July 2016

Illinois State Report

Table of Contents

Executive Summary

(July 2016)

- **Existing Capacity:** Nuclear represents 41 percent of the total installed capacity in Illinois while natural gas represents 42 percent. This differs from PJM where natural gas and coal are relatively even at 34 and 35 percent respectively.
- **Interconnection Requests:** Natural gas represents 91 percent of new interconnection requests in Illinois.
- **Deactivations**: Approximately 251 MW of capacity in Illinois retired in 2015. This represents two percent of the 10,200 MW that retired RTO-wide in 2015.
- **Load Forecast:** Illinois load growth is nearly flat, averaging less than one percent per year over the next 10 years. This aligns with PJM RTO load growth projections.
- **Natural Gas:** About 31 percent (3,300MW) of Illinois's natural gas generation is behind a local distribution company.

PJM Evolution

Joined in 1927

Joined in 1956

Joined in 1965

Joined in 1981

Joined in 2002

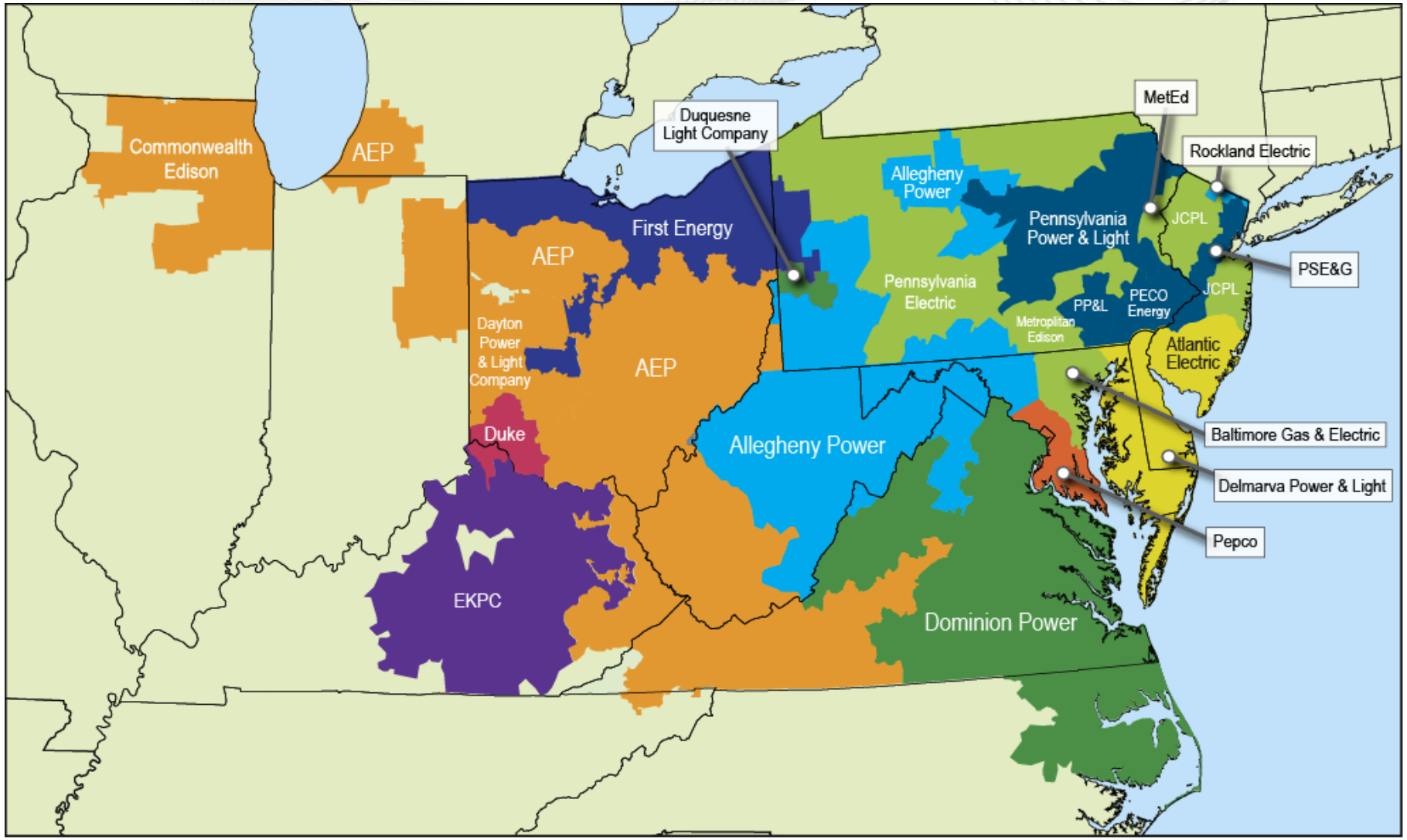
Joined in 2004

