FREQUENTLY ASKED QUESTIONS

Here's your starting point on the path to understanding our mission: the FAQ page. Designed as your initial step, it answers your questions and clarifies how you play a crucial part in our collective goals. Spanning a variety of relevant topics, it's here that you'll find your role in our shared mission brought into focus. Begin your journey with us here, and together, let's explore the future.

FAQ - LITE

1) Is Southern Tier Co2 to Clean Energy Solutions, LLC a New York-based company, and what does the

organized New York limited liability company. We abbreviate the name to Southern Tier Solutions in our web address and often for ease in responding to questions, but the name says exactly what we do. We plan to generate carbon-free or clean electricity from natural gas by using carbon dioxide, an unwanted greenhouse gas, to co-develop shale gas resources, resulting in the permanent disposal of carbon dioxide and the production of clean energy.

2) Why is your company interested in leasing our lands, and what are your company's plans for the Southern Tier?

Assembling the required oil, gas, and subsurface pore space leases is only the first step on this epic journey. We intend to directionally drill horizontal wells and produce natural gas from the Marcellus and Utica shales using carbon dioxide as a replacement for water in the well drilling and stimulation process.

Our approach employs a closed-loop drilling and completion system that will not result in natural gas (methane) or carbon dioxide being flared or otherwise released into the atmosphere. The carbon dioxide used in the drilling and completion process, in addition to the carbon dioxide periodically injected for reservoir pressure management, will enhance natural gas production and become, over time, trapped in the pore space or absorbed into the shale matrix.

Upon full-scale development, the plan is to source carbon dioxide from both existing industrial sources, reducing greenhouse gasses currently being released into the atmosphere, and from newly constructed Direct Air Capture (DAC) units. These units employ a chemical process to strip existing carbon dioxide directly out of the atmosphere.We intend to separate all co-produced carbon dioxide and natural gas and store and reuse the captured carbon dioxide in future drilling and reservoir pressure management operations. We intend to use the produced natural gas, in excess of the amount sold to market via existing gas transmission lines, as the fuel to generate clean electricity utilizing a process that emits zero carbon dioxide or other noxious gases into the atmosphere.

We intend to use the electricity generated to power the DAC units, future drilling, compressional, separation, and injection operations, and to market the excess electricity via both the existing and a future upgraded power transmission grid. In effect, we are taking a commodity of lesser value and of very limited economic marketability, natural gas, and upgrading the commodity to a product of greater marketability and value.

It is envisioned that a series of regional hubs will be established at a dozen or more locations across the Southern Tier. Each hub would be supported by a 50,000-to-100,000-acre leasehold position, centrally

located to the surrounding drilling, production, and injection operations supporting the hub. The independent hubs will contain dedicated DAC unit(s), an Allam or similar cycle electrical generation plant, bulk CO2 working storage, CO2/CH4 separation equipment, battery/electric powered drilling and well service fleet, and a subsurface network of CO2 and natural gas supply and distribution lines linking multi-well pads to the electrical generation, DAC, separation and working storage facilities.

Our mission is to provide access, for decades into the future, to clean and reliable energy throughout the State of New York and to provide an innovative and practical solution for the use and permanent disposal of tens of millions of metric tons of carbon dioxide annually.

3) Are the operations that your company proposes to drill and develop the shale gas resources of the Southern Tier just High-Volume Hydraulic Fracturing "HVHF" by another name?

No, we understand and welcome the opportunity to transparently operate under the microscope of a host of regulatory agencies.

HVHF is defined by the New York State Department of Environmental Conservation as a process that uses more than 300,000 gallons of fresh water per well; the definition was likely expanded to prohibit the use of liquified propane gas in the HVHF process.

Southern Tier Solutions employs an anhydrous or waterless process, without added chemicals or proppant, operating at initiation and injection pressures significantly below the pressures usually required in the HVHF process. The technique relies heavily on the unique properties of carbon dioxide when in its supercritical phase and the affinity of shale, especially shale containing elevated levels of organic content, to absorb carbon dioxide while desorbing methane gas preferentially. The process reestablishes the conductivity of the in-situ natural fracture network by dissolving and flushing out the existing minerals blocking the natural pathways while forming a network of new and self-propping radial fractures within the shale reservoir.

The overarching objective of both the process and the well design is threefold:

- Establish a more expansive reservoir drainage area than what's typical for HVHF.
- Recover a percentage of the original gas in place that exceeds industry averages.
- Sequester or trap a substantial portion of the carbon dioxide used in the process.

4) How do I get paid if I sign an oil, gas, and subsurface pore space lease with Southern Tier CO2 to Clean Energy Solutions?

The specific terms of payment, for everything from bonus consideration to royalty payments to surface damages and everything in between, are provided in the lease document and this summary is not intended to in any way modify those terms. Our model of Oil, Gas and Subsurface Pore Space Lease form is much longer than your typical oil and gas lease, in part because it represents transparency and is one of the most mineral owner-centric leases ever drafted and in part because it needs to independently address the unique ownership characteristics of the surface estate and the mineral estate, and the sequestration of carbon dioxide and the conversion of produced natural gas to electricity, hydrogen or any other product of marketable value, in a single document.

- You receive a small upfront bonus consideration payment
- You are entitled to receive a future Pooling and Unitization Payment of $100 per net surface acre, or $100 per net mineral acre, or both, payable upon the initial pooling or unitization of your lands, with any other lands, for either the development of oil or gas or the sequestration of carbon dioxide. If you own an interest in both the surface estate and the mineral estate, you are entitled to receive individual payments, in proportion to the interest that you own, upon the pooling and unitization of each estate.
- The lease provides for a landowner (lessor) royalty of 20%, in the same manner as you would expect under a standard oil and gas lease, for natural gas or natural gas liquids produced, saved and marketed from your lease
- The lease provides for a carbon sequestration payment, for each metric ton of carbon dioxide sequestered in your subsurface pore space or lands pooled therewith; the carbon sequestration payment is equal to 20% of the net revenue received by the company (lessee) for the sequestration of carbon dioxide
- The lease provides for an "end product payment" for each kilowatt of electricity that is generated, using the natural gas produced from your land, or lands pooled therewith, and that is sold via the power grid to market of 20% of the net revenue received by the lessee. The product payment is not limited to electrical generation. It may include the use of natural gas produced from your land, or lands pooled therewith, as a feedstock for hydrogen generation or any other product sold to market. In short, 20% of the net revenue that the company receives, you receive on the same terms.

