



Bureau of
Energy Resources,
United States
Department of State



National
Association of
Regulatory
Utility
Commissioners

Workshop on Regional Electricity Trade and Market Development (LMI)

The Florida Experience in Harmonizing
Interconnection Policy Across the Region

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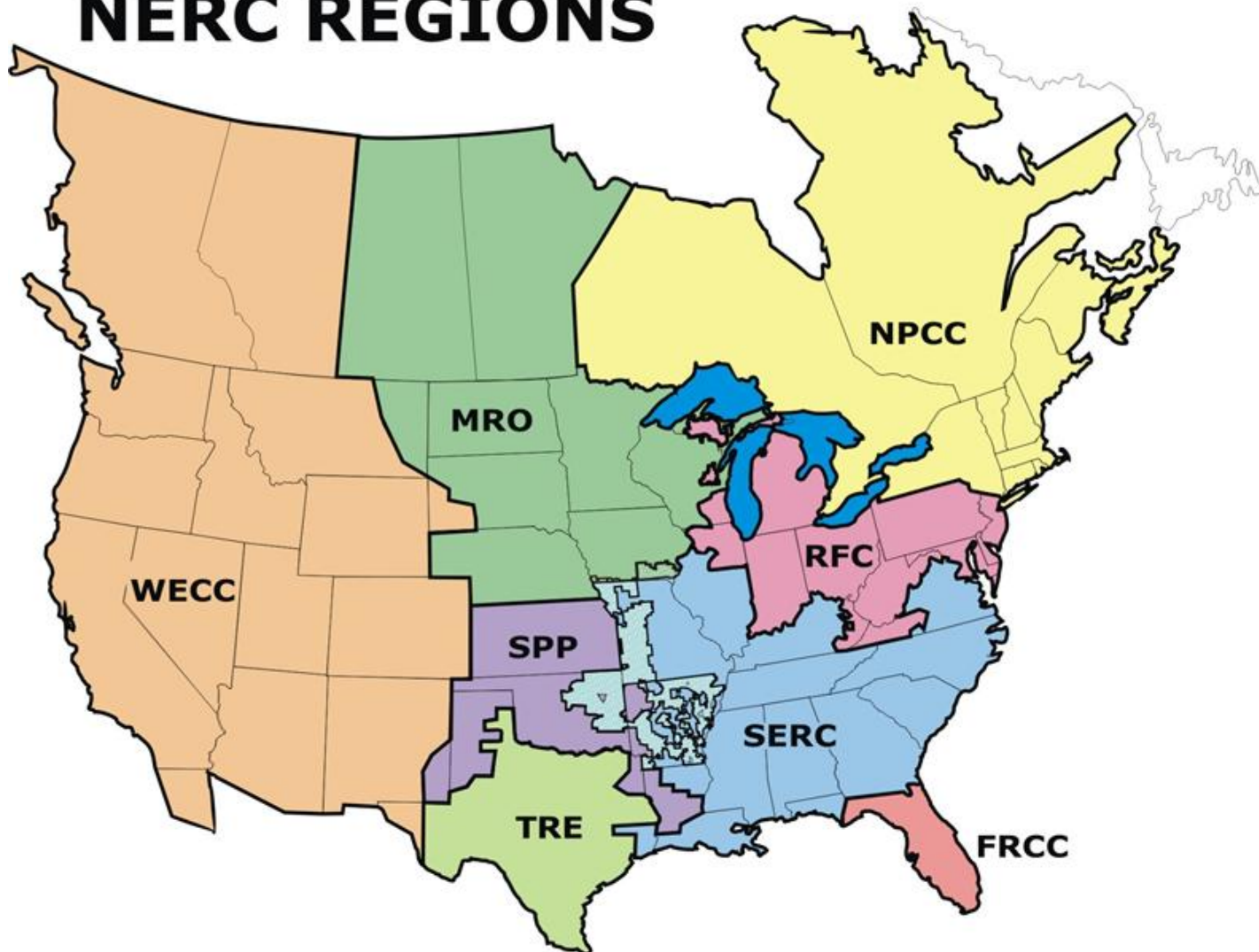
Florida Public Service Commission

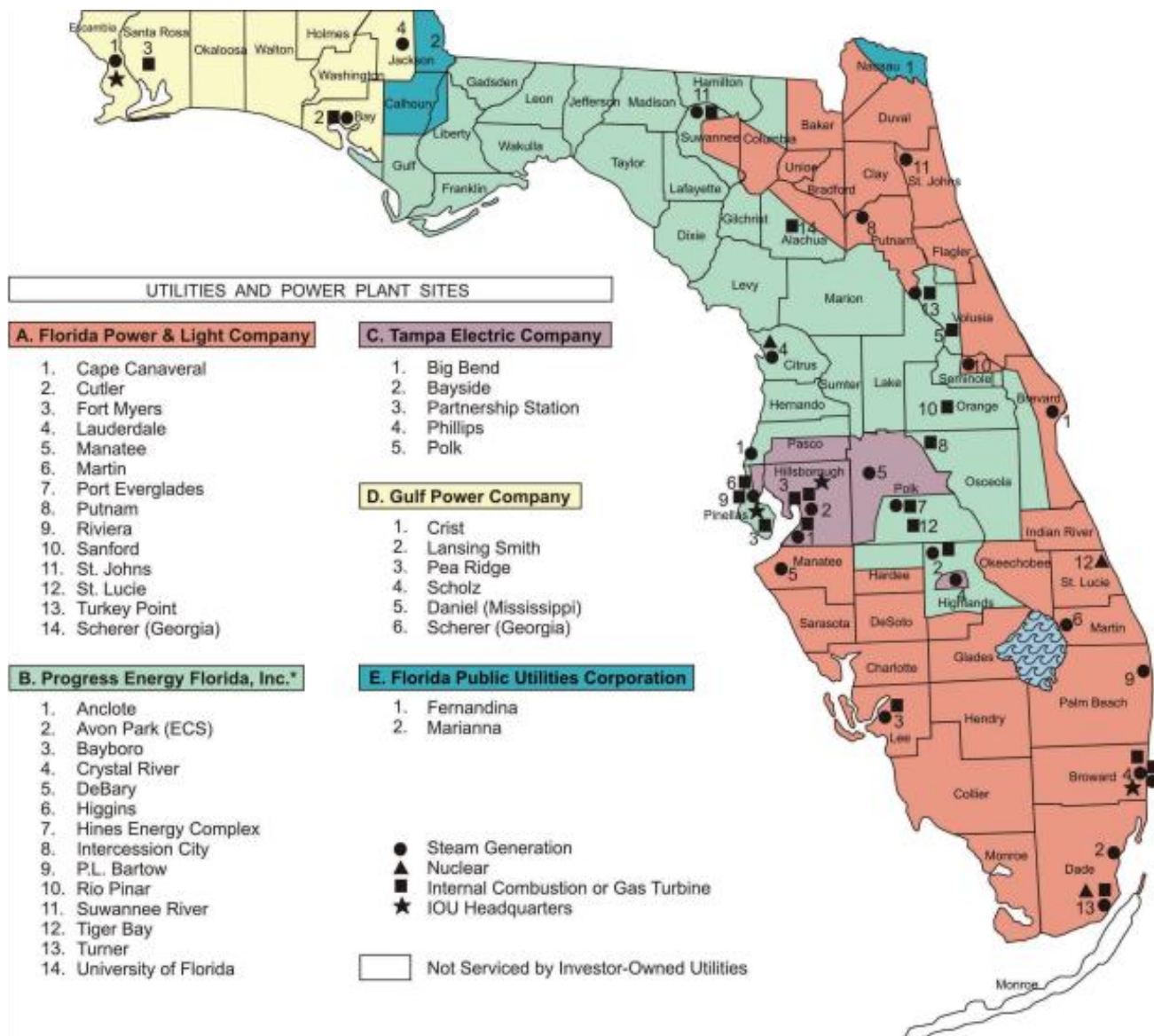
April 24, 2014





NERC REGIONS







Florida Reliability Coordinating Council (FRCC)

