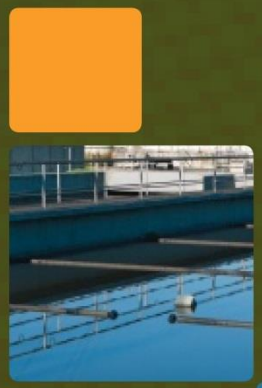




Kentucky Municipal Energy Agency
A Regional Power Supply Solution

April 6, 2016

NewGen Strategies & Solutions

ECONOMICS STRATEGY STAKEHOLDERS SUSTAINABILITY

www.newgenstrategies.net

Today's Discussion

Objective – Achieve a better understanding of KyMEA and current efforts to improve Kentucky municipals' power supply plan and to develop a path forward

Topics

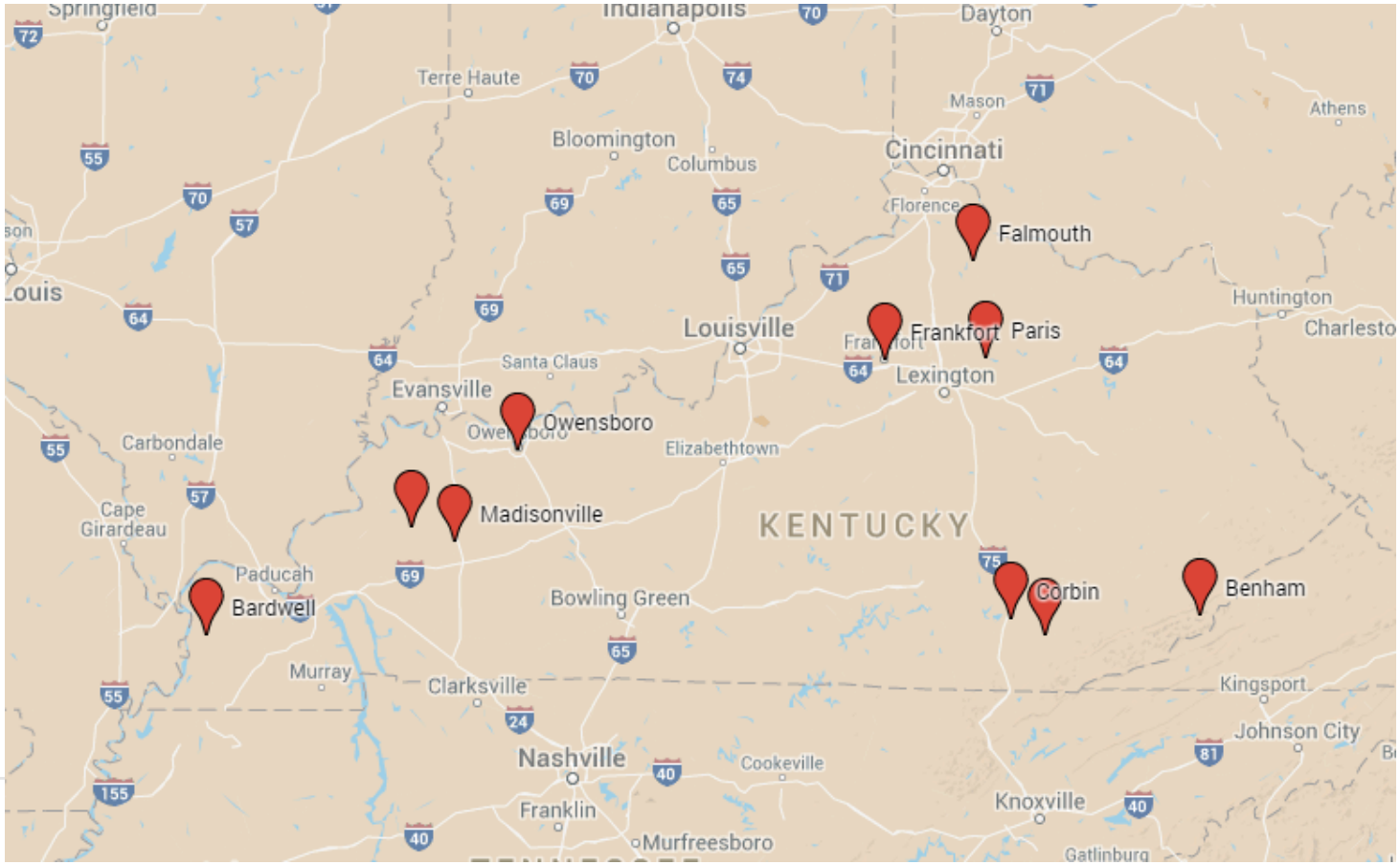
1. Kentucky Municipals' Power Supply Situation
2. Historical Perspective – Recognizing the Opportunity for Change
3. Forming a Strategy for the Future
   - Creating a New Agency
   - Expected benefits
4. Progress on Power Supply Planning
   - Status of Current Implementation Efforts

