STRONGHOLD
DIGITAL MINING

February 8, 2022

The Honorable Elizabeth Warren
United States Senator
United States Senate
309 Hart Senate Office Building
Washington, DC 20510

The Honorable Sheldon Whitehouse
United States Senator
United States Senate
530 Hart Senate Office Building
Washington, DC 20510

The Honorable Jeffrey A. Merkley
United States Senator
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The Honorable Margaret Wood Hassan
United States Senator
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324 Hart Senate Office Building
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The Honorable Edward J. Markey
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The Honorable Katie Porter
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1117 Longworth House Office Building
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The Honorable Rashida Tlaib
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1628 Longworth House Office Building
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The Honorable Jared Huffman
Member of Congress
United States House of Representatives
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Dear Senators and Representatives,

Stronghold Digital Mining, Inc. ("Stronghold," "we," or "us") is in receipt of your letter dated January 27, 2022 seeking information about Stronghold's Bitcoin mining operations and impacts. We appreciate the opportunity to discuss Stronghold's business and operations with each of you and look forward to a constructive dialogue regarding Stronghold's focus on environmentally beneficial operations that positively impact the local environment and the communities in which we operate.

I. Introduction to Stronghold Digital Mining: *Actively working to remediate coal refuse piles and converting coal refuse into energy.*

Stronghold is a vertically integrated, environmentally-beneficial power generation and Bitcoin mining company providing environmental remediation and reclamation. We convert highly polluting coal refuse into power and beneficial use ash, which consists of fly ash and bottom ash that can be beneficially reused for mine reclamation efforts and as an additive in concrete production. Stronghold wholly owns and operates two coal refuse reclamation and power generation facilities in Pennsylvania: (i) the Scrubgrass Plant ("Scrubgrass"), our first reclamation facility located on a 650-acre site in Scrubgrass Township, Venango County, Pennsylvania, which we acquired fully in April 2021 and currently has the capacity to generate approximately 83.5 MW of electricity and (ii) the Panther Creek Plant ("Panther Creek" and together with Scrubgrass, the "Facilities"), a similar facility located near Nesquehoning, Pennsylvania, which we acquired in November of 2021 and which currently has the capacity to generate approximately 80 MW of electricity.

Each of the Facilities utilizes circulating fluidized-bed ("CFB") combustion boilers, representing one of the most efficient, advanced, proven, and purpose-built technologies for converting coal refuse into power. Together, these two Facilities are capable of converting over 1.25 million tons of coal refuse into energy annually. Since commissioning in the early 1990s, both Facilities have partnered with state agencies to clean up tens of millions of tons of coal refuse and have contributed to the reclamation and remediation of over 1,000 acres of previously unusable land by removing the coal refuse piles and returning beneficial use ash to the former sites of the coal refuse. This application of beneficial use ash increases the alkalinity and water holding capacity of the soils and facilitates revegetation.[1] We expect to expand upon this foundation and increase the number of acres of land fully remediated and reclaimed under Stronghold's oversight in the years to come.

The reclamation and remediation efforts are not the only beneficial aspect of Stronghold's operations. The Facilities also help stabilize prices for retail customers in the local power grid and support the local economy. While the Facilities do supply power to our Bitcoin miners, the Facilities are also able to supply power to the grid to meet local demand. **Bitcoin mining is a primary consumer of our power but does not preclude us from supplying power to the grid when dispatched or during periods of high power prices.** The Facilities also provide hundreds of permanent jobs to local communities, which is critical in an area characterized by relatively high unemployment.[2] The Facilities currently employ over 110 individuals in the land reclamation, power management, data center and related sectors, and we plan to hire or arrange to hire approximately an additional 30 employees in Venango and Carbon Counties in 2022.

II. Coal Refuse: *A Neglected Environmental Disaster.*

Although Bitcoin mining is a new industry, coal mining has a long history in the state of Pennsylvania. Coal mining began in earnest in Pennsylvania in the 19th century and continued through the 20th century to meet the nation's growing demand for steel, fueling the industrial revolution and two World

[1] G. Nevin Strock & Richard C. Stehouwer, *Soil Additives and Soil Amendments*, *in* COAL ASH BENEFICIAL USE IN MINE RECLAMATION AND MINE DRAINAGE REMEDIATION IN PENNSYLVANIA 302, 305–07 (2004), available at https://files.dep.state.pa.us/Mining/District%20Mining/DistrictMinePortalFiles/Beneficial_Use/18_CHAPT_10/Chapter_10.pdf.

