



**MEMORANDUM**

To: Sandie Haverlah - Consumer Fund of Texas  
From: Joshua Rhodes, PhD - IdeaSmiths LLC  
Date: May 20, 2023  
Re: Preliminary analysis of the impact of DRRS

IdeaSmiths LLC has been retained by Consumer Fund of Texas to provide an analysis of the overall cost and market implications of Texas Senate Bill 7<sup>1</sup> (SB7). IdeaSmiths has partnered with Astrapé Consulting for modeling support and is actively working to complete that analysis.

This memo serves to provide a preliminary look at the implications of the Dispatchable Reliability Reserve Service (DRRS) program. DRRS has been proposed as an additional market product corresponding to the uncertainty product recommended by the IMM.<sup>2,3</sup> DRRS has been described as a day-ahead reserve product that would be an additional ancillary service deployed when ERCOT uncertainty associated with IRR output and load increases. We estimate that the DRRS program would increase costs by about \$4B/year, on average, over business as usual.

A recent report by Bates White Consulting<sup>4</sup> quantified the DRRS requirements using the 99<sup>th</sup> percentile of the 6-hour forecast uncertainty for renewable resources in the IMM’s assessment. The work that supports this memo used the Bates White assessment as a template and modeled DRRS requirements as a function of the 99<sup>th</sup> percentile of the 6-hour forecast uncertainty, load-forecast error, and unplanned historical outages. This was estimated at an average requirement in 2024 of about 9.5 GW.

The Bates White report priced the DRRS with a 10% discount to recent non-spinning reserve prices. This assessment means that the additional ancillary service requirements are priced according to the non-spinning reserves procurement of today when there is no scarcity. The report estimated the annual DRRS revenue in 2024 as about \$1.7B/year.<sup>5</sup>

<sup>1</sup> <https://capitol.texas.gov/tlodocs/88R/billtext/pdf/SB00007E.pdf#navpanes=0>

<sup>2</sup> The IMM addresses the proposed uncertainty product in the 2021 State of the Market Report (May 2022) (<https://www.potomaceconomics.com/wp-content/uploads/2022/05/2021-State-of-the-Market-Report.pdf>), and also in comments filed in PUCT project No. 52373, [https://interchange.puc.texas.gov/Documents/52373\\_178\\_1160003.PDF](https://interchange.puc.texas.gov/Documents/52373_178_1160003.PDF)

<sup>3</sup> DRRS was described in some detail in comments by the Coalition for Dispatchable Reliability Reserve Services filed in PUCT Project No. 52373, [https://interchange.puc.texas.gov/Documents/52373\\_384\\_1258736.PDF](https://interchange.puc.texas.gov/Documents/52373_384_1258736.PDF)

<sup>4</sup> DRRS product quantified in a recent report by Bates White Consulting. [https://www.bateswhite.com/media/news/234\\_ERCOT%20Reforms%20Initial%20Review\\_Bates%20White.pdf](https://www.bateswhite.com/media/news/234_ERCOT%20Reforms%20Initial%20Review_Bates%20White.pdf)

<sup>5</sup> 9,500 MW \* 8760 hours \* \$20.24/MWh = \$1.7B



However, the above assessment does not account for the scarcity created in the market due to the additional procurement of 9.5 GW of ancillary products. This work used a similar approach to quantify the DRRS requirements as mentioned above but also included the impact of load forecast error, weather variability, and unplanned outages. The 12x24 for this estimated DRRS product procurement averages out to 9.5 GW can be seen in Figure 1.

	1	2	3	4	5	6	7	8	9	10	11	12
1	10,217	10,082	9,061	10,959	9,189	10,185	8,353	9,617	8,614	8,937	7,853	13,350
2	10,292	11,070	9,779	11,676	9,415	9,876	8,175	10,334	9,145	11,342	7,273	14,276
3	10,057	11,166	10,613	11,180	9,050	10,376	9,015	10,429	8,016	11,207	7,750	14,740
4	10,701	10,006	10,166	10,547	8,724	11,386	8,575	10,118	8,033	9,627	7,616	16,417
5	10,700	10,478	9,496	9,799	8,069	11,304	8,687	9,398	8,058	9,724	8,157	19,095
6	11,340	10,287	7,784	9,115	7,437	9,576	7,362	8,419	7,621	8,754	8,046	21,175
7	11,414	10,565	7,848	8,725	7,436	10,250	7,246	8,643	8,020	8,695	8,354	20,738
8	12,684	12,067	8,661	9,170	9,040	10,351	9,765	10,362	9,157	9,864	9,915	20,881
9	10,711	10,685	8,274	8,872	8,632	8,384	8,565	10,024	8,334	8,824	10,481	19,163
10	9,545	12,925	8,195	10,341	7,654	7,322	7,329	8,610	9,224	9,035	12,657	17,794
11	8,994	11,451	5,931	8,212	6,030	6,469	7,611	7,527	7,565	7,806	12,490	17,562
12	9,929	11,144	6,604	9,945	5,901	7,295	9,697	9,356	8,325	8,605	11,144	17,334
13	9,465	10,616	6,789	9,478	6,807	8,151	8,825	8,883	9,295	9,795	11,361	15,298
14	10,034	11,203	6,474	9,807	6,680	7,641	8,300	8,350	10,166	9,021	11,835	15,000
15	10,100	11,464	6,279	9,957	6,508	7,979	8,105	7,633	9,294	8,287	10,646	13,488
16	10,052	11,150	7,270	9,938	7,494	7,956	8,130	8,225	8,597	8,076	10,961	12,735
17	9,802	10,972	7,273	9,825	6,208	8,536	8,152	8,341	7,976	7,199	11,334	11,990
18	9,846	10,931	6,637	9,984	6,847	9,069	8,114	8,988	7,237	8,375	9,963	13,768
19	11,319	10,322	7,766	10,641	6,556	8,241	7,788	8,156	6,820	11,303	8,720	12,433
20	11,470	8,406	7,966	8,897	7,156	8,568	7,840	7,422	7,698	10,321	8,719	10,084
21	11,278	8,123	6,495	8,661	7,343	8,006	8,429	7,923	7,492	8,564	8,782	11,461
22	11,082	7,603	6,852	7,571	7,575	9,470	9,425	8,163	6,930	8,947	8,215	12,871
23	10,803	7,845	7,257	8,940	8,129	9,450	8,324	7,442	6,544	9,237	6,940	12,949
24	9,798	9,045	8,111	9,585	7,649	9,143	7,935	7,476	6,550	9,022	7,755	12,164

*Figure 1: Figure showing the estimated hourly average levels (MW) of DRRS that would be needed to be procured in each month for the full DRRS program.*

If implemented, we estimate that the DRRS product would cost about \$4B/year more than business as usual. This rise in total system costs can be directly attributed to the increase in scarcity pricing that is introduced into the market during non-scarce hours which is due to the procurement of additional resources for the DRRS product.