- The reliability coordinator for peninsular Florida
- Delegated authority from NERC to propose and enforce reliability standards
- Provides input during 10-year site-plan reviews
- Goal - to ensure and enhance the reliability and adequacy of bulk electricity supply in Florida, now and into the future



FRCC Operations Planning

- Direct changes to planned transmission and substation maintenance activities
- Request changes to planned generator maintenance schedules
- Convene emergency FRCC Operating Committee meetings to resolve potential reliability issues



FRCC Emergency Coordination

- Request and review capacity assessment data as needed
- Evaluate 10-year site-plans with emergency/contingency needs in mind
- Act as the State Capacity Emergency Coordinator in times of crisis



FRCC Real Time Operations

- Contracts with an agent to perform real time monitoring of electricity generation and wholesale sales
- Constant real time data stream to a single review point
- Constant real time data review by engineers and analysts to manage the system



FRCC Real Time Actions

- Direct the termination of wholesale transactions
- Direct operating entities to reconfigure the transmission system
- Direct operating entities to implement operating reserve
- Order interruption of firm load



How does interconnection work efficiently?

Interchange schedules

- Standard schedules for wholesale power purchases
- Multiple schedules with specific requirements for each
- Ensures efficient and timely purchases and sale of wholesale electricity to support reliability



Interchange Schedule Examples

- Emergency Interchange Service: short-term interchange for sudden and unexpected loss of equipment
 - Criteria:
 - Purchaser must implement all DSM measures
 - Purchaser must stop all wholesale sales and provide all capacity and energy to native load
 - Purchaser must use all existing capacity resources before using this schedule



Interchange Schedules cont'd

- Scheduled Maintenance Interchange Service: provides interchange for scheduled removal from service of one or more of purchaser's resources, including transmission
 - Purchaser must plan on outage at least 3 days in advance
 - Purchaser may purchase an amount up to the lower of:
 - Difference between peak native load and available resources OR
 - Maximum amount of capacity expected to be unavailable
- Hourly Economy Interchange: hourly energy only service
 - Price determined by taking $\frac{1}{2}$ the sum of seller's incremental cost and purchaser's decremental cost



Wholesale Interchange for 2013

	Power Sold		Power Purchased	
	MWH	\$	MWH	\$
Duke Energy Florida	59,667	1,894,276	6,718,720	330,149,789
Gulf Power	4,918,616	94,695,182	8,295,824	216,685,778
Florida Power & Light	2,431,748	54,619,237	7,474,356	274,460,834
Tampa Electric Company	222,264	6,507,704	977,433	32,908,417

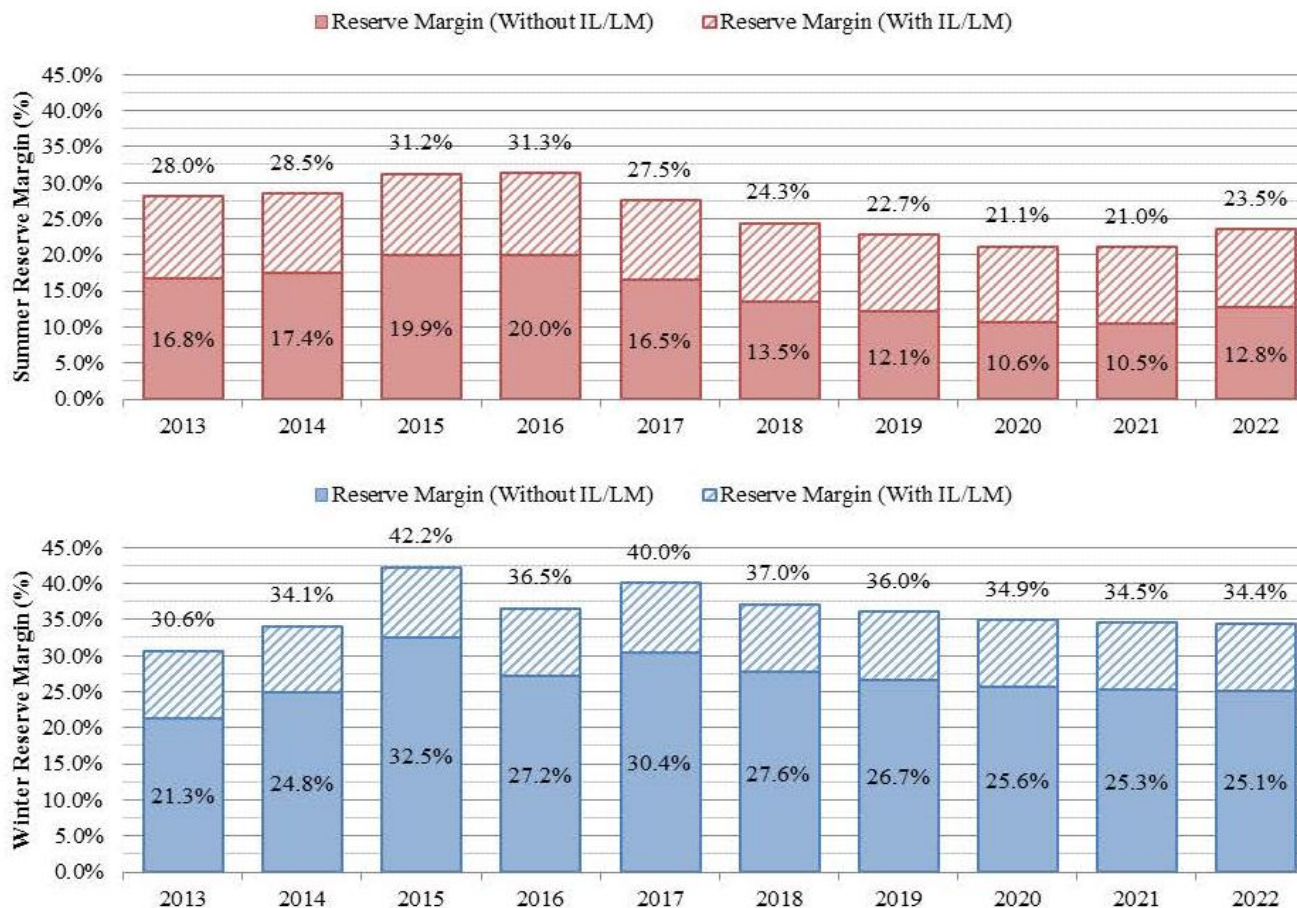


Conclusions

- Ensure coordination flows through a single entity
- Ensure real time data and analysis
- Create interchange schedules with criteria to simplify wholesale purchases
- Reliability coordinator is a stakeholder in long-term planning