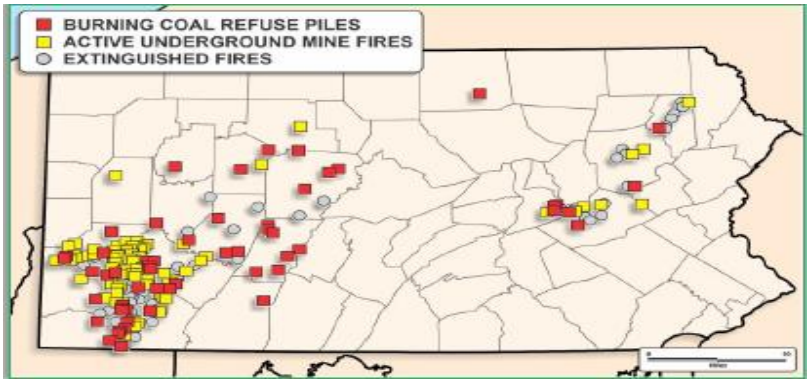
[2] *See* PA Dep't of Labor & Indus., *Labor Force, Employment and Unemployment Distribution*, PA.GOV (Jan. 2022), https://paworkstats.geosolinc.com/vosnet/analyzer/resultsNew.aspx?session=labforce&pu=1&plang=E (selecting "Area Profile," "Employment and Wages" and "Labor Force, Employment and Unemployment Distribution" for all county records) (showing that Venango County's and Carbon County's unemployment rates in December 2021 ranked 50th and 48th respectively out of 67 counties in Pennsylvania).

Wars.[3] Pennsylvania coal miners have extracted over 16.3 billion short tons of anthracite and bituminous coal from the Commonwealth's mines since commercial mining began in 1800.[4] While mines permitted under the 1977 Surface Mining Control and Reclamation Act ("SMCRA") are required to be reclaimed after coal extraction is complete, many pre-SMCRA mines were abandoned without any reclamation or removal of the coal refuse piles.[5] Because the bulk of the state's mining activities occurred prior to comprehensive environmental regulation of mining activities, mines discarded coal refuse, a byproduct of the coal mining process, in large piles across Pennsylvania. With historic site operators for pre-SMCRA mines largely no longer in existence, the responsibility and costs for the range of environmental and safety hazards associated with coal refuse often fall to the current residents of Pennsylvania.[6] The extent of the problem is enormous and difficult to quantify. **In Pennsylvania, there are more than 5,000 abandoned, unclaimed mining areas covering approximately 184,000 acres.[7] There are more than 840 coal refuse piles at these abandoned mine lands across Pennsylvania,[8] which cover an aggregated area of 8,500 acres and contain a total volume of more than 200 million cubic yards.[9] The total volume of coal refuse in Pennsylvania is unknown but estimates range from between 200 million and 8 billion cubic yards.[10]**

Coal refuse has been a significant contributor to air and water pollution for over 100 years and continues to be a growing problem. The Pennsylvania Department of Environmental Protection's ("PADEP") most recent Integrated Water Quality Monitoring Report found that the number of the Commonwealth's impaired waterways had increased between 2020 and 2022, from 25,468 miles in the 2020 report to 27,886 miles in the 2022 report.[11] The primary source of water quality impairment was abandoned coal mine runoff, which was responsible for 7,356 miles of waterway impairment, up from 5,550 miles in the 2020 report.[12] Existing coal refuse piles emit carbon dioxide ("CO2"), particulates, and volatile organic compounds including benzene, toluene, and xylene into the atmosphere, all of which are harmful to human, animal, and aquatic life.[13] These piles are also prone to spontaneously combusting, emitting dangerous greenhouse gasses, smoke, and particulate matter,[14] posing public health and safety hazards, and creating the potential for property damage. These uncontrolled coal fires emit CO2 and methane, as well as

