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REVIEW OF WHOLESALE ELECTRIC MARKET DESIGN	**§ §**	**PUBLIC UTILITY COMMISSION OF TEXAS**

COMMENTS OF EOLIAN, L.P.

Eolian, L.P. (Eolian) filed these additional comments regarding the Dispatchable Portfolio Standard (DPS Proposal or DEC Proposal) proposed by Commissioner McAdams on November 17, 2021. Commissioner McAdams' DPS Proposal gives the highest likelihood of solving the system need for immediate investment in new dispatchable generation while preserving low costs to consumers through the use of a proven, made in Texas, self-regulating market mechanism. The following comments are meant to provide (a) a succinct summary of the dispatchable energy credit proposal and (b) a refutation of comments made on Friday November 19, 2021 by the Brattle Group and the comments filed by the Texas Competitive Power Advocates on November 30, 2021, in regards to said proposal.

1. How Could A Dispatchable Energy Credit work?

HOW TO EARN A DEC: One tradable Dispatchable Energy Credit ("DEC") would be created for each MWh bid and cleared by a qualified facility any hour between 6:00 – 20:00 through RRS, ECRS and Online Non-spin ancillary services, or in the Day-Ahead or Real-Time Energy Markets.

DEC-COMPLIANCE QUALIFICATION: To meet ERCOT's specific reliability needs, a qualifying DEC-compliant facility would have to be able to:

- ramp from cold-start to full facility production capability within five minutes, with equally fast ramp-down and load-following capabilities
- have a heat rate of ≤ 8,000 Btu/kWh net nameplate (LHV)
- for storage facilities, be able to produce at full or derated output for at least two hours

- have an interconnection to the ERCOT transmission network to be dispatchable by ERCOT

DISPATCHABLE PORTFOLIO STANDARD: Similar to RECs, retail entities in the ERCOT region would be assigned a DEC obligation in proportion (starting at ~4%) to their share of the prior year's system demand during key peak seasonal intervals. This volume is sized to incentivize the construction of enough DEC-compliant MW capacity to meet 2% annual load growth. If a REP or other retail entity does not buy its full DEC requirement each year, it would be charged the Alternate Compliance Payment ("ACP") for remaining DEC requirements. The ACP could be set at a level that balances incentives to new resources while limiting incremental charges to retail customers; initial estimates suggest that DEC compliance costs would add less than 1% in its first year to retail bills.

DEC COST: The DEC cost is always capped at the ACP. As DEC-compliant generation is added to meet targeted volumes, the traded DEC price will drop toward $0.

RECYCLING OF ACP PAYMENTS: If a retail entity does not purchase DECs and instead makes an ACP payment, those revenues would be used to offset total ERCOT ancillary service charges, lowering charges and offsetting costs for all ERCOT retail customers. This recycling results could result in an annual net cost of the DEC proposal to retail entities of less than 1.7% of retail bills.

TIMELINE AND MANAGEMENT OF THE DEC PROGRAM: The Commission, with ERCOT support, can set a multi-year forward schedule for DEC needs, ACP levels and retail entity purchase requirements for predictable future DEC costs and revenues. DEC accounting and trading can be managed by ERCOT or an external exchange such as ICE for full transparency.

2. Comments in Response to Testimony from the Brattle Group during PUCT Open Hearing on November 19, 2021

Commissioner McAdams' DEC Proposal was filed with the PUCT on Wednesday November 17, 2021. While the Brattle Group has been hired as an independent consultant to the PUCT to assist in the market re-design process, they did not engage with stakeholders that had filed in support of the DEC proposal prior to making sweeping negative generalizations without any supporting analytics. Their assessment failed to appropriately weigh basic considerations such as costs to consumers, reliability attributes beyond ELCC capacity metrics, future market conditions, market power implications and the regulatory imperative to make fixes with balanced intervention. The following section summarizes and responds to the Brattle Group's misrepresentations of the DEC proposal and its impact to the market:

1) RESOURCE ADEQUACY

BRATTLE VIEW: The PUCT is trying to solve Resource Adequacy, but Sam Newell, on behalf of The Brattle Group, believes that DECs do not accomplish this. In Mr. Newell's testimony on November 19th, he stated that DECs:

> *" …will tilt supply a little bit more towards things that can meet ECRS, and I'm not sure that is something that we should be trying to do right now. As for the problem of do you have enough supply to serve demand even when things get tough, and you're close to shortage, remember that's the primary one we are worried about, in weather extremes when the wind is not there, and those things are um…of all the times we've experienced it, they've been predictable a day in advance, and it's not even a question of 'we don't have enough flexible supply,' it's about 'we don't have enough dispatchable supply that can be there whether it takes a day to start as you know it's the hottest day of the year coming' and that is actually what is in shortage." (3:01)*