KyMEA's 10 Kentucky Municipal Members

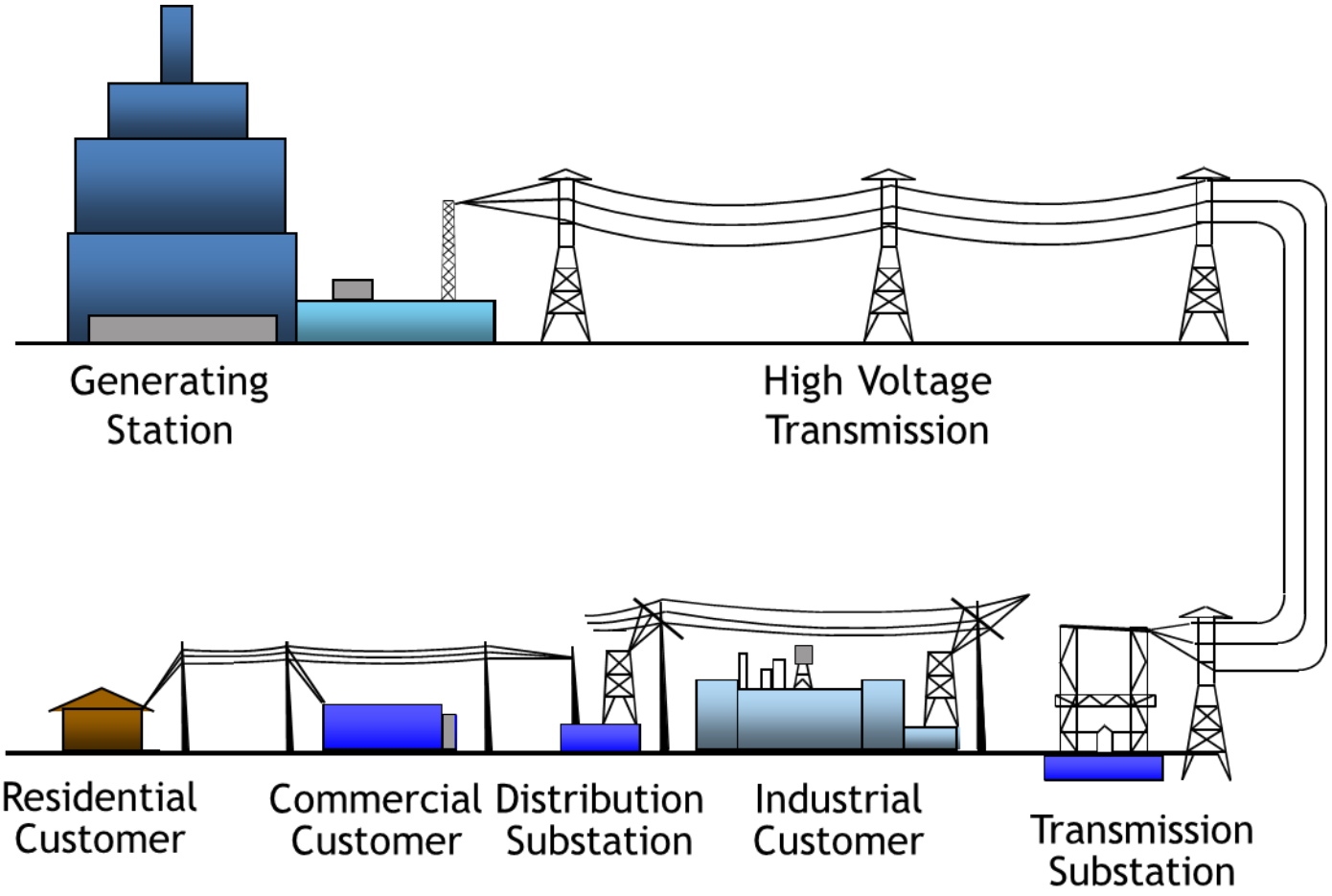
1	Barbourville Utility Commission
2	City of Bardwell
3	Benham Power Board
4	Corbin City Utilities Commission
5	City of Falmouth
6	Frankfort Plant Board
7	City of Madisonville
8	Owensboro Municipal Utilities
9	City of Paris
10	City of Providence

