

# Intermittent Output and CIRs

PC Special Session-  
CIRs for ELCC  
Resources  
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IMM



Monitoring Analytics

# Intermittent Generation in Excess of ICAP: 2019

## 2019 Summer Testing Hours (June through August, 2pm - 6pm)

	MWh	MWh > ICAP	Percent
Solar	281,924.2	74,348.8	26.4%
Wind	559,859.2	308,554.1	55.1%
Solar & Wind	841,783.4	382,902.9	45.5%

# Intermittent Generation in Excess of ICAP: 2020

## 2020 Summer Testing Hours (June through August, 2pm - 6pm)

	MWh	MWh > ICAP	Percent
Solar	367,693.5	90,858.6	24.7%
Wind	463,991.8	226,610.6	48.8%
Solar & Wind	831,685.3	317,469.2	38.2%

# Intermittent Generation in Excess of ICAP: 2021

## 2021 Summer Testing Hours (June through August, 2pm - 6pm)

	MWh	MWh > ICAP	Percent
Solar	756,448.6	222,893.6	29.5%
Wind	565,146.0	281,788.1	49.9%
Solar & Wind	1,321,594.6	504,681.7	38.2%

# Intermittent Generation in Excess of ICAP: 2019-2021

## 2019 - 2021 Summer Testing Hours (June through August, 2pm - 6pm)

	MWh	MWh > ICAP	Percent
Solar	1,406,066.2	388,100.9	27.6%
Wind	1,588,997.1	816,952.9	51.4%
Solar & Wind	2,995,063.3	1,205,053.8	40.2%

# Intermittent Generation Above ICAP

- **Definitions:**
  - **ICAP is the derated MW value of a resource**
  - **ICAP is the amount of capacity sold in the PJM capacity market**
  - **ICAP equals CIR value**

# Intermittent Generation Above ICAP

- **Summer testing hours are defined by PJM as the 368 hours between 2pm and 6pm, beginning on June 1 and ending on August 31.**
- **For each wind and solar generator, hourly generation was compared to the generator's ICAP over three summer testing periods, 2019-2021.**
- **The MWh in excess of ICAP equals the sum of the hourly generation in excess of the MWh produced by the rated ICAP during the summer testing hours.**

# Wind and Solar ICAP

Fuel	Current ICAP (MW)	ICAP based on Max MWH		ICAP based on current CIR levels	
		ICAP <sub>1</sub> (MW)	Percent Difference	ICAP <sub>2</sub> (MW)	Percent Difference
Solar	1,818.4	3,563.3	96.0%	1,455.6	(20.0%)
Wind	1,575.4	8,922.2	466.3%	804.7	(48.9%)
Wind & Solar	3,393.8	12,485.5	267.9%	2,260.3	(33.4%)



# ICAP Calculations

- **Current ICAP: ICAP rating using Appendix B of PJM Manual 21**
  - **Manual 21 uses the terms rated ICAP and UCAP for the same concept.**
- **ICAP<sub>1</sub>: the maximum generation for each wind and solar generator over three summer testing periods.**
- **ICAP<sub>2</sub>: the value obtained by capping the hourly generation for each wind and solar generator at the CIR and applying the method in Appendix B of PJM Manual 21.**

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