

27 July 2023

The Honorable Jennifer M. Granholm
Secretary of Energy
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20024

Members of the Secretary of Energy Advisory Board

Dear Madam Secretary and SEAB Members:

Thank you very much for the opportunity to meet and share with you a few words about Princeton NuEnergy (PNE). PNE was founded in 2019 by two Princeton University professors and two researchers, including myself. Our mission is to use advanced manufacturing technologies, such as low-temperature plasmas, to recycle lithium-ion batteries used in EV's, stationary/grid storage and consumer electronics. Our focus is "Direct Recycling", that is, to take cathode and anode materials directly from manufacturing scrap and end-of-life batteries and return this cathode and anode material directly to battery production.

We are fundamentally different from existing recycling technologies that use toxic and costly acid leaching (hydro-) or smelting (pyro-) metallurgical processes resulting in high cost and often environmentally damaging processes. PNE's approach, validated independently in conjunction with Argonne Lab and the EverBatt™ model, is anticipated to reduce lithium battery recycling cost by half, reduce the time required to produce new cathode/anode materials from 3 months to 3-5 days, all domestically, and utilize renewable energy in the process to create a near-net-zero domestic source of critical materials with over 70% reduction in carbon emissions and environmental waste, and over 95% retention of critical materials in this process vs. other methods that lose much lithium in their production.

We have just launched our first production line in McKinney, Texas. Our facility is capable of processing 500 tons per annum of spent/end-of-life lithium-ion batteries into new cathode materials. We are now processing spent consumer electronics batteries with our partner Wistron GreenTech, a consumer electronics recycler for Dell and Apple, and we will be processing spent EV batteries later this year.

We look to significantly scale our production capacity in 2024-2025. We are now raising our Series A round as a catalyst to complete design for our next, highly modular, advanced processing multi-line production facilities. We will start construction in 2024 on two factories having 20-40K tonnes per annum recycling capacity with key domestic battery and EV manufacturing partners, dramatically accelerating and improving the processing of their manufacturing scrap and spent, end-of-lie batteries.

We have been incredibly fortunate and are extremely thankful to receive DOE support from our very beginning. This has proven to be essential to help us accelerate Research and Development, help validate/test/patent our new and novel ideas to advance U.S. technology, moving PNE

forward to our current state of market readiness. Engaging with national labs, such as Argonne, Oak Ridge, and NREL, as well as many universities and colleges, has played a significant part in this effort, as well as our undergraduate student internship program and educational programs with community high schools.

We plan to apply for manufacturing plant/demonstration and scaling grants later this year and welcome the support of your incredible team! Again, thank you very much for your time today and we appreciate the ongoing support and assistance from DOE.

I welcome any questions you may have about PNE, the recycling industry, state of the market or other areas of interest in this space.

We look forward to hosting you in our advanced manufacturing facilities in McKinney, Texas should your time and schedule permit.

Best regards,



Dr. Chao Yan
CEO and Founder

Chao_Yan@pncycle.com

C: +1-973-303-7732

Princeton NuEnergy Inc.
1200 Florence Columbus Road
Bordentown, NJ 08505 U.S.A.
www.pncycle.com