Revenue is calculated in proportion to your ownership interest in the natural gas used in any process to convert the natural gas to any product sold to market or in proportion to your ownership interest in the pore space used for carbon dioxide sequestration.

This novel approach is tailored to overcome the inherent commodity production and marketing challenges of the Southern Tier, where gas transmission tariffs can be excessive or access to existing pipeline networks is limited, intermittent, or nonexistent, and the prospects for permitting and receiving regulatory approval of new interstate or intrastate natural gas transmission lines is uncertain. The goal is to market the commodities in a manner that is both reliable and economically sustainable, converting otherwise uneconomic or stranded gas and otherwise unavailable or inaccessible pore space to marketable and socially beneficial commodities.

5) Do you have a potential revenue breakdown for mineral and surface ownership?

Many landowners have asked what the future revenue potential is, on a per net surface acre basis and a per net mineral acre basis, of my land, under the terms of your Oil, Gas and Subsurface Pore Space Lease, over the life of the lease. Not including future pooling payments, surface use and access payments, etc. The short answer is that the Marcellus reservoir varies in thickness, porosity, permeability and depth throughout the southern tier and thus, a fair amount of averaging has been employed in the calculations. The following may be overly simplistic, but it is an attempt to address the question in a practical manner.

The owner of an interest in the surface estate, by definition owning an interest in the subsurface pore space, will be entitled to revenue derived solely from the sequestration of carbon dioxide, and the revenue derived, attributable to the ownership of one net surface acre, could be reasonably calculated at $26,000 per net surface acre.

The owner of an interest in the mineral estate will be entitled to revenue derived from the sale of natural gas or from the conversion of natural gas to electrical power, and the revenue derived, attributable to the ownership of one net mineral acre, could be reasonably calculated at $27,500, per net mineral acre.

If the owner owns an interest in both the surface and mineral estate, then they will be entitled to revenue derived from both revenue streams. Please recognize that in no way can we guarantee the accuracy of these estimates. The estimates are based upon present-day market conditions, often evolving, as well as future assumptions, often projecting thirty-plus years into the future. The assumptions are similarly based upon the average wholesale market price of electrical power and provisions of the Internal Revenue Service code, in particular, subparagraphs authorizing the 45Q Tax Credit, any change in market conditions or the termination of the 45Q Tax Credit provision will materially alter any estimates, in a positive, negative or any combination thereof manner. For the purposes of the estimates, both the wholesale market price of electricity and 45Q

credits include no escalation or other cost of inflation adjustments. The provisions of the tax code do provide for inflationary adjustments, on an annual basis, from current levels but we cannot say with any certainty what future adjustments will look like.

Market conditions: In the United States, 750 GW (gigawatts) of natural gas, coal and nuclear power generation are near-term retirement candidates. The Environmental Protection Agency has publicly stated that it will not issue any new permits for coal or natural gas-fueled power plants unless the applicant can prove that the plant will both capture and dispose of their carbon emissions. At present, there is not a single plant operating in the US that both captures and disposes of their carbon emissions. We anticipate being among the first.

45Q Tax Credit: This is an incentive tax credit introduced in the US by the Internal Revenue Service in October 2008 to reward the capture and disposal of carbon dioxide. The allowance was expanded in August of 2022 under the Inflation Reduction Act. A brief summary of the 45Q structure provides;

- (i) $85 per metric ton of CO2 captured and stored in a subsurface geologic stratum or (ii) $60 per metric ton captured and used in conjunction with EGR (Enhanced Gas Recovery) operations. The difference between the two rates is that the $85 per metric ton credit is only available when CO2 is not used for the purpose of enhanced gas recovery. We anticipate qualifying for the $60 credit first, during the productive life of a gas well and then qualifying for the larger $85 45Q credit, following the end of the productive lifecycle of the well, when the depleted wellbore is used solely for the purpose of carbon dioxide disposal and sequestration.

- (i) $180 per metric ton of CO2 captured from the atmosphere by means of Direct Air Capture (DAC) combined with subsurface geologic storage or (ii) $130 per metric ton of CO2 captured from the atmosphere and used in EGR operations.

- We anticipate qualifying for all of the above 45Q Credits at some point during the thirty-five-year life cycle of each operational hub.

The question must be asked: how best to monetize the shale gas and pore space resources of the Southern Tier in compliance with the Federal and State regulatory environment and Internal Revenue Service 45Q code? The answer is a combination of revenue streams derived from (i) the direct sale of produced natural gas, (ii) the conversion of produced gas to electrical power combined with carbon capture, (iii) the capture and sequestration of carbon directly from the atmosphere, and (iv) the sequestration of carbon dioxide sourced from existing industrial sources. It is anticipated that a series of 10-12 operational hubs will be assembled, with each hub representing between 40,000-60,000 leasehold acres. Each hub would be equipped with 300-megawatt electrical power generation capabilities and a Direct Air Carbon Capture facility. Based upon future feasibility studies, the possibility exists for blue hydrogen conversion, but for the purposes herein, no future revenue stream is assumed. The operational hubs are supported by the Marcellus Shale gas production, and it is assumed that future Utica Shale gas production will extend the life of many

operational hubs beyond the anticipated thirty-five-year minimum operational life expectancy, but for the assumption purposes below, only the Marcellus is considered.