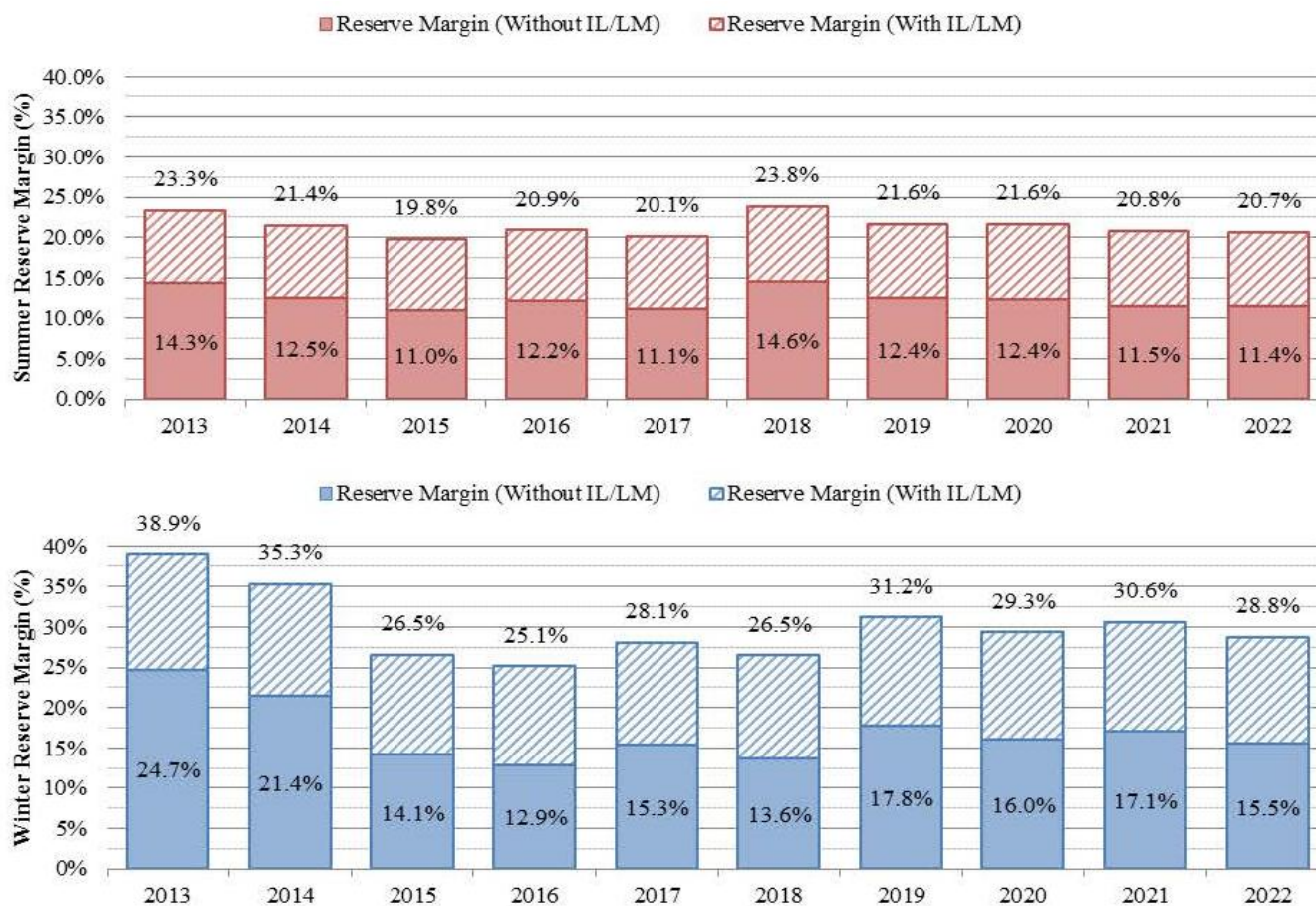


FPL: Seasonal Reserve Margin



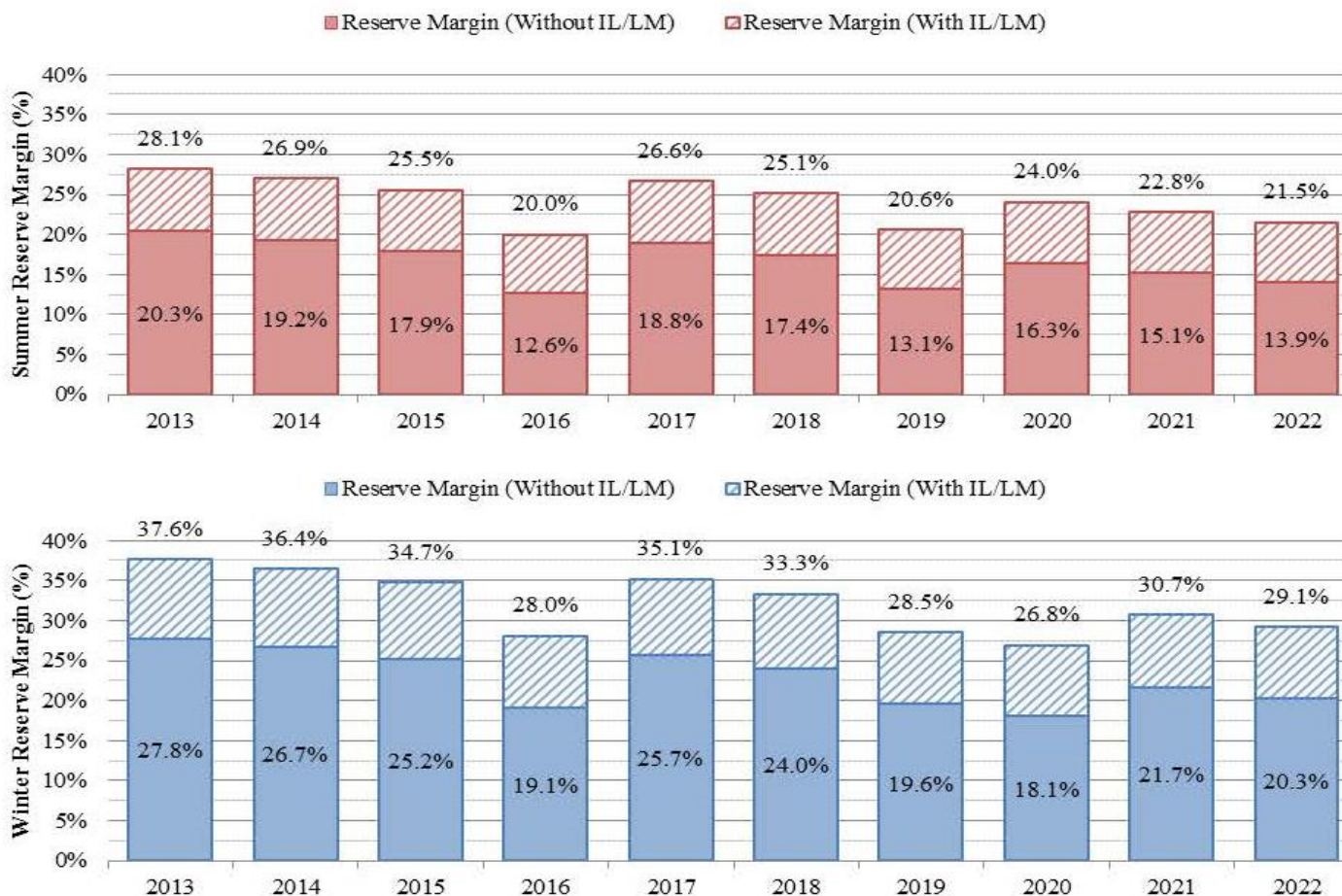


Duke Energy Florida: Seasonal Reserve Margin



