KYMEA

Enterprise Risk Management Policy (ERMP)

Doug Buresh

March 28, 2019

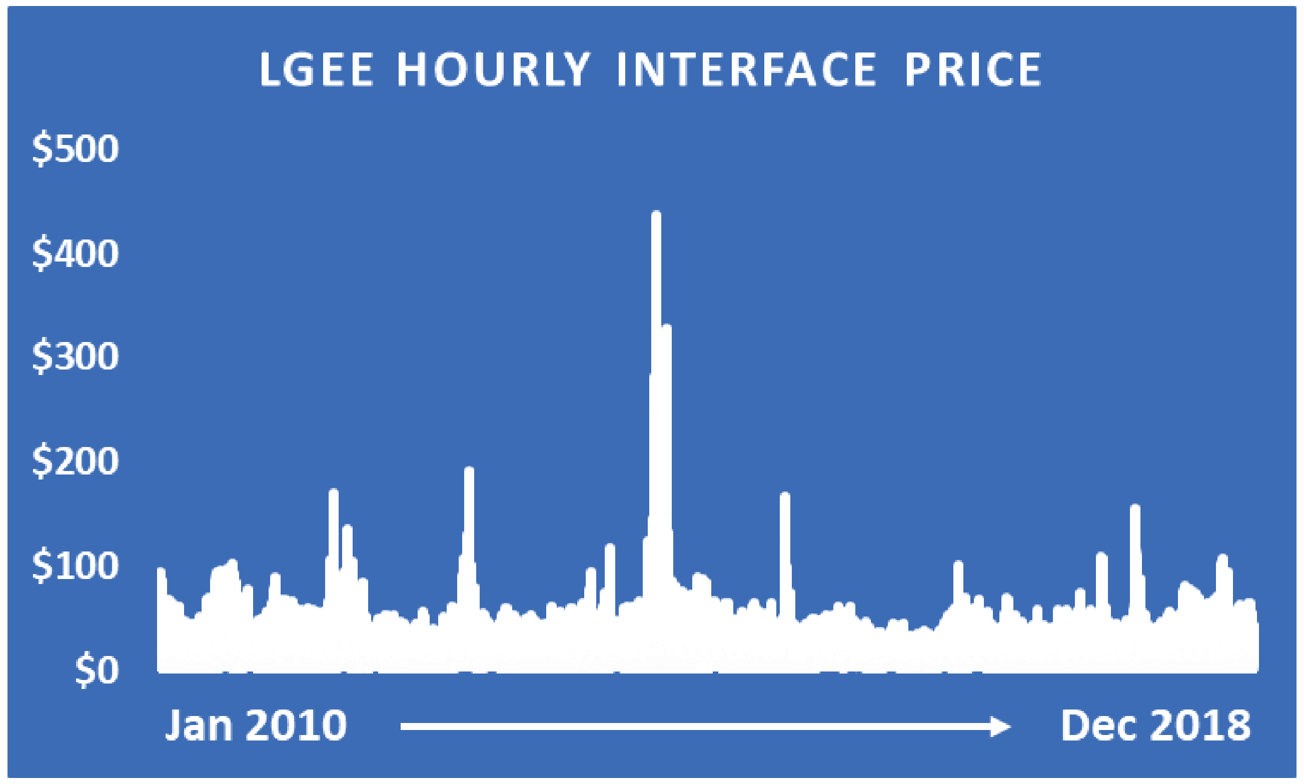
Enterprise-Wide Risks

- Commodity Market Price Risk
- Volumetric Risk
- Concentration Risk (lack of diversity)
- Counterparty Contract and Credit Risk
- Delivery Risk
- Operational Risk
- Financial Risk
- Operations Risk
- Regulatory Compliance Risk
- Reliability Compliance Risk
- Physical and Cyber Security Risk
- Business Interruption Risk

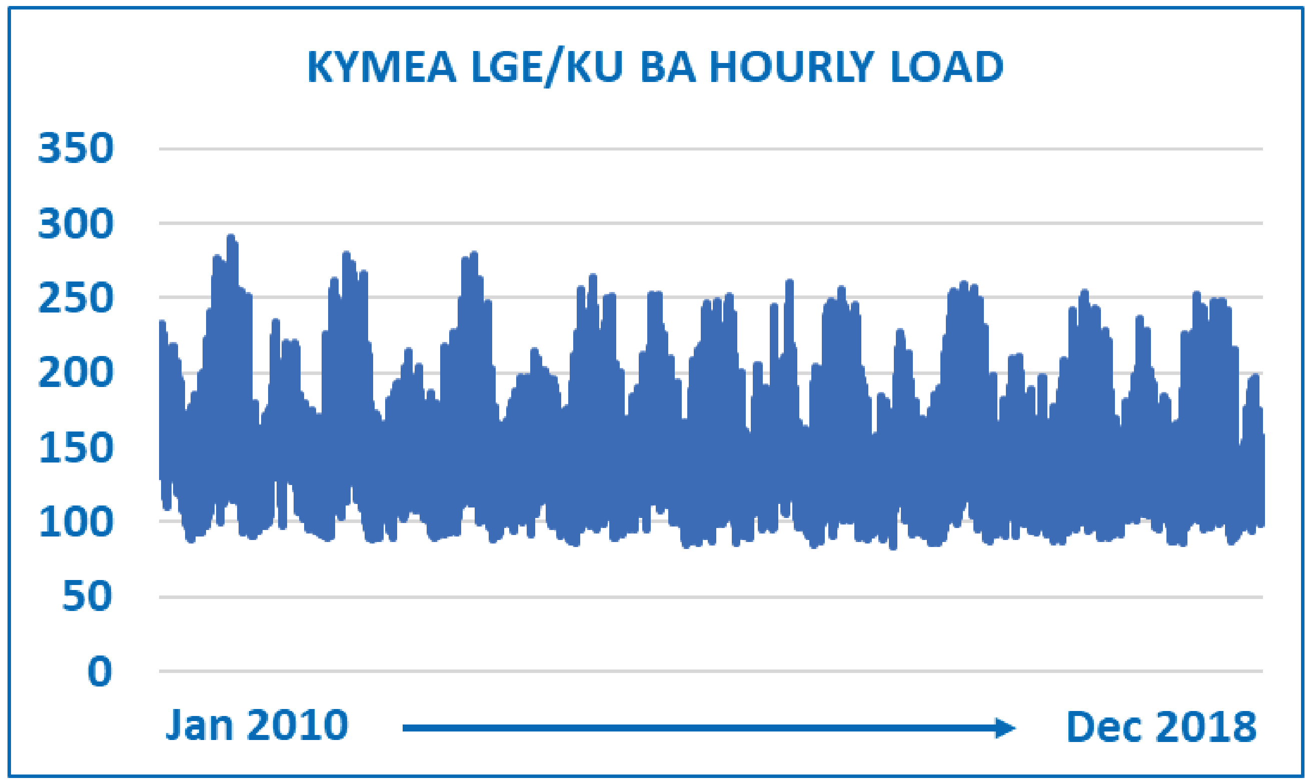
Portfolio Risks

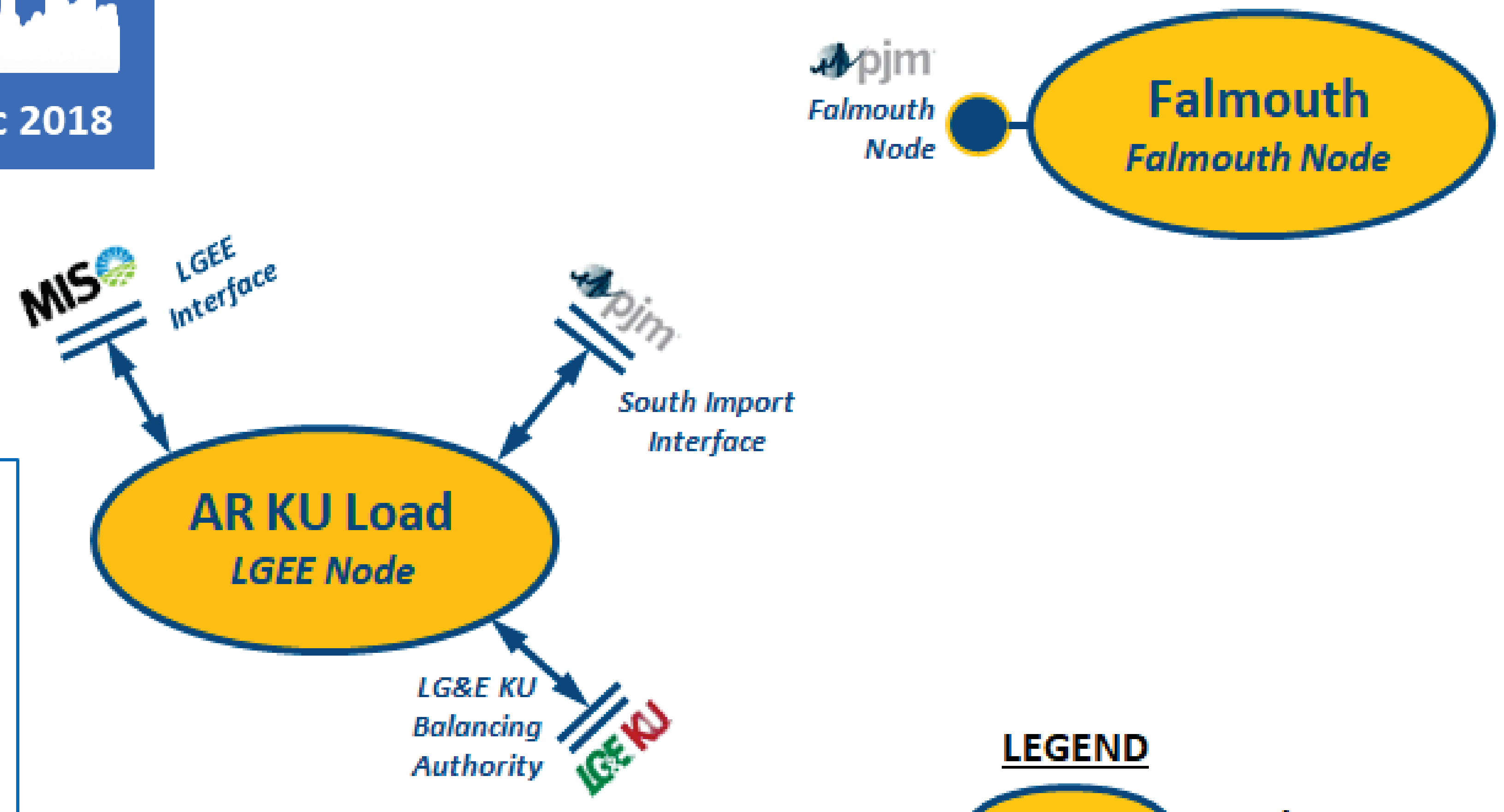
Commodity Market Price Risk
Volumetric Risk

