



# PJM Interconnection Dispatch Interactive Map Application DIMA

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## Who is PJM? – Focus on Just 3 Things

### Reliability

- Grid Operations
- Supply/Demand Balance
- Transmission monitoring

1

### Regional Planning

- 15-Year Outlook

3

2

### Market Operation

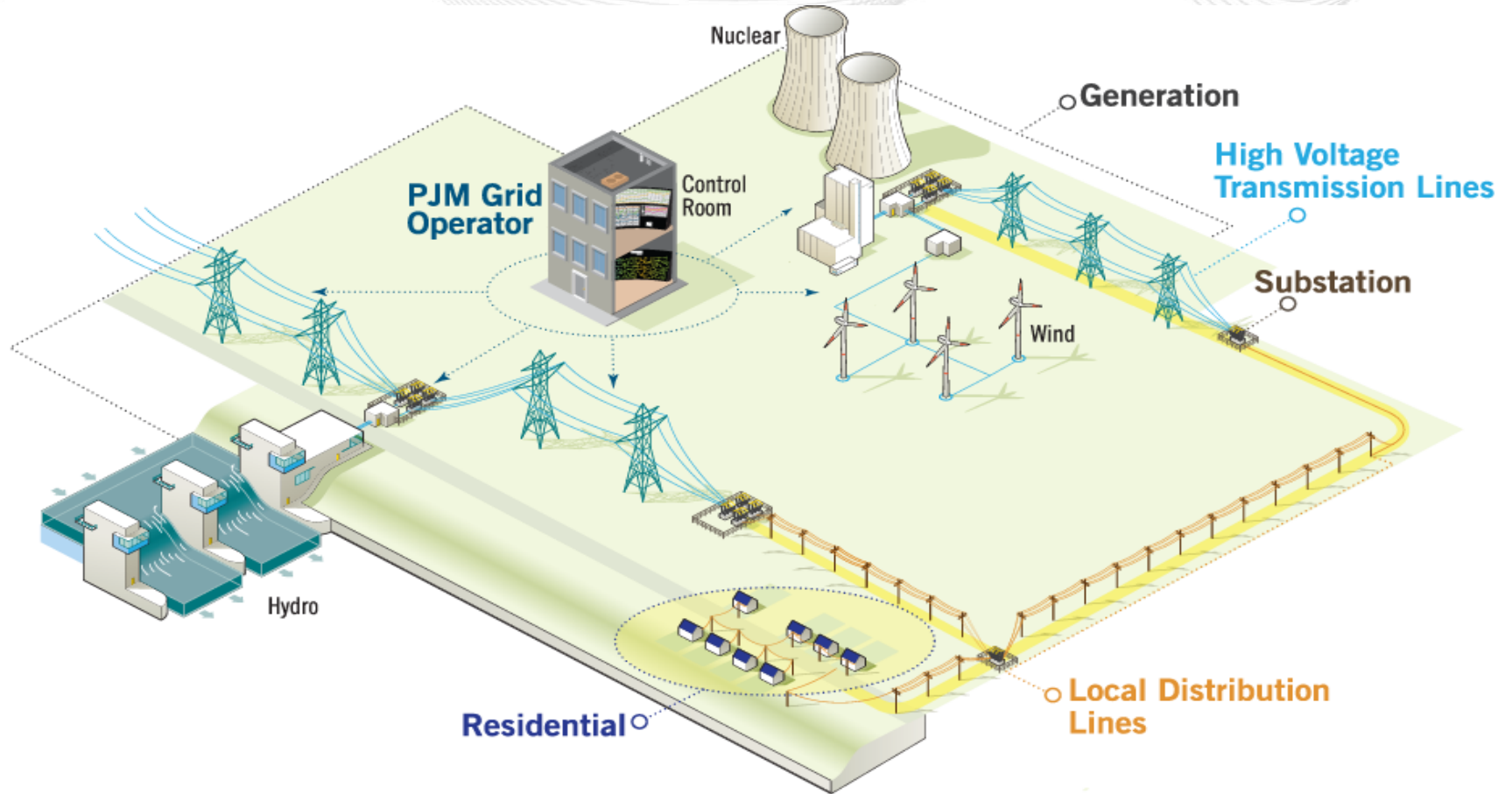
- Energy
- Capacity
- Ancillary Services

- Ensures the reliability of the high-voltage electric power system
- Coordinates and directs the operation of the region's transmission grid;
- Administers a competitive wholesale electricity market;
- Plans regional transmission expansion improvements to maintain grid reliability and relieve congestion.