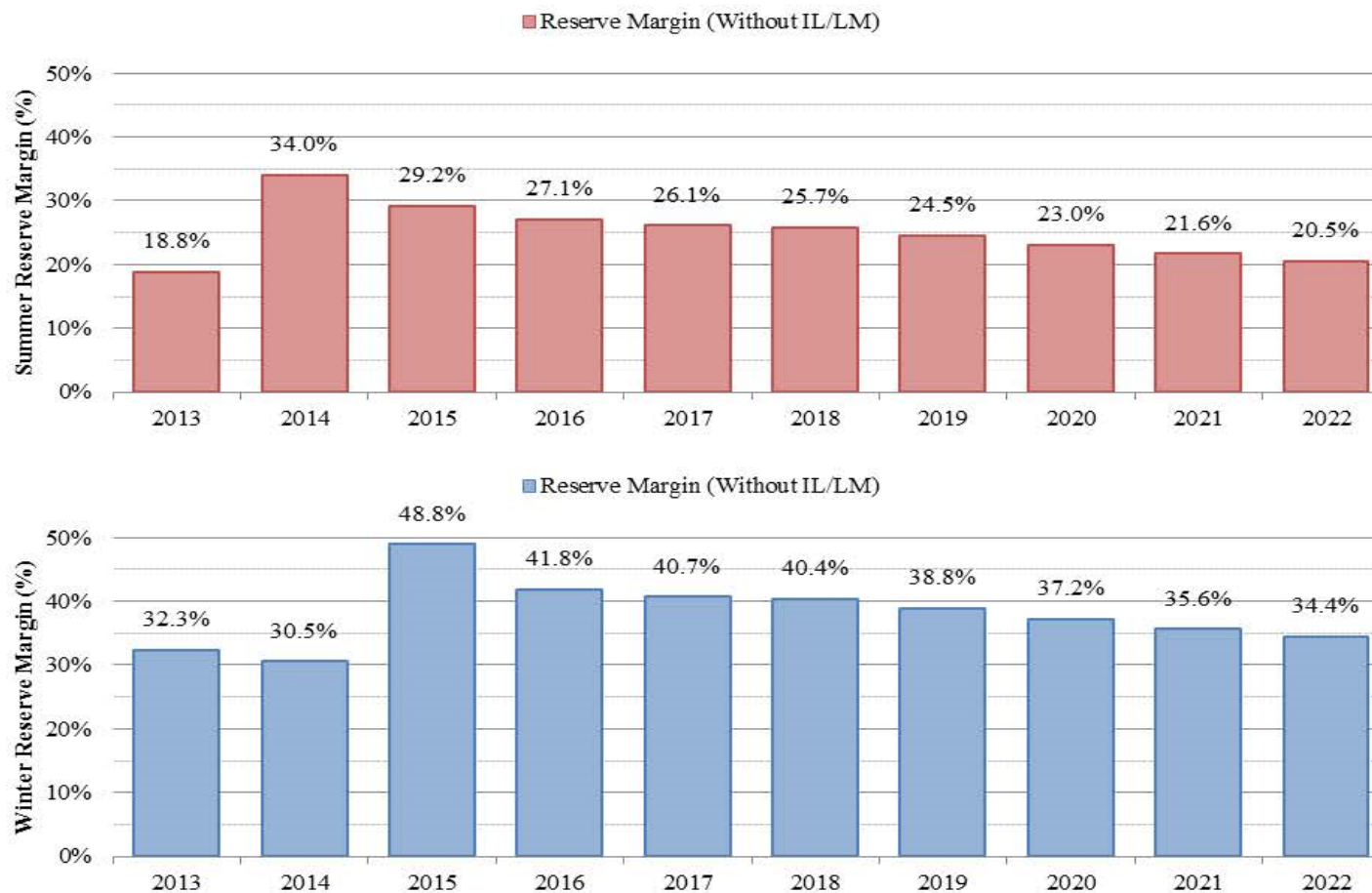


TECO: Seasonal Reserve Margin



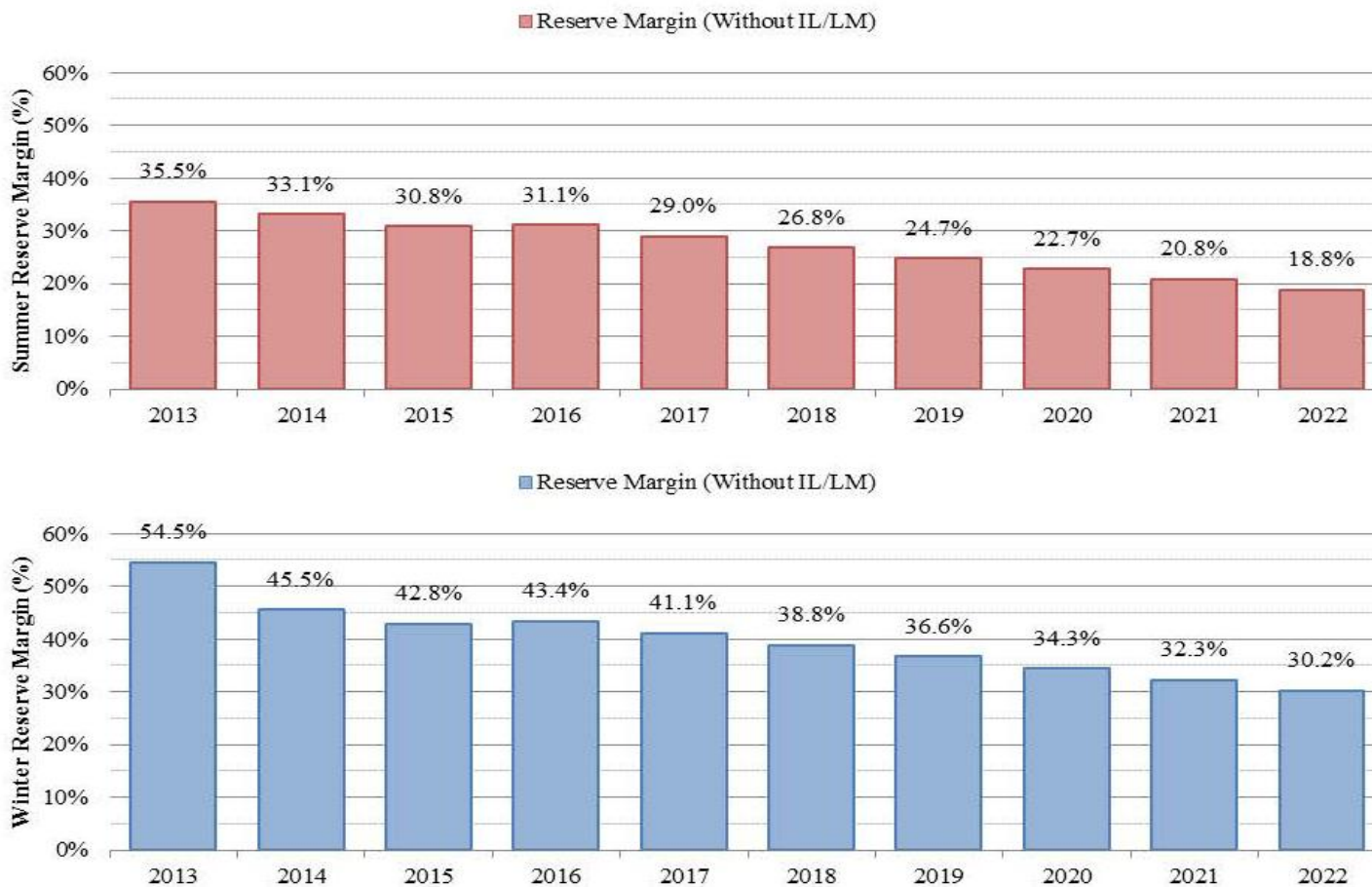


Gulf Power: Seasonal Reserve Margin



