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Drax comments on PUCT market redesign reliability reform proposal

Drax Group is a UK-headquartered global energy company with over 3,400 employees across North America and the UK. Enabling a zero-carbon, lower-cost energy future is Drax's purpose. To that end, we announced in 2019 a world-leading ambition to be carbon negative by 2030, using **Bioenergy with Carbon Capture and Storage (BECCS) – the *only* carbon removal technology which removes and stores carbon dioxide from the atmosphere at scale while simultaneously delivering firm, dispatchable renewable electricity.**

Drax operates the UK's largest power station, serving over 4 million homes and businesses. Our station is run almost entirely on sustainable bioenergy in the form of wood pellets. We are also vertically integrated and manufacture wood pellets at facilities across the US South. At our power station in the UK, we have successfully trialed BECCS and have proven we can capture carbon dioxide emissions from electricity generation using biomass feedstock, while also providing reliable, flexible power.

Now we are ready to go further, investing in new-build BECCS facilities around the world. Texas is an ideal location for a new-build BECCS facility given its access to suitable geology for CO2 storage, expertise in well and pipeline management, and a strong wood fiber basket. In turn, Drax has a lot to offer Texas: new dispatchable generation capacity, jobs and investment in rural areas, and removal of millions of tons of carbon per year – a very attractive scenario for many businesses who need stable, on-demand power and a zero-carbon supply chain.

Biomass is one of the few renewable resources that is dispatchable and flexible. Biomass provides many critical system services, such as black start capability, load-following, and frequency response (see Annex). The effective load-carrying capacity of biomass is 88.5% - better performance than coal and nuclear. Our experience in the UK shows that with biomass we can provide baseload power to balance the energy system, meet our commitments with the grid operator, scale generation up and down on demand, and transmit power long distances.

Drax also has extensive experience developing efficient supply chains for moving sustainable wood fiber. We currently operate this supply chain across the Atlantic Ocean and back but welcome the opportunity to create an end-to-end Texas supply chain with biomass both sourced and used in Texas.

A new-build BECCS facility would bring at least 300 MW of new dispatchable capacity to the Texas grid. We would also be able to store additional fuel on-site, further supporting the reliable nature of this technology.

Given our interest in the state, we have been following the market redesign conversation very closely. We want to ensure that any new market regulations recognize the many system benefits of biomass energy and BECCS, and suggest the following initial recommendations:

- To attract business and infrastructure development, the Texas energy market should include mechanisms to reward dispatchable power capacity – including biomass power generation.
- This mechanism should reward higher performance with greater incentive.
- This mechanism should be based on the ability to provide the full range of system services needed for a reliable and resilient energy grid.

- The market redesign report by Energy and Environmental Economics (E3) does not consider additional biomass capacity. Biomass should be included in any new market design given its reliable nature when done correctly.

In order to deploy first-of-its-kind projects such as BECCS by Drax, it is important that the firm dispatchable nature of biomass is recognized and supportive government frameworks are in place. We welcome the opportunity to discuss this topic and our BECCS technology further as the market redesign process continues.

Sincerely,

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Annex

BECCS is the only non-fossil technology to offer the full suite of system services

SYSTEM SERVICES	BECCS	GAS CCS	NUCLEAR	WIND	SOLAR	BATTERIES	INTER-CONNECTOR
Carbon removals	YES	NO	NO	NO	NO	NO	NO
Clean electricity	YES	PARTIAL	YES	YES	YES	PARTIAL	PARTIAL
Controllable / Dispatchable	YES	YES	NO	PARTIAL	NO	YES	YES
Inertia	YES	YES	YES	NO	NO	NO	NO
Dynamic response	YES	YES	NO	PARTIAL	NO	YES	YES
Reserve	YES	YES	NO	PARTIAL	NO	YES	YES
Reactive Power	YES	YES	YES	PARTIAL	NO	YES	YES
Black Start	YES	YES	PARTIAL	NO	NO	NO	YES