KyMEA's 10 Kentucky Municipal Members

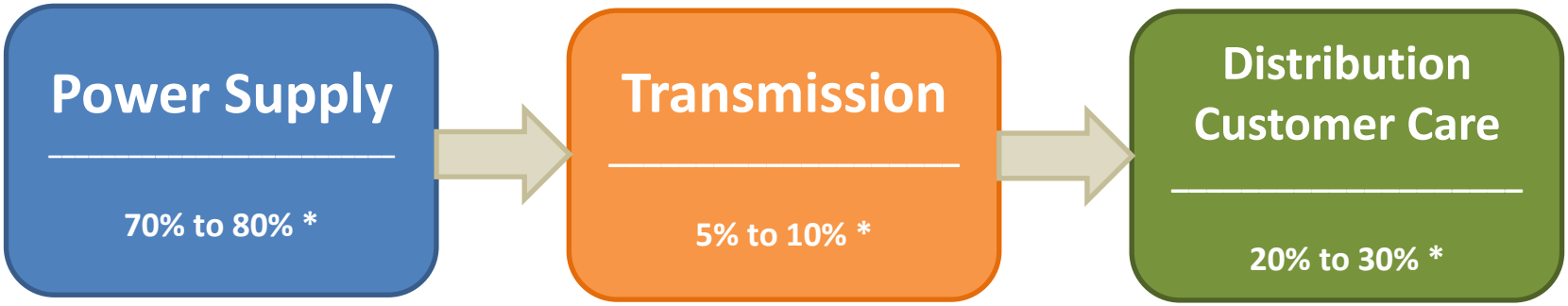
- Corbin
- Barbourville
- Benham
- Paris
- Frankfort
- Falmouth
- Madisonville
- Providence
- Owensboro
- Bardwell



Power Supply System in the US



Municipal Customer's Electrical Needs are Met through a Coordinated Business Structure

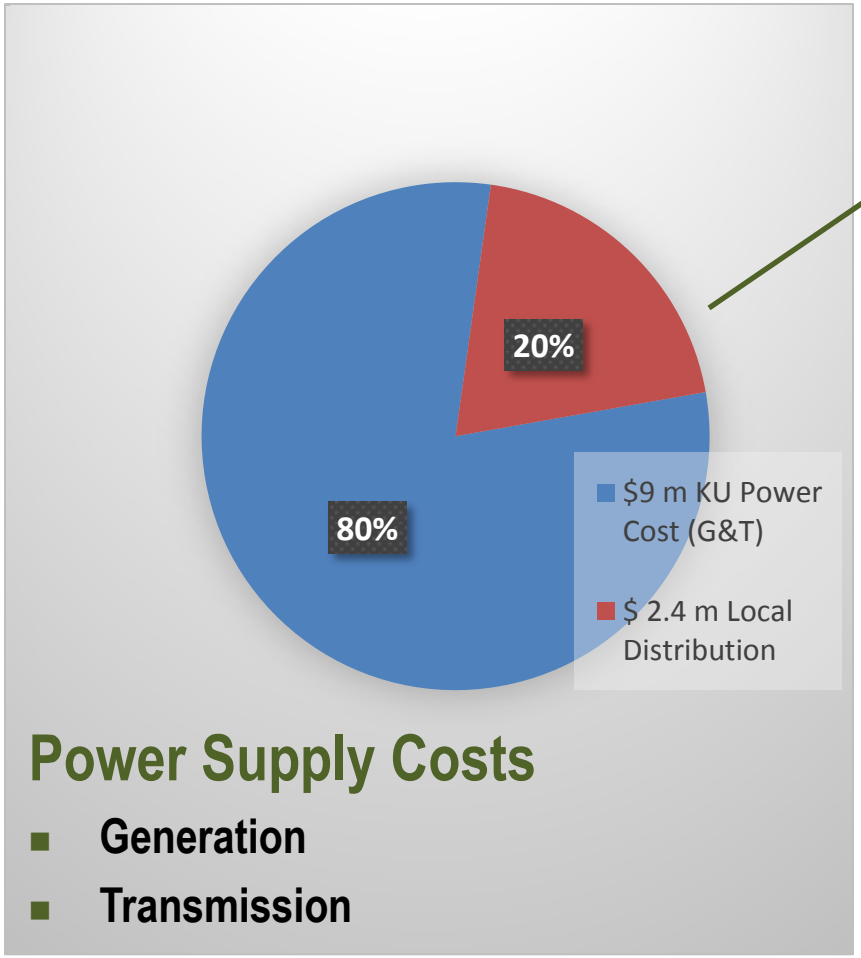


* Typical percentages of total charges to retail customers. Not specific to Berea

Through April 2019

Beginning May 2019

Power Supply is the Major Portion of Costs Recovered through Retail Electric Rates



Power Supply Costs

- Generation
- Transmission

Distribution Costs

- Operations & Maintenance
- Customer Accounting
- Administrative & General
- Depreciation
- Debt Service
- Margin

For a typical residential customer:

Local Distribution	$ 21
Power Supply/Trans.	$ 84
Total Electric Bill	$105

Issues with KU

Drivers of the November 2013 Decision to Consider Power Supply Alternatives

Higher Charges from KU

Historical and Projected Increases

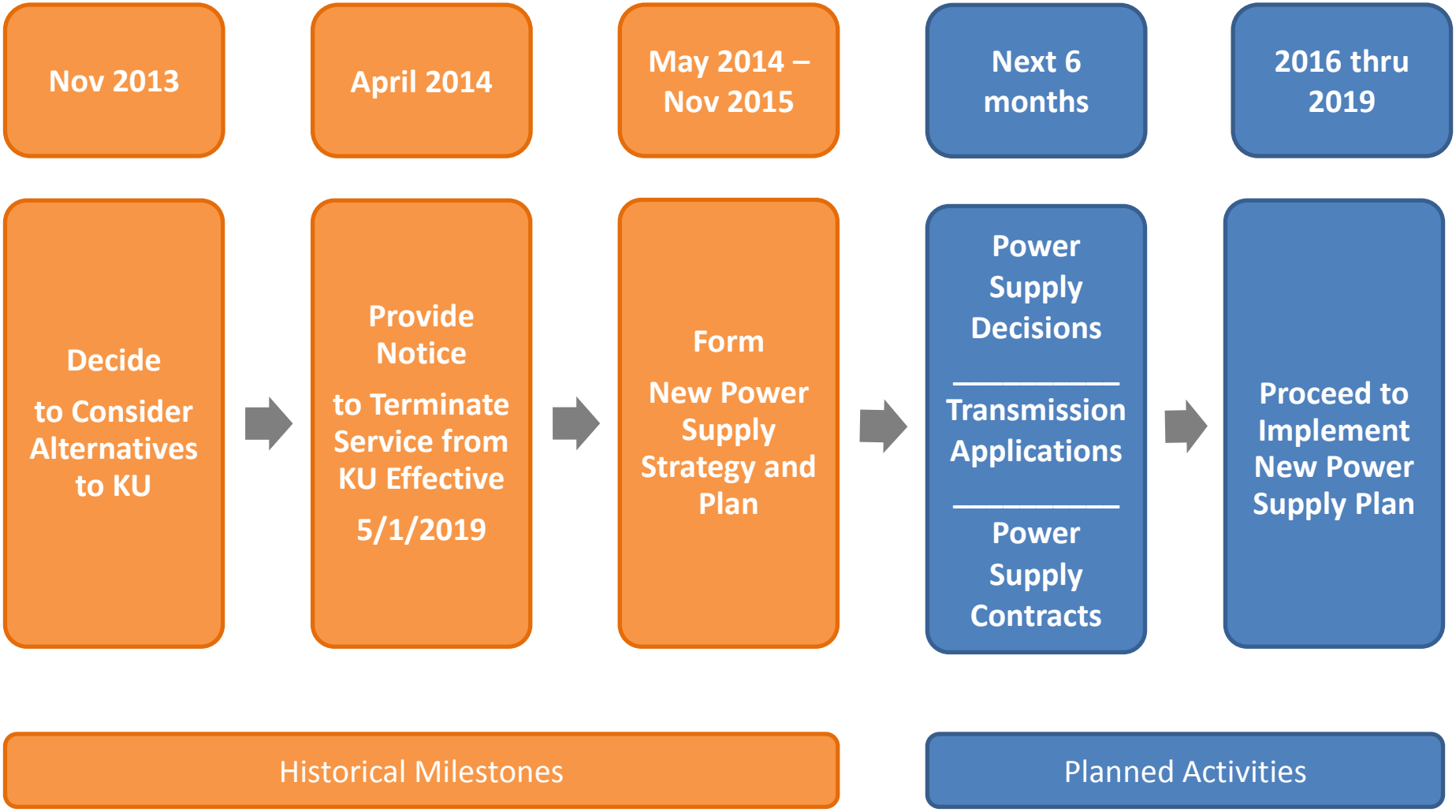
-- Over 30% increase from 2007 thru 2013

-- Expectation of Future Rates Increases

Adverse Changes in the Relationship

Resulting in Higher Uncertainty, More Risk, and Adversarial Relationship

Power Supply Program Changes Effective May 2019 - A Series of Decisions and Actions



Key Power Supply Considerations

- Cost
- Future Uncertainties / Risks
- Creditworthiness
- Relationship
- Alignment of Interests
- Influence/Participation
  - Decision making
- Participation
- Transmission Service
- Business Model
- Regulatory Framework
  - Local, State, Federal
- Future Choice / Change
- Economy of Scale Benefits
- Stability / Predictability