DISPATCHABLE PORTFOLIO STANDARD (DPS) RESPONSE: ERCOT defines Resource Adequacy as "adequate supply of electric generation to meet demand and maintain capacity reserves to help support grid reliability if shortfalls occur." DECs provide RA in the following ways:

a) **Reliability During Weather Events**: Because of their low water usage, DEC-compliant resources are more reliable during extreme heat or cold events than existing generation resources.
b) **Ability to Meet Demand**: Unlike many existing generators, ERCOT can count on DEC-compliant resources to show up in response to an unforeseen scarcity event *because* they do not need to be running in advance and do not require long lead ramping periods.
c) **Capacity Deficit**: ERCOT has already identified a 4.7 GW capacity shortage in extreme risk scenarios in its most recent SARA Report. The market currently is in a supply/demand imbalance and physical real-time demand is also increasing. DECs fill this resource adequacy need with the type of fast ramping generation that ERCOT's analysis of future system operations demonstrates it needs.
d) **Current System Instability During Stressful Events**: Brattle's statements ignore the events of June and October of 2021. In June 2021, a heatwave was predicted in advance, but a transformer fire at a nuclear plant unexpectedly took the facility offline for weeks. This heatwave wasn't a surprise, and yet the system was extremely stressed during key hours of multiple consecutive days because of the impact of a *single* plant outage. DEC-compliant generation during those key hours would have provided system resource adequacy without flooding the system with unneeded generation during non-stressed hours.
e) **Resources Required to Ensure RA in the Future Are Not the Same as Today:** With the evolving resource mix, the highest risk hours and events will be evolving from long mid-day high load scarcity events to frequent sudden shortfalls that require immediate action for short durations.

2) DEMAND CURVE & 1:1 "KNOCK OUT"

BRATTLE VIEW: DEC-compliant generation will "knock out" existing generation because the proposal does not raise the demand curve. Brattle's testimony on November 19th stated that:

> *"We're not changing load growth…demand is only so big…the amount of room for supply given how high load gets during these shortage periods whether because it is the highest load [hour] or low wind or whatever…there is so much demand. That gives you so much demand for supplies. The only thing that can increase the amount of supply is if you increase the load, or if you increase the demand for ancillaries and see it through with online reserves and the ORDC or ultimately real-time co-optimization, you actually have to increase the physical real-time demand. If you don't do that…you are holding demand, physical real-time demand that determines shortage pricing…" (3:06:01)*

DPS RESPONSE: DEC-compliant generation will not cause a 1:1 knock-off of existing resources for the following reasons:

a) **Existing Operating Reserve Capacity Deficit**: According to ERCOT's latest SARA report, there *already* is a deficit in total operating capacity during high peak load hours if the thermal fleet sees large amounts of forced outages – meaning current generation cannot meet total ERCOT peak load requirements during extreme risk hours and days. Adding DEC-compliant generation can serve this demand without undermining the existing supply stack.

b) **Ancillary Service Market Expansion Raises Demand Curve:** Expanded ancillary service market volumes increase overall demand for generation. Any resource that bids into any hour in the day ahead ancillary services market is *unable* to simultaneously bid in the same hour in the day ahead energy market with that committed capacity.[1] The PUCT and ERCOT intend to (i) keep an expanded Non-Spin Reserve Service much larger than in years past *and* (ii) add GWs of ancillary service volumes in the new ECRS product. If taken from the existing generation resource stack, participation in the increased volumes of ancillary markets will remove 3-5 GW of dispatchable generation from the energy stack. In other words, the growth of the ancillary service markets, which DEC-compliant generation is ideally suited to meet due to its fast-ramping technology requirement, inherently *creates room* for DEC-compliant generation without impacting the day-ahead energy stack.[2]

c) **The SRS Program Raises Demand Curve**: If implemented as proposed, Commissioner Cobos' proposed multi-GW Strategic Reliability Service will increase demand for additional generation resources. When existing generation resources enter this proposed new reserve product, those resources will be *unable* to bid into the day-ahead energy market, and therefore new generation will be needed to fill current demand if there already is an insufficient supply of dispatchable generation. However, if the SRS program is simply extending the lifespan of generation that otherwise would be retired due to obsolete technology or outsized operating costs, then DEC-compliant generation should not be blamed for pushing those resources out of the bid stack. In either event, consumers have the right to more economically efficient and reliable generation to meet this increase in the demand curve if the SRS program is implemented.