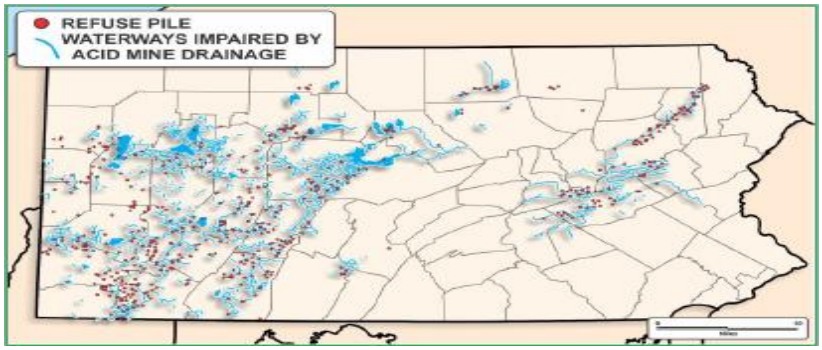
[3] Thomas Mackaman, *Coal*, ENCYCLOPEDIA GREATER PHILA., https://philadelphiaencyclopedia.org/archive/coal/ (last visited Feb. 5, 2022).
[4] ARIPPA, WHAT IS COAL REFUSE? 2 (Oct. 5, 2015), https://arippa.org/wp-content/uploads/2018/12/ARIPPA-Coal-Refuse-Whitepaper-with-Photos-10_05_15.pdf.
[5] *Id.*
[6] *See id;* PA Dep't of Envtl. Prot., *Frequently Asked Questions (FAQ) re. The SMCRA Title IV AML Program 4* (Jan. 2019), https://files.dep.state.pa.us/Mining/Abandoned%20Mine%20Reclamation/AbandonedMinePortalFiles/SMCRA_Funded_AML_Program_FAQ.pdf (stating that "With no legally responsible party in existence to clean up pre-SMCRA (also known as "pre-law") coal mining sites, [abandoned mine land] impacts and hazards have compounded over the years into a nationwide problem that requires significant resources, time, and effort to abate").
[7] ARIPPA, WHAT IS COAL REFUSE?, *supra* note 4, at 2.
[8] ECONSULT SOLS., INC., ECONOMIC AND ENVIRONMENTAL ANALYSIS OF PENNSYLVANIA'S COAL REFUSE INDUSTRY 8 (Sept. 8, 2016), https://www.congress.gov/116/meeting/house/110202/witnesses/HHRG-116-II06-Wstate-HughesR-20191114-SD017.pdf
[9] *Id.*
[10] *Id.*
[11] PA. DEP'T OF ENVTL. PROT., DRAFT 2022 PENNSYLVANIA INTEGRATED WATER QUALITY REPORT (Jan. 15, 2022), https://storymaps.arcgis.com/stories/b9746eec807f48d99decd3a583eede12 (sources of stream and lake impairment).
[12] *Id.* (finding that "[f]ully one-third of assessed stream miles in the state now are deemed unsafe for aquatic life, recreation, fish consumption or water supply.").
[13] *See* ARIPPA, WHAT IS COAL REFUSE?, *supra* note 4, at 5; EPA, SOURCE ASSESSMENT: COAL REFUSE PILES, ABANDONED MINES AND OUTCROPS, STATE OF THE ART 2 (1978).
[14] ECONSULT SOLS., INC., ECONOMIC AND ENVIRONMENTAL ANALYSIS OF PENNSYLVANIA'S COAL REFUSE INDUSTRY 23 (Sept. 8, 2016), https://www.congress.gov/116/meeting/house/110202/witnesses/HHRG-116-II06-Wstate-HughesR-20191114-SD017.pdf.

mercury, carbon monoxide, and other toxic substances.[15] **In 2020, PADEP reported that approximately 40 coal piles were continually burning in Pennsylvania[16] and, over the past decades, hundreds of others have burned.[17] In 2016, the PADEP estimated that 6.6 million tons of coal refuse burn each year in unintended, uncontrolled fires, releasing 9 million tons of CO2 and numerous other air pollutants,[18] and those figures are likely higher today**. When fires occur, the budgets of these environmentally and often economically challenged communities are hardest hit, and they may take years to extinguish.



Toxic compounds from the coal refuse piles also leach into the surrounding surface, ground water, and waterways,[19] creating what is known as Acid Mine Drainage ("AMD").[20] AMD is characterized by the discharge of iron-sulfide minerals found in coal refuse piles, such as iron, manganese, aluminum, and other metals, into water flows, which increases the acid level and silt content of local waterways, causing streams to turn orange in color and harming their ability to sustain marine and plant life.[21] **This issue is not limited to Pennsylvania. AMD impacts all four of Pennsylvania's major river basins, which in turn leads to AMD contamination spreading from local waterways into the Chesapeake Bay and Delaware River Watersheds to the east, and the Ohio, Mississippi, and Gulf of Mexico Watersheds to the west – creating environmental impacts that are national in scope**.[22]

[15] *See* ALLAN KOLKER ET AL., U.S. GEOLOGICAL SURVEY, EMISSIONS FROM COAL FIRES AND THEIR IMPACT ON THE ENVIRONMENT (2009), https://pubs.usgs.gov/fs/2009/3084/pdf/fs2009-3084.pdf.
[16] *See* Prepared Testimony of Patrick McDonnell, Secretary, Pa. Dep't of Envtl. Prot., Before the Joint Legislative Air and Water Pollution Control and Conservation Committee (Feb. 3, 2020), https://files.dep.state.pa.us/aboutdep/Testimony/2020/2020.02.03_JLCC_Waste_Coal_Hearing_DEP_Testimony.pdf. Other sources have indicated that this figure could be as high as 92. *See* Anya Litvak, Pittsburgh Post-Gazette, *A Waste Coal-Burning, Crypto-Mining Pirate Ship Sets Sail*, AP NEWS (Aug. 7, 2021), https://apnews.com/article/technology-business-23fa5bea24f87e275370399535a27269.
[17] ECONSULT SOLS., INC., THE COAL REFUSE RECLAMATION TO ENERGY INDUSTRY: A PUBLIC BENEFIT IN JEOPARDY 3 (2019), https://arippa.org/wp-content/uploads/2019/07/ARIPPA-Report-FINAL-June-2019.pdf.
[18] *See* ECONSULT SOLS., INC., ECONOMIC AND ENVIRONMENTAL ANALYSIS OF PENNSYLVANIA'S COAL REFUSE INDUSTRY, *supra* note 14, at 13.
[19] JOINT LEGISLATIVE CONSERVATION COMM., THE COAL REFUSE RECLAMATION TO ENERGY INDUSTRY AND CARBON TRADING MARKETS 9 (2020), https://arippa.org/wp-content/uploads/2021/04/JLCC-Coal-Refuse-Reclamation-Report-2020.pdf.
[20] ECONSULT SOLS., INC., THE COAL REFUSE RECLAMATION TO ENERGY INDUSTRY, *supra* note 17, at 24.
[21] *Id.*
[22] *Id.*