Commodity Market Price Risk



Volumetric Risk



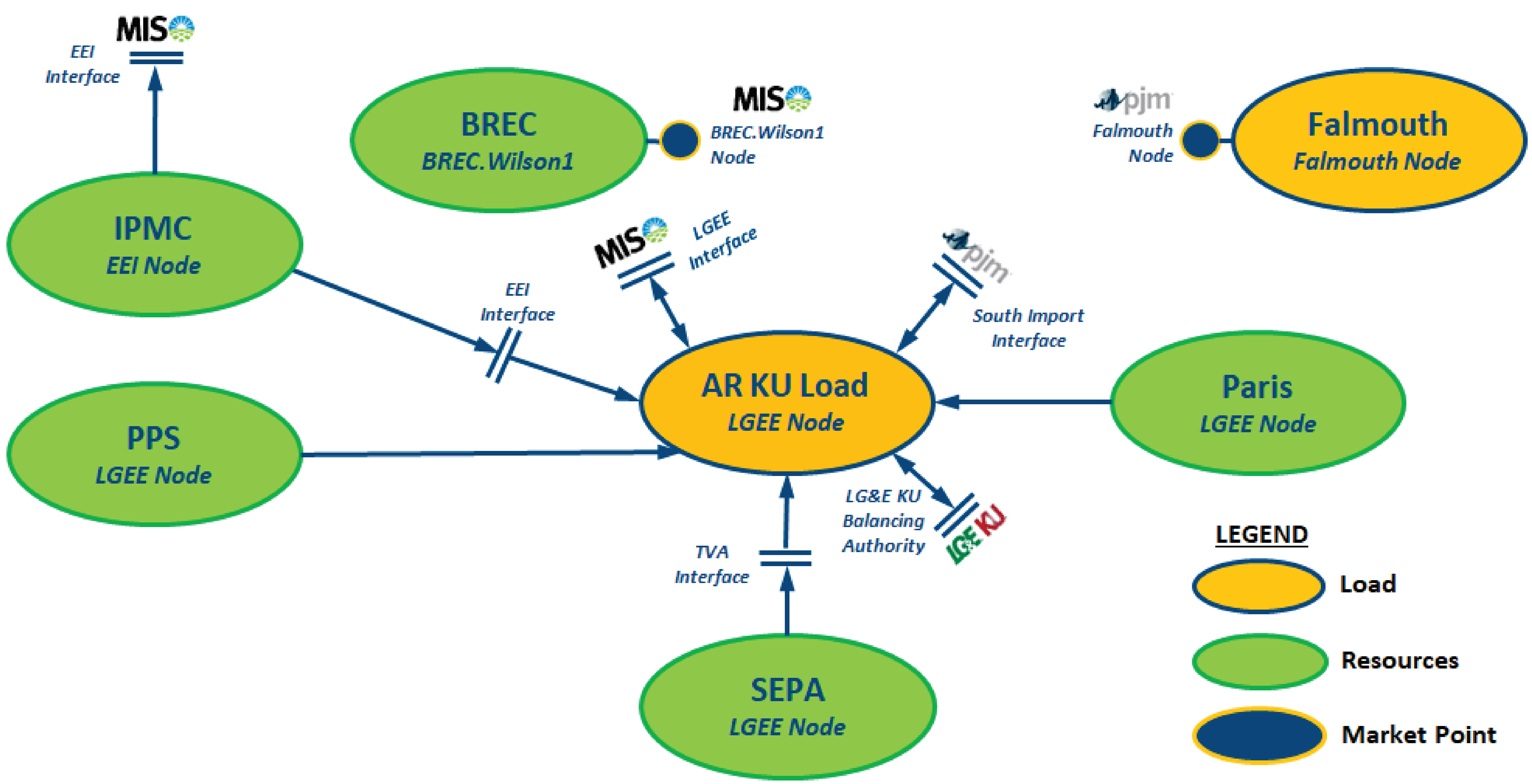


Trading Instruments

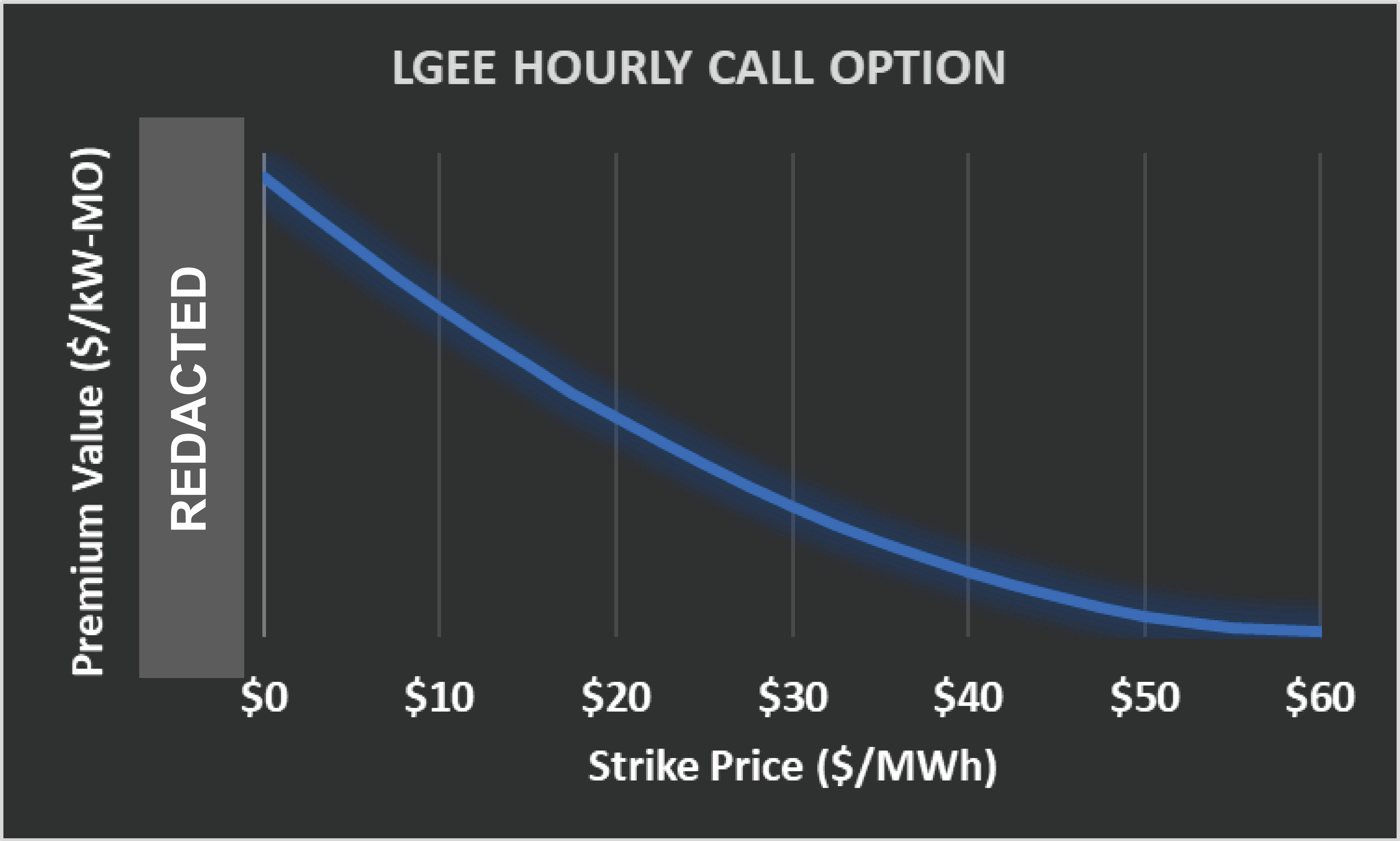
- Swaps (exchange of cash flows)
  - Fixed Price for Floating Price
- Call Options
  - Gives the Buyer the right, but not the obligation, to purchase power at a specified price
- Put Options
  - Gives the Buyer the right, but not the obligation, to sell power at a specified price
- Heat Rate Call Options
  - Gives the Buyer the right, but not the obligation, to purchase power at a specified heat rate (Buyer assumes fuel risk)
- Fuel Hedging
  - Hedging of fuel (coal, NG, diesel) for heat rate call options
  - Hedging of fuel with a high correlation to power

PPA Risk Mitigation

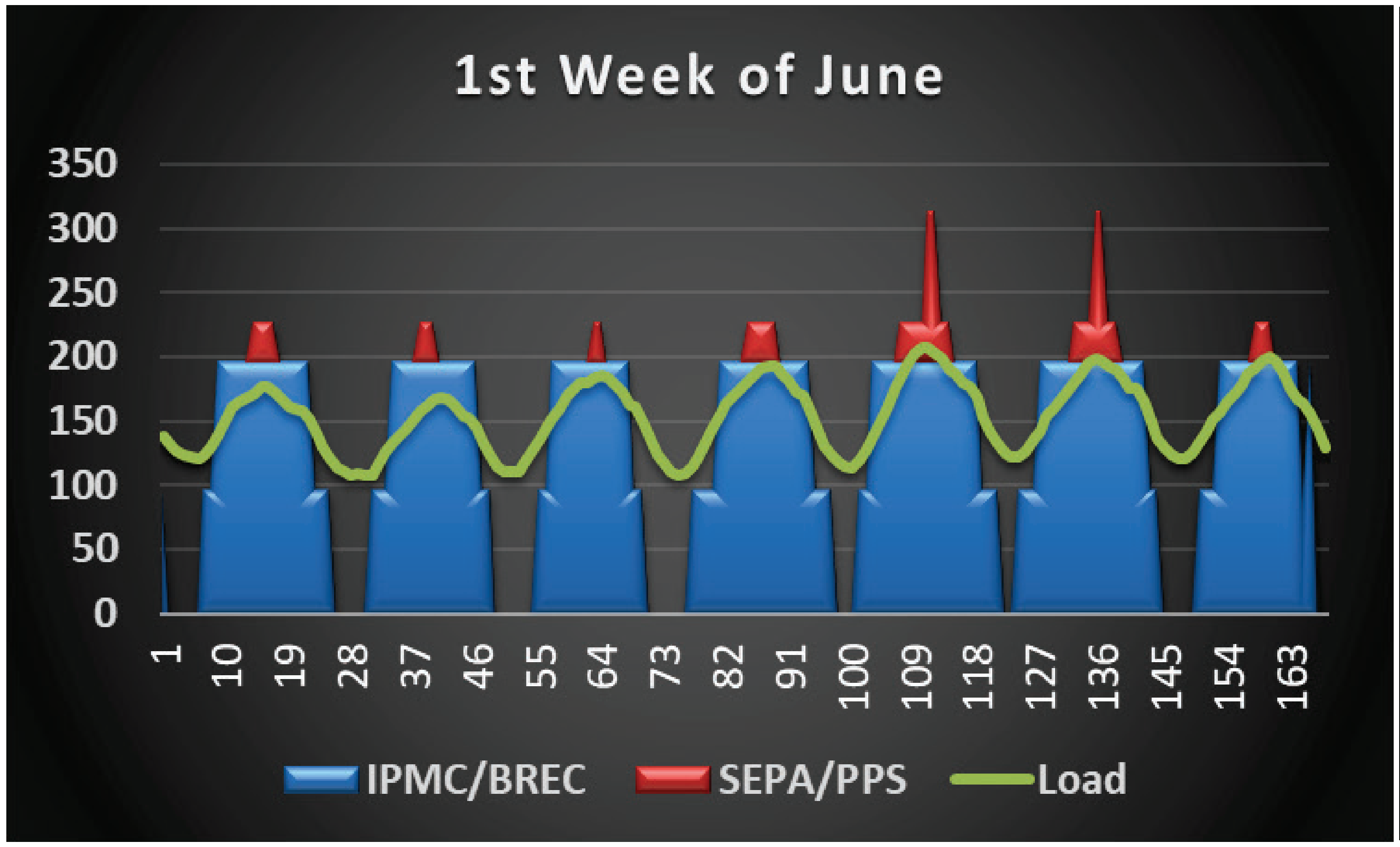
Managing Commodity Market Price Risk and Volumetric Risk with Purchase Power Agreements