Joined in 2005

Joined in 2011

Joined in 2012

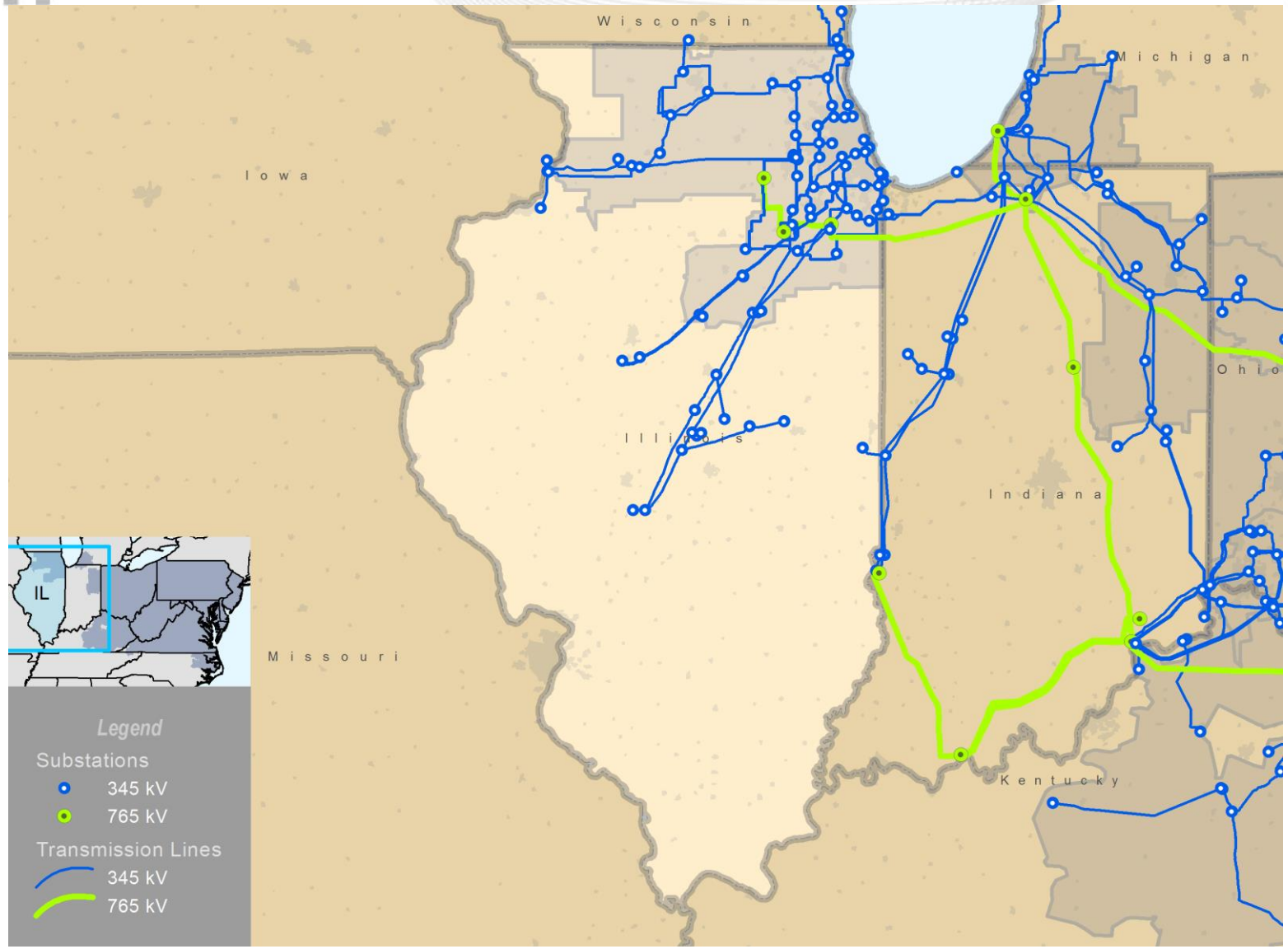
Joined in 2013



State-specific data in this deck only applies to the PJM portion of Illinois

PJM Service Area – Illinois

(December 31, 2015)



PJM operates the bulk electric system facilities (and others monitored at lower voltages), in northern Illinois. This map includes those of Commonwealth Edison (ComEd). Northern Illinois's transmission system delivers power to customers from native generation resources and those throughout the RTO – arising out of PJM market operations – as well as power imported interregionally from systems outside PJM.

Planning

Generation Portfolio Analysis

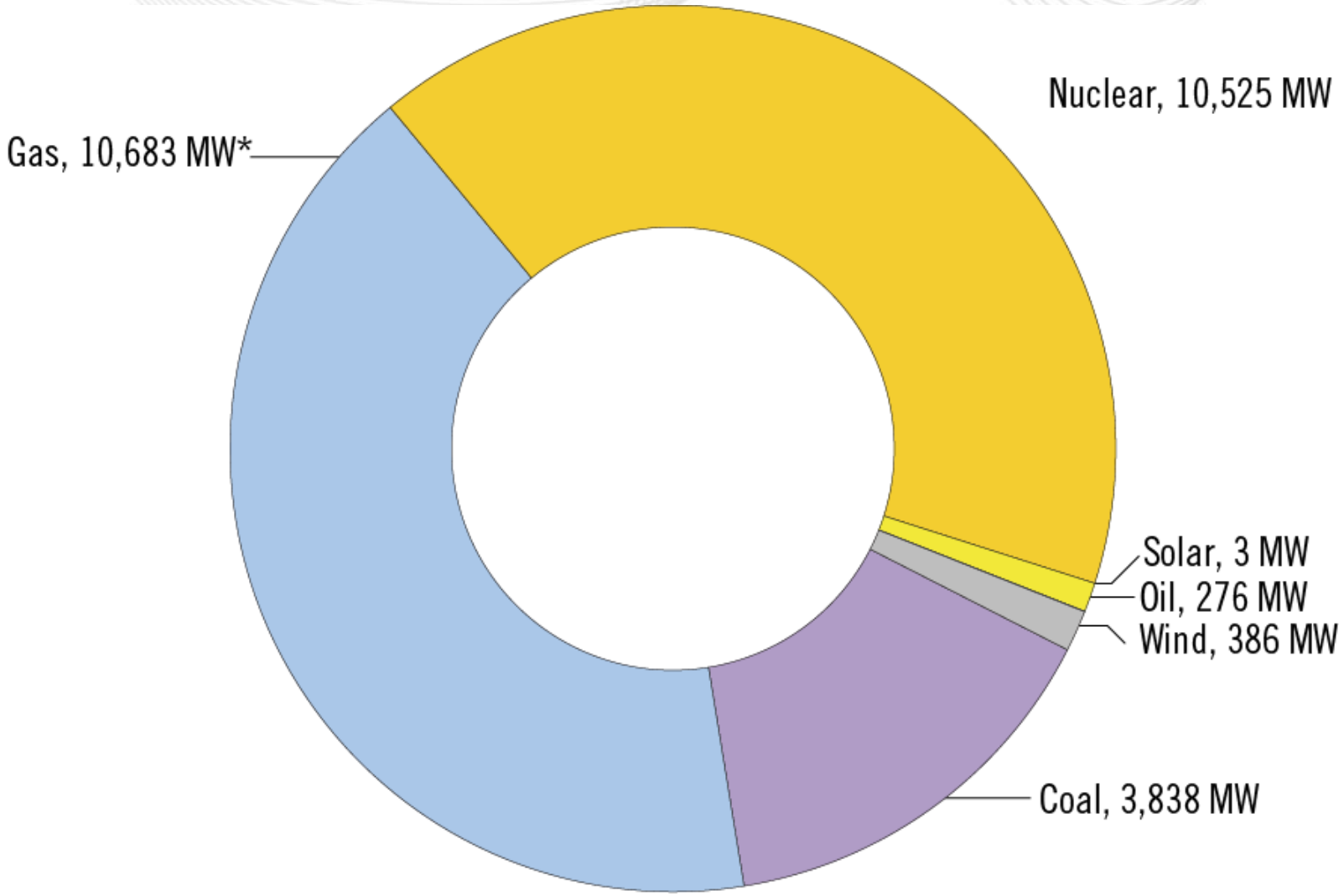
Illinois - Existing Installed Capacity

(Capacity Rights, December 31, 2015)

Summary:

Nuclear represents 41 percent of the total installed capacity in Illinois while natural gas represents 42 percent.

Overall in PJM, natural gas and coal are relatively even at 34 percent and 35 percent respectively.