All of these factors combine to threaten local communities both environmentally and economically, with long-term health problems and low property values in neglected areas,[23] reduced recreational opportunities in local waterways, and degradation of the carbon sinks provided by the vegetation in impacted watersheds.

III. Overview of Company Operations: *The Facilities represent an efficient conversion of damaging waste product into power while helping achieve governmental priorities.*

Stronghold has found an opportunity to pursue a profitable business venture while providing economic benefits to the local community and remediating a significant portion of legacy coal mining byproduct. In 2015, Pennsylvania estimated that the cost to remediate abandoned mine lands and AMD, the largest non-point source water pollutant in Pennsylvania communities, could be as high as $20 billion,[24] and that figure is likely higher today due to the difficulty in assessing the extent of the environmental harm and ongoing realization of the impairments. Unlike water treatment systems, the elimination of coal refuse piles and reclamation of sites removes the source of AMD and its associated environmental consequences. By removing this coal refuse and repurposing it as a power source, Stronghold provides both economic and environmental benefits to its communities.

Pennsylvania has deemed the reclamation of coal refuse sites as an environmental priority,[25] and since the early 1990s, an unofficial public-private-partnership has developed between the coal refuse reclamation-to-energy industry and the Commonwealth of Pennsylvania.[26] The Commonwealth of Pennsylvania has demonstrated its support of such efficient private sector remediation efforts by adopting a performance-based tax credit targeting coal refuse removal by alternative electricity generation facilities utilizing CFB technology[27] and by classifying coal refuse under the Pennsylvania Alternative Energy Portfolio Standards Act as a Tier II Alternative Energy Source.[28]

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[23] JOINT LEGISLATIVE CONSERVATION COMM., *supra* note 19, at 2.
[24] In January of 2022, Governor Tom Wolf announced funding for environmental restoration projects focused on economic development or community revitalization at abandoned mine land locations across Pennsylvania. This year, $25 million will be made available for reclamation projects with economic development components. *Gov. Wolf Announces $25 Million Investment in Economic Recovery for Abandoned Mine Lands*, PA GOVERNOR.GOV (Jan. 24, 2022), https://www.governor.pa.gov/newsroom/gov-wolf-announces-25-million-investment-in-economic-recovery-for-abandoned-mine-lands/.
[25] *Id*.
[26] *EPA Takes Corrective Action on Standards for Coal-Refuse Power Plants*, EPA (Apr. 9, 2020), https://www.epa.gov/newsreleases/epa-takes-corrective-action-standards-coal-refuse-power-plants.
[27] David E. Hess, *ARRIPPA, EPCAMR Urge Senate to Continue Waste Coal Power Plant Tax Credits*, PA ENV'T DIGEST (Oct. 17, 2016), http://www.paenvironmentdigest.com/newsletter/default.asp?NewsletterArticleID=37492&SubjectID=51.
[28] Scrubgrass' recognition as an Alternative Energy System also allows us to earn renewable energy credits. *See* JOINT LEGISLATIVE CONSERVATION COMM., *supra* note 19, at 3.

Feedstocks are plentiful as, unfortunately, coal refuse piles are pervasive and voluminous near our Facilities. For scale, one of the sites from which Stronghold transports coal refuse, the Russellton site, is estimated to contain **15,000,000 tons of coal refuse, is over 200 feet deep, covers 212 acres, and is just 12 miles from downtown Pittsburgh**. Our Facilities are capable of diligently addressing this damaging waste product and annually converting over 1.25 million tons of coal refuse into energy.

As the first step in its operations, Stronghold identifies coal refuse piles and contracts with site owners for the right to remove the product. At all of the sites from which Stronghold procures coal refuse, a portion of the existing coal refuse is currently or has been smoldering, either underground or on the surface level. Removed coal refuse is then transported from the origination site to our specialized Facilities.

After the coal refuse arrives at our Facilities, we utilize CFB combustion boilers to ultimately produce steam that is used to drive a conventional steam turbine to produce electric energy. These CFB combustion boilers are specifically designed to generate lower emissions than conventional pulverized coal boilers. Our CFB technology helps to control emissions of sulfur dioxide ("SO2"), nitrogen oxides ("NOx"), air toxins, and total particulate matter by removing ~90% of NOx emissions, ~98% of SO2 emissions, ~99.9% of particulate emissions and ~99.9% of mercury emissions. To further reduce emissions, these units are also equipped with fabric filter systems to control filterable particulate matter discharges.

