

CC Model

Operating Committee
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Joel Romero Luna



Monitoring Analytics

Combined Cycles in PJM

- **PJM has 65 combined cycles.**
- **Total summer capacity: 25,542 MW (EIA).**

Summer Capacity	Cogen	Not cogen	Not cogen
≥ 100 MW	9	49	58
< 100 MW	6	1	7
Total	15	50	65

- **The following data covers the 49 combined cycles (≥ 100 MW that are not co-generators).**

Combined Cycles in PJM

Configuration	Number of CCs	Summer
		Capacity (MW)
1x1	8	1,755
2x1	29	14,110
3x1	10	6,263
4x1	2	909
Total	49	23,037

Duct Burners	Number of CCs	Summer
		Capacity (MW)
No	16	7,058
Yes	33	15,979
Total	49	23,037

Combined Cycles Offers

- **Historically combined cycles have been offered using four different unit ID configuration. Some participants use a single unit ID per CC other use multiple.**
- **Combined cycles are offered using sloped curves or blocks.**

Combined Cycles Offers

- **CC have a required (unless exempt) turn down ratio of 1.5**

Configuration	Max TDR	Average TDR	Min TDR	Number of CCs with TDR < 1.5
2x1	3.87	2.06	1.00	7
3x1 or greater	5.79	2.12	1.17	6

- **CC turn down ratio statistics excluding exempt units:**

Configuration	Max TDR	Average TDR	Min TDR
2x1	3.87	2.32	1.50
3x1 or greater	5.79	2.85	1.53

CC Model Benefits

- **Efficient use of combined cycles with multiple configurations.**
 - **PJM DA and RT models decide most optimal configuration depending on expected load profile and system conditions.**
- **Efficient use of peaking output.**
 - **PJM DA and RT models decide best time to call on/off equipment complying with technical parameters.**

CC Model Benefits

- **These outcomes lead to:**
 - **Operational flexibility**
 - **More accurate pricing**
 - **Lower energy uplift costs**
 - **Lower production costs**



CC Model Benefits

- **Enabling PJM models to decide on which configuration a CC should be operating, taking into account transition costs and times, could lead to units ramped using lower minimum output and a smoother ramp.**
- **Enabling PJM models to decide when to call on/off the peaking portion of a CC could lead to a more efficient commitment instead of being operators decision or self-scheduling the entire unit.**

Monitoring Analytics, LLC
2621 Van Buren Avenue
Suite 160
Eagleville, PA
19403

(610) 271-8050

MA@monitoringanalytics.com
www.MonitoringAnalytics.com