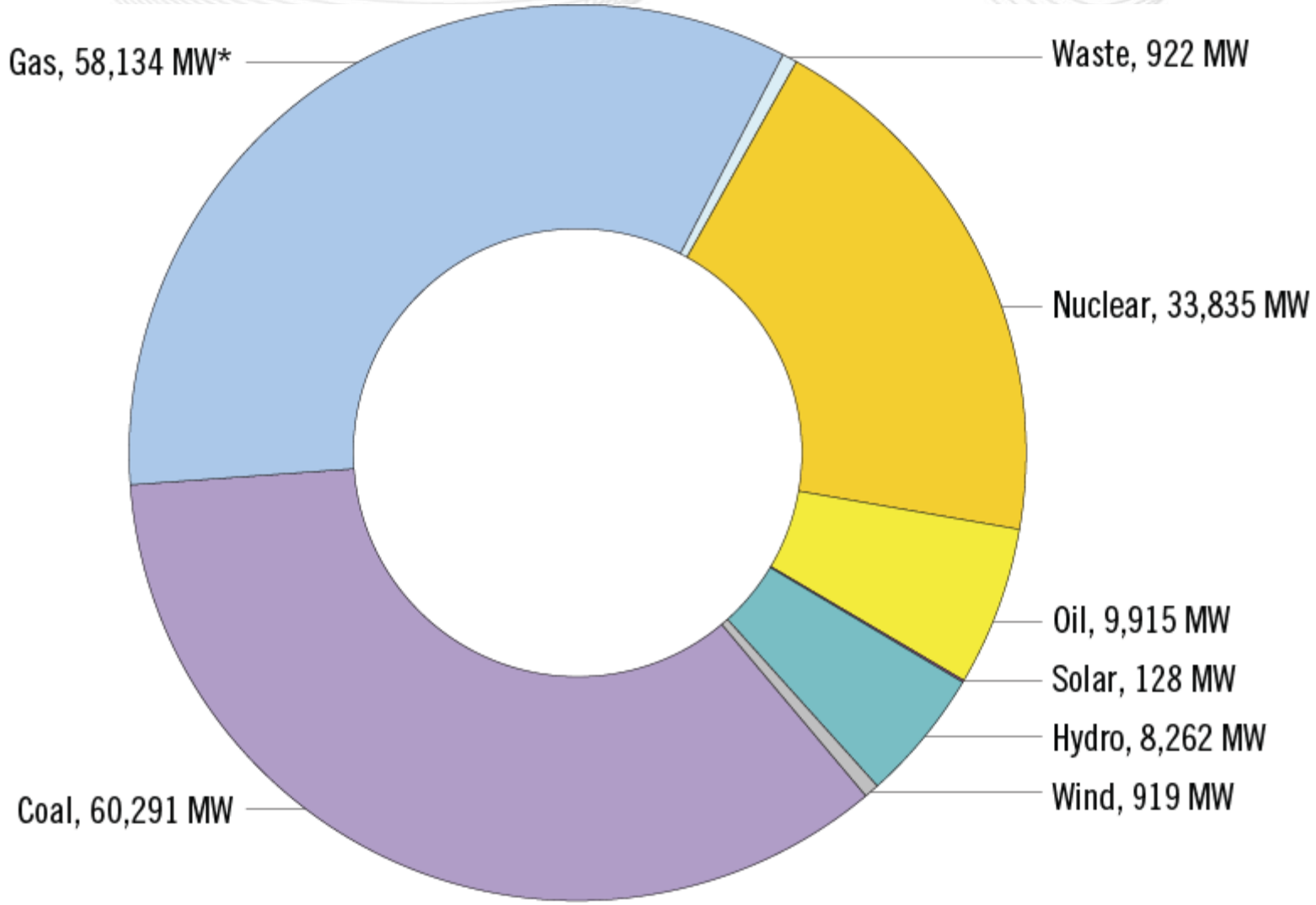
* Gas Contains	
Natural Gas	10,670 MW
Other Gas	12 MW

PJM - Existing Installed Capacity

(Capacity Rights, December 31, 2015)

In PJM, natural gas and coal make up nearly 70 percent total installed capacity.

* Gas Contains	
Natural Gas	57,735 MW
Other Gas	399 MW



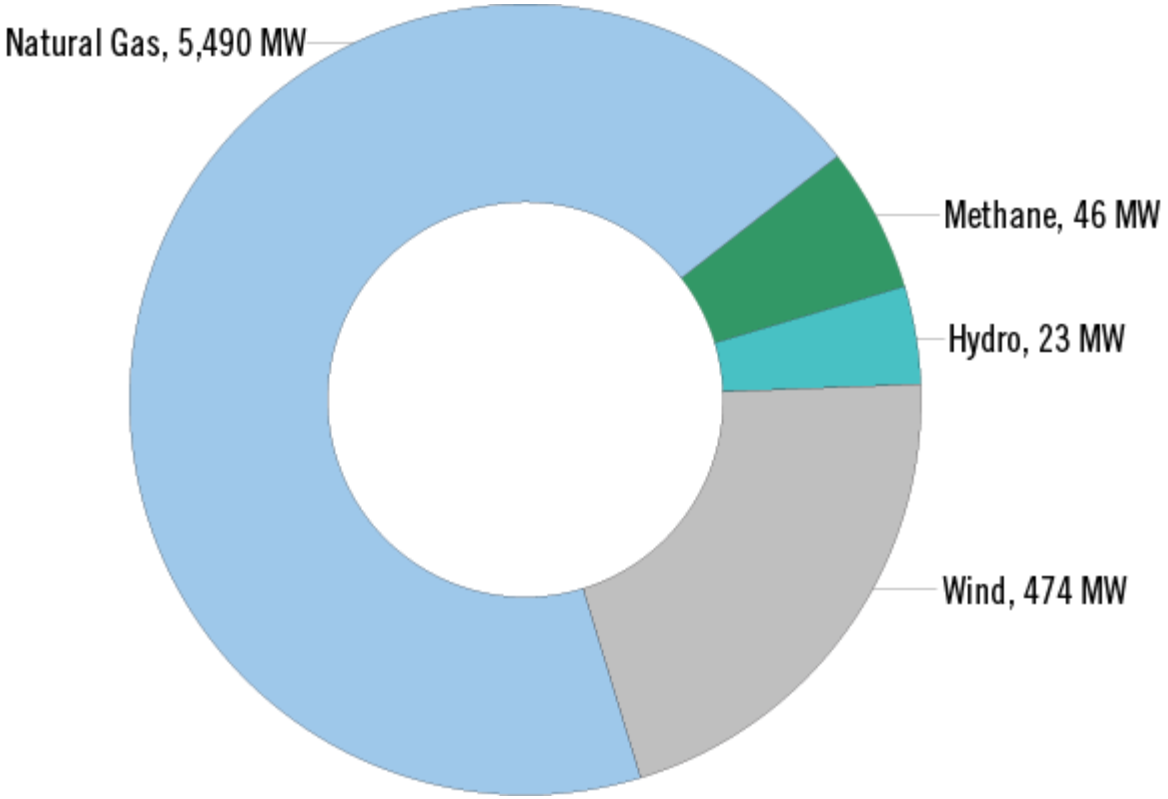
Illinois - Interconnection Requests

(Requested Capacity Rights, December 31, 2015)