We acknowledge that the only pollutant we do not eliminate is CO2. However, we are actively working to minimize our CO2 emissions from our operations. We have taken the following steps aimed at mitigating our CO2 output:

(i) Executed a letter of intent with a third-party to test a carbon capture prototype at Scrubgrass, which we are actively working to install in the coming weeks. We are pursuing other developments and investments in technologies to capture, sequester, and utilize the CO2 emissions produced at the Facilities. We are also in dialogue with two other companies to explore carbon sequestration.

(ii) We sell a portion of our beneficial use ash, a byproduct of our CFB process, for use as a concrete additive. This ash displaces equivalent volumes of carbon-intensive cement.[29]. The remainder of our beneficial use ash is allocated for use in reclamation and restoration efforts.

The Company is responsible for complying with all state and federal requirements and regulations while loading and transporting the coal refuse from the coal refuse sites, and is also obligated to unload and properly dispose of beneficial ash at the coal refuse sites following removal.[30] A portion of the ash byproduct is also returned to the coal refuse origination site for aiding in reclamation of the former coal refuse pile sites.[31] Stronghold is actively involved in all aspects of the remediation and reclamation of former coal refuse pile sites in partnership with PADEP. Before PADEP will consider a site to be fully reclaimed, it must be properly revegetated and returned to its natural contours.

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[29] *See* Miguel Ángel Sanjuán & Cristina Argiz, *Fineness of Coal Fly Ash for Use in Cement and Concrete*, 2 FUELS 471, 472 (2021), available at https://www.mdpi.com/2673-3994/2/4/27 (explaining that coal fly ash in cements and concretes mitigate climate change by lowering the clinker to cement ratio and increasing concrete durability, which increases the service life of concrete structures).

[30] Stronghold was awarded an agriculture liming materials license by Pennsylvania's Department of Agriculture.

[31] *See also* PA DEP'T OF CMTY. & ECON. DEV., COAL REFUSE ENERGY AND RECLAMATION TAX CREDIT: PROGRAM GUIDELINES 1 (2017), *https://dced.pa.gov/download/coal-refuse-energy-reclamation-tax-credit-guidelines-2017/?wpdmdl=71612&ind=0* (to qualify for the tax credit, 75% of the fuel used by these facilities must be qualified coal refuse, plant design must include circulating fluidized bed technology, utilizing limestone injection and a fabric filter for particulate emissions control, ash produced by the facilities must be put to beneficial use as defined by PADEP, and, finally, at least 50% of that beneficial use ash must be used to reclaim coal mining affected sites).

Reclamation of former coal refuse piles not only provides aesthetic and ecological benefits, but it also provides commercial and community benefits. For example, Scrubgrass has supported the reclamation of 40 acres of land at a portion of the Russellton facility, which now hosts the "No Offseason Sports" youth sports complex.[32] In addition, the land used for Bitcoin mining operations at the Panther Creek plant is entirely reclaimed land.

Stronghold's business model outlined above results in an efficient method to comprehensively remove coal refuse from the environment and support the remediation of its polluting impacts.

IV. Installation of the Load Bank and Stabilization of Grid Power: *We represent a dispatchable alternative energy source that serves to stabilize the grid and benefits local communities.*

The Facilities operate within the PJM Interconnection regional transmission organization ("PJM"), which coordinates the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia. During its initial years of operation, Scrubgrass operated under a power purchase agreement with the Pennsylvania Electric Company that required it to perform up to 80 events per year to provide power to the grid to support PJM loads. However, in recent years, changes in power pricing and certain grid infrastructure upgrades have adversely affected the frequency with which Scrubgrass is dispatched by PJM. The abundance of low-price natural gas and the growth of the supply from the renewable energy sector have lowered prices below the break-even cost for coal refuse plants.[33] The revenue earned from power sales to PJM funded Scrubgrass' reclamation efforts and the less frequent

[32] *See Nos Russellton,* NO OFFSEASON SPORTS, https://www.nooffseasonsports.com/locations (last visited Feb. 5, 2022).
[33] JOINT LEGISLATIVE CONSERVATION COMM., *supra* note 19, at 4.

dispatch by PJM significantly reduced Scrubgrass' reclamation rate for Pennsylvania's abandoned coal refuse piles. Although we considered retiring Scrubgrass and repurposing the site as a battery storage facility, we did not want to cease the beneficial activities of coal refuse reclamation. To allow reclamation efforts to continue economically, Scrubgrass instead opted to install a resistive computational load bank with a capacity of 21 MW (the "Load Bank") to enable Scrubgrass to run at full capacity even when market conditions do not require or allow the plant to export power to the PJM grid.