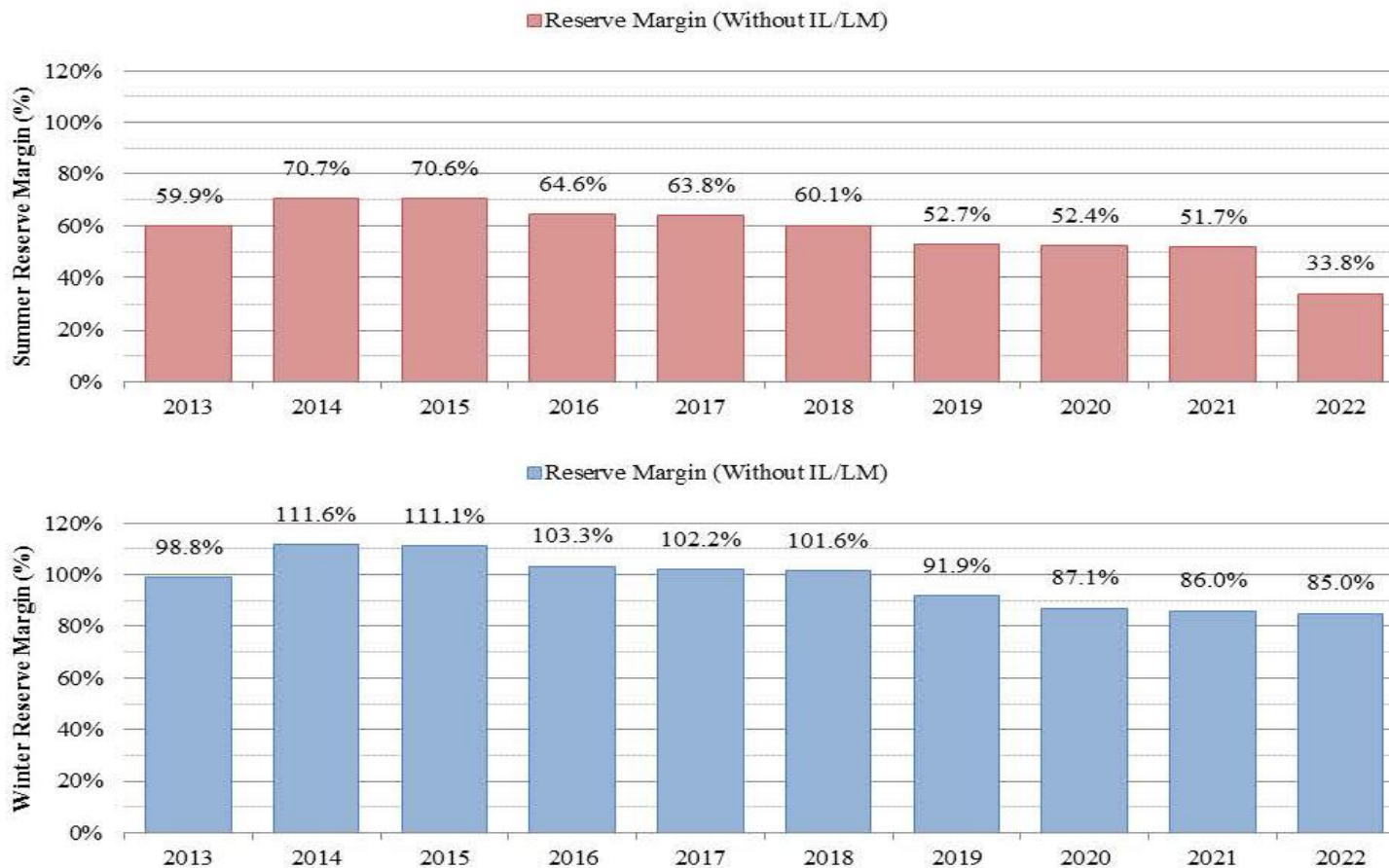


FMPA: Seasonal Reserve Margin



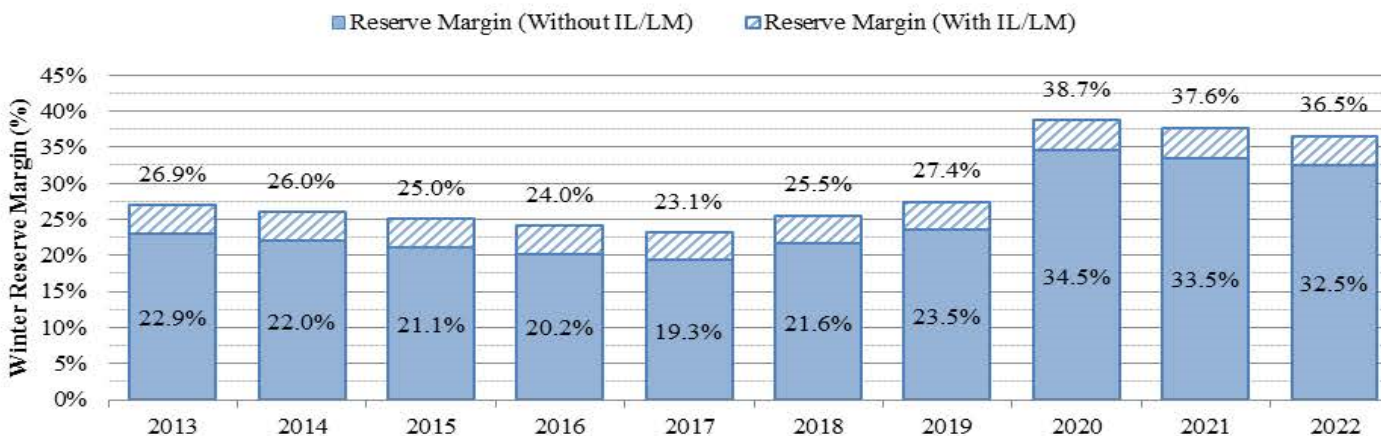
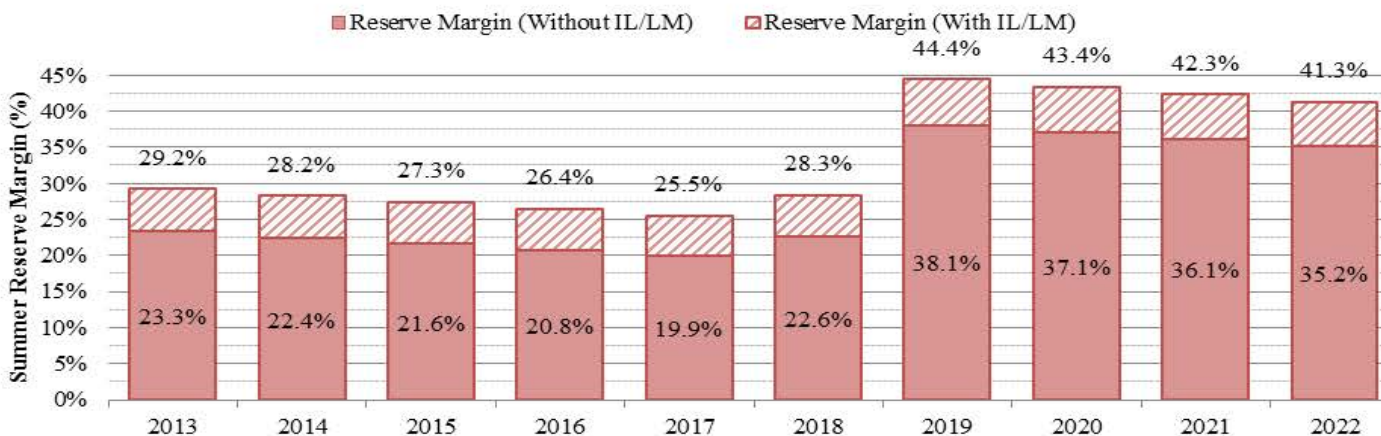