Assumptions: A single operational hub supported by Marcellus shale natural gas production and the Marcellus shale subsurface storage capacity only:

- 40,000 leasehold acres – operational unit (62.5 Sections)
- 35 Years - Operational Life
- 625 billion cubic feet of gas (bcfg) – 1.25 trillion cubic feet of gas (Tcfg) of technically recoverable and producible reserves, equating to 10-20 (Bcfg) per 640 acres, for the purposes of this assumption, 10 Bcfg was used in the calculations.
- Carbon dioxide is roughly 2.75 times heavier than CH4, being methane gas, with a slightly smaller kinetic diameter, equating to an estimated 93.75 million metric tons of carbon dioxide storage capacity, or 1.5 million metric tons per 640 acres.
- 30 million metric tons, the anticipated quantity of externally sourced CO2 from existing industrial sources;
- 35 million metric tons, the anticipated internally DAC sourced CO2;
- 28 million metric tons, the anticipated internally captured CO2 as a byproduct attributable to electrical generation;
- 50MMcfpd of sustainable natural gas production (18.5 Bcfg per year), being the daily feedstock requirements for 300 MW generation & 800,000 metric ton CO2 capture (annually);
- Average annual wholesale energy market price = $50 per MWh.

6) What is subsurface pore space, who owns it, and why does your company want to lease it?

Subsurface pore space, more specifically as the term applies to shale formations, is the space or natural voids that exist in the form of matrix micropores, natural fractures, or the space between grains of clay, sand, or other minerals now typically occupied by natural gas.

Pore space leases are generally about capturing, injecting, and storing carbon dioxide. The same drilling and completion process that allows natural gas to be produced provides access to the pore space for the storage of carbon dioxide. The same pore space now occupied by natural gas is available for storing carbon dioxide once the natural gas has been produced.

The conventional oil and gas lease, when signed by the owners of the mineral estate, provides the lessee the right to access and produce oil and gas but does not provide the lessee the right to use the subsurface pore space for disposal or storage, by means of injection, of any gas or fluid. During any drilling and stimulation process, some portion of the existing pore space is occupied by the drilling and completion fluids that become permanently trapped during operations. These trapped fluids are considered a reasonable and

necessary use of the land for oil and gas development and extraction and are allowable under an oil and gas lease. But any use of the pore space beyond what is considered reasonably required for the development of the resources is not a right usually granted under a standard oil and gas lease, as this right is vested in the surface owner rather than the mineral owner.

The drilling and completion techniques that we propose, as well as ongoing reservoir pressure management operations, will result in carbon dioxide being trapped in the reservoir, in existing voids, in voids that we create, and in pore space once occupied by natural gas before the natural gas is produced.

In the State of New York, the subsurface pore space is considered the property of the surface owner and not the property of the mineral owner. However, in many cases, the surface owner and the mineral owner are the same party. Therefore, to access, use and occupy the pore space for permanent storage, as in the case of injecting carbon dioxide, a separate agreement or lease is required between the surface owner and the lessee.

The Oil, Gas and Subsurface Pore Space Lease we propose grants the rights typically associated with an oil and gas lease in addition to the right to access, use and occupy the subsurface pore space.

7) If anthropogenic (man-made) CO2 is the most notorious greenhouse gas in our atmosphere and the global agenda is to limit future emissions, then why is CO2 not being used by every company, around the world, in the development of shale resources?

The answer resides in a combination of industry acceptance and economics.

Volumes of research data presently exist on the merits of using CO2 as a replacement for fresh water in the well drilling and completion process, originated by academia, scientists, industry professionals, and renowned research institutes from around the globe, but the primary reason for industries lack of acceptance is that deriving an understanding and comfort level for using CO2 as a working fluid or stimulation fluid is often gained by studying actual field trials or the published results of pilot programs.

Most of the advances and pilot programs are currently taking place in the desert regions of northern China or the water-restricted areas of southern China. China has minimal quantities of fresh water, vast shale basins, and no shortage of industrially generated CO2, so the evolution to anhydrous or waterless well stimulation is an adaptive solution to a real geographic and environmental limitation.

Another factor is economics; fresh water is inexpensive and accessible in the United States, easily trucked and stored in tanks or surface containment ponds at remote locations, and easy to handle. CO2, on the other hand, is expensive to source in the volume and purity required from manufactured industrial sources, challenging to transfer, transport, and store in bulk and requires specialized equipment and training to handle. In short, despite the apparent social and overwhelming environmental benefits, CO2 is not currently a cost-competitive alternative to fresh water. Not to mention that an existing CO2 supply from industrial sources or Direct Air Capture is nearly nonexistent, as is the transport and storage infrastructure.

Lastly, companies have not been forced to choose between CO2 and water; we predict that option will no longer be available following the results of our pilot program in the Southern Tier. Together, we shall develop and deliver the blueprint to this nation and the free world. Governing bodies on the State, Federal, and international levels will demand the shift once they recognize the benefits of preserving their valuable freshwater supplies while reducing greenhouse gas emissions without sacrificing economic prosperity or the nation's energy security.

8) Given the current environment, where there exists no accessible supply of man-made CO2, how can your company develop the Marcellus and Utica shale resources?

The question is simple; the answer is a bit more complicated, but part of the solution is already in the air we breathe, and the other part is emitted daily as a by-product from fossil fuel-fired electrical generation plants. However, it is going to take time and require that our company, together with the landowners and communities of the Southern Tier, offer the solution. There is indeed no existing supply of anthropogenic CO2 in the volumes and purities we require. It is also true that no method exists to transport the supply economically, even if it existed. The reason that no supply, and thus no mechanism for the storage and transport, exists is that heretofore there has been no reliable commercial demand for man-made CO2 in the volumes required to justify the cost of capture and transport, let alone the cost of capture, transportation, and disposal (aka sequestration), outside of the inconsequential amounts captured for use in the chemical, fertilizer, pharmaceutical and food and beverage industries. And although the term carbon capture utilization

and sequestration or CCUS is a lead story on the cover of every newspaper, for all practical purposes, it is not happening on any scale approaching environmentally impactful or economically sustainable.