The Load Bank is effectively used as a power regulator and allows Scrubgrass to complete its primary task of waste coal reclamation and power generation and to simply "bank" any excess power it generates to the Load Bank during unfavorable market conditions instead of venting steam to the atmosphere. The Load Bank is used to supply power to Bitcoin miners stationed at Scrubgrass; however, it does not alter the circumstances under which Scrubgrass is dispatched by PJM. The cost curve that Scrubgrass supplies to PJM as required by PJM's fuel cost policy also has not changed.

Although our impact may be small, Scrubgrass remains ready and available to respond to dispatching requests from PJM, or to sell into the spot market to provide additional supply when prices are peaking. This is especially important during these cold winter months when power demands often increase. **If PJM dispatches Scrubgrass, the Load Bank and Bitcoin mining activities are shut down and power is delivered to the grid, benefitting local communities by helping to keep the cost of power down.** The Load Bank helps ensure that our response time to grid demand is nearly instantaneous (approximately 1 minute) and there is no start cost or minimum run time associated with PJM dispatch.

A similar process of installing a load bank is underway at Panther Creek, representing another reliable energy source that can be nearly instantaneously dispatched to the grid.

V. Responses to Questions Provided in January 27, 2022 Letter.

We have included below our initial responses to the questions presented in your letter dated January 27, 2022. We welcome the opportunity to further discuss any questions you may have on these topics.

Question 1: How much do your power generation facilities currently emit annually in terms of metric tons of carbon dioxide equivalent? What is the current annual energy production of the plants?

Through the first three quarters of 2021, Scrubgrass emitted 412,445 tons of CO2 and produced 243,068 MWh of power. The final 2021 numbers for Scrubgrass are not yet available. Panther Creek emitted approximately 203,109 tons of CO2 in 2021 and produced 146,783 MWh of power in 2021. As discussed above, we are actively pursuing a variety of mechanisms to mitigate our carbon emission output. Our 2021 emissions data is still preliminary but our final figures will be reported in accordance with regulatory requirements.

Question 2: What is the annual electricity consumption used for Bitcoin and other cryptocurrency mining at each of your facilities? What are the estimated emissions, in terms of metric tons of carbon dioxide equivalent, produced by generating this energy?

Scrubgrass estimates that the annual electricity consumption used for Bitcoin mining will be 546,000 MWh, assuming that Scrubgrass will be operating at full capacity for such year. Panther Creek estimates that the annual electricity consumption used for Bitcoin will be 524,300 MWh, assuming that Panther Creek will be operating at full capacity later this year. The cumulative estimated metric tons of CO2 produced by the Facilities to supply this power required for Bitcoin operations is 1,284,360. We do not currently mine any other forms of cryptocurrency.

The estimates above take into account a continuation of our average dispatch to the grid, which slows or halts Bitcoin mining operations. Our priority remains providing power to the grid to respond to dispatching requests from PJM, or to sell into the spot market to provide additional supply when prices are peaking, helping provide additional supply when needed to keep electricity prices low.

Question 3: Please describe your plans, if any, to scale your cryptomining operations.

a. **On November 2, 2021, you closed your acquisition of the Panther Creek Energy Facility, an 80 MW coal refuse reclamation-to-energy facility in Pennsylvania, which, together with your existing Scrubgrass plant, brought your overall power generation capacity to 165 MW. What are the expected increases in carbon emissions from this expansion, and do you have plans to further increase your company's capacity?**

Whereas previously our Facility emissions were limited to just the Scrubgrass plant, we estimate that the acquisition of the Panther Creek plant will result in an additional 898,808 tons of CO2 emissions per year for our operations, consistent with its estimated annual CO2 emissions.

We are consistently evaluating opportunities to expand Stronghold's operations in a way that will expand upon our current business model and benefit additional communities, for example through acquisition of additional coal refuse plants, but we do not have any definitive plans at this time beyond completing the build-out of the Panther Creek plant.

b. **What is your projected electricity consumption for cryptomining across all of your facilities combined over the next five years? What are your projected associated carbon emissions for that mining?**

The projected cumulative electricity consumption at the Facilities used for Bitcoin is 5,351,500 MWh, assuming both Facilities will be operating at full capacity for each such year as set forth in our response to Question 2, which would result in approximately 6,421,800 tons of CO2 emissions.