   Furthermore, raising the demand curve by increasing market-wide prices and simultaneously locking in a disaggregated capacity market is a ruinous action. Brattle recommends that the PUCT significantly raise market-wide prices[3] to 'increase market

[1] Other than in Online Non-Spin.

[2] If DEC-compliant generation is not added to fill expanded AS volumes, new AS volumes must be filled with existing generation and system costs will rise substantially as the capacity deficit grows. As a result, incumbent generators will be paid higher prices, energy prices will increase, consumers will pay more for electricity, and the system will see a reduction in reliability over the next few years.

[3] Brattle's term 'increasing demand' means increasing wholesale energy prices, and thus the costs to consumers, for a sustained period of time to provide a market signal to encourage the construction of new generation resources.

demand' for new generation resources, pay incumbents excess rents, and hope that new generation (a) eventually shows up to reduce the impact of that very market signal and (b) has the operating flexibility required in the market. The PUCT and Texas consumers have the right to shortcut to a market solution through a targeted "light touch" and far less expensive program. Texans should have a voice in this decision: do they want 1) to pay more to the incumbent generating fleet, wait and hope that flexible and reliable generation is built in a timely manner to push down prices, or 2) implement a self-correcting incentive to ensure that flexible and reliable generation is added to the system as quickly as possible.

3) SIDE PAYMENT & 1:1 "KNOCK OUT"

BRATTLE VIEW: If you pay a special "side payment" to one generator, you will "bump out" another generator from the stack.

> *"There is only room for so much because if you add a little bit more it would reduce the price and you'd realize "oh" that doesn't make sense to invest…and so there is room for a certain amount. What happens if you say "oh" I came up with a way to give a side payment that is not in the rest of the market that not everyone is eligible for? Give a side payment to a certain kind of resource, you bring them in and "boop" you knock off exactly that much. So, if you brought in 2,000 MW of this supply, you will lose 2,000 MW of other supply." (3:05)*

> *"If this payment that you are offering is just a side payment…I mean it does not necessarily hurt, it just constantly…it does not increase the total supply, because the…An easy way to think about it is that there are a lot of hours in the year. As a simple mental model imagine that there is one really challenging hour and that is where a lot of the value is. There's enough demand for just that many resources. And imagine if you just had one more resource you would kill the price and "oop" it should not be there. You know, it should have retired or not been built. And that is essentially – there's this stake here where if you make a side payment, whether it's to some resources and not others, um it actually pops somebody off." (3:09:50)*

DPS RESPONSE:

a) **Compliance Market with a $0 Asymptote**: The DEC proposal was described by Brattle in a derogatory way as a "side-payment", which is an incorrect representation of a DEC. The DPS is modeled on a compliance market structure that has been used around the world to push market participants to take actions that the market deems to have intrinsic or extrinsic good, such as positive externalities or the introduction of new attributes and investment into a market. *With a maximum cap on compliance costs and the ability for competition to drive the cost of a DEC down to nearly $0, DECs will not impact bidding behavior nor distort market prices over time.*

b) **Energy Stack Is Not Negatively Impacted by Expanded AS Stack:** When Brattle says, "knock off" a resource, Brattle means that the resources in question are competing for the same market. As mentioned earlier, if the ancillary market is expanding substantially through ECRS and Non-Spin, and if participation in the Ancillary Services Market means, by ERCOT rules, that a generator cannot simultaneously bid the same MW in the day-ahead or real-time energy markets, then there is no actual way that DEC-compliant generation that is

participating in the ancillary services market in a given day or hour can compete with existing generation in the energy stack.

c) **Increase in Market Operational Challenges**: With new levels of renewable penetration, ERCOT expects that ramping events will increase in magnitude and unpredictability. Current generation will continue to respond to the usual market signals: predictable price spikes.[4] A small increase in DEC-compliant, flexible resources will address: (i) unpredictable forced outages of old plants or missed weather forecasts, (ii) intra-hour pricing volatility never seen before on the system, and (iii) events that current generation cannot respond to in a timely manner. Thus, DEC-compliant generation, no matter the traded value of a DEC, is not competing with Brattle's idea of predictable resource adequacy requirements.

Texans should not have to endure increasing levels of market volatility and high prices and hope that the situation self-corrects. Instead, Texans have the right to incentivize generation that can help ERCOT address anticipated operational needs. Because demand *is* increasing (due to AS expansion, the potential creation of SRS, and load growth – all on top of current deficits), there is enough room in the stack for existing dispatchable resources and DEC-compliant resources, and the addition of DEC-compliant resources will not result in a simple 1:1 knockout, as Brattle alleged.