For example, the largest Direct Air Capture or (DAC) project in the United States, designed to strip carbon dioxide from the air chemically, is currently being constructed by Carbon Capture in Wyoming, which, once operational, is anticipated to capture around 5 million metric tons of CO2 annually from the atmosphere. The second largest DAC unit, the 1PointFive facility in Ector County, Texas, is also under construction and is anticipated to capture 500,000 metric tons annually. Therefore, the two largest facilities in the US will be capable of capturing and sequestering a combined 5.5 million metric tons of CO2 annually. That all sounds impressive, and we don't want to in any way minimize the contribution, but within a 100-mile radius of the Southern Tier alone, 28.5 million metric tons are being released into the atmosphere on an annual basis, and within a 200-mile radius, not including Canada, that number increases to 125 million metric tons. DAC facilities do require electricity to operate the air contactors and processing equipment, and it appears that both facilities will source the necessary electricity from a combination of adjacent wind and solar sources, an option this is not economically viable on the scale required to operate DAC units in the topographically challenging Southern Tier. To work economically and to serve their desired purpose, DAC units must be positioned adjacent to a source of clean, inexpensive, and reliable electricity and adjacent to either accessible geologic storage or commercial demand for the carbon captured.

Until recently, compliance with the decarbonizing policies of governing bodies has largely been elective and not compulsory, and industrial emitters have historically treated the policies as such. After all, why go through the expense of capturing a waste product that the producer of that waste product has no means to store and has no means to dispose of after capture? Therefore, we find ourselves in the situation that we have today, emitting the waste into the atmosphere as the only available option. Please don't confuse the fact that for decades CO2 has been in high demand for enhanced oil and gas recovery (EOR or EGR) projects, but the source of the CO2 used in EOR/EGR is not derived from industrial sources or the atmosphere, it is produced from wells drilled into naturally occurring reservoirs, no different than conventional oil and gas development. The CO2 is produced in one field, transported via pipeline, and injected into another, often hundreds if not thousands of miles apart. The EOR/EGR process, as described above, does nothing to reduce the amount of greenhouse gases currently in the atmosphere or, in any way, reduce the amount of greenhouse gases released into the atmosphere in the future. Still, it is an effective method of increasing hydrocarbon production in depleted fields. We intend to use CO2, derived from man-made sources, much earlier in the life cycle of the wells than the typical EGR project.

But recent Federal mandates limiting future greenhouse gas emissions from industrial sources, an unwanted by-product primarily derived from the burning of fossil fuels for electrical generation and in the manufacturing of steel and cement, are quickly shifting from elective to mandatory, leaving many industrial sectors seeking the least economically painful alternative to continued atmospheric release. The Federal government has recognized this problem and has recently increased the 45Q tax credits, which are a financial incentive to offset, in part, the expenses associated with carbon capture and sequestration or utilization. But more than tax credits alone will be needed to solve the problem; the cost of meeting compliance goals is far greater

than the 45Q offset. In fact, the industry has no real answer unless you consider the passing on to the consumer, in the form of a rate hike, the costs associated with industries fines for non-compliance, or the costs associated with the purchase of offsetting carbon credits, to be an answer. A solution that does nothing to help the environment and serves only to tax the consumer. At present, we are all watching a game of chicken being played out between government policy and industrial emitters. The emitters believe that government policy will blink first and that compliance policies will slacken once consumers start to feel the pain of higher electrical rates and consumers demand relief from their elected officials. Ultimately, the consumer pays more, the environment loses, and it's back to business as usual. It is all so unnecessary. We offer a practical, logical, and timely solution to this enduring problem. We have a need for the waste product, and we can provide the industrial emitter an economical option for the perpetual storage of that waste in volumes that justify their cost of carbon capture and transport. The existence of a viable and socially acceptable alternative to releasing greenhouse gasses into the atmosphere will financially support the future construction of the carbon capture and transport infrastructure, all while achieving the industry's goals of regulatory and social compliance. Federal and State governments will overwhelmingly support these efforts once they realize this option is available.

9) How significant are the levels of carbon dioxide emissions in our region?

Using the most recent data from the EPA's 2021 Greenhouse Gas Emissions report, this map centers on Binghamton, New York, and expands in 50-mile increments up to a 150-mile radius.

The map highlights three main zones, each representing the annual CO2 emissions in metric tons from large facilities. The innermost zone, a 50-mile radius, accounts for 7,284,743 tons of CO2 emissions annually. Expand to a 100-mile radius, and that number increases nearly four-fold to 28,506,702 tons per year. The outermost zone, a 150-mile radius, releases a staggering 92,281,215 tons of CO2 every year.

These are more than just numbers. They represent the urgency of our mission, the importance of the change we aim to bring about, and the potential that lies within your land. They are a tangible reminder of the environmental challenges we face together, right here in our community.

10) Are the shale gas resources beneath our lands worthless or uneconomic to produce, given low gas prices, limited pipeline availability, and the current

ban on High Volume Hydraulic Fracturing?

No, your mineral rights are not worthless, but their economic development demands an entirely new approach, an approach that does not exist in the industry today. Under the typical gas producer model, one heavily reliant upon the banned high-volume hydraulic fracking (HVHF) process and equally as reliant upon pipelines to get the gas to market, they are uneconomic to produce or effectively stranded, even at a much higher price for natural gas. In honesty, if natural gas prices were many fold the current price, other areas of the country would still be more attractive to producers. That is why the oil and gas industry effectively abandoned New York's Southern Tier, and that is why few, if any, oil and gas companies have been interested in acquiring new oil and gas leases in the area over the last decade.

However, independently your shale gas resources have value, and independently your pore space has value, but unless they are developed and utilized jointly, in a manner not requiring HVHF to establish reservoir communication, and in a way not reliant upon pipelines to get the gas to market, they will continue to remain far from economic to produce or utilize.