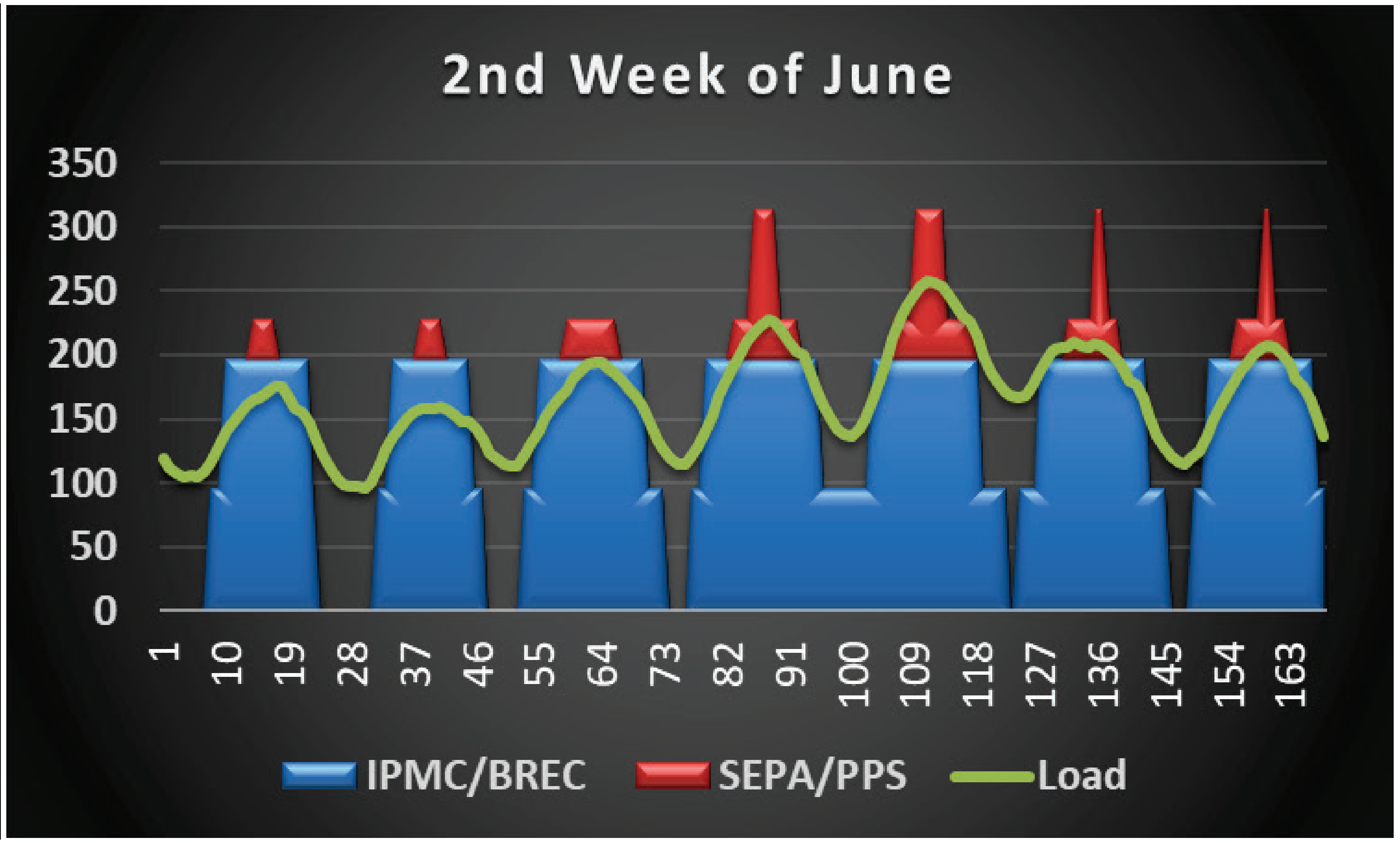


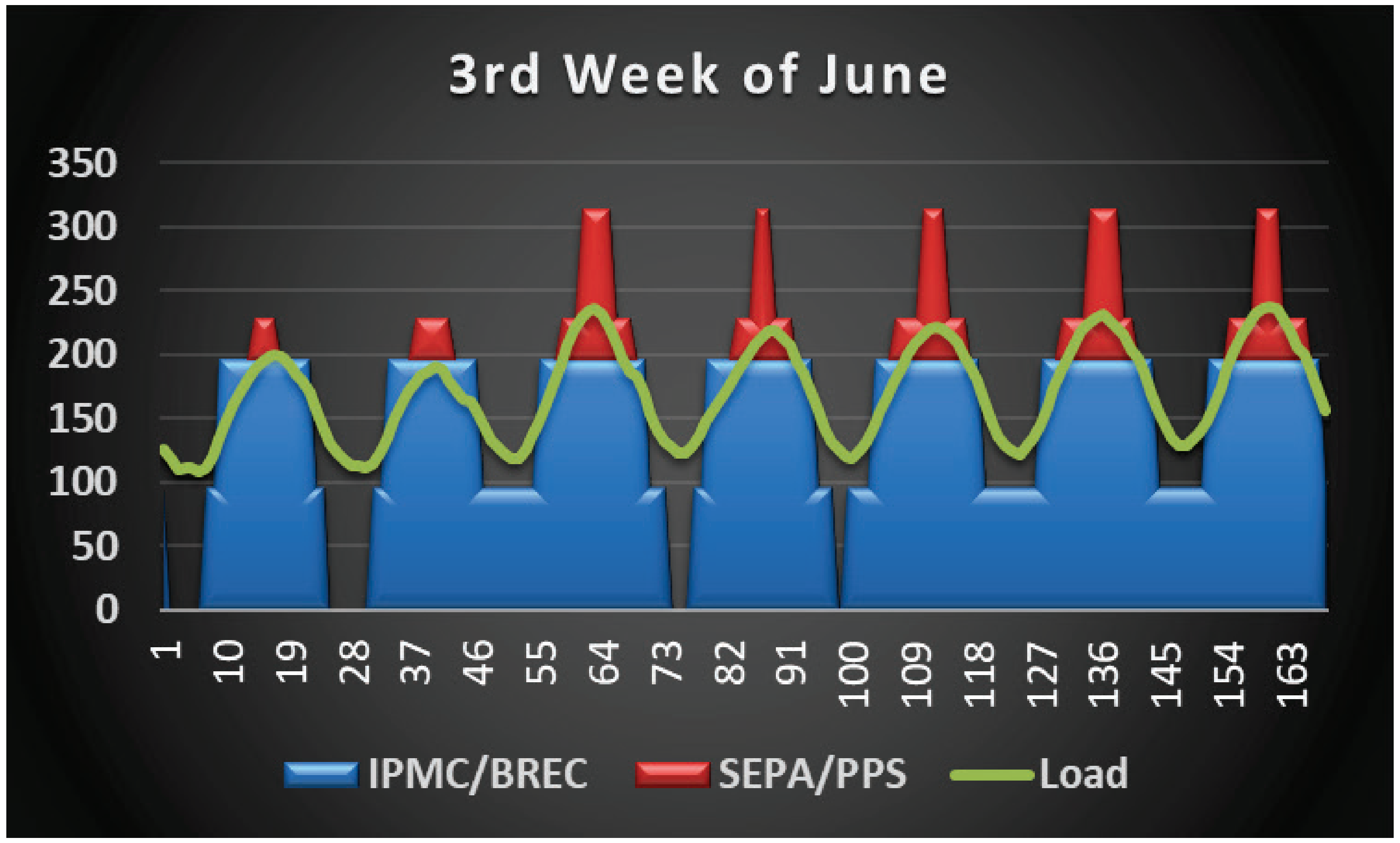
PPA = Hourly Heat Rate Call Options

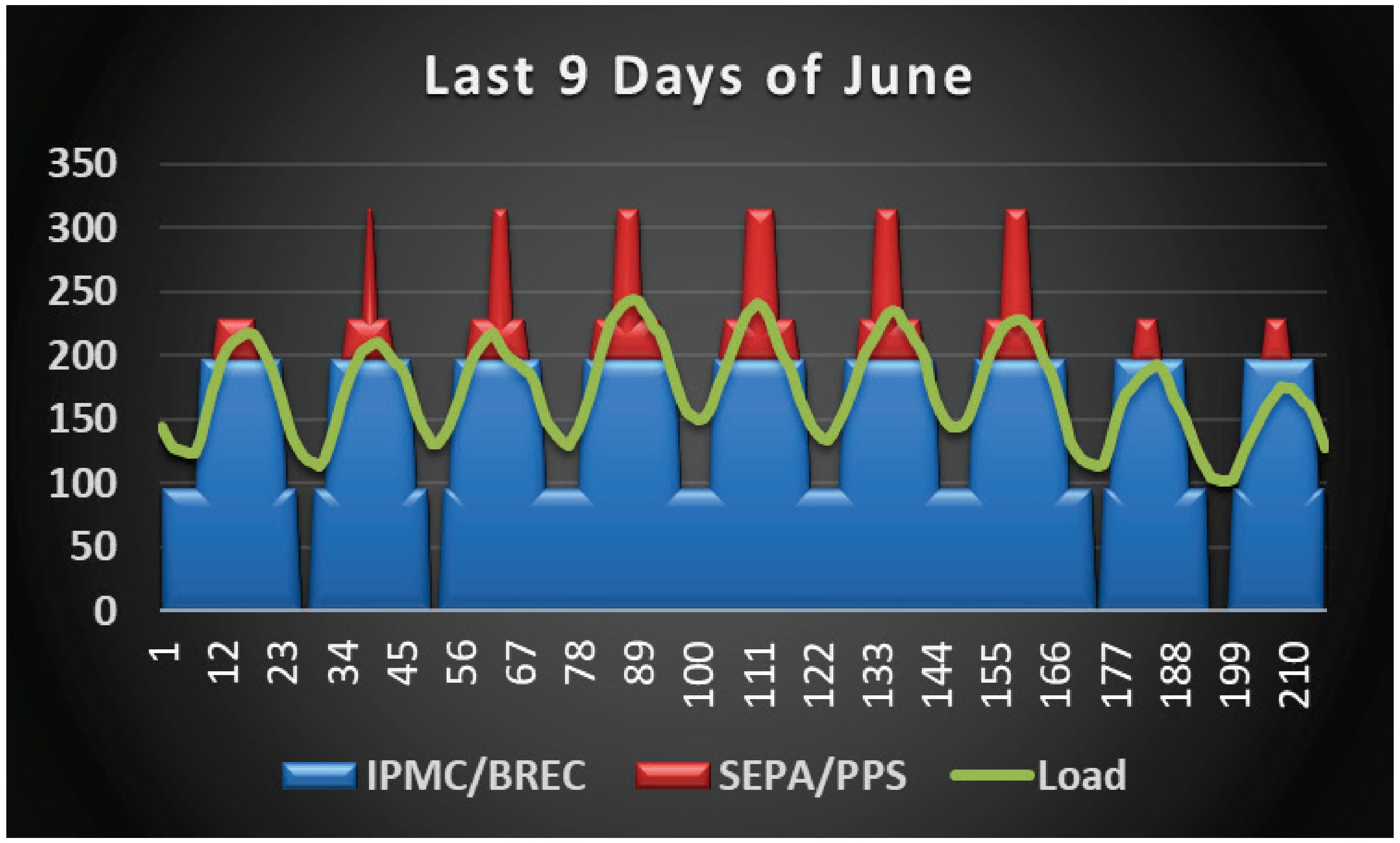


Example - June Dispatch

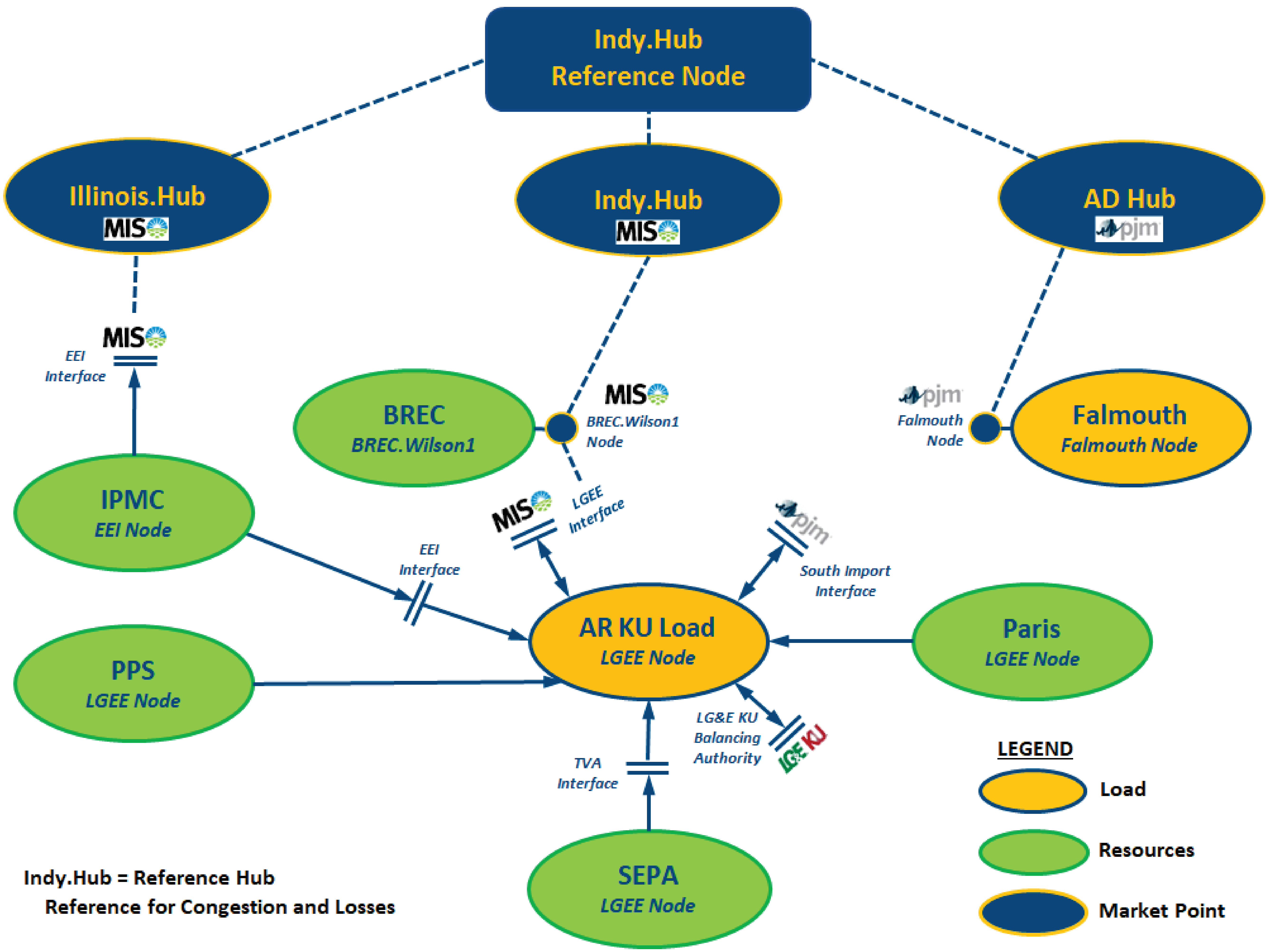






