PY20-21 Sink OffPeak Monthly Day Ahead Off-Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Day Ahead Energy + Congestion contract settles to the aggregate of PY20-21 OffPeak Sink PNodes of “FTR Positions for Liquidation Resulting From Member Default” published by PJM (https://www.pjm.com/-/media/markets-ops/ptr/ptr-allocation/ptr-positions-for-liquidation-resulting-from-member-default.ashx?la=en). The weight of each PNode is determined based on the share of OffPeak volume of each Sink PNode after netting the volume on Source and Sink PNodes. The weight is adjusted whenever the Sink PNodes are affected by PJM Bus Model Change as defined in “FTRs Affected by LMP Bus Model Updates” (https://www.pjm.com/markets-and-operations/ptr.aspx). The detailed contract definition is available at http://www.nodalexchange.com
Contract Code	LPI
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of Off-Peak hours within the month traded, so in a month with 400 Off-Peak hours, the lot size equals 400 MWh. The definition of Off-Peak hours is Hour Ending (HE) 0100 – 0700 and HE 2400, Monday through Friday, EPT and all hours for Saturday, Sunday, and all NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	December 11, 2018
Last Trading Day	The Sixth business day following the last calendar day of the month
Contract Series	30 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of PJM WESTERN HUB plus the aggregate of day-ahead hourly Congestion price of each Sink PNode as defined in the Contract Description for all Off-Peak hours in the contract month. These price files can be found at the following link or a successor location: https://dataminer2.pjm.com/feed/mnt_ptr_zonal_lmcs (for FTR zonal, residual aggregate, and DA Zonal) http://dataminer2.pjm.com/feed/da_ptr_lmcs (for other PNodes that not in the previous file).

NODAL EXCHANGE CONTRACT SPECIFICATIONS

Final Settlement (Payment) Date	The first business day following the Last Trading Day
Position Limit	715 MW
Margin Unit	US Dollars

DELISTED

NODAL EXCHANGE CONTRACT SPECIFICATIONS

PJM LiquidationPortfolio1 PY20-21 Sink Peak Monthly Day Ahead Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Day Ahead Energy + Congestion contract settles to the aggregate of PY20-21 Peak Sink PNodes of “FTR Positions for Liquidation Resulting From Member Default” published by PJM (https://www.pjm.com/-/media/markets-ops/ptr/ptr-allocation/ptr-positions-for-liquidation-resulting-from-member-default.ashx?la=en). The weight of each PNode is determined based on the share of Peak volume of each Sink PNode after netting the volume on Source and Sink PNodes. The weight is adjusted whenever the Sink PNodes are affected by PJM Bus Model Change as defined in “FTRs Affected by LMP Bus Model Updates” (https://www.pjm.com/markets-and-operations/ptr.aspx). The detailed contract definition is available at http://www.nodalexchange.com
Contract Code	LPJ
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of On-Peak hours within the month traded, so in a month with 336 On-Peak hours, the lot size equals 336 MWh. The definition of On-Peak hours is Hour Ending (HE) 0800 – 2300 Monday through Friday, EPT, excluding NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	December 11, 2018
Last Trading Day	The Sixth business day following the last calendar day of the month
Contract Series	30 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of PJM WESTERN HUB plus the aggregate of day-ahead hourly Congestion price of each Sink PNode as defined in the Contract Description for all Peak hours in the contract month. These price files can be found at the following link or a successor location. https://dataminer2.pjm.com/feed/mnt_ptr_zonal_lmcs (for FTR zonal, residual aggregate, and DA Zonal) http://dataminer2.pjm.com/feed/da_hrl_lmcs (for other PNodes that not in the previous file)
Final Settlement (Payment) Date	The first business day following the Last Trading Day