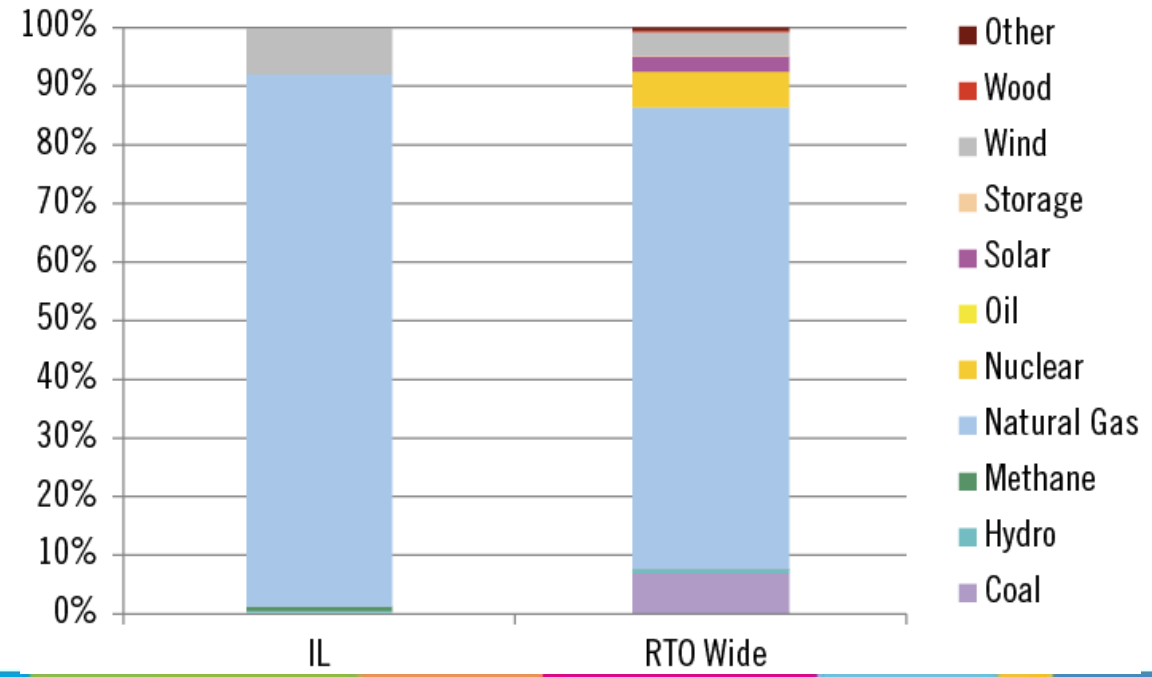
Natural gas represents 91 percent of new interconnection requests in Illinois.

	MW	# of Projects
Active	5,650.2	38
Under Construction	240.4	11
Suspended	142.0	2
Total	6,032.6	51

Total MW Capacity by Fuel Type



Fuel as a Percentage of Projects in Queue



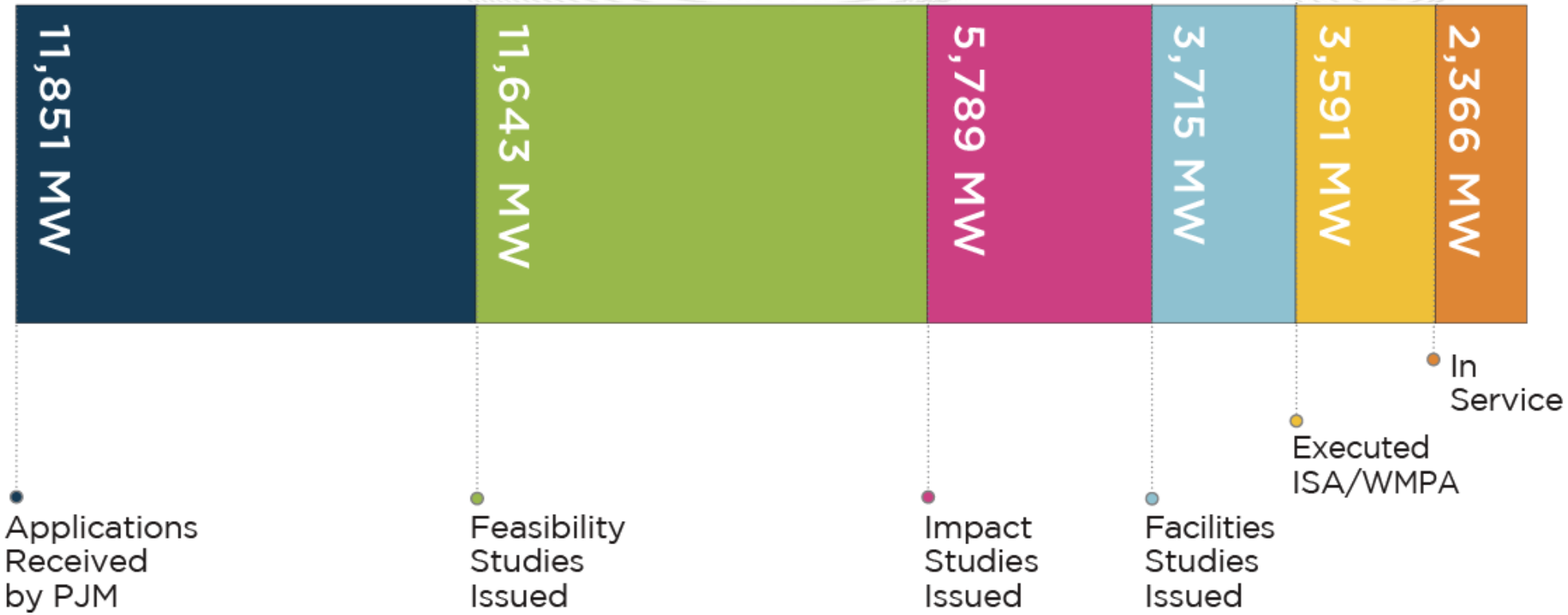
Illinois - Interconnection Requests

(Requested Capacity Rights, December 31, 2015)

	Active		In Service		Suspended		Under Construction		Withdrawn		Total Sum	
	MW	# of Projects	MW	# of Projects	MW	# of Projects	MW	# of Projects	MW	# of Projects	MW	# of Projects
Biomass	0	0	0	0	0	0	0	0	90	3	90	3
Coal	0	0	0	0	0	0	0	0	3652	5	3652	5
Diesel	0	0	22	2	0	0	0	0	0	0	22	2
Hydro	0	0	0	0	0	0	22.7	2	0	1	22.7	3
Methane	30.8	3	20.44	4	0	0	15.3	1	51.17	12	117.71	20
Natural Gas	5,410.3	16	1,335.6	11	0	0	80	4	2,385	6	9,210.9	37
Nuclear	0	0	385.8	10	0	0	0	0	782	5	1,167.8	15
Oil	0	0	0	0	0	0	0	0	0	0	0	0
Solar	0	0	3.4	1	0	0	0	0	32.25	7	35.65	8
Storage	0	8	0	4	0	0	0	1	0	4	0	17
Wind	209.1	11	579	19	142	2	122.4	3	2,110.025	86	3,162.525	121
Wood	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	20	1	0	0	0	0	0	0	20	1
Total	5,650.2	38	2,366.24	52	142	2	240.4	11	9,102.45	129	17,501.29	232

Illinois - Progression History Interconnection Requests

(Requested Capacity Rights, 2003 – 2015)