GRU: Seasonal Reserve Margin



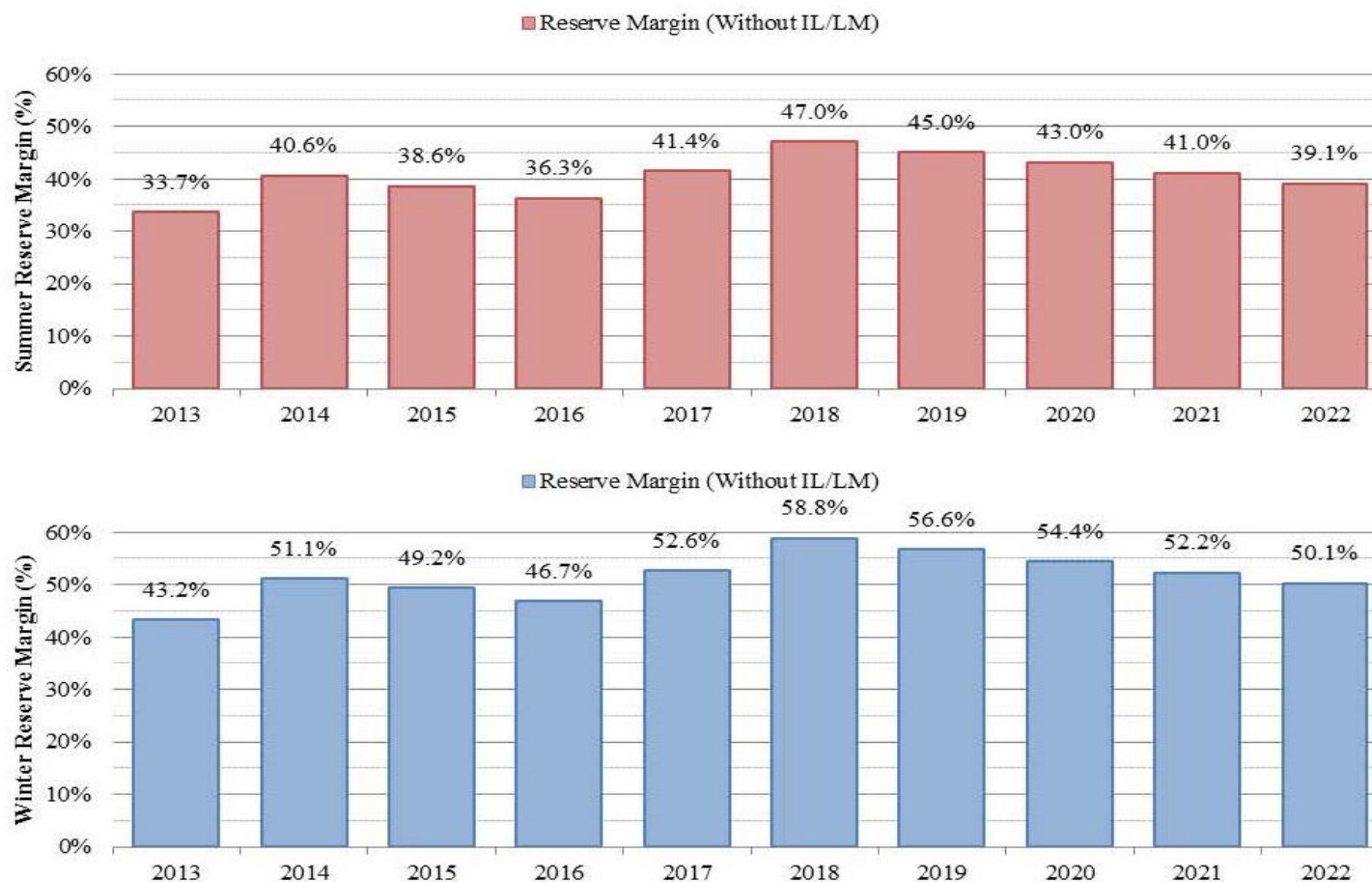


JEA: Seasonal Reserve Margin





OUC: Seasonal Reserve Margin



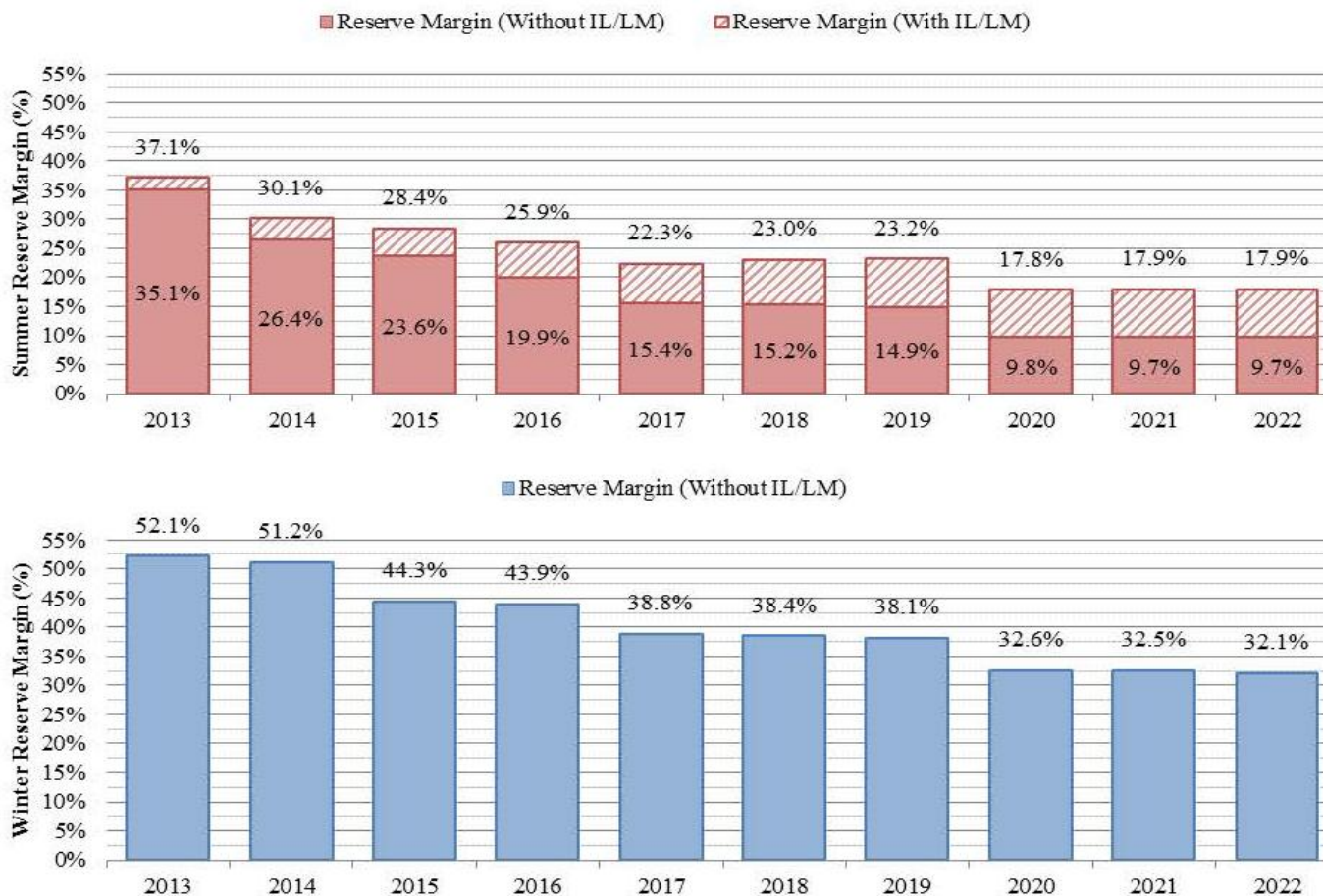


Seminole: Seasonal Reserve Margin



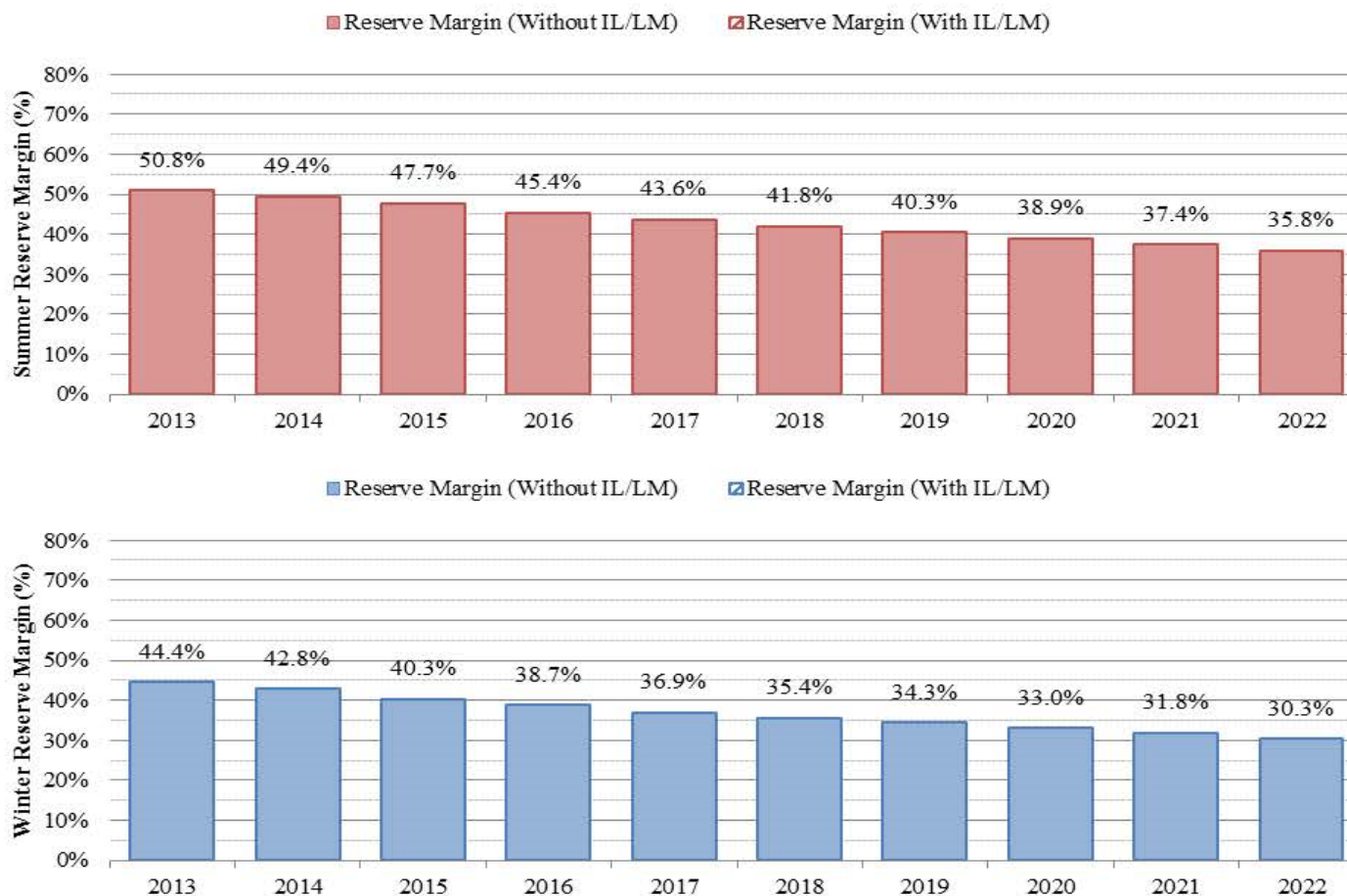


City of Tallahassee: Seasonal Reserve Margin





Lakeland Electric: Seasonal Reserve Margin





**SUMMARY OF CAPACITY, DEMAND, AND RESERVE MARGIN
AT TIME OF SUMMER PEAK**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
YEAR	INSTALLED CAPACITY		FIRM INTERCHANGE		FIRM	TOTAL	TOTAL PEAK DEMAND (MW)	RESERVE MARGIN W/O EXERCISING LOAD MANAGEMENT & INT.		NET FIRM	RESERVE MARGIN WITH EXERCISING LOAD MANAGEMENT & INT	
	INSIDE	OUTSIDE	REGIONAL	REGIONAL	NON-UTILITY	AVAILABLE		(MW)	% OF PEAK	PEAK	(MW)	% OF PEAK
	REGION (MW)	REGION (MW)	IMPORTS (MW)	EXPORTS (MW)	PURCHASES (MW)	CAPACITY (MW)				DEMAND (MW)		
2013	47,532	836	1,340	143	5,168	54,733	45,668	9,065	20%	42,532	12,201	29%
2014	48,674	836	1,340	143	4,409	55,117	46,338	8,779	19%	43,142	11,975	28%
2015	49,550	836	1,340	143	4,481	56,064	47,053	9,011	19%	43,812	12,252	28%
2016	49,739	836	412	143	6,062	56,906	47,650	9,256	19%	44,355	12,551	28%
2017	49,739	836	412	143	5,946	56,789	48,285	8,504	18%	44,907	11,882	26%
2018	50,784	836	512	143	5,446	57,435	48,881	8,554	18%	45,457	11,978	26%
2019	50,756	836	612	143	5,268	57,330	49,603	7,727	16%	46,125	11,205	24%
2020	52,303	836	612	143	4,197	57,806	50,336	7,470	15%	46,808	10,998	23%
2021	53,083	836	612	143	4,147	58,535	51,110	7,425	15%	47,538	10,997	23%
2022	55,087	836	612	143	3,869	60,261	51,968	8,293	16%	48,359	11,902	25%