We are hopeful that the ultimate carbon emissions figure will be less than currently forecasted due to our plans to advance emissions reduction efforts. We are also evaluating the possibility of acquiring additional coal refuse plants with an aim of broadening our remediation and grid stabilization efforts.

c. **What specific plans do you have to address the environmental impact of your increased operations?**

We will continue to take the same steps we currently conduct to limit our environmental impact while exploring new and innovative ways to mitigate any future environmental impact. These new efforts include: (i) testing innovative carbon sequestration and capture technology at the Facilities, as described in Section III above, (ii) reclaiming and repurposing hundreds of acres of previously unusable land, and (iii) utilizing beneficial use ash to offset CO2 emissions as an additive in concrete and cement.

i. **While coal refuse is an environmental problem, even controlled combustion does still have environmental impacts, as these plants are still coal-fired power plants that emit hazardous air pollutants. In fact, there are reports that coal refuse plants are in fact far more inefficient and polluting than new regular coal plants. Please describe your plans to account for that impact.**

Coal plants today use many kinds of relatively "new" technologies that are increasingly efficient at generating electricity. These technologies include, for example, ultrasupercritical combustion, CFB

combustion (like that used in the Facilities), coal gasification boilers, or other technologies, making it difficult to standardize how a "regular" coal plant may operate. However, a "new" coal plant has not been brought online in the United States and in the PJM RTO since 2012.[34] Today, the average operating coal-fired unit in the United States is 45 years old.[35]

The two most recent coal-fired plants to come online in the PJM RTO emitted 913,771 and 4,793,237 tons of CO2e respectively in 2020.[36] These absolute emissions far outpace the CO2 emissions from Scrubgrass and Panther Creek from that year.

However, an important distinction between conventional coal-fired power plants and coal refuse power plants is the carbon emissions of the feedstock. Conventional coal-fired power plants generate electricity from the consumption of coal. In its unmined state, coal does not emit any CO2. However, mining involves a carbon-intensive extraction and transportation process, followed by combustion-related emissions. Without the power demands for coal-fired electricity generation, these carbon emissions would not be circulating in our atmosphere.

Unlike conventional coal-fired power plants, the feedstock for the Facilities is coal refuse. In its latent state, coal refuse produces particulate matter-dense coal dust and is prone to combustion caused by the flow of air through untreated piles, forest fires, lightning, or other causes.[37] These uncontrolled coal refuse pile burns create a range of uncontrolled negative atmospheric impacts, including smoke, carbon monoxide, CO2, hydrogen sulfide, sulfur dioxide, ammonia, sulfur trioxide, sulfuric acid, and nitrogen oxides, and no power output benefits.[38] With the unfortunate assumption that eventually all existing coal refuse piles will partially or entirely ignite, the combustion of coal refuse under close monitoring at our Facilities equipped with pollution control equipment eliminates the risk of unchecked polluting emissions and generates economically beneficial power. Although our coal refuse feedstock still requires transportation from its origination source to the Facilities, the pervasive nature of coal refuse in Pennsylvania reduces lengthy feedstock transportation requirements. Further, operation of the Facilities does not require extraction of new raw materials. Instead, as described in more detail in the Sections above, there is plentiful local feedstock available in urgent need of repurposing.

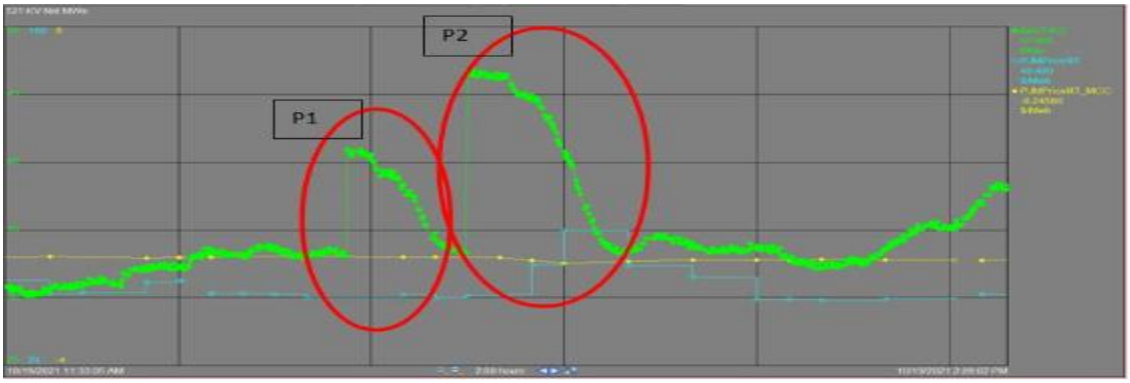
Question 4: Does Stronghold have any estimates or models regarding the impacts of your facilities on energy costs to local families and businesses? If so, what do these estimates or models show? Have residential electricity costs increased since Stronghold began its cryptomining operations? What measures are you taking to ensure that local consumers and small businesses are not bearing the costs of Stronghold's energy consumption?