NODAL EXCHANGE CONTRACT SPECIFICATIONS

Position Limit	701 MW
Margin Unit	US Dollars

DELISTED

NODAL EXCHANGE CONTRACT SPECIFICATIONS

PJM LiquidationPortfolio1 PY20-21 Source OffPeak Monthly Day Ahead Off-Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Day Ahead Energy + Congestion contract settles to the aggregate of PY20-21 OffPeak Source PNodes of “FTR Positions for Liquidation Resulting From Member Default” published by PJM (https://www.pjm.com/-/media/markets-ops/ptr/ptr-allocation/ptr-positions-for-liquidation-resulting-from-member-default.ashx?la=en). The weight of each PNode is determined based on the share of OffPeak volume of each Source PNode after netting the volume on Source and Sink PNodes. The weight is adjusted whenever the Source PNodes are affected by PJM Bus Model Change as defined in “FTRs Affected by LMP Bus Model Updates” (https://www.pjm.com/markets-and-operations/ptr.aspx). The detailed contract definition is available at http://www.nodalexchange.com
Contract Code	LPK
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of Off-Peak hours within the month traded, so in a month with 400 Off-Peak hours, the lot size equals 400 MWh. The definition of Off-Peak hours is Hour Ending (HE) 0100 – 0700 and HE 2400, Monday through Friday, EPT and all hours for Saturday, Sunday, and all NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	December 11, 2018
Last Trading Day	The Sixth business day following the last calendar day of the month
Contract Series	30 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of PJM WESTERN HUB plus the aggregate of day-ahead hourly Congestion price of each Source PNode as defined in the Contract Description for all Off-Peak hours in the contract month. These price files can be found at the following link or a successor location: https://dataminer2.pjm.com/feed/mnt_ptr_zonal_lmcs (for FTR zonal, residual aggregate, and DA Zonal) http://dataminer2.pjm.com/feed/da_hrl_lmcs (for other PNodes that not in the

NODAL EXCHANGE CONTRACT SPECIFICATIONS

	previous file).
Final Settlement (Payment) Date	The first business day following the Last Trading Day
Position Limit	715 MW
Margin Unit	US Dollars

DELISTED

NODAL EXCHANGE CONTRACT SPECIFICATIONS

PJM LiquidationPortfolio1 PY20-21 Source Peak Monthly Day Ahead Peak Energy + Congestion Contract

ITEM	SPECIFICATION
Contract Description	Monthly Cash Settled Day Ahead Energy + Congestion contract settles to the aggregate of PY20-21 Peak Source PNodes of “FTR Positions for Liquidation Resulting From Member Default” published by PJM (https://www.pjm.com/-/media/markets-ops/ftr/ftr-allocation/ftr-positions-for-liquidation-resulting-from-member-default.ashx?la=en). The weight of each PNode is determined based on the share of Peak volume of each Source PNode after netting the volume on Source and Sink PNodes. The weight is adjusted whenever the Source PNodes are affected by PJM Bus Model Change as defined in “FTRs Affected by LMP Bus Model Updates” (https://www.pjm.com/markets-and-operations/ftr.aspx). The detailed contract definition is available at http://www.nodalexchange.com
Contract Code	LPL
Hours of Trading	As defined at http://www.nodalexchange.com
Unit of Trading	1 lot, which is equal to 1 MW for each hour of the contract
Lot Size	Variable, expressed in MWh. For each contract the Lot Size will equal 1 MW multiplied by the number of On-Peak hours within the month traded, so in a month with 336 On-Peak hours, the lot size equals 336 MWh. The definition of On-Peak hours is Hour Ending (HE) 0800 – 2300 Monday through Friday, EPT, excluding NERC Holidays.
Currency	US Dollars
Min Price Fluctuation	\$0.0001 per MWh
Minimum Tick	\$0.0001 per MWh
First Trading Day	December 11, 2018
Last Trading Day	The Sixth business day following the last calendar day of the month
Contract Series	30 months
Fixed Price	The traded price or the previous day's settlement price
Daily Settlement Price	Determined by the Exchange based on exchange activity, other market data, and extrapolation to traded contracts, as appropriate
Final Settlement Price	The final settlement price will be determined by the Exchange at approximately 3 pm EPT on the Last Trading Day. The final settlement price is the average of the day-ahead hourly Energy of PJM WESTERN HUB plus the aggregate of day-ahead hourly Congestion price of each Source PNode as defined in the Contract Description for all Peak hours in the contract month. These price files can be found at the following link or a successor location. https://dataminer2.pjm.com/feed/mnt_ftr_zonal_lmcs (for FTR zonal, residual aggregate, and DA Zonal) http://dataminer2.pjm.com/feed/da_hrl_lmcs (for other PNodes that not in the

NODAL EXCHANGE CONTRACT SPECIFICATIONS

	previous file)
Final Settlement (Payment) Date	The first business day following the Last Trading Day
Position Limit	701 MW
Margin Unit	US Dollars

DELISTED