



2023 RTP Assumptions Update

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April 11, 2023

Agenda

- DC tie dispatch
- Wind dispatch
- Solar dispatch
- Hydro dispatch
- Rooftop solar incorporation
- EV load incorporation
- Final load levels

DC Tie Dispatch

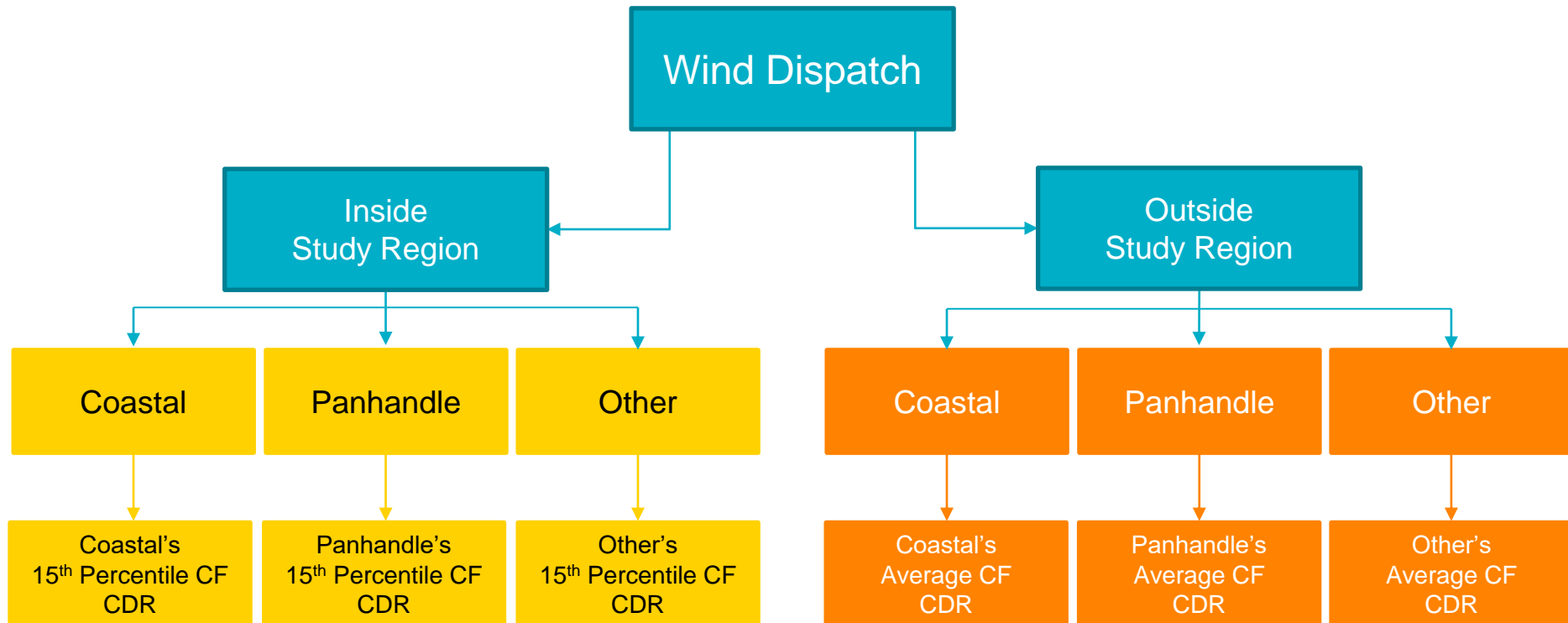
- **Summer Peak Cases:**
 - Analyzed DC tie flows during the top 20 load hours for the past 3 years (60 hours total)
- **Minimum Load Case:**
 - Analyzed DC tie flows during the bottom 20 load hours for the past 3 years (60 hours total)

DC Tie	Summer Peak Cases			Minimum Load Case		
	2023 RTP	2022 RTP	2021 RTP	2023 RTP	2022 RTP	2021 RTP
East	600 MW (IMPORT)	600 MW (IMPORT)	600 MW (IMPORT)	0 MW	0 MW	0 MW
North	220 MW (IMPORT)	220 MW (IMPORT)	220 MW (IMPORT)	0 MW	0 MW	0 MW
Laredo	0 MW	0 MW	0 MW	0 MW	0 MW	0 MW
Railroad	0 MW	0 MW	0 MW	0 MW	0 MW	0 MW