Following agreement (ISA/WMPA) execution, 844 MW of capacity withdrew from PJM's interconnection process. Another 382 MW have executed agreements but were not in service as of December 31, 2015. Overall, 20 percent of requested capacity in the PJM portion of Illinois reaches commercial operation. The PJM average over this time is 10%

Illinois – 2015 Generation Deactivations

(MW Capacity, December 31, 2015)

Unit	MW Capacity	TO Zone	Age	Actual/Projected Deactivation Date
Will County 3	251	ComEd	57	4/15/2015
Generation announced future deactivation in 2015				
Will County 4	510	ComEd	52	5/31/2018*

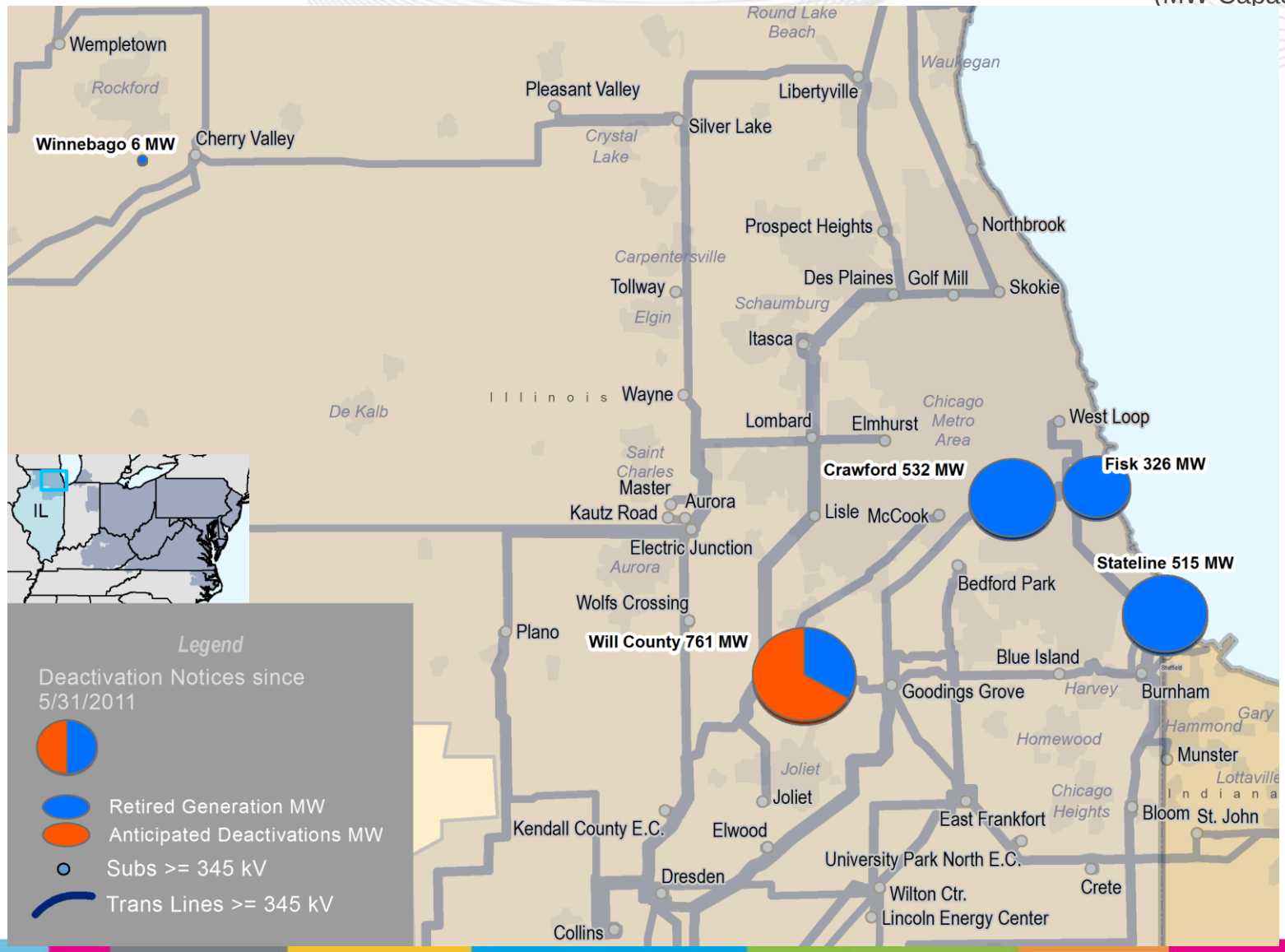
** On 6/3/2016, Will County 4 submitted a new projected deactivation of 5/31/2020.*

Summary:

- 251 MW of capacity in Illinois retired in 2015. This represents more than 2 percent of the 10,800 MW that retired RTO-wide in 2015.
- The unit age was 57 years.
- 510 MW of capacity in Illinois announced in 2015 plans to retire in 2020.

Illinois – 2015 Generation Deactivations

(MW Capacity, December 31, 2015)