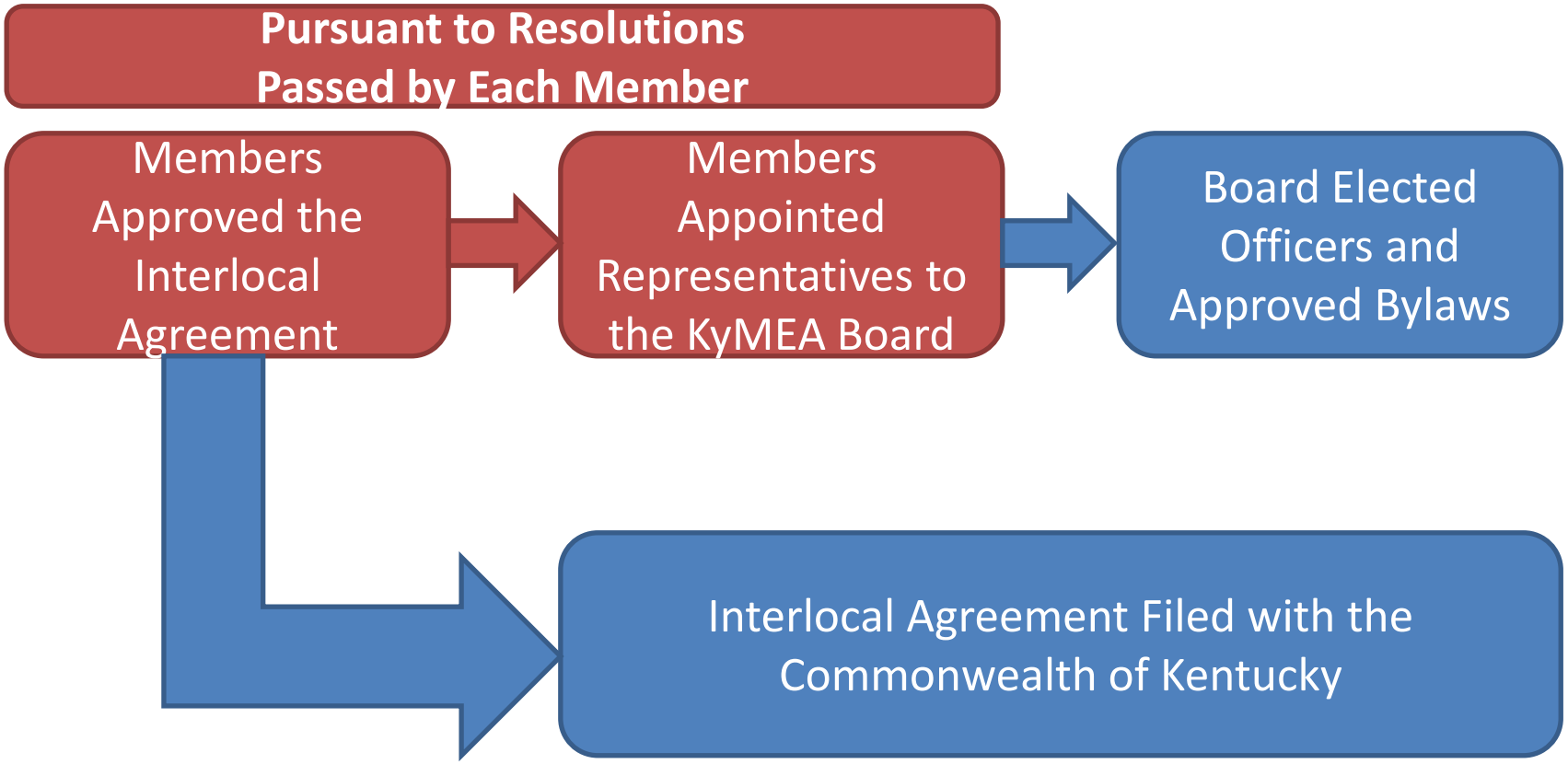
Key Power Supply Considerations(cont)

- Generation Mix
  - Coal, Natural Gas, Hydropower, Renewables, other
- Environmental Regulations
  - Carbon Question
  - Air and Water Quality Standards
- Renewable Energy or Non-Carbon Energy
  - Solar, wind, new hydropower

Desired Power Supply

- Municipals' power supply goals
  - Low cost
  - Regionally competitive, long-term
  - Reliable
    - Generation
    - Transmission service
  - Diversity
    - Fuel sources
    - Generation units
  - Flexible for future choice
    - Renewables (solar, wind, new hydro)
    - Mix of gas, coal, other

Formation of KyMEA



KyMEA Central Purposes

To allow the 10 Member Municipal systems to obtain cost effective, reliable, and environmentally responsible resources
to replace service from KU beginning in May 2019.

To allow all Member Municipal systems to benefit from economies of scale in planning for and obtaining power supply resources.

KyMEA - Joint Action Agency Benefits
Economies of Scale

Many Joint Action Groups Exist in Other States
to Realize Benefits
in All Aspects of Power Supply

Planning Implementation Management Administration Participating in the Political Process	Purchasing and Selling Power Promoting Renewables and Energy Efficiency Owning and Operating Generation Assets Transmission Arrangements	Sales to Members under Project Specific and Full or Partial Requirements Contracts

Contrasting the Power Supply Situation Before and After May 1, 2019

Current through April 2019

- **Large Power Supplier Owned by PPL**
  Municipals have Little Input to Decisions
- **KU's Legacy Power Supply Portfolio**
  Mostly Coal, but Adding Natural Gas. Difficult for Wholesale Customers to Consider Renewables
- **Power Supply Costs Driven by KU's "Cost of Service"**
  High Return to Stockholders and Income Taxes
- **Reliable and Secure Transmission and Distribution**

Commencing May 2019

- **KyMEA Organization**
  Managed by Kentucky Municipal Members for Their Common Interests
- **KyMEA's Member Structured Power Supply Portfolio**
  Less Coal and More Flexibility to Consider Renewables
- **Lower Power Supply Costs Driven by KyMEA's Actual Costs**
  Lower cost financing
- **Reliable and Secure Transmission and Distribution**