Now for the good news, our company does see an avenue for a scalable, decarbonized energy future in the Southern Tier. To our knowledge, we are the only company with this vision. But for the development to be economical for everyone, we can't rely on HVHF. It must coincide with carbon capture use and sequestration and include converting produced natural gas to carbon-free electricity. Economic development is achievable only with the cooperation of tens of thousands of landowners, representing many hundreds of thousands of acres, allowing future development to proceed in an orderly, scalable, environmentally sound, and prudent manner.

Therefore, the future value of your shale gas resources and pore space is up to you and your fellow landowners to decide.

11) How does your company's plan help or hurt the global shift away from the use of fossil fuels in favor of renewable energy sources?

We understand that the fundamental societal shift away from burning fossil fuels is a direct response to the global effort to combat climate change. We are not debating the root cause of the climate crisis, nor the practicality of increased reliance on renewable energy, but rather understand and respect that a more significant dependency on wind, solar, battery, and electric is what societies are demanding.

The one observation we would interject is that renewables are often viewed as a basket of carbon-free or

environmentally friendly energy options, with the operative word being "carbon-free." The generation of electricity by burning fossil fuels is indeed the most prominent contributor on the planet of greenhouse gasses into the atmosphere. However, even renewable energy sources are not carbon-free; the manufacturing and raw material mining processes required to develop renewables are part of their life cycle carbon footprint. The energy they produce may be renewable, but the equipment providing the renewable energy is not; it has a finite operational lifespan. The input components and rare earth minerals required in the manufacturing process are limited in this country; thus, we remain perpetually reliant on foreign sources.

We believe that co-producing electricity, at home, in the carbon-free manner that we propose, combined with the sequestration of greenhouse gases stripped from the atmosphere and captured from industrial sources, renders our process a net carbon negative, thus placing us squarely in the basket of clean energy options. A clean energy option that will serve as an insurance policy if renewable energy deployment doesn't match the optimistic timelines for its deployment. Our process supports the existing renewable policies; it does not compete with them. It fills the singular void of dependability on sunless evenings and windless days, firmly establishing the Southern Tier as the energy and environmental backbone of the State of New York.

12) How does the recent Environmental Protection Agency (EPA) mandate that blocks the construction of new gas-fired electrical power plants affect your company's plans?

The mandate blocks the construction of only new fossil fuel-fired power plants that can neither capture nor dispose of their emissions. At present, no gas-fired electrical power plants are operating in the United States that capture and sequester their carbon emissions. However, a few gas-fired power plants use a generating cycle that produces no carbon emissions at all. The Southern Tier of New York is ideally suited to comply with the new EPA mandate. Carbon capture and sequestration is an inseparable part of our development process.

13) Why did your company select New York's Southern Tier as the place to start?

The Southern Tier region of the Appalachian Basin rests atop virgin and technically recoverable shale gas

resources in the Marcellus and Utica Shales. The area is associated with a historically low density of drilling per square mile, which equates to a fewer number of legacy wellbores that our company will need to plug or monitor as possible future carbon dioxide migration pathways or leaks but does represent an adequate density of wellbores to serve as an initial reservoir control data set. Few existing wells have been subjected to HVHF stimulation with fresh water, a process that reduces the effectiveness of the carbon dioxide and shale interaction. The primary gas reserves are still in place; otherwise, our proposed approach would be uneconomic. The citizens of the Southern Tier pay some of the highest electrical utility rates in the country and have historically supported the development of their shale gas resources. The area is mainly rural and is the only portion of the Appalachian Basin where a significant leasehold position, in excess of 800,000 acres, can be economically assembled in a manner that justifies the risk and expense associated with future full-scale development. In summary, the Southern Tier provides an unequaled opportunity for our grassroots approach to orderly development.

14) Will the actual drilling and completion process still require access to, and the use of, some amount of fresh water?

Yes, at most, we will need about the same amount of freshwater as used to drill a vertical well of comparable depth. Fresh water will be used while drilling the surface hole, the vertical section of the well, the curve, and a short length of the horizontal lateral; a modest amount is also required for casing cementing operations. No freshwater or diesel-based drilling fluid will be used, at any point, to drill the lateral section beyond the intermediate casing shoe. We will use no fresh water in the well completion or stimulation process.

15) What are a few of the more recent technological advancements or regulatory policy changes that make this project possible?

Technical advances in:

- The development and economical deployment of Direct Air Capture of carbon from the atmosphere
- Electrical micro-grid mobility

- Allam cycle carbon-free electrical generation
- Subsurface wellbore coupling through precision directional drilling
- CO2 pressure pumping and handling, (vi) CO2 resistant wellbore cement
- Corrosion resistant tubular goods,
- Managed pressure drilling
- Underbalanced drilling fluids and well control
- Blue or dopeless drill pipe connections
- Fiberoptics
- Subsurface acoustic emissions monitoring
- The understanding of the CO2 and shale chemical interaction.

And recent legislative policies, including the State of New York's Climate Leadership and Community Protection Act (CLCPA) of 2019, effectively limit statewide emissions and affirm the commitment to achieve net-zero, in addition to the 2022 Statewide GHG Emissions Report. The Federal government's passage of the Inflation Reduction Act in August 2022, inclusive of the revisions to the 45Q tax credit code, to name a few.

16) Where and when will Southern Tier Solutions drill its initial proof of concept wells?

Upon achieving our oil, gas, and subsurface pore space lease acquisition goals, we will select a series of drill site locations across the leasehold position. These locations will represent differing characteristics across several categories including:

- Depth
- Thickness
- Pressure gradient

- Organic content levels
- Thermal maturity values

We anticipate surveying the drill site locations and submitting drilling permit applications to the Department of Energy Conservation (DEC) in the spring of 2024. Depending upon the timing of DEC permit approval, drilling operations would commence as soon as the summer of 2024 and continue for the balance of the year and beyond. If permit approval is delayed, drilling operations will be postponed until spring 2025. We do not anticipate commencing the pilot well program during the months of December through March. The initial wells will include extensive reservoir coring, logging, and testing operations and include horizontal laterals of varying lengths.