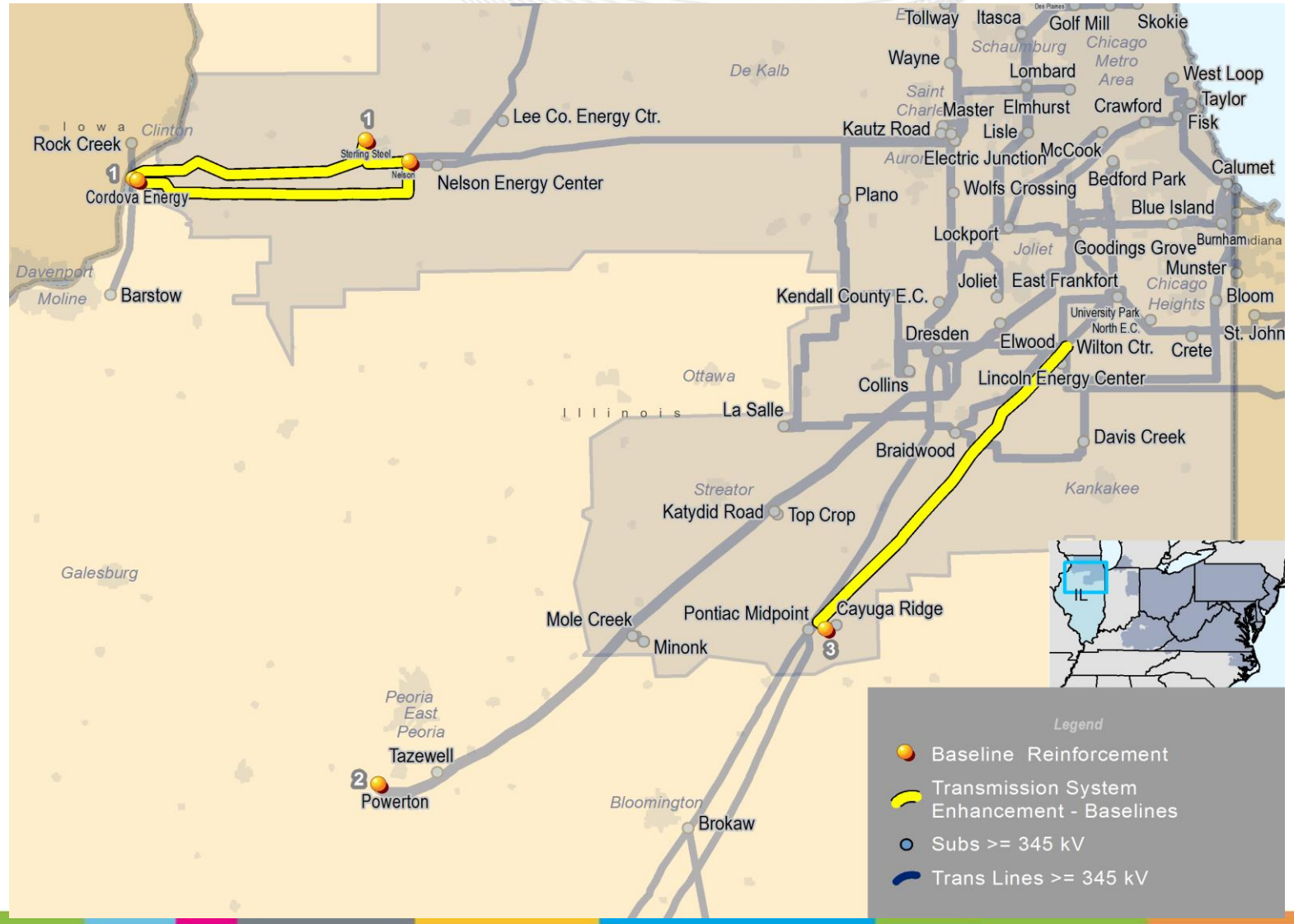


Planning

Transmission Infrastructure Analysis

Illinois - RTEP Baseline Projects

(Approved in 2015, greater than $10 million)



Baseline Projects are transmission enhancements identified as part of reliability criteria tests, operational performance issues and market efficiency studies that identify upgrade need driven by thermal, voltage, short circuit, stability and light load issues

Illinois - RTEP Baseline Projects

(Approved in 2015, greater than $10 million)

Map ID	Project ID	Project	IL Baseline Project Drivers: Baseline Load Growth / Deliverability & Reliability	IL Baseline Project Drivers: Congestion Relief – Economic	IL Baseline Project Drivers: Operational Performance	IL Baseline Project Drivers: Generator Deactivation	IL Baseline Project Drivers: TO Criteria Violation	Date	Cost ($M)	TO Zone(s)	2015 TEAC Review
1	b2692.1	Replace station equipment at Nelson, ESS H-471 and Quad Cities.		●				June 2019	$24.60	ComEd	9/10/2015
	b2692.2	Upgrade conductor ratings of Cordova-Nelson, Quad Cities-ESS H-471 and ESS H-471-Nelson 345 kV lines and mitigating sag limitations.		●				June 2019		ComEd	9/10/2015

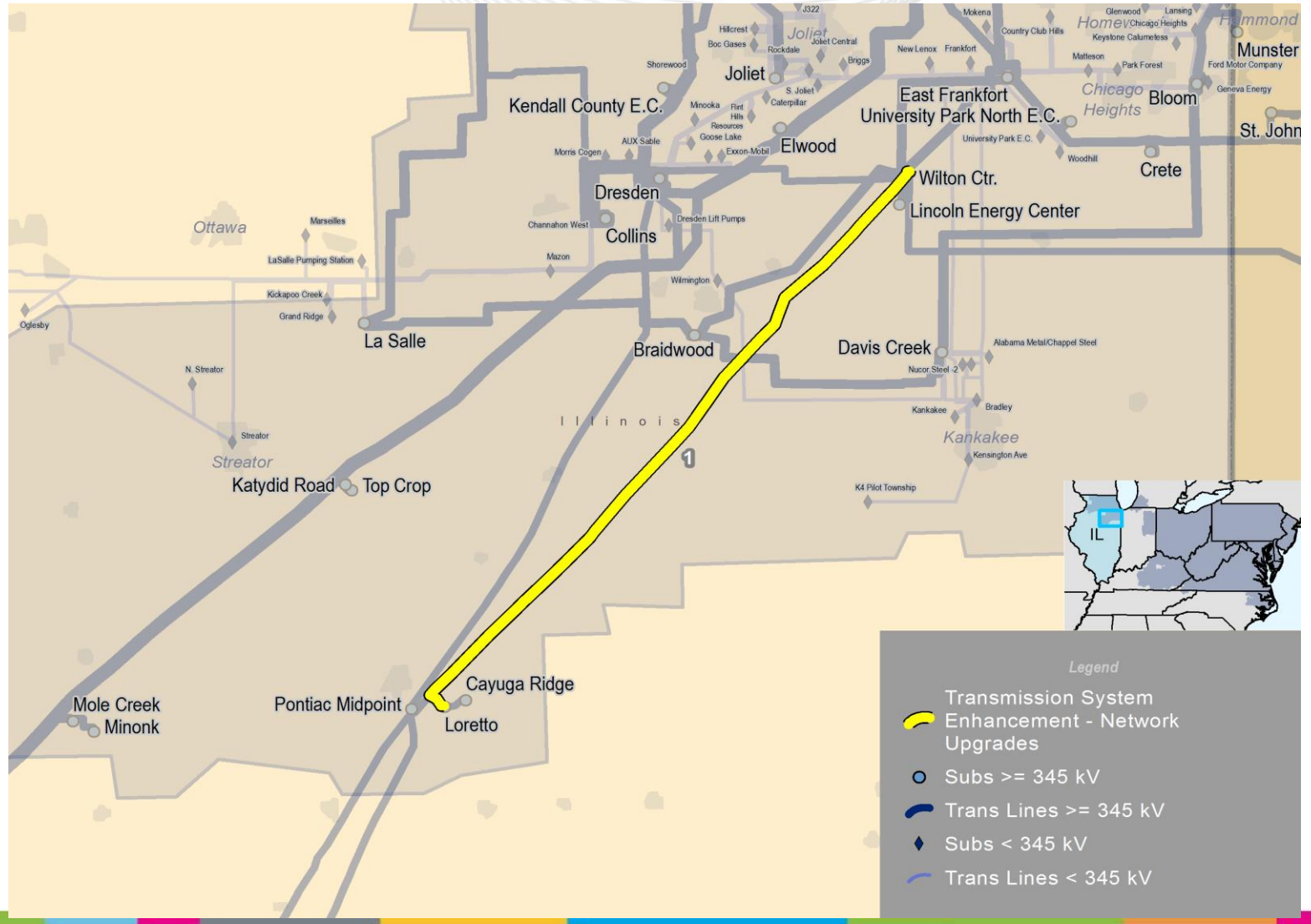
Illinois - RTEP Baseline Projects

(Approved in 2015, greater than $10 million)