See Appendix for detailed top and bottom 20 load hours data

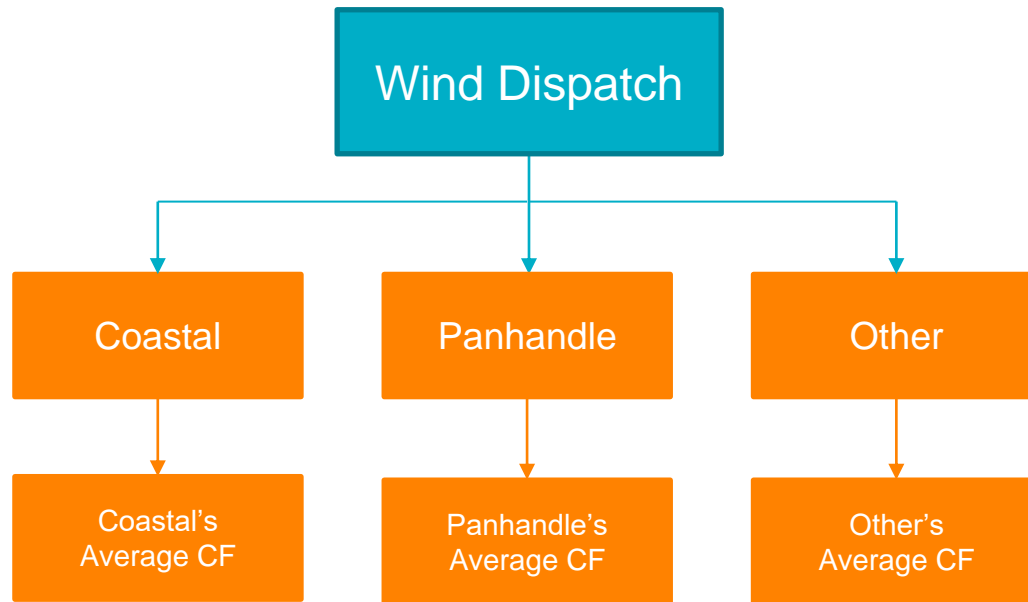
Wind Dispatch Methodology: Summer Peak

- **Outside Study Region:**
 - CDR weighted average capacity factor (CF) for each wind region (Coastal, Panhandle, Other)
 - Based on top 20 load hours of each year (past 10 years)
- **Inside Study Region:**
 - CDR weighted 15th percentile¹ CF for each wind region (Coastal, Panhandle, Other)
 - Based on top 20 load hours of each year (past 10 years)



Wind Dispatch Methodology: Minimum Load

- **All Wind:**
 - Weighted average CF for each wind region (Coastal, Panhandle, Other)
 - Based on bottom 20 load hours of each year (past 3 years)



Wind Dispatch Capacity Factors

Case		2023 RTP Wind Capacity Factors		
		Coastal	Panhandle	Other
Summer Peak	Inside Study Region	46%	13%	8%
	Outside Study Region	60%	30%	21%
Minimum Load	All Study Regions	29%	49%	39%

Solar Dispatch

- **Summer Peak Cases:**
 - CDR weighted average capacity factor for all of ERCOT
 - Based on top 20 load hours of each year (past 3 years)
- **Minimum Load Case:**
 - All solar offline

Case	2023 RTP Solar Capacity Factor
Summer Peak	79%
Minimum Load	Offline

Hydro Dispatch

- **Summer Peak Cases:**
 - CDR weighted average capacity factor for all of ERCOT
 - Based on top 20 load hours of each year
- **Minimum Load Case:**
 - All hydro offline

Case	2023 RTP Hydro Capacity Factor
Summer Peak	84%
Minimum Load	Offline

Rooftop Solar Growth Forecast Incorporation

- Rooftop solar impact taken from ERCOT's 90th percentile summer peak demand forecast

SUM (MW)	2025	2026	2028	2029
Coast	103	132	190	219
East	19	21	27	28
North	15	19	27	31
North Central	261	290	275	275
South	251	291	366	370
South Central	229	295	459	523
West	33	42	60	69
Far West	34	43	62	67
TOTAL	945	1,133	1,466	1,582

- Weather zone loads will be reduced based on these values

EV Load Incorporation

- At October 2022 RPG, Brattle presented their EV Allocation Study
 - [Methodology for determining EV load impact at the substation level](#)
- Brattle Hourly EV Load by Substation
 - Substation
 - Year
 - Season (Winter/Spring/Summer/Fall)
 - Day (Weekday/Weekend)
 - Hour