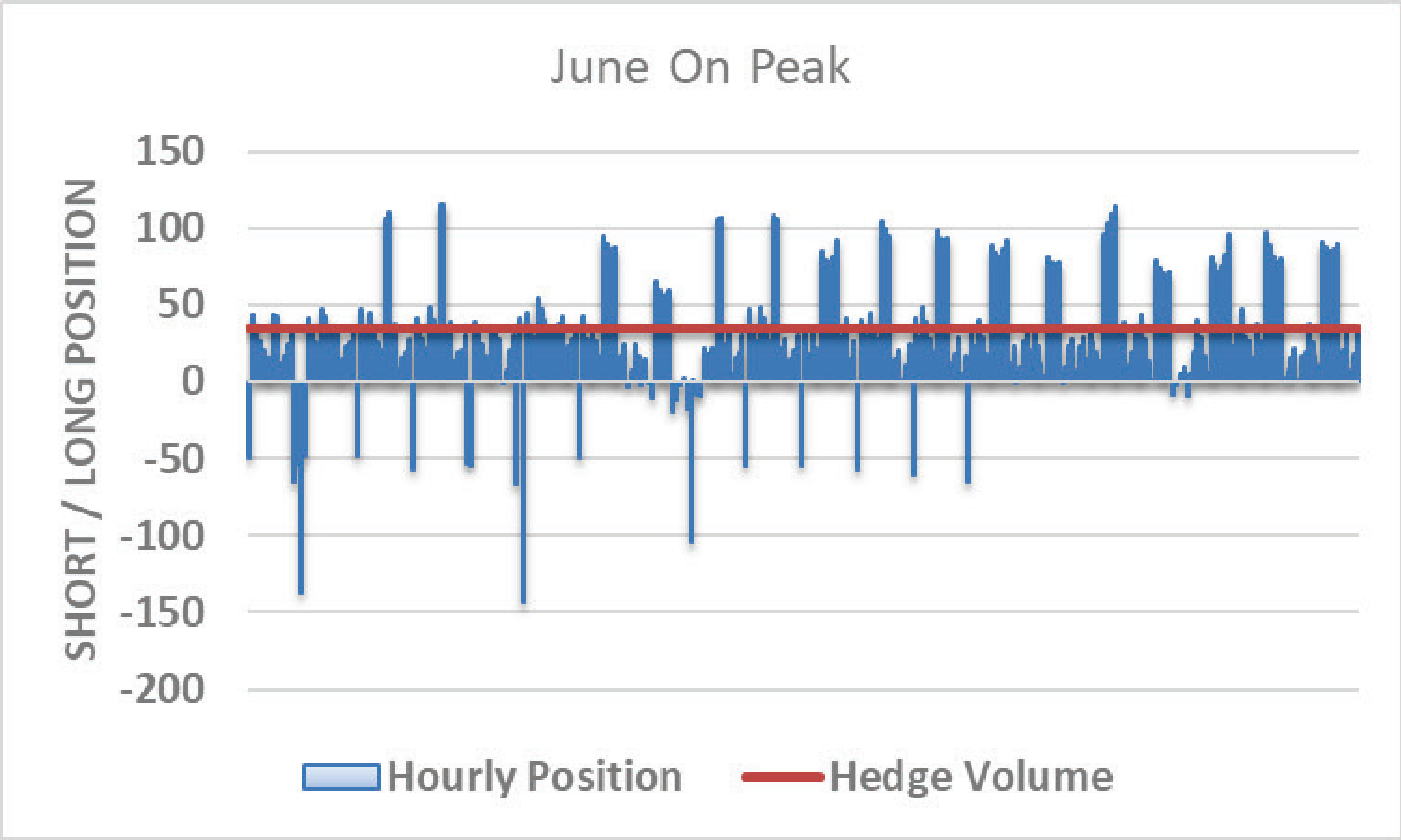


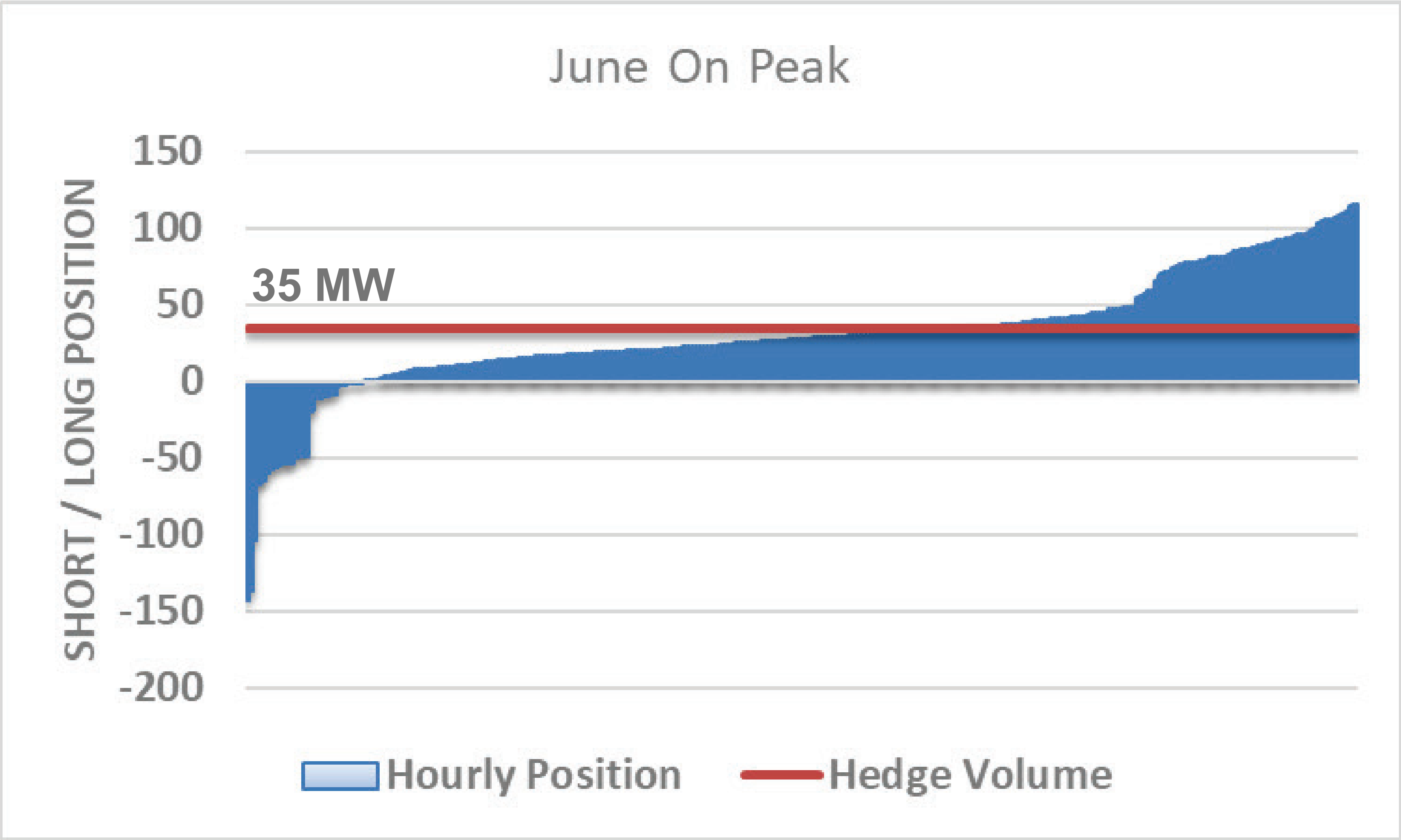
Load with PPA Hedges and Liquid Markets

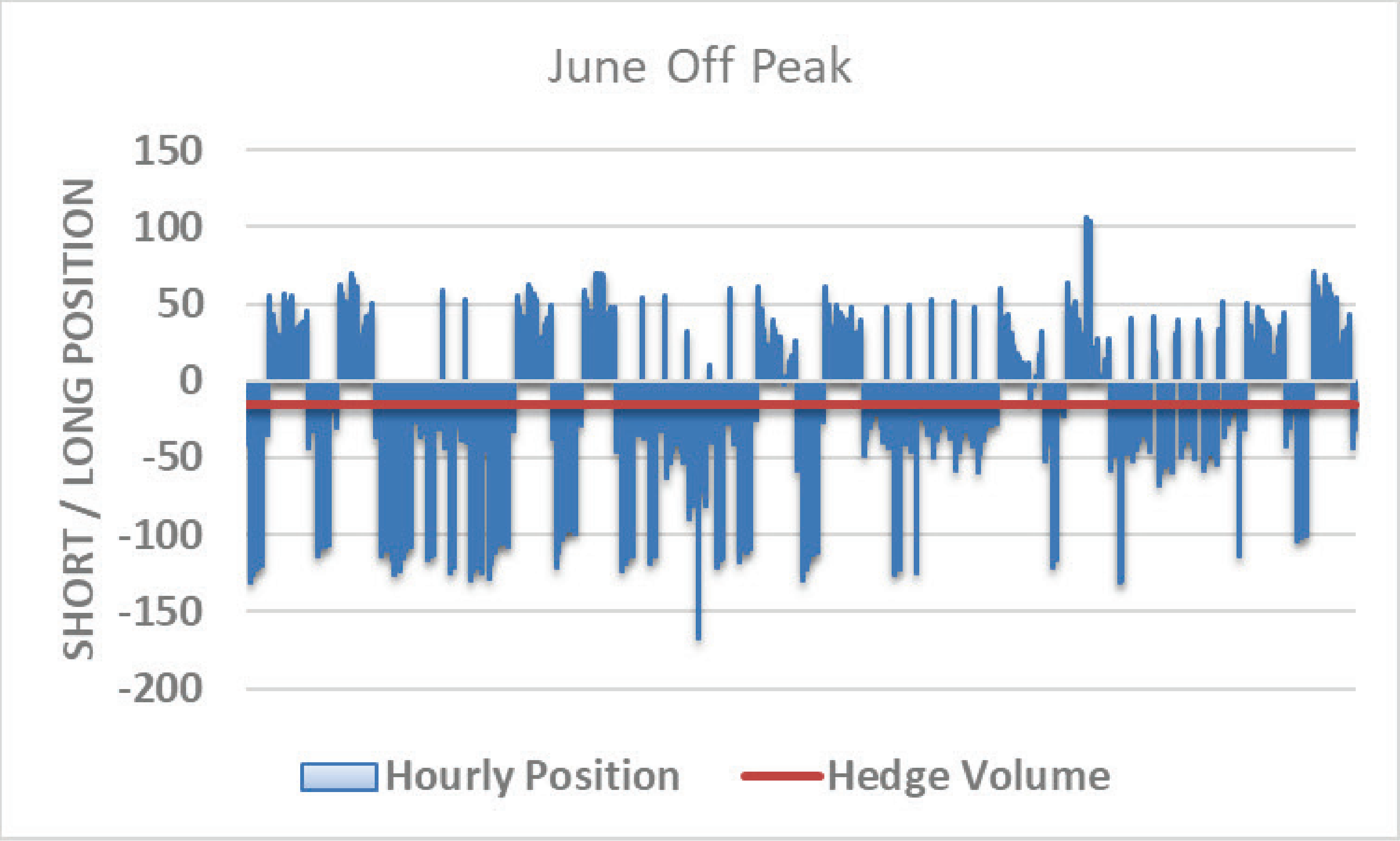


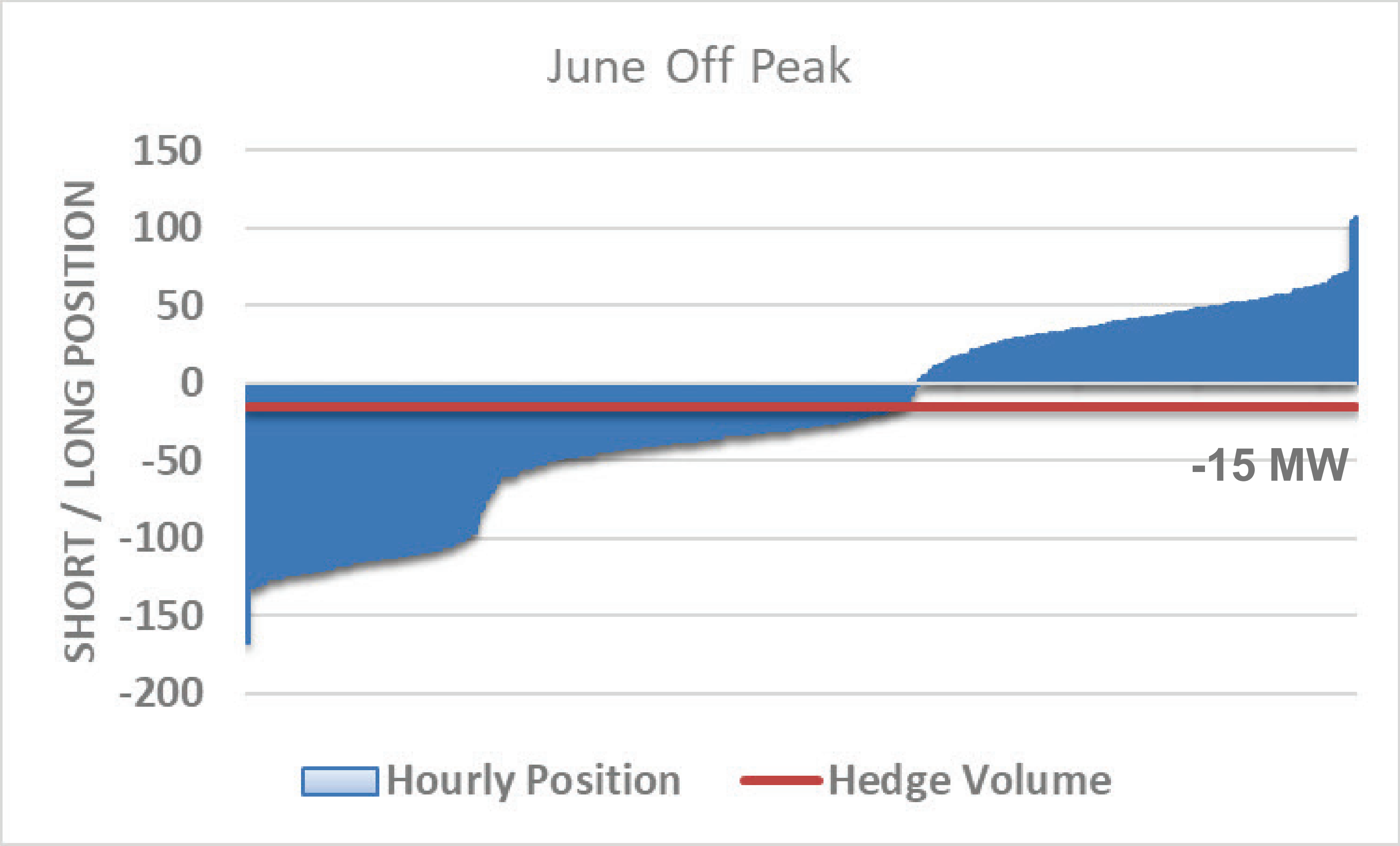
Indy.Hub = Reference Hub
Reference for Congestion and Losses

Example - June Hourly Position









Monthly Position Report

KYMEA will manage its long and short positions via a Position Report.