Current Implementation Plan

Phase 1

Identify Preferred Power Supply Course/Direction - COMPLETED

Summer 2015

Phase 2

Form Joint Action Entity
Develop Agreements between KyMEA and Suppliers – COMPLETED – Membership Open

In Process

Phase 3

Key Portfolio Decisions/ Transmission Applications/ Agreements with Suppliers

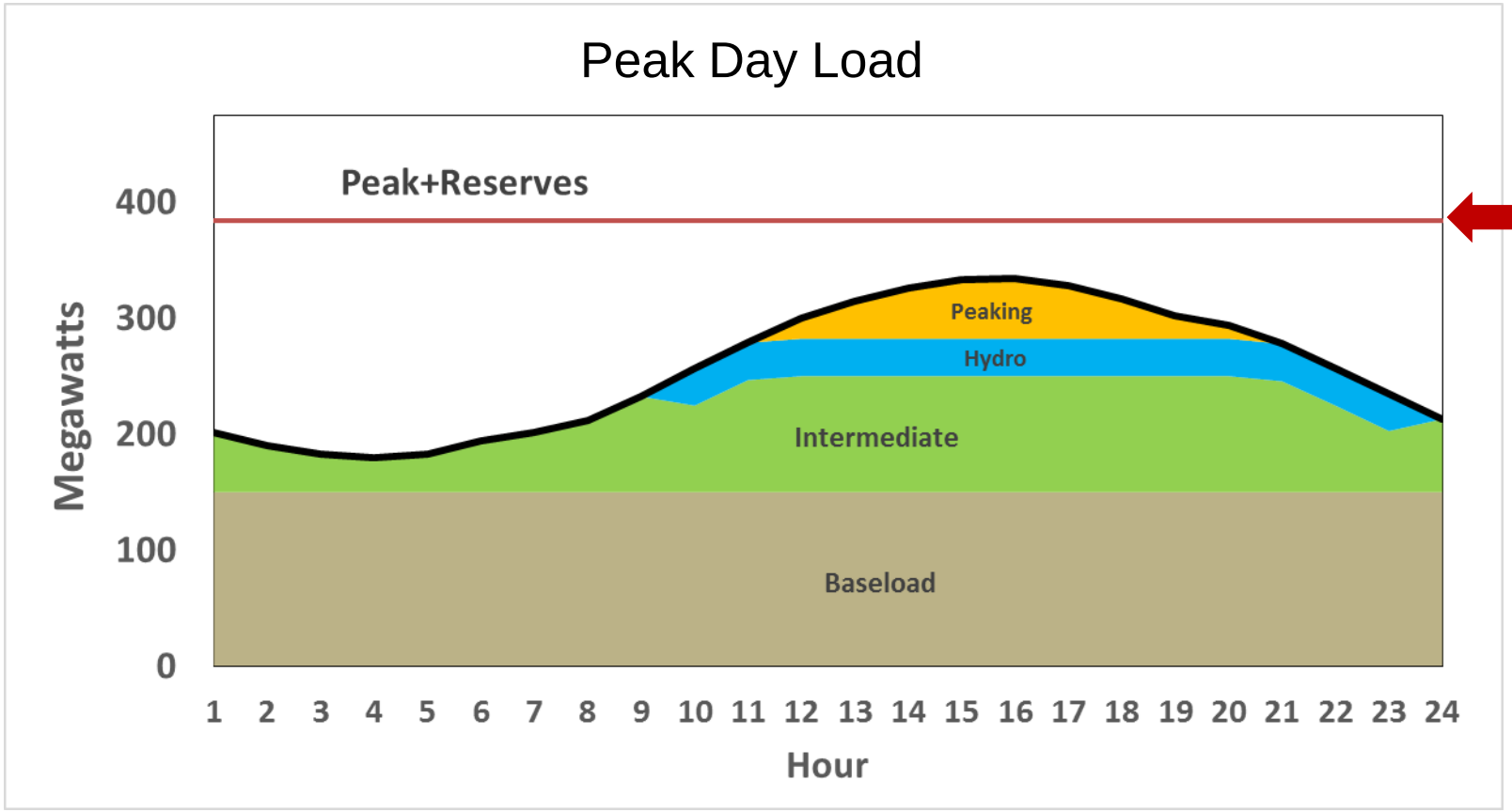
Early 2016 thru 2019

Phase 4

Proceed with Member Agreements and Other Implementation Steps

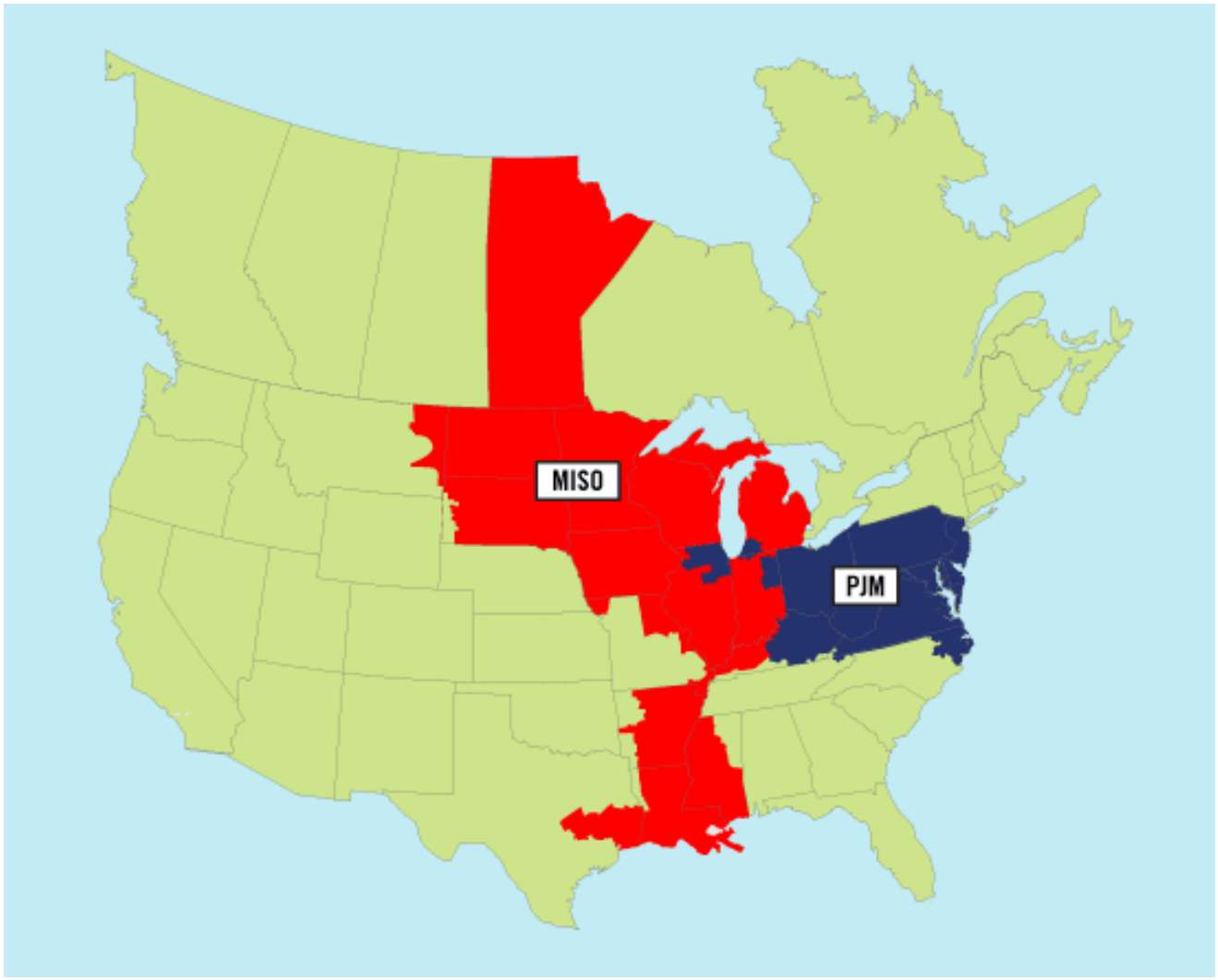
Even on Peak Days, Load Varies Significantly

