

APPENDIX B

TRADING MATRIX

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Table 1. Kentucky Municipal Energy Agency – Approved Products

Product Name and description	Authorized Locations
<p>Hourly Power (physical): Purchase and sale of physical power in the real-time/hourly markets supporting hedging transactions entered into by KYMEA or optimization of hedging transactions.</p>	<ul style="list-style-type: none"> Any location with the ability to deliver to KYMEA's loads
<p>Hourly Power (financial): Purchase and sale of financial power in the real-time/hourly markets supporting hedging transactions entered into by KYMEA and any hedge optimization trades. This product includes fixed for float swaps and futures contracts.</p>	<ul style="list-style-type: none"> LGEE interface with PJM LGEE interface with MISO MISO Hub PJM Hub Other delivery points as reviewed by the IRC and authorized by the CEO on a transaction specific basis
<p>Day-Ahead Power (physical): Purchase and sale of physical power in the day-ahead markets supporting hedging transactions entered into by KYMEA or optimization of hedging transactions.</p>	<ul style="list-style-type: none"> Any location with the ability to deliver to KYMEA's loads
<p>Day-Ahead Power (financial): Purchase and sale of financial power in the day-ahead markets supporting hedging transactions entered into by KYMEA and any hedge optimization trades. This product includes fixed for float swaps and futures contracts.</p>	<ul style="list-style-type: none"> LGEE interface with PJM LGEE interface with MISO MISO Hub PJM Hub Other delivery points as reviewed by the IRC and authorized by the CEO on a transaction specific basis
<p>Weekly and Balance of Week Power (physical): Purchase and sale of physical power in the weekly and balance of week markets supporting hedging transactions entered into by KYMEA or optimization of hedging transactions.</p>	<ul style="list-style-type: none"> Any location with the ability to deliver to KYMEA's loads

Product Name and Description	Authorized Locations
<p>Weekly and Balance of Week Power (financial): Purchase and sale of financial power in the weekly and balance of week markets supporting hedging transactions entered into by KYMEA or optimization of hedging transactions. This product includes fixed for float swaps and futures contracts.</p>	<ul style="list-style-type: none"> • LGEE interface with PJM • LGEE interface with MISO • MISO Hub • PJM Hub • Other delivery points as reviewed by the IRC and authorized by the CEO on a transaction specific basis
<p>Monthly and Balance of Month Power (physical): Purchase and sale of physical power in the monthly and balance of month markets supporting hedging transactions entered into by KYMEA or optimization of hedging transactions.</p>	<ul style="list-style-type: none"> • Any location with the ability to deliver to KYMEA's loads as reviewed by the IRC and authorized by the CEO on a transaction specific basis
<p>Monthly and Balance of Month Power (financial): Purchase and sale of financial power in the monthly and balance of month markets supporting hedging transactions entered into by KYMEA or optimization of hedging transactions. This product includes fixed for float swaps and futures contracts.</p>	<ul style="list-style-type: none"> • LGEE interface with PJM • LGEE interface with MISO • MISO Hub • PJM Hub • Other delivery points as reviewed by the IRC and authorized by the CEO on a transaction specific basis
<p>Annual physical Power (physical): Purchase and sale of physical power in the annual markets supporting hedging transactions entered into by KYMEA or optimization of hedging transactions.</p>	<ul style="list-style-type: none"> • Any location with the ability to deliver to KYMEA's loads as reviewed by the IRC and authorized by the CEO, BROCC, and Board of Directors on a transaction specific basis
<p>Annual financial Power (financial): Purchase and sale of financial power in the annual markets supporting hedging transactions entered into by KYMEA or optimization of hedging transactions. This product includes fixed for float swaps and futures contracts.</p>	<ul style="list-style-type: none"> • LGEE interface with PJM • LGEE interface with MISO • MISO Hub • PJM Hub • Other delivery points as reviewed by the IRC and authorized by the CEO on a transaction specific basis
<p>Non-firm Transmission: The purchase of, and resale of excess non-firm transmission necessary to move energy from the Point of Delivery to the Point of Receipt associated with a tag for such energy or any contract between KYMEA and a qualified counterparty.</p>	<ul style="list-style-type: none"> • LGEE • PJM • MISO • TVA