Map ID	Project ID	Project	IL Baseline Project Driver: Baseline Load Growth / Deliverability & Reliability	IL Baseline Project Driver: Congestion Relief – Economic	IL Baseline Project Driver: Operational Performance	IL Baseline Project Driver: Generator Deactivation	IL Baseline Project Driver: TO Criteria Violation	Date	Cost ($M)	TO Zone(s)	2015 TEAC Review
2	b2699.1	Replace 5 Powerton 345 kV circuit breakers with 2 cycle IPO breakers, install one new 345 kV circuit breaker; swap line 0302 and line 0303 bus positions; reconfigure Powerton 345 kV bus as single ring configuration.			•			June 2018	$15.00	ComEd	10/8/2015
	b2699.2	Remove SPS logic at Powerton that trips generators or sectionalizes bus under normal conditions; minimal SPS logic will remain.			•			June 2018		ComEd	10/8/2015
3	b2728	Mitigate sag limitations on Loretto-Wilton Center 345 kV Line and replace station conductor at Wilton Center.		•				June 2019	$11.50	ComEd	1/7/2016

RTEP 2015 Network Enhancements - Illinois

(Greater than $10 Million)



Network Projects are transmission upgrades identified as part of the interconnection process System Impact Studies. Network upgrades are necessary to interconnect new generation and merchant transmission facilities to the existing transmission grid or to provide new long-term firm transmission service.

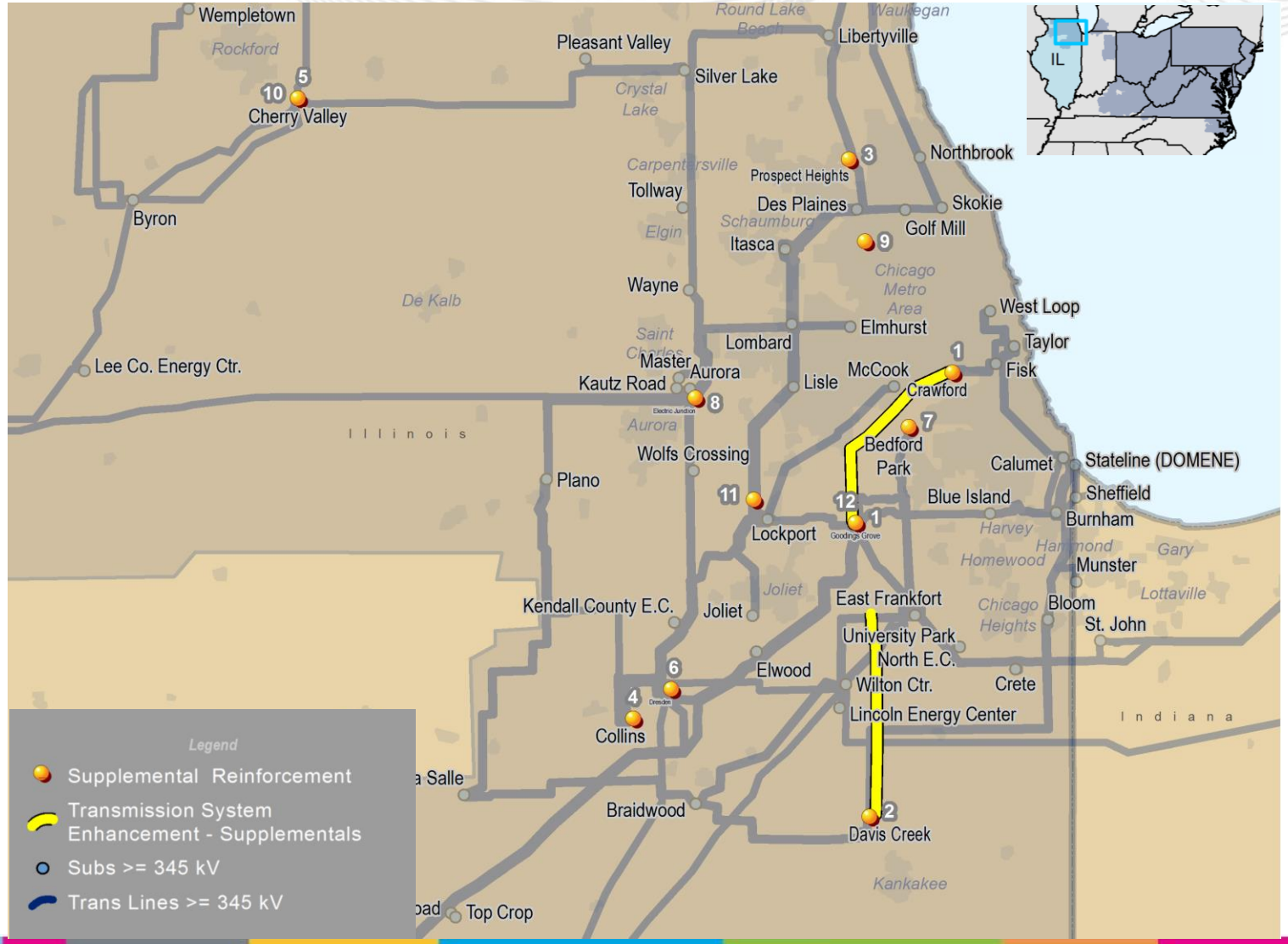
Illinois - RTEP Network Projects

(Approved in 2015, greater than $10 million)

Map ID	Project ID	Project	IL Network Project Drivers: Generation Interconnection	IL Network Project Drivers: Merchant Transmission Interconnection	IL Network Project Drivers: Long-term Firm Transmission Service	Date	Cost (M)	TO Zone(s)	2015 TEAC Review
1	n4348	To mitigate sag limitations to achieve full conductor thermal capability.	W4-005			December 2016	$16.70	ComEd	9/10/2015

RTEP 2015 Supplemental Enhancements - Illinois

(Greater than $10 Million)



RTEP 2015 Supplemental Enhancements - Illinois

(Greater than $10 Million)

			IL Supplemental Projects			
Map ID	Project ID	Project	Date	Cost ($M)	TO Zone(s)	2015 TEAC Review
1	s0880	Reconductor 9.5 miles of 345 kV line 1311 from Goodings Grove to Crawford.	December 2015	$14.60	ComEd	3/5/2015
2	s0885	Rebuild 138 kV line 0902 for 19 miles from Davis Creek to the Davis Creek tap.	December 2015	$23.10	ComEd	3/5/2015
3	s0886	Prospect Heights – Replace 345/138 kV transformer 81 and move the capacitor bank from the Transformer 81 tertiary winding to 138 kV bus 1.	December 2015	$10.80	ComEd	3/5/2015
4	s0888	Collins station – Replace 765/345 kV transformer 92.	February 2016	$18.80	ComEd	3/5/2015
5	s0894	Cherry Valley – Install three 345 kV circuit breakers and expand 345 kV ring.	December 2016	$16.30	ComEd	3/5/2015
6	s0896	Dresden – Replace 345/138 kV Transformer 83, install high side 345 kV circuit breaker, replace 138 kV circuit breakers 1205, 1206, 0903, 0904.	December 2016	$18.30	ComEd	3/5/2015
7	s0897	Bedford Park – Replace 345/138 kV transformer 82, move capacitor bank from tertiary to 138 kV bus 3, replace transformer 84 high side 345 kV MOD with a circuit breaker.	December 2015	$21.20	ComEd	3/5/2015