		On Peak - Position/Market				Off Peak - Position/Market				Tetco M3	Forward	EnCompass		BREC Market Dispatch		
Mth	Year	MW	Forward	EnCompass	Delta	MW	Forward	EnCompass	Delta	Gas	On Pk HR	On Pk HR	On Pk CF	$/MWh	Off Pk CF	$/MWh
1	2019	0	$0.00	$0.00	$0.00	0	$0.00	$0.00	$0.00	$0.00	0	0	0.0%	$0.00	0.0%	$0.00
2	2019	0	$0.00	$0.00	$0.00	0	$0.00	$0.00	$0.00	$0.00	0	0	0.0%	$0.00	0.0%	$0.00
3	2019	0	$0.00	$0.00	$0.00	0	$0.00	$0.00	$0.00	$0.00	0	0	0.0%	$0.00	0.0%	$0.00
4	2019	0	$0.00	$0.00	$0.00	0	$0.00	$0.00	$0.00	$0.00	0	0	0.0%	$0.00	0.0%	$0.00
5	2019	-45	[redacted]	[redacted]	[redacted]	-70	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	99.4%	[redacted]	53.1%	[redacted]
6	2019	35	[redacted]	[redacted]	[redacted]	-15	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	94.4%	[redacted]	40.3%	[redacted]
7	2019	30	[redacted]	[redacted]	[redacted]	-15	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	96.0%	[redacted]	41.3%	[redacted]
8	2019	25	[redacted]	[redacted]	[redacted]	-35	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	94.9%	[redacted]	28.1%	[redacted]
9	2019	50	[redacted]	REDACTED	[redacted]	0	[redacted]	REDACTED	[redacted]	[redacted]	REDACTED	[redacted]	97.8%	[redacted]	43.8%	[redacted]
10	2019	50	[redacted]	[redacted]	[redacted]	20	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	99.7%	[redacted]	47.9%	[redacted]
11	2019	50	[redacted]	[redacted]	[redacted]	-5	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	100.0%	[redacted]	40.3%	[redacted]
12	2019	45	[redacted]	[redacted]	[redacted]	20	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	100.0%	[redacted]	64.2%	[redacted]
	2019	30	[redacted]	[redacted]	[redacted]	-15	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	*97.8%*	[redacted]	*44.8%*	[redacted]

Hedging Program

KYMEA

Fixed Price
Cash Settlement

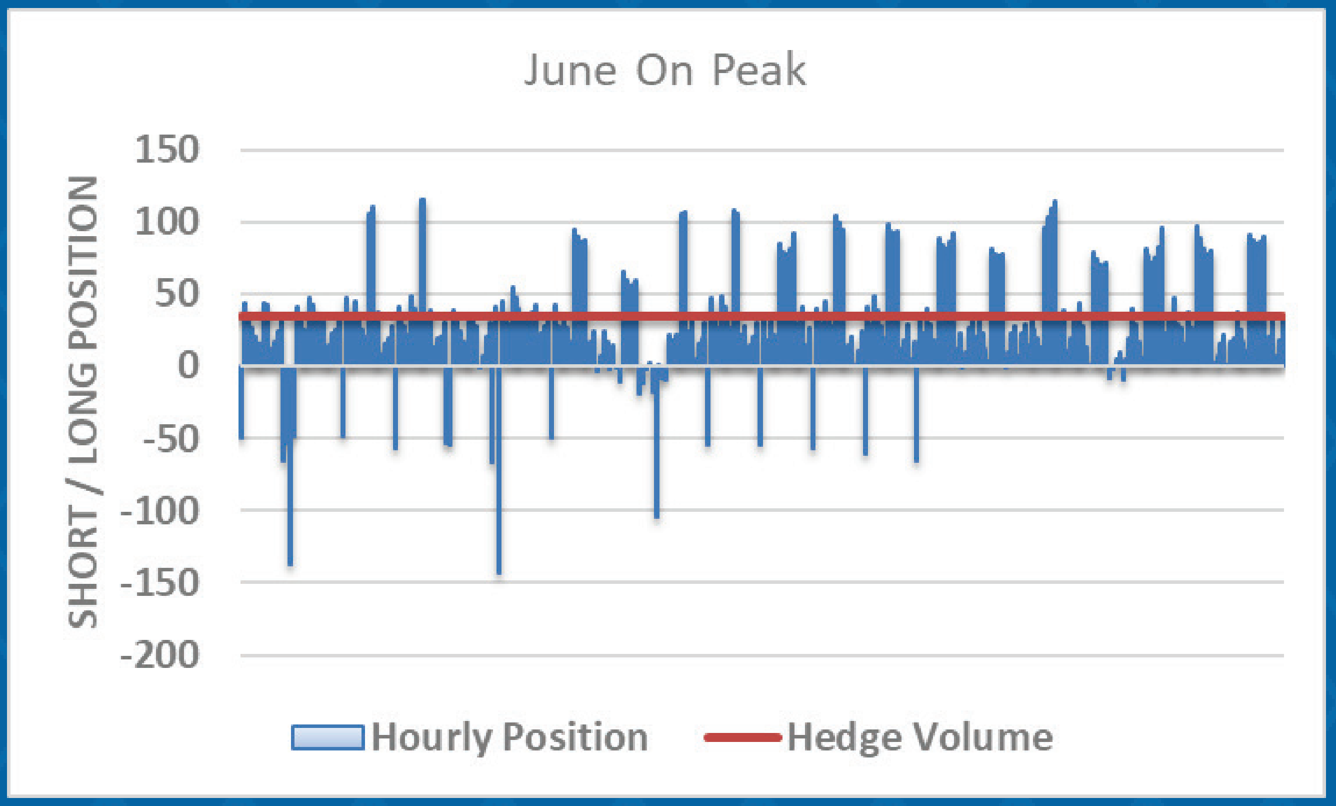
Power Exchange
(e.g. NYMEX)