Top Load Historical Hours

Top Load Data Analysis:

- Evaluated the top 20 load hours for the past 10 years (200 hours total)
- Evaluated the data by month and hour

Month	Count	Percent	Note
January	0	0%	
February	0	0%	
March	0	0%	
April	0	0%	
May	0	0%	
June	0	0%	100%
July	68	34.0%	
August	131	65.5%	
September	1	0.5%	
October	0	0%	
November	0	0%	
December	0	0%	
Total:	200		

Hour Ending	Count	Percent	Note
1	0	0%	
.	0	0%	
.	0	0%	
.	0	0%	
14	0	0%	
15	21	10.5%	100%
16	50	25.0%	
17	67	33.5%	
18	49	24.5%	
19	13	6.5%	
20	0	0%	
21	0	0%	
22	0	0%	
23	0	0%	
24	0	0%	
Total:	200		

Day	Count	Percent
Weekday	194	97%
Weekend	6	3%
Total:	200	

RTP Methodology (SUM)

- Brattle Hourly EV Load by Substation
 - Substation
 - Year (2022-2029)
 - Season (Winter/Spring/Summer/Fall)
 - Day (Weekday/Weekend)
 - Hour (hours ending 1-24)
- RTP Methodology
 - 2025, 2026, 2028, 2029
 - Summer
 - Weekday
 - Max(hours ending 15-19)
 - Apply to bus within substation

SUM (MW)	2025	2026	2028	2029
Coast	110	153	290	394
East	11	18	36	49
North	8	11	21	29
North Central	160	224	430	587
South	22	31	60	81
South Central	94	131	251	342
West	7	10	19	26
Far West	28	39	75	103
TOTAL	439	617	1,183	1,610

Minimum Load Historical Hours

- Min Load Data Analysis:

- Evaluated the bottom 20 load hours for the past 10 years (200 hours total)
- Evaluated the data by month and hour

Month	Count	Percent	Note
January	0	0%	
February	25	16%	
March	43	21.5%	70%
April	76	40.5%	
May	13	8%	
June	0	0%	
July	0	0%	
August	0	0%	
September	0	0%	
October	14	5%	
November	8	7.5%	
December	1	0.5%	
Total:	200		

Hour Ending	Count	Percent	Note
1	1	0.5%	
2	4	2.0%	
3	42	21.0%	95.5%
4	77	38.5%	
5	53	26.5%	
6	19	9.5%	
7	2	1.0%	
8	2	1.0%	
9	0	0%	
.	0	0%	
.	0	0%	
.	0	0%	
24	0	0%	
Total:	200		

Day	Count	Percent
Weekday	87	43%
Weekend	113	57%
Total:	200	

RTP Methodology Options (MIN)

- Brattle Hourly EV Load by Substation
 - Substation
 - Year (2022-2029)
 - Season (Winter/Spring/Summer/Fall)
 - Day (Weekday/Weekend)
 - Hour (hours ending 1-24)
- RTP Methodology
 - 2026
 - Spring
 - Weekend
 - Max(hours ending 03-06)
 - Apply to bus within substation

MIN (MW)	2026
Coast	36
East	6
North	3
North Central	55
South	10
South Central	27
West	4
Far West	12
TOTAL	152

Load Forecast (MW): 2023 RTP Load Level with Rooftop PV and EV Impacts (less self-serve load and losses)

Year	Coast	East	Far West	North	North Central	South Central	South	West	Total NCP*
2025	24,326	3,356	11,747	5,543	31,754	17,123	7,566	3,076	104,491
2026	24,586	3,422	13,426	5,678	31,955	17,395	7,585	3,143	107,191
2028	25,150	3,519	13,952	5,852	32,519	17,824	7,638	3,269	109,723
2029	25,463	3,580	14,206	5,864	32,791	18,023	7,704	3,259	110,890

Study Year	Total Approved Large Load Additions (MW) <i>Included in totals above</i>
2025	7,098
2026	8,420
2028	8,426
2029	8,426