# PJM's Role as a Regional Transmission Organization





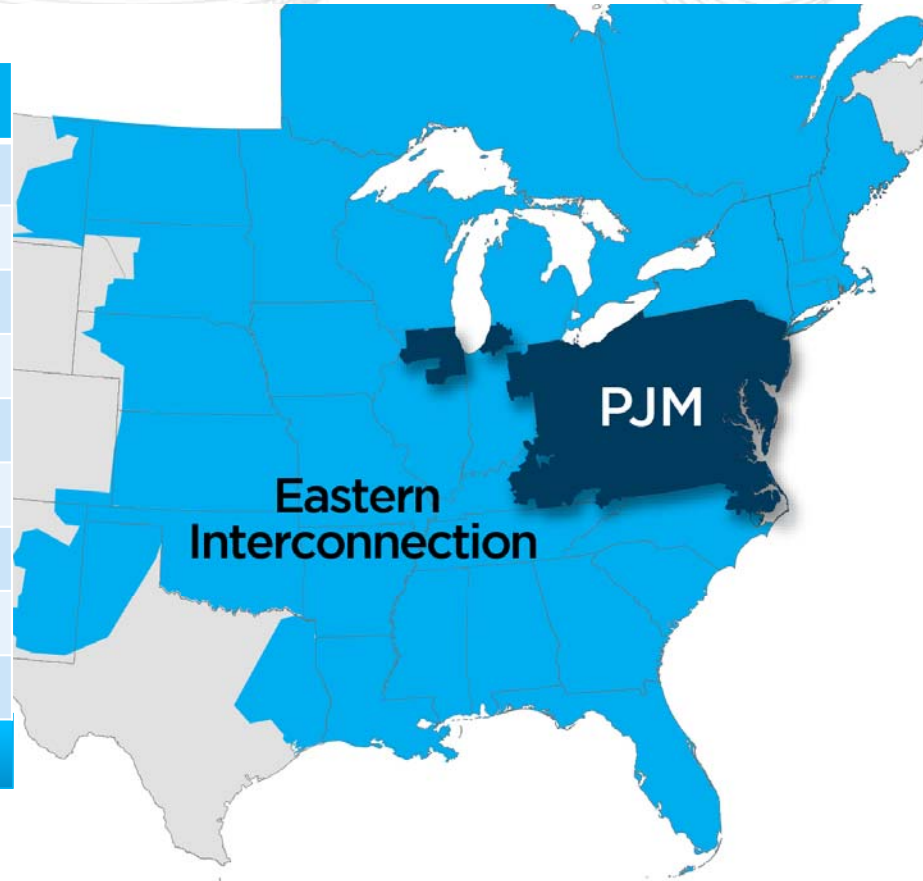


# PJM as Part of the Eastern Interconnection

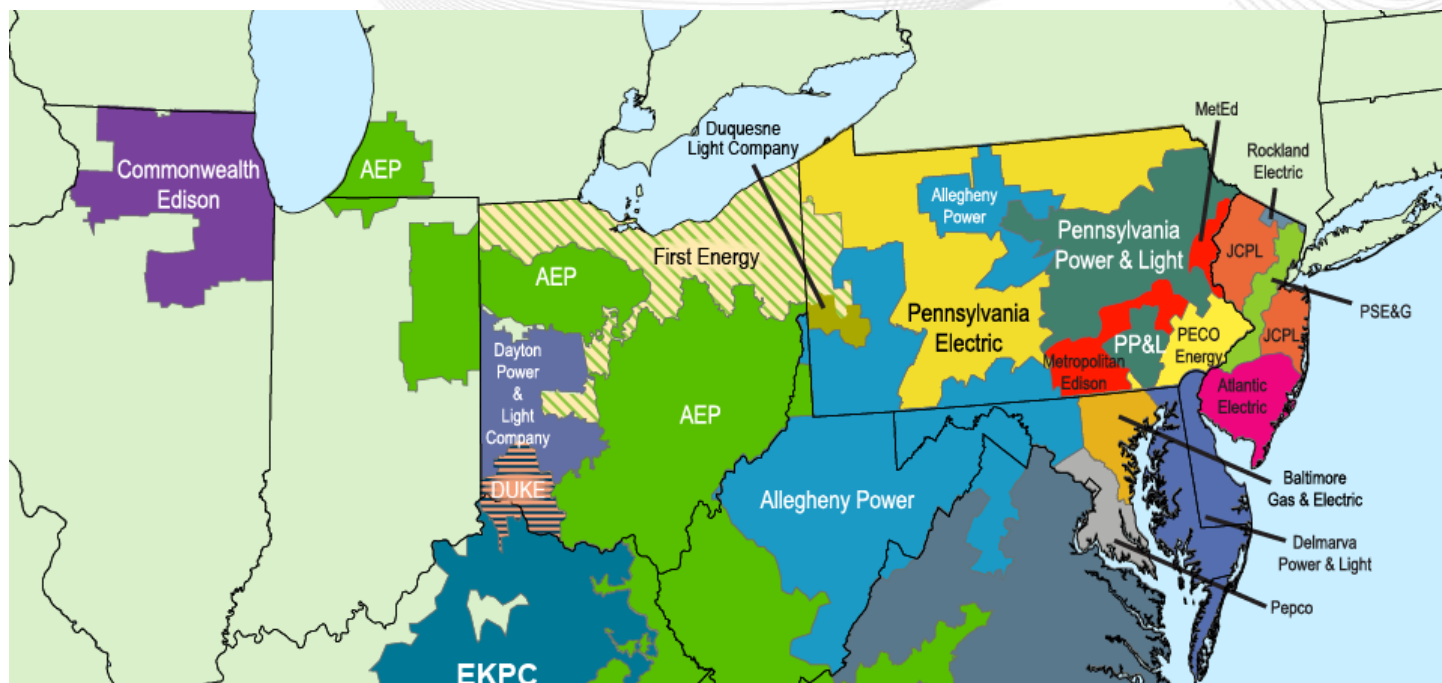
## Key Statistics

Member companies	960+
Millions of people served	61
Peak load in megawatts	165,492
MW of generating capacity	171,648
Miles of transmission lines	81,736
2014 GWh of annual energy	792,580
Generation sources	1,304
Square miles of territory	243,417
States served	13 + DC

**21% of U.S. GDP produced in PJM**







## PJM Expansion History

- 1927– Started three utility power pool
- 1997 – Started RTO with eight TOs
- June 2002 – AP Joined
- May 2004 - ComEd joined
- October 2004 – AEP/Dayton
- May 2005 – Dominion joined
- January 2006 – Duquesne joined
- June 2011 – FirstEnergy joined
- January 2012 – Duke joined
- June 2013 – EKPC joined