These pilot wells will be subjected to a series of operational procedures. The results will form the basis for refining optimal drilling, completion, and injection procedures, as well as production unit spacing, pore space pooling design, and infrastructure hub layout, furthering both the development of a blueprint for future full-scale development and the design modifications required to existing surface equipment and downhole tools.

We anticipated that at least two years will be necessary from the commencement of the pilot program to develop the strategic model for full-scale development. It is expected that modifications to the surface and downhole equipment will be an ongoing process throughout the project's life.

17) Why isn't your company just leasing a small amount of land, drilling and testing your pilot wells, proving your concept, and then commencing a large-scale lease aggregation program?

The financial risk is too high, and the resulting loss in time is too great. Suppose we are technically successful in validating the merits of our plan but then unable to expand the leasehold position to a size that justifies the expenses associated with equipment installation and infrastructure buildout. Such an outcome would render the project a technical success but an economic failure.

18) Why does your company not provide a contact phone number on this website?

At present, we simply do not have a method for promptly dealing with the volume of calls. Therefore, we request that all communications originate through our website, which will provide us with the opportunity for a timely and orderly response to your questions, comments, and lease requests. We appreciate your understanding and appreciate your patience.

19) Why are you only paying a fixed $10.00 bonus consideration for the signing of our lease? Is this a joke?

Yes, the bonus consideration for the execution of the Oil, Gas, and Subsurface Pore Space Lease is a flat $10.00, and not $10 per net mineral acre or $10.00 per net surface acre. This offer is not intended to be insulting, but this is representative of the risks involved in achieving a critical mass and reflects the possibility of unanticipated regulatory delays lasting for an unknown duration.

The scope and scale on which this project is designed requires a considerable leasehold position to ensure its long-term economic success, with individual operating hubs requiring leasehold support of 50,000 to 100,000 acres and, thus, a dozen or more operational hubs requiring over 1 million acres in the aggregate. The project will likely not succeed without large-scale landowner and community support, and an increase in the bonus consideration payment by any meaningful amount will not ensure that support and will only add to the initial financial risk and set a precedent harmful to the long-term economic viability of the project.

In short, we are not here to revisit the financial disaster suffered by the companies of the earlier shale boom at the hands of regulatory policymakers. Whether these policy changes were warranted is irrelevant, the fact that they were only implemented after billions of dollars had been invested is material. The financial rewards of signing a lease with our company are not immediate, but the terms are fair and, in time, may prove to be more financially beneficial to you than the terms contained within the leases granted to our predecessors.

Your lease is your vote, your ballot to cast that says I am for this opportunity, and my lease publicly expresses my support for this opportunity.

20) You have repeatedly referenced the need for a 50,000-acre to 100,000-acre leasehold position to support each operational hub. What is this all about?

Yes, obviously, there is a big difference between a 50,000-acre leasehold block and a 100,000-acre leasehold block; both block sizes are significant, but it is essential that every landowner knows why blocks approaching this size are necessary. Our goal is to calculate the estimated leasehold block size required to support an economical operational life, of the individual hub, in excess of thirty years. This is a combination of the economic life of the hub to produce natural gas and generate electricity and the economic life of the available pore space to sequester carbon dioxide.

The easiest way to explain this concept is that each acre across the Southern Tier is not created equally. Reservoir quality, being a function of thickness, depth, pressure gradient, porosity, permeability, organic content, mineralogy, and thermal maturity, plays a significant role in each acre's ability to either produce natural gas or store carbon dioxide. These reservoir characteristics vary significantly across the Southern Tier, from north to south and east to west, for both the Marcellus and Utica shales, but are more homogenous or similar over shorter distances of, say, several miles.

The results of the pilot program will be invaluable in providing details as to the reservoir's producibility and in calculating the reservoir's injectability rate and future carbon storage capacity. Therefore, if an operational hub is located in the center of a block of leases, using a 64,000-acre lease block as an example, the reservoir quality will vary to a lesser extent within a 5-mile radius of the operational hub, minimizing operational challenges and significantly reducing development costs.

A dedicated lease block is necessary to assure that the expenses are justified, attributable to:

- Constructing a DAC unit capable of capturing 400,000 to 1 million metric tons of carbon dioxide on an annual basis
- An electrical generation plant capable of producing 200-300 megawatts of power
- A dedicated well drilling and service fleet
- Carbon dioxide and natural gas transport, transfer and distribution infrastructure

Economics, topographical challenges, and the limitations of the existing highway, bridge, and road network require limiting the frequency and distance of heavy equipment movement. Seasonal weather patterns further support limiting reliance on equipment mobilization beyond the regional hub and the reliance on third-party oilfield services originating beyond the regional hub. Economics dictate that the operational hub must develop the lease block from the center outward, whereby the individual leases and lands towards the center of the hub are developed first. Then in concentric order, development moves outward.

The hub will be connected, through a subsurface network of CO2 supply and natural gas gathering lines, to a series of multi-well pads approximately 2-3 miles away, extending to the north, south, east, and west, each multi-well pad will then be connected to other another multi-well pad(s) located 2-3 miles extending outward.

Eventually, a subsurface CO2 supply line, delivering CO2 captured from man-made industrial sources, will be connected to the hub, as internal demand outstrips the abilities of the DAC process to capture CO2. The DAC unit will ensure that a reasonable supply is available for operations in the event of a regional disruption in the industrial source supply. It is anticipated that natural gas production from the outermost lands will not occur until years 7-9 of development. It is expected that leases and lands will be pooled for the sequestration and disposal of carbon dioxide and that landowners will be compensated based on their proportionate contribution, calculated in surface acres, to the pooled sequestration unit. Oil and gas production revenue will remain based on established statewide production unit rules.