Product Name and Description	Authorized Locations
<p>Firm Transmission: The purchase of, and resale of excess firm transmission necessary to move energy from the Point of Delivery to the Point of Receipt associated with a tag for such energy or any contract between KYMEA and a qualified counterparty.</p>	<ul style="list-style-type: none"> • LGEE • PJM • MISO • TVA
<p>Financial Transmission Rights (FTRs): The purchase of the right to financially settle the congestion charge from one LMP node to another LMP node. FTR purchases must be associated with an existing or anticipated forward financial energy sale within the limits specified in the current Hedge Plan. Exceptions are during outage events and during summer peak periods, but FTR positions shall never exceed hedge plan recommended monthly hedge volumes during any given month.</p>	<ul style="list-style-type: none"> • All MISO and PJM LMP nodes between which KYMEA has financial exposure
<p>Ancillary Services: Those services required by an RTO or ISO to serve load or provide generation into the market. Ancillary services include but are not limited to Black Start, Regulation, Spinning Reserves, Non- spinning Reserves, RSGs, Operating Reserves, Synchronized Condensing, Balancing, etc.</p>	<ul style="list-style-type: none"> • LGEE • PJM • MISO • TVA
<p>Capacity: The reliability product associated with physical generation.</p>	<ul style="list-style-type: none"> • LGEE • PJM • MISO • TVA
<p>Power Monthly Put Options: The ability to financially or physically sell power at a fixed price to counterparty for a specific period of time.</p>	<ul style="list-style-type: none"> • At authorized locations for hourly power-financial

Product Name and Description	Authorized Locations
<p>Power Monthly Call Options: The ability to financially or physically purchase power at fixed price from a counterparty for a specified period of time.</p>	<ul style="list-style-type: none"> At authorized locations for hourly power-financials
<p>Financial Natural Gas: Purchase and sale of natural gas futures contracts</p>	<ul style="list-style-type: none"> Henry Hub (NYMEX look alike)
<p>Financial Natural Gas Options: The option to buy and sell call options and put options on financial futures contracts</p>	<ul style="list-style-type: none"> Henry Hub (NYMEX look alike)
<p>Financial Natural Gas - Locational and Temporal Basis Swaps: Basis swaps are used to hedge exposure to basis risks, such as locational risk or time exposure risk. For example, a natural gas basis swap could be used to hedge a locational price risk: the seller receives from the buyer a Nymex settlement value (usually the average of the last three days closing prices) plus a negotiated fixed basis, and pays the buyer the published index value of gas sold at a specified location</p>	<ul style="list-style-type: none"> Any delivery point on the Texas Gas or ANR system

- (1) Term refers to the length of any single transaction for the product in question.
- (2) Forward Start Limitation means the same as Lead Time and represents the time period from the date a trade is executed to the start of the trade term

The CEO may delegate all or a portion of his authority to a qualified person, in writing or by email, for limited periods of time or for specific transactions, including pre- approved transactions and conditional transactions. The Director of Power Marketing, with the approval of the CEO, may delegate the execution of hedge optimization trading to a person qualified to make such trades, in writing or by email, for limited periods of time or for specific transactions, including pre-approved transactions and conditional transactions. Any delegation shall identify the products, volume, terms, and duration of the authority to be delegated; must be in writing; and must be submitted to both the Manager of Risk and Special Projects and ACES Power Marketing (or KYMEA’s Third Party Provider “TPP”).

The CEO shall determine in writing the person or persons who are qualified to exercise trading authority which may be delegated under the provisions of this Section and shall provide the determination to the Manager of Risk and Special Products and to ACES Power Marketing (or TPP). The determination shall be

reaffirmed or reissued by the CEO at least once every quarter and at any time there is a change in the person or persons determined by the CEO to be qualified to exercise trades.

1. ELECTRIC POWER, TRANSMISSION (INCLUDES FTR) AND CAPACITY TRADING AUTHORITY

The following outlines transaction limits, definitions, and procedural requirements for power transmission and capacity transactions.

Table 2. Kentucky Municipal Energy Agency – Power Trading Authorization Table

		Per Transaction Limits (up to)				Net Per Trading Day Limits (Net Forward Positions) (up to)		Aggregate Limits of Net Forward (up to)		
Title	Product	Term	Lead Time	MW Size	\$/MWh		Total Volume MWh	Total \$	Total Volume MWh	Total \$
					Pur.	Sales				
Board of Directors	Electric Power Physical and Financial Swaps, Futures & Options and Transmission	No Limit	No Limit	No Limit	No Limit		No Limit	No Limit	No Limit	No Limit
	Capacity	No Limit	No Limit	No Limit	No Limit		N/A	No Limit	No Limit	No Limit
CEO	Electric Power Physical and Financial Swaps, Futures & Options and Transmission	< 1 Year	≤ 36 Months	300*	No Limit		900,000	\$50 Million	900,000	\$50 Million
	Capacity	≤ 1 Year	≤ 4 Years	350	No Limit		N/A	No Limit	350 MW annually	No Limit
VP of Market Analytics	Electric Power Physical and Financial Swaps, Futures & Options and Transmission	> 1 Week < 12 Months	≤ 24 Months	150*	\$150	No Limit	450,000	\$25 Million	450,000	\$25 Million
		> 1 Day ≤ 1 Week		300	\$500	No Limit				
		≤ 1 Day		300	No Limit					
APM	Electric Power Physical and Financial Swaps, Futures & Options and Transmission	> 1 Week ≤ Bal of Month	Current and Prompt Month	100	\$100	No Limit	80,000	\$10 Million	160,000	\$15 Million
		> 1 Day ≤ 1 Week		300	\$250	No Limit				
		≤ 1 Day		300	No Limit	No Limit				