## Evolution of GIS at PJM

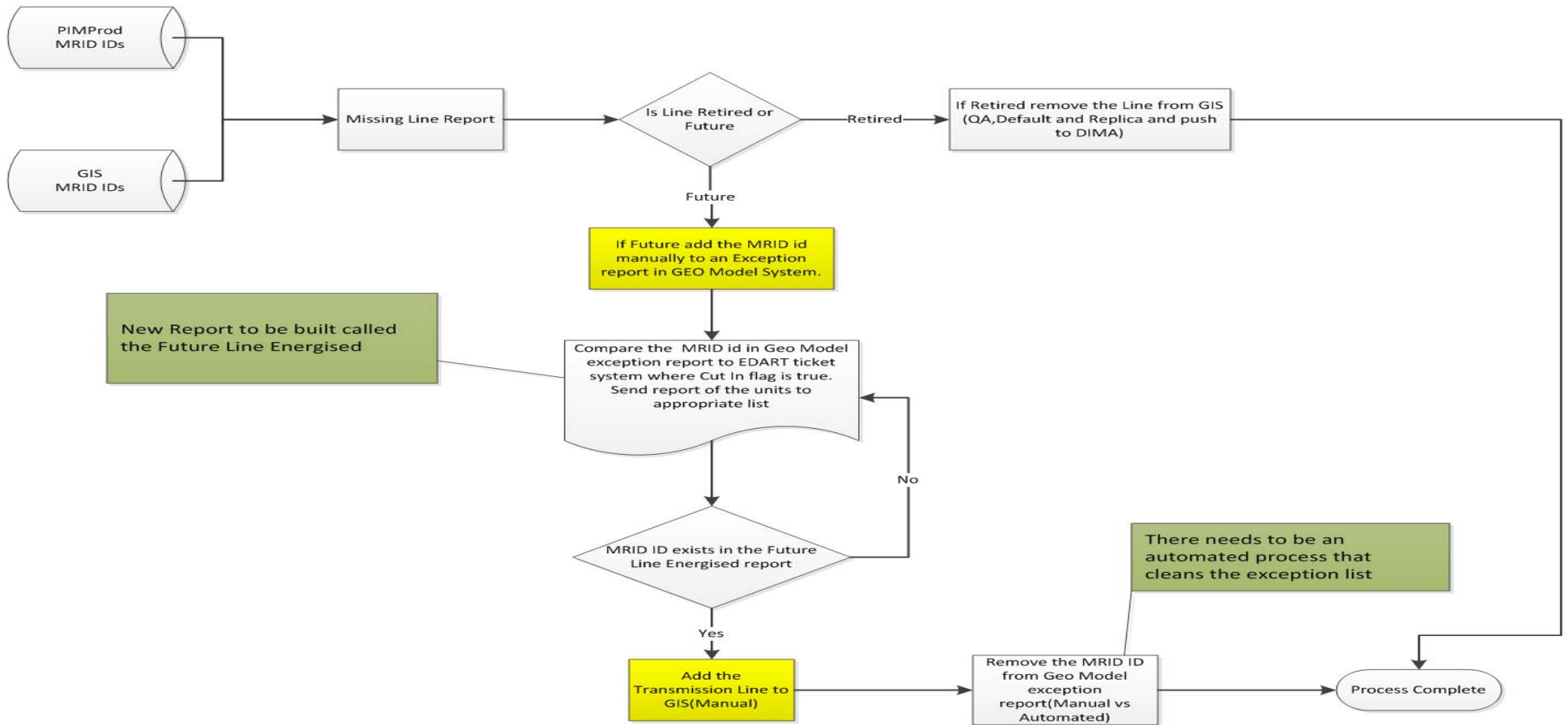
### Original GeoDatabase

- Arbitrary Metadata
- Drawn substation details
- TO One-lines source of information
- Planning database
  - Queued Projects

### Enhanced GeoModel

- Automated processes
- Metadata extracted from PI database
  - Generator AF Model
  - Reactive Device AF Model
- Integrated EMS One line diagrams
- Real-time data available
  - Line outages
  - Equipment availability, etc.







# Dispatch Interactive Map Application - demo

Search

Lines & Outages

All 69 115 138 161 230 345 500 765 DC

Out of Service Outage State None

Visible Outages Outages Off Map

63 Outages

Name	Zone	kV	Status
502 Junction - Harrison	APS	500	.....
502 Junction - Kammer	APS, AEP	500	.....
Albany - Bechtel	DDI, ICDI	500	.....

**Substation Detail** Collapse All Expand All

Connection Level 1

**Salem (New Jersey)** 500 kV

Facility ID SALENJ500  
Zone Public Service Electric and Gas Company View On-Line

**Generators (3)**

Name	Type	Current MW	ICAP MW	EcoMax	Gas	Status
LIMERICK 1	Nuclear	1,000	1,800	1,700	No	●
LIMERICK 2	Nuclear	1,100	1,500	1,300	No	●
LIME 1	CT	80	100	85	Yes	●

**Equipment**

Type	Total	Status
Capacitors	2	● ●
Reactors	8	● ● ● ● ● ● ● ●
Gas Pipelines	3	● ● ●

Show Connected Substations

**Pipeline Capacity** 20 MW

Connection Delaware

Gas to Start Yes

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**Limerick (Pennsylvania)** 500 kV

Facility ID LIMEPA500  
Zone PECO Energy Company View On-Line

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## Challenges and Benefits

### Business Challenges

- Multiple tools used for situational awareness
- Limited geographic awareness
- Need to process a significant amount of data

### Solution(s)

- DIMA – Dispatch Interactive Map Application
- Esri & OSISoft Technology Integration

### Results and Benefits

- Improved situational awareness
- Integrated data sources in one application