Floating Index

Physical Delivery

Variable Price

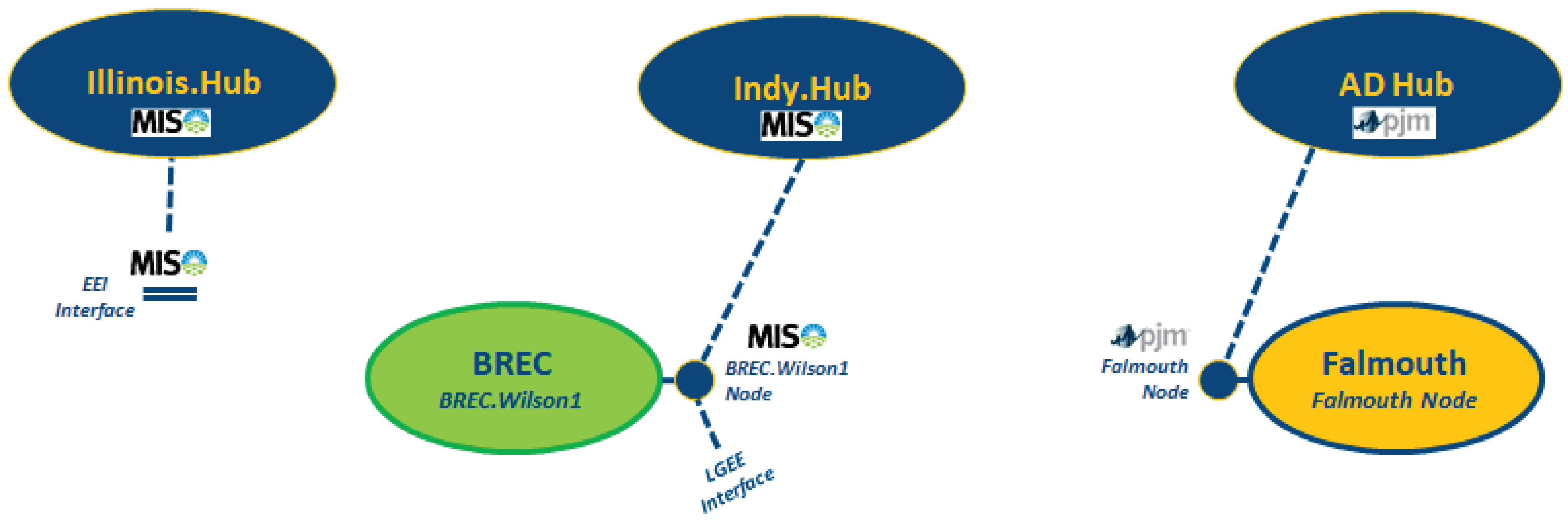
MISO

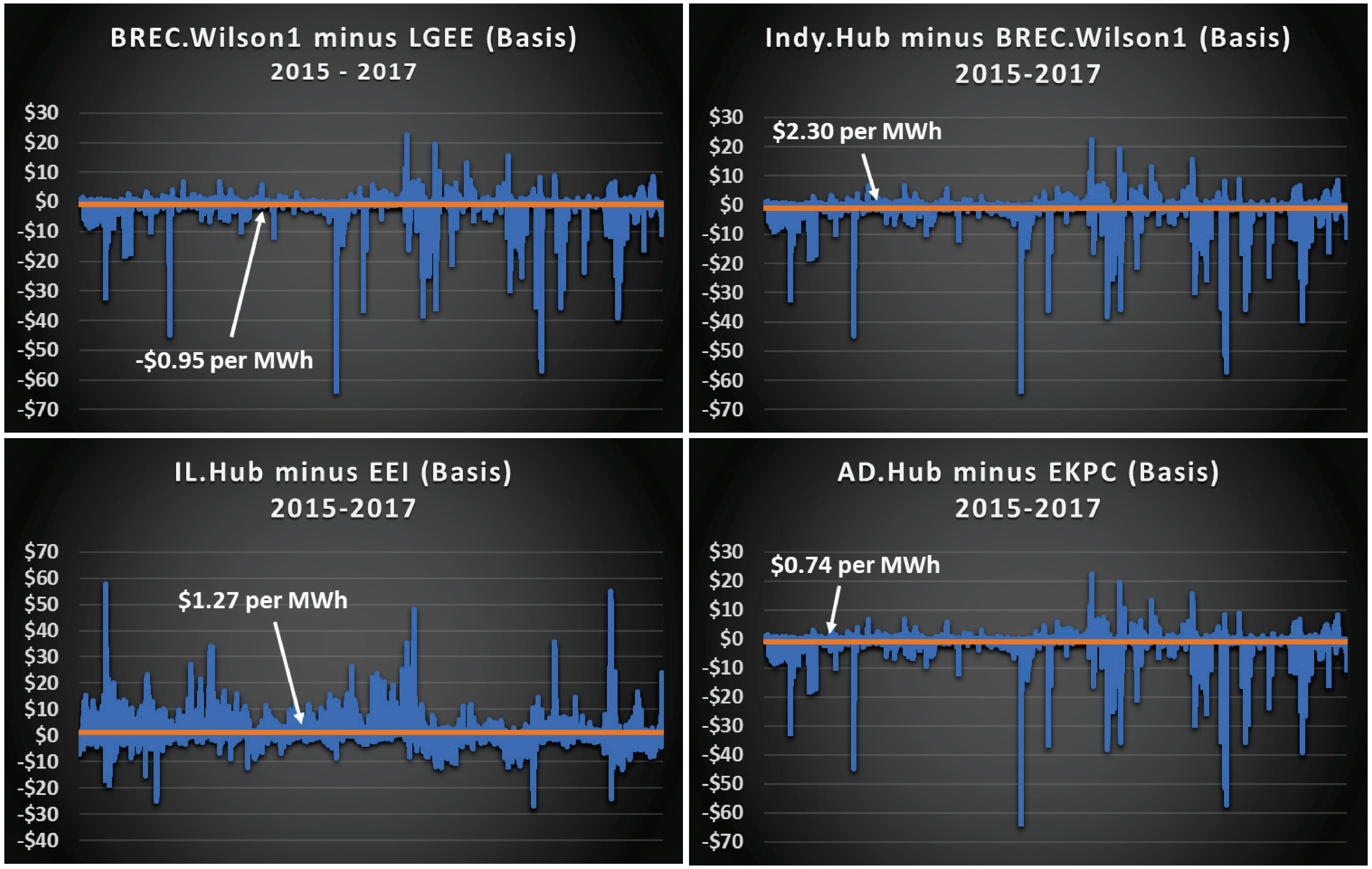


Financial Transmission Rights or FTRs allow market participants to offset potential losses (hedge) related to the price risk of delivering energy to the grid.

FTRs are a financial contract entitling the FTR holder to a stream of revenues (or charges) based on the day-ahead hourly congestion price difference across an energy path.

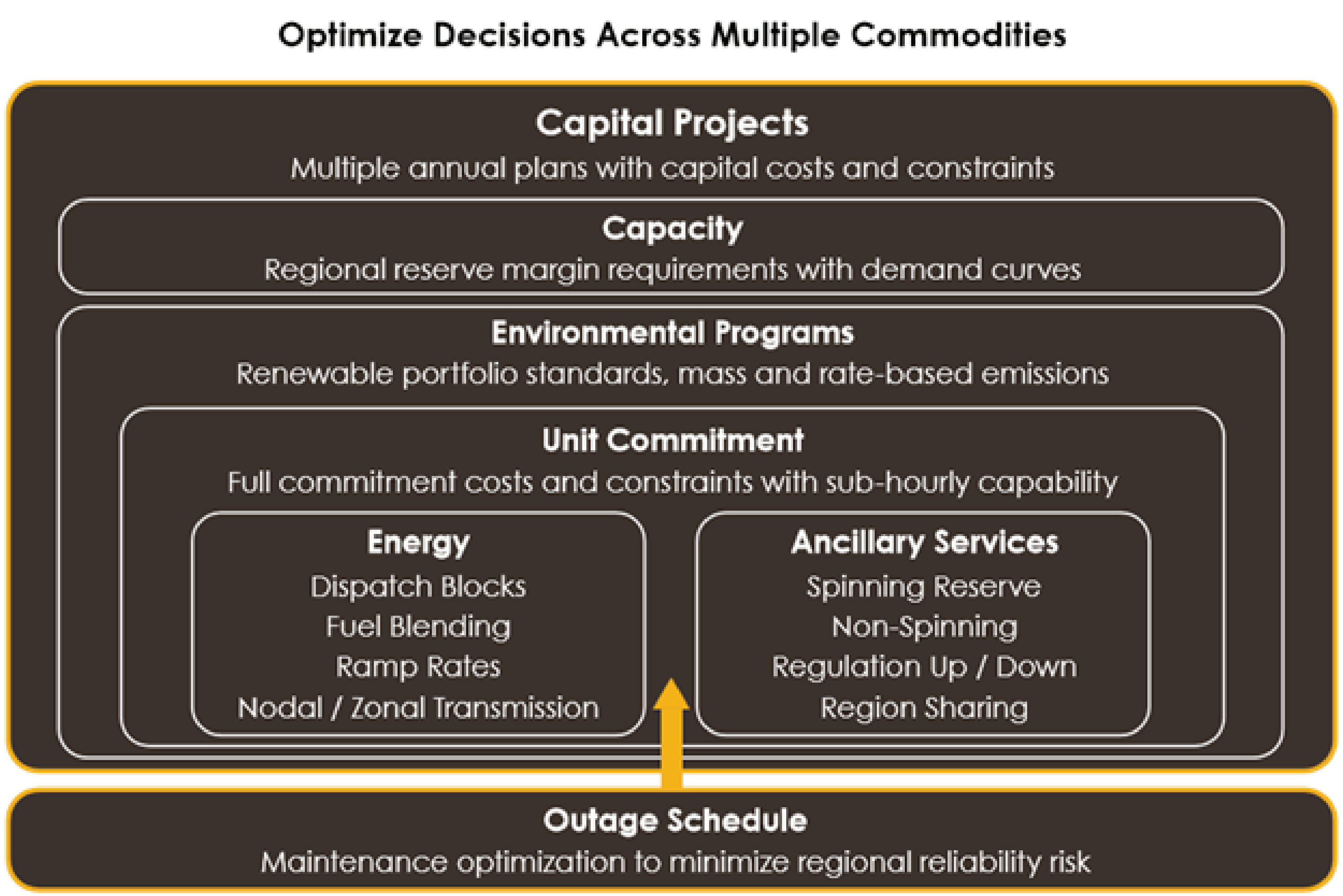
Delivery Risk





Modeling

ENCOMPASS
POWER PLANNING SOFTWARE

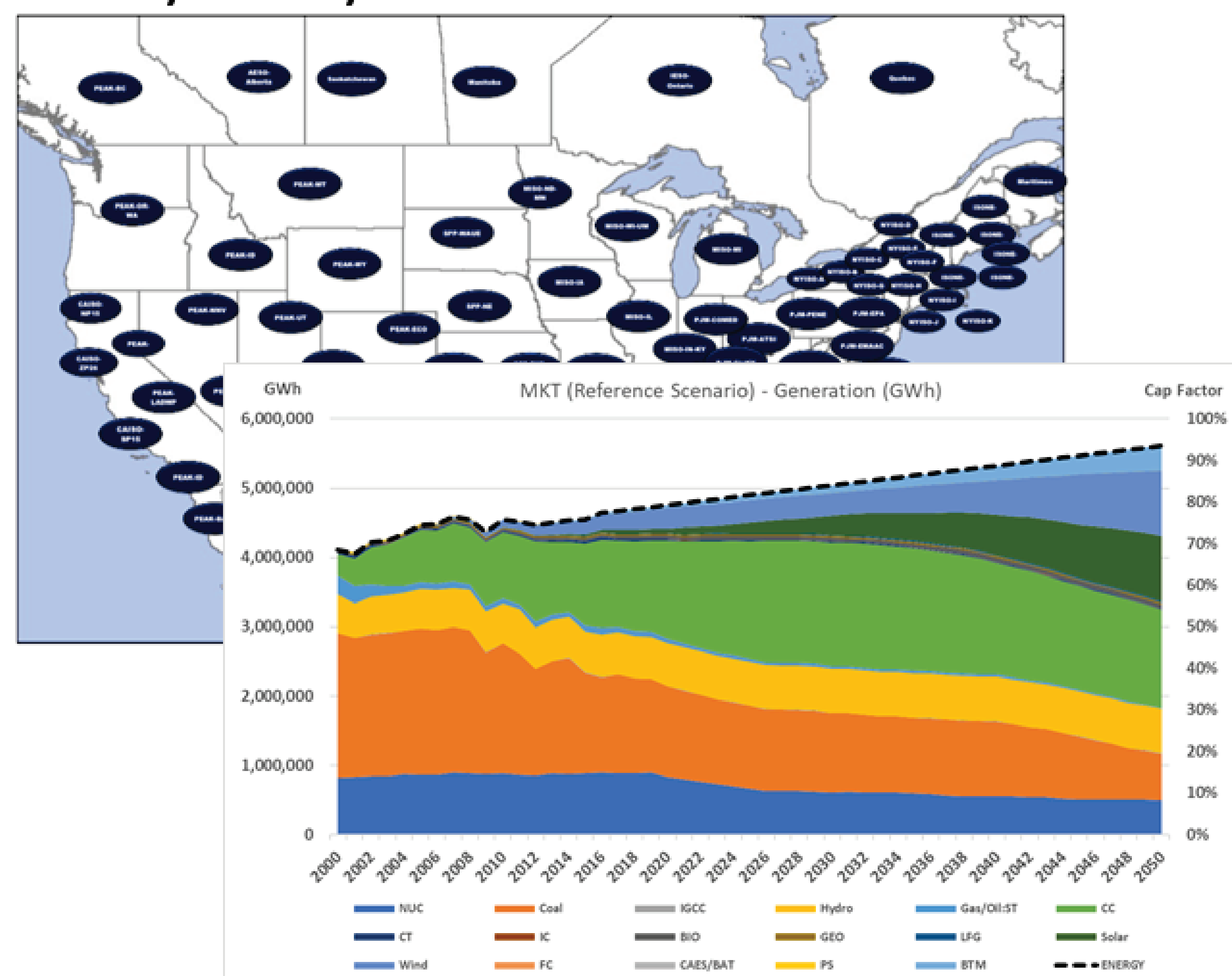


Modeling

- **Mark to Market and Forward Curve**
- **Capacity Prices**
- **Portfolio Optimization**
- **Integrated Resource Planning**
- **Transmission Planning**