**SUMMARY OF CAPACITY, DEMAND, AND RESERVE MARGIN
AT TIME OF WINTER PEAK**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
YEAR	INSTALLED CAPACITY		FIRM INTERCHANGE		FIRM	TOTAL	TOTAL PEAK DEMAND (MW)	RESERVE MARGIN W/O EXERCISING LOAD MANAGEMENT & INT.		NET FIRM	RESERVE MARGIN WITH EXERCISING LOAD MANAGEMENT & INT	
	INSIDE	OUTSIDE	REGIONAL	REGIONAL	NON-UTILITY	AVAILABLE		(MW)	% OF PEAK	PEAK	(MW)	% OF PEAK
	REGION (MW)	REGION (MW)	IMPORTS (MW)	EXPORTS (MW)	PURCHASES (MW)	CAPACITY (MW)				DEMAND (MW)		
2013 / 14	50,261	845	1,340	0	5,619	58,065	46,456	11,609	25%	43,384	14,681	34%
2014 / 15	53,327	845	1,340	0	4,773	60,285	47,161	13,124	28%	44,060	16,225	37%
2015 / 16	53,335	845	412	0	4,742	59,335	47,722	11,613	24%	44,596	14,739	33%
2016 / 17	54,053	845	412	0	6,054	61,364	48,251	13,113	27%	45,074	16,290	36%
2017 / 18	53,645	845	512	0	4,559	59,561	48,773	10,788	22%	45,543	14,018	31%
2018 / 19	54,806	845	612	0	5,411	61,673	49,377	12,296	25%	46,105	15,568	34%
2019 / 20	54,945	845	612	0	4,254	60,656	49,989	10,667	21%	46,675	13,981	30%
2020 / 21	57,440	845	612	0	4,435	63,332	50,612	12,720	25%	47,259	16,073	34%
2021 / 22	58,368	845	612	0	4,066	63,891	51,249	12,642	25%	47,870	16,021	33%
2022 / 23	59,607	845	612	0	4,128	65,192	52,101	13,091	25%	48,695	16,497	34%

NOTE - COLUMN 11: NET FIRM PEAK DEMAND = TOTAL PEAK DEMAND - INTERRUPTIBLE LOAD - LOAD MANAGEMENT.



Load and Resource Plan FRCC Planned Reserve Margin

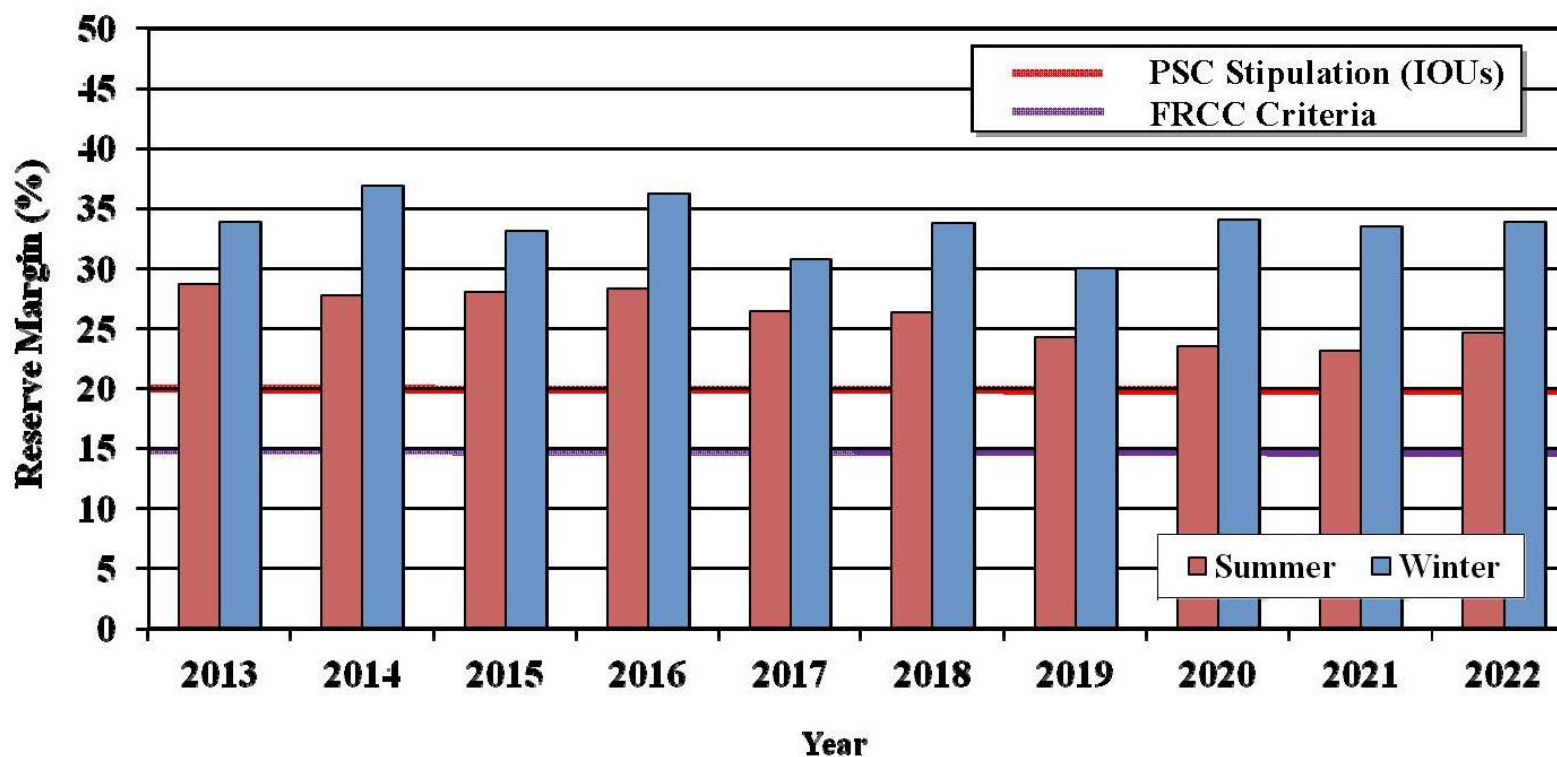




Figure 11: State of Florida - Seasonal Reserve Margin (Summer & Winter)



Source: 2013 FRCC Regional Load & Resource Plan