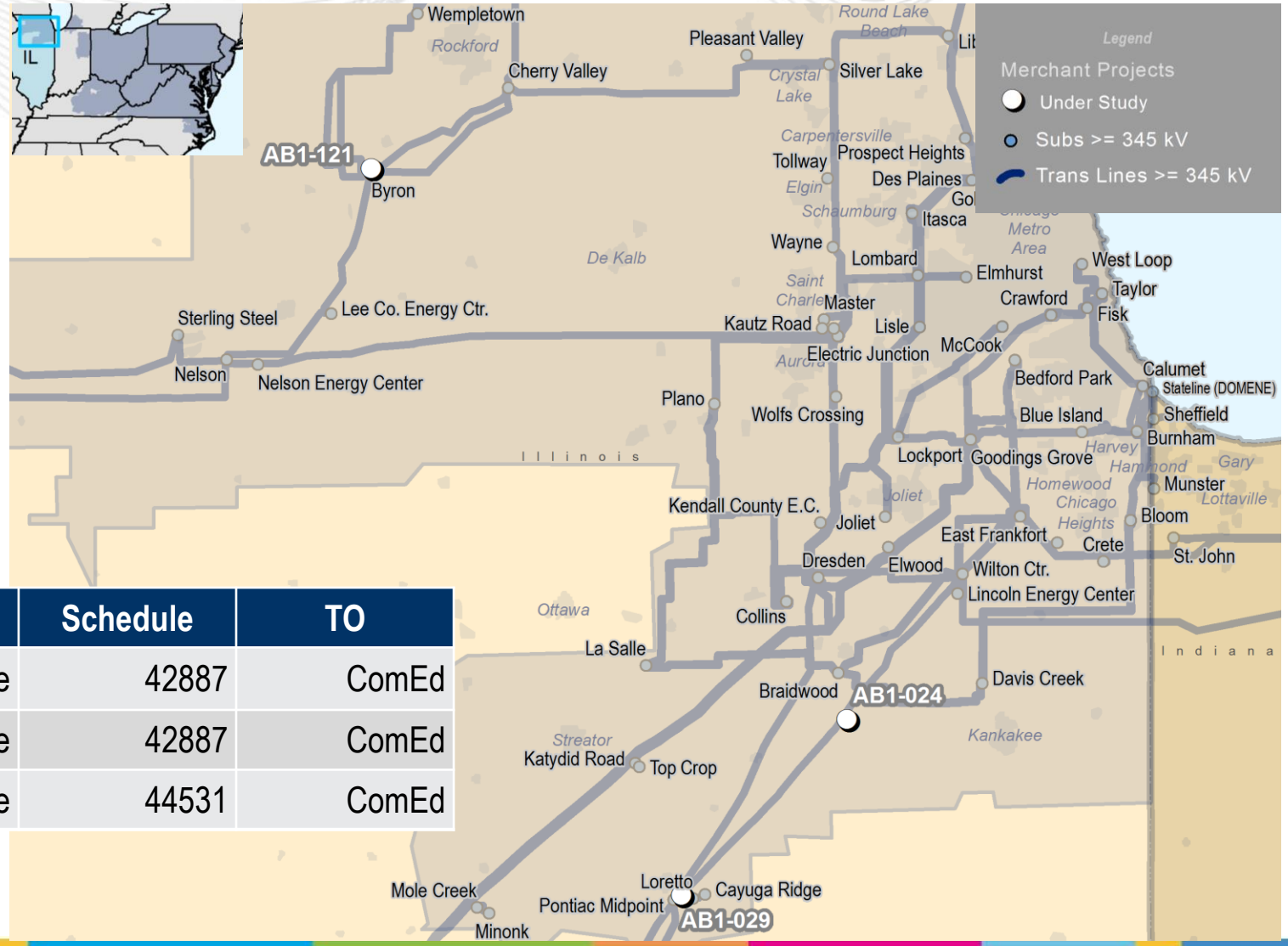
RTEP 2015 Supplemental Enhancements - Illinois

(Greater than $10 Million)

			IL Supplemental Projects			
Map ID	Project ID	Project	Date	Cost ($M)	TO Zone(s)	2015 TEAC Review
8	s0898	Electric Junction – Replace 345/138 kV Transformer 81, install 345 kV high side circuit breaker, move capacitor bank from tertiary to 138 kV bus 1, install Transformer 82 & 84 high side 345 kV circuit breakers, replace 345 kV 11126 circuit breaker.	December 2016	$28.70	ComEd	3/5/2015
9	s0899	Des Plaines – Install 4 Transformer high side 345 kV circuit breakers for transformer 81, 82, 83, 84, replace 138 kV bus tie 2-3.	December 2016	$12.70	ComEd	3/5/2015
10	s0900	Cherry Valley – Replace 345/138 kV Transformer 81, install high side 345 kV circuit switcher, move capacitor bank from tertiary to 138 kV bus 1.	December 2015	$21.50	ComEd	3/5/2015
11	s1077	Build a new 138 kV distribution station at Normantown Road.	June 2016	$34.90	ComEd	11/20/2015
12	s1078	Add 4th 345/138 kV Transformer at Goodings Grove.	June 2016	$15.70	ComEd	11/20/2015

Illinois - Merchant Transmission Project Requests

(December 31, 2015)



Queue	Project Name	MW	Status	Schedule	TO
AB1-024	Loretto-Wilton Ctr	50	Active	42887	ComEd
AB1-029	Loretto-Pontiac	35	Active	42887	ComEd
AB1-121	Byron 345kV	0	Active	44531	ComEd

Planning

Load Forecast

Illinois* - 2016 Load Forecast Report

(December 31, 2015)

	Summer Peak (MW)			Winter Peak (MW)		
T. O.	2016	2026	Growth Rate (%)	2015/16	2025/26	Growth Rate (%)
Commonwealth Edison Company	22,001	23,633	0.7%	15,579	16,974	0.9%
PJM RTO	130,243	140,912	0.8%	152,131	161,891	0.6%

* PJM notes that it does not serve the entire state of Illinois.

Operations

Gas Pipeline Information

Illinois - Natural Gas Statistics

(March 31, 2016)

Gas Generators	Dual Fuel Capable (MW)	Total Generator (MW)
Connected to Interstate Pipelines	500	7,300 (69%)
Behind the Local Distribution Company	0	3,300 (31%)
Total Gas Fired Generators	**500**	**10,600**

Interstate Pipelines	Local Distribution Companies
ANR Pipeline	MidAmerican Energy Company
Northern Border Pipeline	Nicor Gas
National Fuel Gas Supply Corporation (NFG)	People's Natural Gas
Vector Pipeline	