National Database

Market Price Forecasting
Policy Analysis



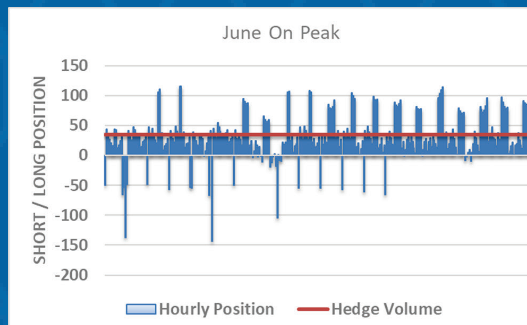
Modeling/Financial Workflow

1 Budget Pro Forma

KYMEA - Pro Forma

Line No.	Month / Item	Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020	Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020
	Revenue												
1	AR Project	$ 7,934,079	$ 7,833,750	$ 7,210,226	$ 6,044,441	$ 5,999,882	$ 6,589,337	$ 6,839,847	$ 6,432,711	$ 6,025,348	$ 5,699,333	$ 6,660,718	$ 7,412,702
2	Transmission Services	56,962	56,477	54,276	41,801	47,697	58,059	73,796	65,434	53,807	43,787	49,707	56,090
3	Energy Services	44,470	41,218	35,355	31,566	29,100	32,001	34,042	28,343	29,781	28,190	38,026	42,593
4	Market Sales	-	-	-	-	-	-	-	-	-	-	-	-
5	ST - Revenue	$ 8,035,510	$ 7,931,445	$ 7,299,857	$ 6,117,808	$ 6,076,679	$ 6,679,397	$ 6,947,685	$ 6,526,488	$ 6,108,936	$ 5,771,310	$ 6,748,451	$ 7,511,385
	Expenses												
6	Purchased Power	$ 6,072,022	$ 5,964,593	$ 5,225,455	$ 4,871,137	$ 4,996,832	$ 5,227,136	$ 5,398,346	$ 5,069,711	$ 4,900,517	$ 4,934,140	$ 5,429,618	$ 5,947,971
7	Transmission Services	903,033	887,349	820,253	663,199	672,644	744,059	791,323	740,601	666,204	631,239	758,167	849,286
8	Energy Service, Schedule and Dispatch	41,613	41,613	41,613	41,613	41,613	41,613	41,613	41,613	41,613	41,613	41,613	41,613
9	Administration & General	192,757	192,688	192,688	192,021	190,902	207,371	215,654	215,654	217,604	219,827	219,552	218,361
10	ST - Operating Expenses	$ 7,209,425	$ 7,086,243	$ 6,280,009	$ 5,767,970	$ 5,901,991	$ 6,220,180	$ 6,446,936	$ 6,067,580	$ 5,825,937	$ 5,826,819	$ 6,448,949	$ 7,057,232
11	**Operating Income**	$ 826,085	$ 845,202	$ 1,019,848	$ 349,838	$ 174,687	$ 459,217	$ 500,749	$ 458,908	$ 282,998	$ (55,509)	$ 299,502	$ 454,153
	Non-Operating Expenses												
12	Depreciation	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169
13	Interest Payment	34,029	34,029	32,929	34,029	32,929	34,029	34,029	31,830	34,029	32,929	34,029	32,929
14	Other Non-Operating Expense	-	-	-	-	-	-	-	-	-	-	-	-
15	ST - Non-Operating Expense	$ 57,198	$ 57,198	$ 56,098	$ 57,198	$ 56,098	$ 57,198	$ 57,198	$ 54,999	$ 57,198	$ 56,098	$ 57,198	$ 56,098
16	Net Margin	768,887	788,004	963,750	292,640	118,589	402,019	443,551	403,909	225,801	(111,608)	242,304	398,055
17	**Funds Available for Debt Service and Capital**	**$ 826,085**	**$ 845,202**	**$ 1,019,848**	**$ 349,838**	**$ 174,687**	**$ 459,217**	**$ 500,749**	**$ 458,908**	**$ 282,998**	**$ (55,509)**	**$ 299,502**	**$ 454,153**

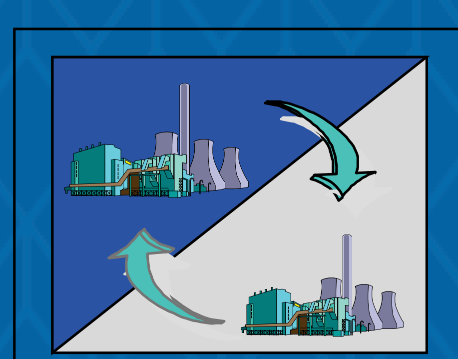
4 Risk Management Hedge Adjustments



2 Actual Month

Jul 2020
$ 8,047,234
57,861
44,470
-
$ 8,149,565
$ 6,215,163
918,250
42,778
237,592
$ 7,413,783
$ 735,782
$ 23,169
34,029
-
$ 57,198
678,584
$ 735,782

3 Projected Months



Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020	Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020
$ 7,935,837	$ 7,313,806	$ 6,130,334	$ 6,082,731	$ 6,674,236	$ 6,941,972	$ 6,434,980	$ 6,115,493	$ 5,784,827	$ 6,761,314	$ 7,514,284
57,218	55,100	42,424	48,455	58,863	74,744	67,572	54,644	44,582	50,529	57,006
41,218	35,355	31,566	29,100	32,001	34,042	28,343	29,781	28,190	38,026	42,593
-	-	-	-	-	-	-	-	-	-	-
$ 8,034,273	$ 7,404,261	$ 6,204,323	$ 6,160,286	$ 6,765,101	$ 7,050,758	$ 6,530,895	$ 6,199,918	$ 5,857,600	$ 6,849,868	$ 7,613,883
$ 6,269,145	$ 5,436,216	$ 5,059,056	$ 5,204,792	$ 5,345,077	$ 5,502,808	$ 5,238,107	$ 4,971,672	$ 4,986,171	$ 5,497,639	$ 6,085,384
900,263	836,870	676,099	685,844	757,370	805,415	768,125	679,621	644,130	773,379	865,241
42,778	42,778	42,778	42,778	42,778	42,778	42,778	42,778	42,778	42,778	42,778
237,592	237,133	235,534	235,277	235,277	240,881	240,881	241,147	243,798	243,514	242,288
$ 7,449,778	$ 6,552,998	$ 6,013,468	$ 6,168,692	$ 6,380,502	$ 6,591,882	$ 6,289,892	$ 5,935,218	$ 5,916,876	$ 6,557,310	$ 7,235,691
$ 584,495	$ 851,263	$ 190,855	$ (8,406)	$ 384,599	$ 458,876	$ 241,004	$ 264,700	$ (59,276)	$ 292,558	$ 378,192
$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169	$ 23,169
34,029	32,929	34,029	32,929	34,029	34,029	30,730	34,029	32,929	34,029	32,929
-	-	-	-	-	-	-	-	-	-	-
$ 57,198	$ 56,098	$ 57,198	$ 56,098	$ 57,198	$ 57,198	$ 53,900	$ 57,198	$ 56,098	$ 57,198	$ 56,098
527,297	795,165	133,657	(64,504)	327,401	401,678	187,104	207,502	(115,375)	235,360	322,094
$ 584,495	**$ 851,263**	**$ 190,855**	**$ (8,406)**	**$ 384,599**	**$ 458,876**	**$ 241,004**	**$ 264,700**	**$ (59,276)**	**$ 292,558**	**$ 378,192**

Enterprise-Wide Risks

- Commodity Market Price Risk
- Volumetric Risk
- Concentration Risk (lack of diversity)
- Counterparty Contract and Credit Risk
- Delivery Risk
- Operational Risk
- Financial Risk
- Operations Risk
- Regulatory Compliance Risk
- Reliability Compliance Risk
- Physical and Cyber Security Risk
- Business Interruption Risk

Enterprise Risks

Organizational Structure/Hierarchy

KYMEA Board of Directors

Provides Report to Board (at least annually)

Board Risk Oversight Committee (BROC)

Provides Report to BROC (Quarterly)

Internal Risk Committee (IRC)

Hedge Strategy (at least quarterly)

Board of Directors

- **Establishes Risk Tolerance**
- **Approves Risk Management Policies**
- **Approves Initial Risk Management Procedures**

BROC Voting Members

- **Board Member**
- **AR Project Committee Member**
- **CEO**
- **CFO**
- **Legal Counsel**

1. **KYMEA Board Appointments**
2. **BROC Chairperson**

IRC Members

- **CEO (IRC Chair)**
- **Vice President of Market Analytics**
- **CFO**
- **Legal Counsel**

ACES Power Marketing acts as KYMEA's Agent and provides a second layer of risk oversight.

ACES Role of Energy Services Partner		KYMEA Division of Duties	
FRONT OFFICE SERVICES	• Portfolio Strategy • Short-Term Trading and Operations • Short-Term Load Forecasting • Origination and Long-Term Trading • Portfolio Dispatch and Optimization • Delegated Electric Reliability Standard Compliance • Power Transmission Scheduling and Tagging • Physical Gas Trading and Scheduling • Financial Gas Trading • Gas Service Consulting • Coal and Emissions Consulting • Renewable Analysis and Transactions • Financial Transmission Right Evaluations and Hedge Execution • Transmission Analysis and Advice • Long-Term Generation and Transmission Planning Studies • Standard Portfolio Model and Risk Analytics	Market Analytics	**Front Office: Coordinates and handles all the needs with respect to hedging and 24 hour dispatch operations.** ***Responsibility: Vice President, Market Analytics*** **Internal Risk Committee (IRC)**
MIDDLE OFFICE SERVICES	• Credit Analysis and Counterparty Monitoring • Credit Exposure Monitoring and Management • Credit Negotiations • Credit Reports • ISO/RTO Credit Monitoring Service • Master Agreement Negotiations • Emissions Allowances and Renewable Energy Credits Agreement Negotiations • Contract Monitoring and Administration • Trade Capture and Validation • Policy Compliance Monitoring • Forward Curve Development and Mark-to-Market Valuations • Risk Management Policy Development • Education and Training • Regulatory and Market Development Participation • Reliability Compliance Consulting • Dodd-Frank Compliance	Accounting and Finance	**Middle Office: Ensures the control and processing of the Front Office.** **Back Office: Monitors the post-market processing of transactions: confirmation, payment, settlement and accounting.** ***Responsibility: Vice President, Finance and Accounting and CFO*** **Internal Risk Committee (IRC)** ***Subject to External Audit***
BACK OFFICE SERVICES	• Bilateral Power and Transmission Settlements • Bilateral Natural Gas and Transportation Settlements • RTO/ISO Pool Settlements • Energy Imbalance Validation • Cost Allocation Settlement Model • Electric Quarterly Report (EQR) Filing Support		

Board Action

- Enterprise Risk Management Policy on Portal for Board Action
- Election of Board Risk Oversight Committee (BROC)
  - Two Board Directors or Alternates (at least one from AR Project)
  - Selection of BROC Chairman