4) IS UNPRECEDENTED LOAD GROWTH A FACTOR TO CONSIDER IN MARKET PLANNING?

BRATTLE VIEW: Load growth is not a factor that relates to DECs because it happens regardless.

> *"But if the load is growing anyways. You have to treat that all else equal. You really have to think about this all else equal. Am I better off with this side payment to help me meet whatever demand that is growing over time or without the side payment and how the market will meet that growing demand over time? You have to think about is as…because it is not like load growth is being created by having this program…If this program creates 2,000 MW of supply that is quite nice to have I can accurately estimate how much supply you are going to lose, 2,000 MW." (3:12:45)*

DPS RESPONSE: Yes, unprecedented load growth should be considered in the face of insufficient existing supply.

a) **Consumer Voice**: ERCOT will be better off if it plans to meet a subset of load growth with a specific product that addresses very clearly identified market needs. By considering load growth, the PUCT can develop a targeted solution using a DPS instead of a complete market overhaul per the proposed LSE Obligation. This comes back to the fundamental

[4] Most current dispatchable generation cannot constrain their dispatch to sub-hourly price spikes during the morning and evening without running for hours in advance. Due to their inherent inflexibility, many of the existing dispatchable generation units are unable to economically justify running all day to meet short-term needs of the grid when much of the day's pricing is kept in check due to lower cost intermittent and must-run baseload generation bidding and dispatch strategies.

question of whether Texas consumers have a voice and the ability to ensure that the market signals deliver what they need and want for their growing load.

5) DEPENDENCE ON MERCHANT INVESTMENT FOR ALL MARKET PARTICIPATION

BRATTLE VIEW: Unless we plan to do all new generation through special programs, we depend on merchant investment that is willing to invest because they expect prices to be high enough.

DPS RESPONSE: This perspective fails to consider that when risk and volatility are increasing to new levels, capital sources become wary of merchant investments in the market. Brattle's view is not accurate considering:

a) **Historical Bankruptcies and Retirements Create a Market Distortion that Stymies New Investment**: In the past five years, many of the incumbent merchant generators have either already had generation units declare bankruptcy or have retired large volumes of existing generation. Bankruptcies have given those plants a competitive advantage in the energy bid stack because they have not had to return their original capital costs compared to new-build generation that has to assume making a return on investment. In that environment, new capital investment is at a competitive disadvantage – which may be why there has been insufficient investment in dispatchable generation in ERCOT in the past 5 years.

b) **Market Participants Require a Stronger Market Signal**: The current market design has encouraged certain NOIEs to construct a limited amount of highly flexible generation that the market requires for maintaining reliability. Even though ERCOT clearly anticipates the need for additional highly flexible generation resources to meet future operational needs, the competitive market continues to underinvest while awaiting more robust actual validation of that economic signal. Is it prudent for policymakers to sit and wait to see if market signals alone drive new investment? Ideally yes. However, if reliability is at risk, then the market has the obligation to create a stronger signal through a targeted, self-correcting program.

c) **When Equity and Debt have Difficulty Underwriting Volatility**: Brattle argues that the only way to increase the demand curve and incentivize new merchant investment is to raise real-time energy prices. However, due to increasing market volatility[5], prices will not rise across all hours but only during specific high net load hours that become very highly volatile hours. High price instability and high volatility makes it difficult for new investors to deploy capital at reasonable rates of return in current and future market conditions (with or without the LSE Obligation proposal). Having a clear but capped incentive with a strict sunset allows new investors to deploy capital immediately, without creating long-term market implications.

[5] In part due to excess energy supply during many hours of the day.

DECs shortcut Brattle's 'wait and see' approach. It is nonsensical to advocate for higher prices through the LSE Obligation and an increased demand curve that do not result in immediate new generation. As NRG and others have stated on the record, an LSE obligation does not guarantee an investment in new generation on a specific timeline. If reliability is the most pressing concern, then implementing a targeted means of ensuring reliability through resources needed by the future market makes more sense than raising prices for everyone and hoping that someone shows up to push down those prices in the future. Texans want and need new steel in the ground, and the DPS will deliver new generation and increased reliability without shoveling increased profits toward the incumbent generators.

3. Comments in Response to Filing from Texas Competitive Power Advocated ("TCPA") Filed on November 30, 2021

1) LSE Obligation: Reliability Tool Or Consolidation of Incumbent Market Power?

TCPA View: Only the LSE Obligation proposal solves the need for resource adequacy over the long term.