As an example, to illustrate how carbon sequestration payments are calculated under a pooled unit, if a carbon sequestration unit is established by the pooling of an aggregate of 64,000 acres, and the company receives an amount equal to $50,000,000 for sequestered carbon dioxide on an annual basis, then 20% of the $50,000,000 or $10,000,000 would be distributed to the landowners in the form of a carbon sequestration payment, with each landowner benefiting based upon the number of surface acres contributed to the 64,000-acre pool.

21) Does your company have a physical office in the Southern Tier?

Not at this time; pending significant landowner acceptance and a positive response to our lease acquisition efforts, it is anticipated that we will have initial land and administrative offices in Steuben, Chemung, Tioga, and Broome counties with future expansion to adjacent counties thereafter, an operational support office will be maintained at each regional hub.

22) What happens if I don't sign a lease?

You have absolutely no obligation to sign a lease. This is your land and your decision, and if you do not feel that our plan is in your best interest, the best interest of your family, the best interest of the environment, or the best interest of your community, then we will respect your decision.

23) What are the most significant challenges that your company faces?

The list is long, but the easy answer is unnecessary and time-consuming regulatory delays, that is what the citizens of the Southern Tier have overwhelmingly told us, and that opinion is usually voiced as "we love your plan, but the State will never let you do this." But their reaction, not to be minimized in any manner, is formulated out of a growing concern that what is perceived as good for the citizens and economy of the State is automatically met with opposition by the State itself. On the other hand, our plan is a net positive for the

people of the Southern Tier, the local and State economy, and the environment. It is the most realistic opportunity available for the State to achieve targeted goals for reducing greenhouse gasses. We are optimistic that our plan is a win for all and that a groundswell of support will rise from the Southern Tier and be met with a groundswell of support at both the State and Federal levels.

However, absent the anticipated backing, at many levels, the permitting process poses the greatest operational challenge. The aggressive pace of development requires that, in a finite period, a significant number of wells are drilled, coinciding with the installation of DAC units and electrical generation plants, all while carbon capture equipment is being fitted to existing industrial sources and the construction of a network of carbon dioxide transmission lines is ongoing. The plan is ambitious and achievable, but the greatest obstacle we face is running out of time.

24) Why are shales a suitable place to store carbon dioxide? Has this ever been done before?

Carbon capture and sequestration has moved out of the periphery in recent years and onto the center stage as global climate change has become an everyday topic. Many projects are in the design phase across this nation; some are legitimate, and others are ill-conceived. Historically carbon sequestration has been a by-product of enhanced oil and gas recovery operations and not the primary purpose of the operation. Today any number of companies, both in and out of the oil and gas industry, are looking at the prospects of injecting CO2, for the sole purpose of carbon sequestration, into depleted oil and gas fields as well as deep saline aquifers, basically saltwater bearing formations.

Part of the attractiveness is that non-producing wells, located in certain types of depleted fields, could be used in the sequestration process to avoid the cost and expense of drilling new wells for the sole purpose of sequestration, rendering an otherwise uneconomical project economical. On paper, this looks like a satisfactory solution. Still, the existing field wells, often many decades old, were never designed for this purpose or lack the wellbore integrity required, thus only represent a potential leakage pathway or a future plugging liability and not an economic opportunity. The Environmental Protection Agency requires that wells used for the sole purpose of CO2 injection and sequestration, not associated with hydrocarbon production, be permitted as Class VI wells, a designated class that legacy wells rarely represent. Now this may be an overly broad or harsh generalization, but in the end, field studies will, in all probability, draw a similar conclusion. Carbon sequestration is all about storing carbon dioxide for an indefinite period.

To store carbon dioxide indefinitely, it must be injected and stored in a reservoir capable of trapping or sealing the gas for thousands of years. Shale reservoirs have not intentionally been used for carbon sequestration, but they exhibit the ability to trap gaseous substances for millions of years. The evidence is clear; if productive shale reservoirs could not trap or seal gas within the formation, they would not be suitable targets for producing natural gas. The gas would have already migrated out over geologic time. The Marcellus shale has the proven ability to trap gas for millions of years. Research and technical studies have

confirmed the suitability of the Marcellus shale for carbon sequestration. The Marcellus shale, at depths below 2,000 feet, has the capacity to store more than 17,000 million metric tons of carbon dioxide in the Southern Tier alone.

25) How can you detect a natural gas or carbon dioxide pipeline leak?

Every natural gas gathering or transmission line and every carbon dioxide distribution line that we construct will be fitted with a fiber optic sensing system that provides for the immediate identification of even the smallest integrity breach.

26) How can you detect the migration of carbon dioxide into my water well or other freshwater supply?

The testing of any adjacent surface water, in addition to any water wells, located within 1,500 feet of a proposed wellhead connection, or further if mandated by the DEC, is performed both before and after the operation is complete and then annually for the duration of the project. Carbon dioxide is a colorless, odorless gas that is naturally present in the air we breathe, and it dissolves in water to form carbonic acid. The acidification of water by dissolved CO2 can affect aquatic ecosystems and alter the PH of the water, but it is not considered toxic to humans or animals at normal concentrations.

A leak is generally noticeable by the resulting changes in the mineralogy of your water, most often being an increase in calcium or potassium levels. Migration pathways for both natural gas, as well as carbon dioxide, are usually associated with geologic faulting, where the existence of a subsurface fault becomes the conduit for migration. We intend to use a process known as borehole vertical seismic profiling (VSP) at a stage during the drilling process, and contemplated at times during subsurface pipeline construction, to identify and map local faulting in addition to other reservoir properties.

27) How will you move the produced natural gas and carbon dioxide between the hubs and the multi-well pads?

Due to regional topographical and surface cultural limitations, we intend to avoid surface cut access and installation whenever possible to mitigate surface disturbance. The underground gathering, transmission, and distribution network will require Horizontal Directional Drilling (HDD) of varying depths and lengths.

28) How will I know if you choose to drill on my land?