* Transaction quantities not to exceed the Position Report.

a. Electric Power and Transmission Trading Authority Matrix Explanations

1. Per Transaction Limits represent the maximum term, maximum lead time, MW volume limit, and purchase or sales per unit limit expressed in dollars/MWh for each transaction executed.
2. Net per Trading Day Limits represent the Net Forward Positions MWh volume limit and dollar limit for all transactions executed in a single trading day.
3. Aggregate Limits represent the Net Forward Positions total MWh volume limit and dollar limit for all outstanding forward transactions.
4. Lead Time represents the time period from the date a trade is executed to the start of the trade term.
5. The dollar limits are based upon electric power only and do not include transmission, however, the Term, Lead Time, and Volume limits do apply to transmission.
6. Authorized products include electric power and transmission, including both physical and financial derivatives, as well as bilateral ancillary services, capacity, PJM/MISO imports & exports and PJM/MISO virtuals consistent with Table 1. Financial derivatives may be Over-the-Counter swaps, options, swaptions and futures.

b. Delivery Locations

Trading at delivery locations outside the eastern interconnect is not permitted. Trading at delivery locations that are normal to the daily course of business for KYMEA is specified in Table 1. Trading at any other delivery locations within the eastern interconnection shall be restricted as follows:

1. Restricted Delivery Locations: All other eastern interconnection locations (only with approval by the CEO).

c. Transmission Firmness and Volume

Transmission purchases need to be of equal or greater firmness and of equal or greater volumes to the energy component for which such transmission purchase is associated, unless pre- approved by the CEO. (Note: Purchasing small percentages of additional transmission to cover transmission losses is required.) Transmission purchases will be governed by the term, lead time, and MW size parameters in the trading authority matrix, but the MWh volume limits shall not apply.

2. Financial Natural Gas Trading Authority

The following outlines transaction limits, definitions, and procedural requirements for financial natural gas transactions.

Table 3. Kentucky Municipal Energy Agency – Natural Gas Trading Authorization Table

		Per Transaction Limits (up to)					Net Per Trading Day Limits of Net Forward Positions (up to)		Aggregate Limits of Net Forward (up to)	
Title	Product	Term	Lead Time	MMBTU/ HR.	\$/MMBtu		Total Volume MMBtu	Total \$	Total Volume MMBtu	Total \$
					Pur.	Sales				
Board of Directors	Natural Gas Physical and Financial Swaps, Futures & Options and Transmission	No Limit	No Limit	No Limit	No Limit		No Limit	No Limit	No Limit	No Limit
CEO	Natural Gas Physical and Financial Swaps, Futures & Options and Transmission	< 1 Year	≤ 36 Months	1,050*	No Limit		3,000,000	\$25 Million	3,000,000	\$25 Million
VP of Market Analytics	Natural Gas Physical and Financial Swaps, Futures & Options and Transmission	> 1 Week < 12 Months	≤ 24 Months	1,050*	\$12.75	NA	1,000,000	\$12.75 Million	1,000,000	\$12.75 Million
		> 1 Day ≤ 1 Week		1,050	\$50.00	NA				
		≤ 1 Day		1,050	No Limit	NA				
APM	Natural Gas Physical and Financial Swaps, Futures & Options and Transmission	> 1 Week ≤ Bal of Month	Current and Prompt Month	1,050	\$8.50	NA	168,000	\$1.5 Million	168,000	\$1.5 Million
		> 1 Day ≤ 1 Week		1,050	\$25.00	NA				
		≤ 1 Day		1,050	No Limit	NA				

* Transaction quantities not to exceed the Position Report.

a. Natural Gas Trading Authority Matrix Explanations

1. Per Transaction Limits represent the maximum term, maximum lead time, total number of financial contracts limit, and dollars/MMBtu limit for each transaction executed.
2. Aggregate Limits represent the Net Forward Positions total number of financial contracts limit and dollar limit for all outstanding forward transactions.
3. Authorized products include both exchange-traded and over-the-counter derivative products.
4. Lead Time represents the time period from the date a trade is executed to the start of the trade term.
5. Aggregate Limits apply only to natural gas trading, but combined power and natural gas cannot exceed the higher of natural gas limits or power limits.

b. The trading of natural gas options, both buying and selling of such options, shall not result in a negative natural gas delta position (no short natural gas options positions) at the time such trade is placed.