DPS Response: Please see item 2.1 for an assessment on resource adequacy. The LSE Obligation has an insufficient definition of what comprises resource adequacy (using simple ELCC metrics as a proxy for reliability) and misses many attributes that will be needed in the market for reliability in the near future (ramping speeds, flexibility, unit size, water usage, physical locations, forced outage rates etc.). Furthermore, it risks a consolidation of market power and ties system reliability to aging technologies. As stated in their filing, TCPA members control 90% of the current dispatchable electric generating capacity in ERCOT. During the PUCT Work Session on November 19, 2021, Brattle showed that the LSE Obligation will move at least one-third of ERCOT generating revenue out of the energy market and into the capacity market that is controlled by TCPA members. What TCPA does not state in their filed comments, is that their members also control the gross majority of retail load in ERCOT. The LSE Obligation would therefore allow these

companies to institute functionally unregulated vertical monopolies and roll back the market reforms and deregulations that have been in place for over 20 years.

2) LSE Obligation and New Generation

TCPA View: "Brattle testified that this [LSE Obligation] would lead to new generation."

DPS Response: Brattle did state that they believe that the LSE Obligation would lead to new dispatchable generation based on a generic construct that raising prices for everyone (i.e. raising the total demand curve) should theoretically induce new investment. However, during a Commission Work Session on November 4, 2021, when directly asked about the effectiveness of the LSE Obligation to bring new steel in the ground, an NRG representative would not commit that the LSE Obligation would guarantee their investment in new generation resources on a specific timeline. If TCPA is asserting that Brattle's testimony has merit, then TCPA members should be able to quantify how the LSE Obligation will guarantee they will build new generation resources in ERCOT – what type of generation, with what attributes, on what timeline and at what scale?

3) DECs Are Discriminatory and will Force Retirements

TCPA View: "It is [DECs are] discriminatory and violates economic theory. Crowding out existing dispatchable generation with new, narrowly defined subsidized dispatchable generation, the DEC concept, as proposed, would force the retirement of long-duration but perhaps slower dispatchable generation in favor of shorter-duration dispatchable resources…"

DPS Response: If TCPA believes DECs are temporarily "discriminatory" during the program's life, then the LSE Obligation is permanently "discriminatory" because both proposals employ the

same logic. They value targeted attributes. The LSE Obligation targets ELCC capacity calculations as a proxy for system reliability (without the consideration of other unbundled attribute values) while DECs target market responsiveness and flexibility (items currently undervalued but of dire need in the system). The only "non-discriminatory" approach using TCPA's logic would be to value every single unbundled attribute of every type of generation based on dynamic real-time needs. If the goal is to incentivize investment in *new* generation with targeted attributes, then the DEC set of criteria is more relevant to address future resource adequacy shortfalls. DECs do not push out incumbent generation in a 1:1 manner – see sections 2.2 and 2.3 above as well as NRG's testimony at the Commission Work Session on November 4, 2021, where they clarify that expanded ancillary services will require new generation.[6]

4) SUBSIDIES VS. INVESTMENT INCENTIVE

TCPA VIEW: "TCPA has a long record of opposing subsidization of resources regardless of its form."

DPS RESPONSE: This statement is misleading. While TCPA may have a record in TX of opposing what they believe to be subsidies, its members have sought and accepted direct subsidies of their facilities across the U.S. through mechanisms such as Zero Emissions Credits ("ZEC")[7], tax abatements, and Production Tax Credits[8]. Subsidies are sums granted by a government or a public body to assist an industry or business so that the price of a commodity or service may

[6] With the growth in ancillary services, "…the demand for a short term capacity product will go up, so the revenue streams from selling that product increase to some extent, um, and I also think there's probably a temporary phenomenon where, um, when you are buying that capacity you are reserving those resources and holding them outside the energy market until they're deployed which means you have less resources participating in the energy market so energy prices will increase to some extent as well…as you see other resources come it you will find an equilibrium there."

[7] For example, Exelon fought for a receives more than $1 billion per year in ZEC subsidies for their nuclear facilities from states including NY, NJ and IL.

[8] TCPA parties receive PTCs on up to 1,350 MW according to the American Clean Power Association CleanIQ database.

remain low or competitive. DECs are not a "subsidy" because they are a market traded instrument where competition pushes their value toward $0; thus, over time, they will *not* make DEC-compliant MWh any more competitive than they inherently are. It is merely an investment incentive to attract capital with a clear market signal.

CONCLUSION

Eolian appreciates the opportunity to provide these comments and looks forward to working with the Commission and other interested parties on these issues.

Respectfully submitted,

/s/ Aaron Zubaty
Aaron Zubaty
Chief Executive Officer
Eolian, L.P.
(650) 744-2101 (Tel)
(650) 714-2779 (Mob)
aaron@eolianenergy.com