Once the company has selected the location of the initial pilot program wells, you will be contacted if a well is planned on your property, or on lands expected to be pooled with your property. At that time, we will discuss any issues we should be aware of regarding your use, occupancy, and enjoyment of the property. We will also request that access be provided to our registered surveyor. The surveyor will survey your land as a prerequisite to our filing of an application, with the New York Department of Environmental Conservation, for a permit to drill. Upon DEC permit approval, you will receive a copy of the final survey plats.

29) What are the terms that your company is offering for my lease?

First, every landowner, regardless of the size of their property or the percentage of their ownership in the surface or mineral estate, receives the same $10.00 fixed bonus consideration payment. If the lease is signed electronically through our digital service, we automatically pay the notary fee. If a hard copy is preferred, the company will reimburse you for the notary fee expense. Every lease's royalty and payment terms are the same and contained within the lease document in summary.

- The Primary Term of the lease is 3 Years.
- The First Extension of the primary term provides for an additional 5 Years.
- The Second Extension of the primary term provides for an additional 2 Years.
- The Royalty on produced and sold natural gas or natural gas liquids is 20.00% of the net revenue derived by the lessee.
- The Carbon Sequestration Payment is 20% of the net revenue derived by the lessee.
- The "End Product" Payment is 20% of the net revenue derived by the lessee.

30) Why does the lease have an initial primary term

of 3 years and then provide your company the option to extend the lease for up to an additional 7 years?

Truth be told, the initial 3-year primary term scarcely provides us the time to assemble the leasehold position, execute our pilot program, and assess the results. If we are unable to assemble a leasehold position of critical mass or regulatory bodies hinder future development, then unfortunately, the pilot program will not be drilled, and leases will be allowed to expire at the end of the primary term. The company may contemplate a reduced pilot program if the leasehold assembled justifies the installation of a limited number of regional operational hubs and regulatory bodies are supportive. Upon a lease's expiration, a lease release will be filed of record.

If the company elects to exercise its option to extend the primary term, then it is a clear reflection that the landowners of the Southern Tier have primarily supported our plan and that State and Federal regulatory bodies are expressing their support of the project by approving the permits required in a timely manner. The exercise of the option to extend the primary term for an additional 5 years is necessary to provide the company with the time to clear land title, layout and form regional operational hubs, design and modify equipment, and move forward with all phases of development expedited. The final 2-year option to extend the primary term provides the necessary time to ensure that the lands and leases on the operational hub's outer reaches may be developed before lease expiration.

31) Will the injection of carbon dioxide into the shale cause earthquakes like in Texas and Oklahoma?

We understand the concern; the increase in earthquake or induced seismicity events in the states of Texas and Oklahoma, associated with oil and gas development, are the result of disposal wells often injecting many millions of barrels of contaminated frack water or produced saltwater into porous rock formations, not shale, that are located adjacent to faults, faults that extend deep into the basement rock and under normal circumstances dormant. The pressures and volumes at which the fluids are injected reactivate these otherwise dormant faults. The cumulative volume of fluids triggers the fault to slip, resulting in an induced seismic event or earthquake.

The Southern Tier of New York has no history of earthquakes, has limited faults extending to the basement rock, and we do not intend to inject any fluid into the subsurface. Carbon Dioxide will not be injected at the pressures or in the volumes that would approach triggering a seismic event. However, there are no absolutes in this world, and to say otherwise would be inaccurate. Still, the operations we propose differ from the disposal operations that are the source of the earthquakes being triggered in many oil-producing states.

32) What is the difference between carbon dioxide and supercritical carbon dioxide?

Carbon dioxide (CO2) is a colorless, odorless, non-toxic gas, but when simultaneously subjected to pressures greater than 1,070 PSI and temperatures approaching 88 degrees Fahrenheit, the carbon dioxide transitions from a gaseous state to a supercritical fluid state, otherwise known as supercritical carbon dioxide or SCO2. In short, the low-viscosity fluid moves like a gas but has the density of a liquid. At the temperatures and pressures that exist over a large portion of the Southern Tier, in both the Marcellus and Utica shale formations, the CO2 will transition to SCO2 while in the reservoir, capable of entering micropores and fractures that water simply cannot.

33) What if my address has changed, I have sold this land, I didn't receive a letter, or I have acquired this land since January of 2023?

If you are the current owner of any interest in either the surface or mineral estate, please let us know of any change to your address on the Leasing tab by checking the box indicating that your address has changed. Then, correct your address using the fields provided.

Our initial mailing list was derived from 2021 county land ownership records. If you sold your property on or after January 1st, 2022, we would have inadvertently sent you a letter, unless you reserved some portion of the mineral or surface rights in the conveyance. If you acquired an interest in the property, mineral, or surface on or after January 1st, 2022, our records will not accurately reflect your ownership. Therefore, if you have acquired an interest in a property since that date, please check the box on the leasing page indicating that you recently acquired an interest in this property when entering your tax Parcel Number.

34) What if my land is currently held by production or may be otherwise subject to an existing oil and gas lease?

If you believe your ownership interest is subject to an existing oil and gas lease, or if you are unsure, let us know using contact@southerntiersolutions.com. Please only request a lease once we review the situation more thoroughly, as we do not want to cloud the current lessee's title.

35) Can the current electrical transmission grid of the Southern Tier effectively handle the increase in power?

At present, the existing high-voltage power transmission grid and the low-voltage distribution grid does not have the capacity to effectively move or deliver the volume of power we anticipate producing to market. New York has any number of upgrades to grid services planned across the State in an effort to achieve its clean energy agenda. The Southern Tier must exhibit the proven ability to produce clean energy in significant volumes prior to the State planning upgrades to the existing long-range transmission and regional distribution grid network. However, we are looking very hard at the feasibility of installing micro-grids in the future to address near term distribution issues, but it is too early for us to say if the idea is economic. The same holds true for CNG or compressed natural gas operations, basically no options are off the table to bring a clean and reliable energy source to market.