*NCP: Non-Coincident Peak

Questions / Comments

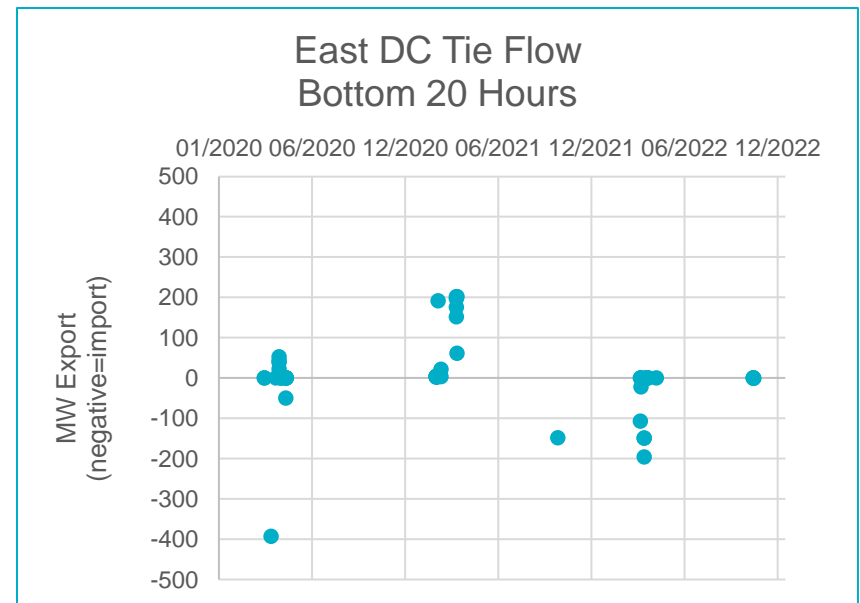
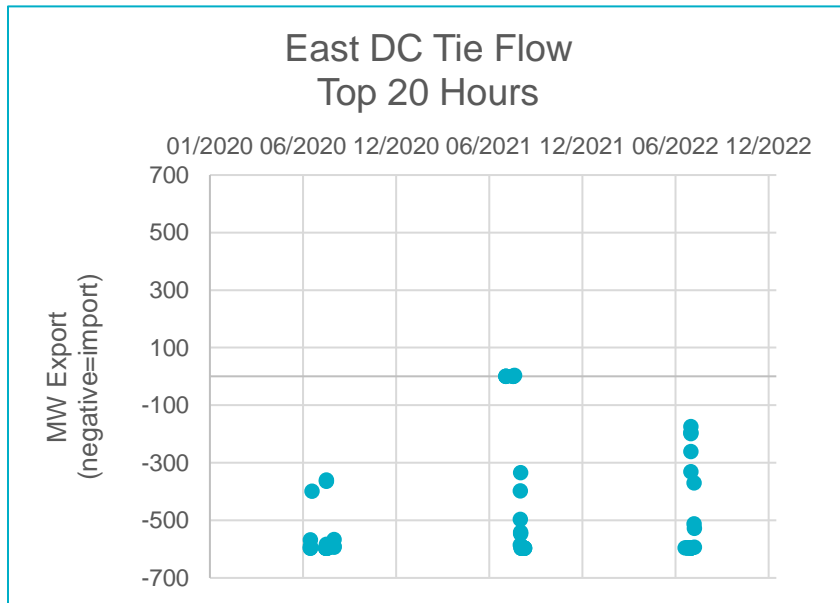
- Please send questions and/or comments to:
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Appendix

2020-22 Top/Bottom 20 Load Hours – East DC Tie

2020 - 2022 Top 20 Load Hours	
Average Flow	465.6 MW Import
Median Flow	591.4 MW Import
Flow	% of hours within range
Import 550 – 600 MW	61.67%
Import 500 – 550 MW	6.67%
Import 200 – 500 MW	15%
Import 0 – 200 MW	5%
No Flow	11.67%