**KYMEA Physical/Financial
Abridged Transaction Analysis Form**

Trade Date:

Trader:

Product:

Term:

	MW/MMBtu	MWh/MMBtu
Quantity:		
Delivery Point:		

Trading Authority Level:

VP Market Analytics

CEO

Board of Directors

Trade Number:

Counterparty:

Trade Price (\$/MWh):

	Bid	Ask
ICE/Mkt Price (\$/MWh):		

APPENDIX C

HEDGE PLAN

HEDGE PLAN

OBJECTIVE:

The Kentucky Municipal Energy Agency (“KYMEA”) Hedge Plan outlines the plan that will guide disciplined hedging of financial risks due to fluctuations in the cost of market power and natural gas. The financial risks are often amplified by weather-influenced agency load obligations which can be highly correlated to the price movements of the market commodities. This Hedge Plan is designed to limit the financial exposure to these price and load fluctuations by fixing the commodity prices at fixed and known amounts. The primary purpose of this plan is to identify specific time and volume criteria for procuring projected power supply portfolio components.

Hedge Plan Criteria:

There are physical and financial instruments available for hedging KYMEA’s market risks. Standard products are on-peak and off-peak fixed-for-floating swaps available for power and natural gas. There are also derivative products such as call and put options, which gives the buyer the right, but not the obligation, to buy or sell a product at a predetermined price and date.

KYMEA’s existing power supply portfolio and load obligations can be thought of as a collection of derivative products. The purchase power agreements (PPA’s) are heat rate call options which give KYMEA the right, but not the obligation, to strike hourly on the PPA contract. Conversely, the native load obligation, which ensures the hourly physical delivery of power to KYMEA All Requirements members at a predetermined energy rate is equivalent to the members possessing an hourly call option with the agency.

To understand and evaluate the agency’s risk exposure; market and portfolio models are run to develop the agency’s Position Report. The Position Report summarizes KYMEA’s monthly on-peak and off-peak volume exposure considering the most recent forward curves for power and natural gas, the PPA contracts, and the forecasted hourly native load obligations.

While the Position Report calculates the agency’s financial exposure, it is not required that KYMEA hedge its entire exposure identified in the Position Report. It is permissible, and perhaps desirable, to leave some exposure to the spot market. This strategy is best understood by simulating stochastic load and price scenarios to ascertain the range of volumetric risk exposure.

Accordingly, the hedge criteria in the following sections represent the risk tolerance of KYMEA and identify the processes KYMEA will employ to manage these key financial risks.

1. Position Report: Comprehensive Energy Hedging

The Position Report employs a comprehensive energy hedging methodology whereby the MWh equivalent of all energy hedges are compared to the expected native load of KYMEA. The report also considers location (basis) and deliverability to KYMEA's native load. Total energy hedged is the MWh equivalent of the sum of fuel purchases and electricity purchases. To apply as an energy hedge, fuel purchases must be combined with physical generation ownership or contracted capacity. The MWh equivalent hedge from fuel purchases will be the volume of MMBtu's of fuel procured for the unit or contract divided by the expected average heat rate of the generation unit or contract divided by 1,000.

Hedge Range

The criteria of this plan is to trade within the confines of the position report and Trading Authority Matrix. For purposes of this plan, energy needs are considered hedged or procured to the extent that the projected need is met by:

- i) Authorized power transactions, as defined in KYMEA's Trading Authority Procedures, or
- ii) Authorized fuel transactions combined with physical generation unit ownership, heat rate transactions, or physical capacity transactions, or
- iii) Bilateral purchase power and natural gas agreements entered into by the agency with approval by the KYMEA Board of Directors.

2. Congestion Hedging and Financial Transmission Rights

It is likely that KYMEA's physical capacity and energy hedges may not be procured at delivery points that are at the location of its native load. Congestion risk is the possibility of adverse price differentials between the location of the energy sources and the location of native load. Congestion risk can be mitigated through participating in the allocation of Annual Auction Revenue Rights (ARR) and the Financial Transmission Rights (FTR) markets, purchasing delivered energy, or executing basis swaps with a bilateral counterparty. FTRs provide a financial hedge against potential adverse financial impacts of congestion risk in the day-ahead energy market. It is important to note that FTR's do not hedge the transmission loss component of the Locational Marginal Price. The Plan directs KYMEA to actively participate in the MISO and PJM allocation and auction process with a prudent and predetermined strategy for addressing the planning year and multi-year congestion risk.

Each year, KYMEA's congestion hedging needs may change as a result of its energy hedging strategies and the fluidity of the MISO and PJM allocation process, therefore, specific criteria are difficult to address via the Hedge Policy.

Executed congestion hedge strategies will be tracked against actual results and reported to the IRC and BROCC. Furthermore, the results will be used to refine future congestion hedging strategy development.

Responsibility

It shall be the responsibility of the Board, BROCC, CEO and IRC to ensure compliance with this plan. Implementation of this plan shall adhere to the authority granted in the Trading Authority Procedures.