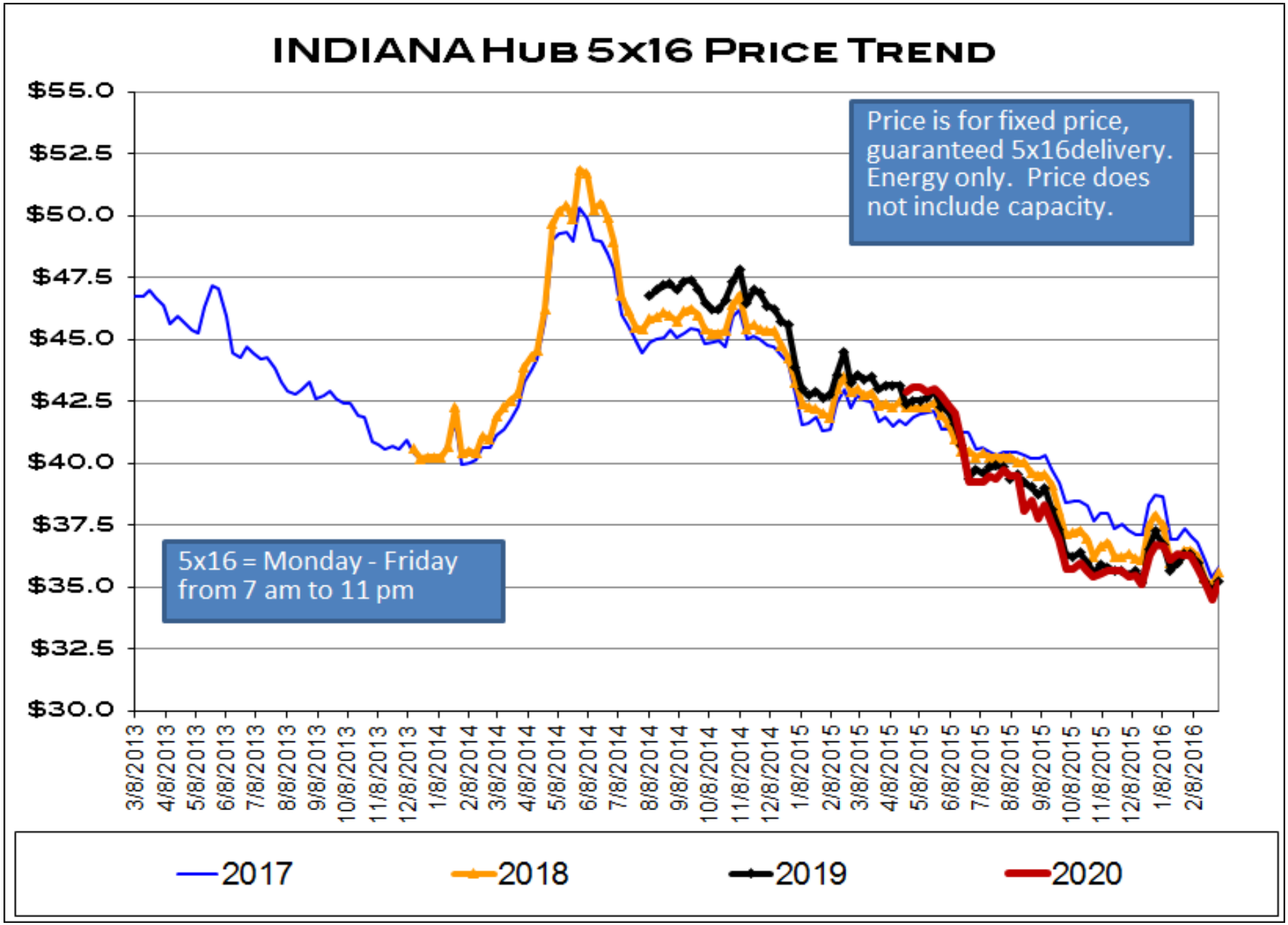
Economic Supply uses Multiple Resources with Different Operating Economics and Characteristics



Resource Capacity Required for Reliability

MISO and PJM RTOs Provide Significant Power Supply Opportunity




INDIANA HUB 5x16 PRICE TREND
$55.0
$52.5
$50.0
$47.5
$45.0
$42.5
$40.0
$37.5
$35.0
$32.5
$30.0
Price is for fixed price, guaranteed 5x16delivery. Energy only. Price does not include capacity.
5x16 = Monday - Friday from 7 am to 11 pm
3/8/2013
4/8/2013
5/8/2013
6/8/2013
7/8/2013
8/8/2013
9/8/2013
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12/8/2015
1/8/2016
2/8/2016
2017
2018
2019
2020

Issues to Consider

- Long-term power supply strategy
  - 3, 5, 10 year outlook
  - Cost and risk consideration
  - Traditional and Renewable Resources
  - Formation of longer term strategy
- MISO market conditions
  - Low energy prices within 5-year window
  - Longer-term outlook is favorable but uncertain
  - Potential for significant savings relative to KU
- Transmission service arrangements
  - LGE/KU Network Service
  - MISO Point-to-Point Service
- Anticipated all-in cost
- Risk assessment

Current Progress in Assembling KyMEA's Power Supply Portfolio

Developed MOUs – Now negotiating Contracts with 4 Key Power Suppliers

- 200 mw coal-various terms (2 contracts)
- 25-90 mw natural gas peaking capacity CT
- 75-125 mw natural gas combined cycle unit

Also including Member resources

- 32 MW of SEPA Hydropower
- 11 MW Member diesels

Cost Effective and Flexible Arrangements

- Each resource is projected to be cost competitive when compared to other options in the category.
- Balanced portfolio that will allow KyMEA to maintain competitiveness under a wide range for future conditions
- Flexibility as to capacity purchased and daily energy schedules
  - ✓ Allows efficient integration of renewable energy as it becomes available

KyMEA Members' SEPA Allocation

KyMEA Member	MW	MWh
Barbourville	2.200	3,960
Bardwell	0.542	976
Benham	0.248	446
Corbin	2.598	4,676
Falmouth	0.590	1,062
Frankfort	15.621	28,118
Madisonville	7.803	14,045
Owensboro	25.000	45,000
Paris	1.364	2,455
Providence	1.231	2,216
Totals	**57.197**	**102,955**

Illustration of Potential KyMEA All-Requirements Power Supply Portfolio