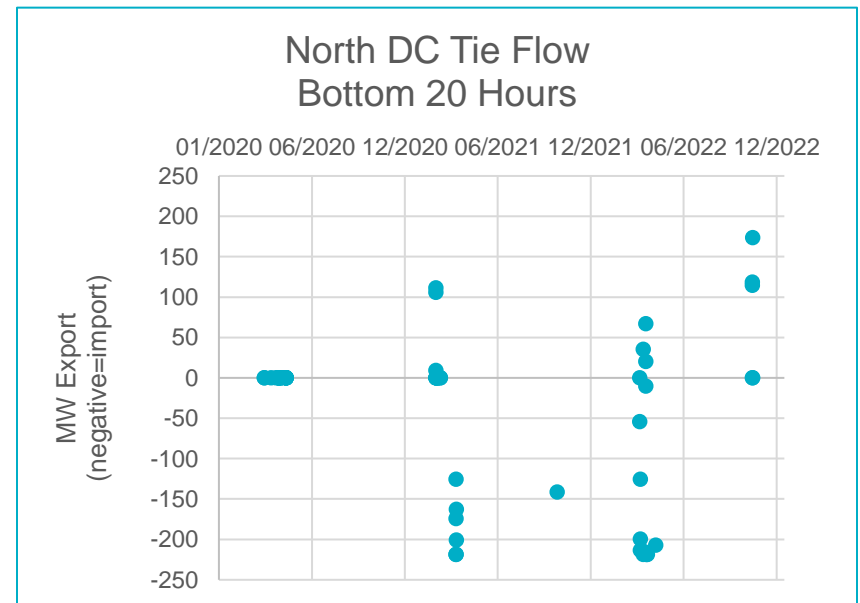
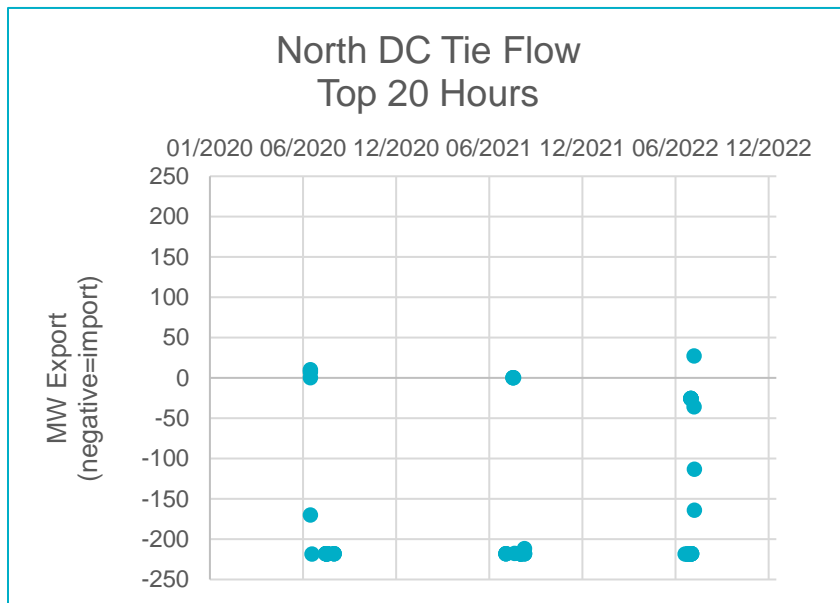
2020 - 2022 Bottom 20 Load Hours	
Average Flow	3.3 MW Export
Median Flow	0.5 MW Export
Flow	% of hours within range
Import 100 – 600 MW	10%
Import 5 – 100 MW	3.33%
No Flow	66.67%
Export 5 – 250 MW	20%
Export 250 – 600 MW	0%



2020-22 Top/Bottom 20 Load Hours – North DC Tie

2020 - 2022 Top 20 Load Hours	
Average Flow	169.5 MW Import
Median Flow	218.3 MW Import
Flow	% of hours within range
Import 200 – 220 MW	73.33%
Import 100 – 200 MW	5.00%
Import 0 – 100 MW	15.00%
Export 0 – 100 MW	6.67%
Export 100 – 220 MW	0.00%

2020 - 2022 Bottom 20 Load Hours	
Average Flow	39.8 MW Import
Median Flow	0.0 MW
Flow	% of hours within range
Import 200 – 220 MW	16.67%
Import 5 – 200 MW	13.33%
No Flow	55.00%
Export 5 – 200 MW	15.00%
Export 200 – 220 MW	0.00%



2020-22 Top/Bottom 20 Load Hours – Railroad DC Tie

2020 - 2022 Top 20 Load Hours	
Average Flow	13.6 MW Import
Median Flow	0.0 MW Import
Flow	% of hours within range
Import 150 – 300 MW	0.00%
Import 50 – 150 MW	11.67%
Import 5 – 50 MW	25.00%
No Flow	63.33%
Export 5 – 300 MW	0.00%

2020 - 2022 Bottom 20 Load Hours	
Average Flow	43.8 MW Export
Median Flow	0.0 MW
Flow	% of hours within range
Import 5 – 300 MW	0.00%
No Flow	63.33%
Export 5 – 100 MW	21.67%
Export 100 – 200 MW	1.67%
Export 200 – 300 MW	13.33%