[34] EPA, Clean Air Markets Division, *Facility Level Comparisons: Table of Coal Unit Characteristics 2020*, available at https://www.epa.gov/airmarkets/facility-level-comparisons (last visited Feb. 5, 2022).
[35] *Of the Operating U.S. Coal-Fired Power Plants, 28% Plan to Retire by 2015*, U.S. ENERGY INFO. ADMIN. (Dec. 15, 2021), https://www.eia.gov/todayinenergy/detail.php?id=50658.
[36] The Virginia City Hybrid Energy Center, located in St. Paul, Virginia came online in 2012 and emitted 913,771 tons of CO2e in 2020. The Longview Power Plant, located in Maidsville, West Virginia, came online in 2011 and emitted 4,793,237 tons of CO2e in 2020. EPA, Clean Air Markets Division, *Facility Level Comparisons: Table of Coal Unit Characteristics 2020*, available at https://www.epa.gov/airmarkets/facility-level-comparisons (last visited Feb. 5, 2022) (date facility came online); *eGRID2020*, EPA (Jan. 27, 2022), https://www.epa.gov/egrid/download-data (emissions data).
[37] ECONSULT SOLS., INC., ECONOMIC AND ENVIRONMENTAL ANALYSIS OF PENNSYLVANIA'S COAL REFUSE INDUSTRY, *supra* note 14, at 23.
[38] *Id.*

The Facilities Help Alleviate Peak Grid Demands

Stronghold does not currently model the impacts of the Facilities on local families and businesses. However, the Facilities represent around 0.01% of the capacity of the PJM grid and therefore do not have a noticeable impact on energy costs for local families and businesses. Instead of other Bitcoin companies who are fully reliant on the grid to power their operations, our Facilities are self-sufficient and are also capable of providing power to the local grid. As discussed above, our Load Bank can be shut down instantaneously, diverting energy generated directly to the grid.

For example, on October 19, 2021, Scrubgrass conducted a demonstration of the response of the Load Bank to dispatch instructions. The demonstration was conducted in coordination with PJM dispatch. The results, which are shown below, demonstrate how the Load Bank enables Scrubgrass to respond to a high ramp generation request nearly immediately, which is critical to help PJM maintain grid stability. The test was successfully completed without incident. Output increased nearly instantaneously by 8 MW in the first phase. Plant output was maintained for 5 minutes, then returned to normal configuration to simulate a 5-minute-high output request. Once stabilized, Scrubgrass reallocated the Load Bank and output increased 13 MW. That output was held for 6 minutes then output was reduced back to normal levels. Since the test, Scrubgrass has successfully been deployed to the PJM grid on several occasions.



The PJM Market Delivers Electricity at a Very Competitive Level

As one of the largest wholesale electricity markets in the world, PJM delivers relatively cheap electricity compared to other wholesale markets in the United States. It generates electricity from a variety of sources, including natural gas, coal, nuclear, and renewable energy. Information collected by the EIA, through the Intercontinental Exchange ("ICE"), revealed that PJM offered the lowest weighted average price among seven regional hubs for wholesale electricity in 2021,[39] offering affordable power to its customers, including local families and businesses. The following table illustrates how PJM's wholesale electricity price compares among these seven hubs.

Region	Electricity Hub Name	Weighted Average Electricity Price (2021)
New England	Mass Hub	$51.76 MWh
PJM	**PJM West**	**$45.70 MWh**
Midwest	Indiana Hub	$58.08 MWh
Northwest	Mid-C	$58.84 MWh
Northern California	NO-15	$76.43 MWh

[39] *See Historical Wholesale Electricity and Natural Gas Market Data,* U.S. ENERGY INFO. ADMIN., available at https://www.eia.gov/electricity/wholesale/ (last visited Feb. 5, 2022).

Southwest	Palo Verde	$61.63 MWh
Southern California	SP-15	$56.90 MWh

Residential Electricity Costs & Stronghold Efforts to Maintain Affordable Power for Customers

As noted above, the Facilities represent around 0.01% of the capacity of the PJM grid and therefore do not have a noticeable impact on energy costs for local families and businesses. Given the multitude of factors that impact residential electricity costs (including natural gas prices, temperature fluctuations, and other factors), and the size of the PJM grid, it would be difficult to attribute any change in local electricity costs to Stronghold's operations.

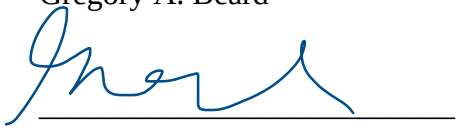
As the PJM prices listed above demonstrate, PJM delivers significant value for its large footprint. Stronghold is proud to help support this value through price stability and generation reliability. Our fuel source is not tied to any index and remains consistent, unlike other facilities that may incur fluctuations for example, based on regional changes in natural gas prices. Instead, Stronghold has provided a reliable dispatch source for the grid, and has never failed to deliver when dispatched since the installation of the Load Bank. As a result, we help PJM successfully keep energy costs some of the lowest in the country for local families and businesses.

VI. Conclusion

We are appreciative of the opportunity to engage with each of you on this topic. We are passionate about Stronghold's operations and the benefits we bring to the environment and the communities in which we operate. We welcome the opportunity to host each of you in Pennsylvania any time that is convenient and would greatly appreciate the opportunity to give you a tour of our Facilities, the coal refuse piles, and the former coal refuse piles that are now fully remediated sites. We look forward to discussing further at your convenience.

Sincerely,

Gregory A. Beard



Stronghold Digital Mining, Inc.