SOLAR INTERMODAL CORPORATION is a research and development company specializing in the placement of solar energy panels in previously untenable places, including on intermodal rail cars and truck trailers.

It has invented and holds provisional patent applications for a bracket mounting system for solar panels on intermodal cargo containers, railcars and truck trailers named the Solar Bracket Unit or "SBU". It anticipates that the final design of the SBU (as integrated onto railcars and trucks) will have significant economic advantages for freight logistics operators. Solar Intermodal is looking to further develop the SBU technology and to prove its safety, efficiency and effectiveness, as well as to market the test data to potential buyers.

Solar Intermodal intends to engage in the following activities: (i) fund the research, development and testing of the SBU design; (ii) to progress the research and development of the SBU design for the purpose of use on truck trailers, railcars and trains; (iii) to conduct work in conjunction with commercial entities to determine product design and placement of the SBU in the market; (iv) to expand manufacturing capabilities through the acquisition of both real property and business personal property in the form of equipment; (v) to bring the SBUs to market; (vi) to expand solar generated hydrogen manufacturing and sales operations; and, (vii) to engage in the leasing of solar panels to persons near the company's proposed site in opportunity zones.

History of the Business

Solar Intermodal Corporation was organized under the laws of Delaware on January 1, 2021. The company has been exclusively conducting research and development activities regarding the its inventions and has not generated significant revenue to date.

As of the date of this award entry no physical prototypes have been made. Upon a successful award, the company intends to share its success with the public to attract suitable partners in pursuit of its developments, namely the development of prototypes and to conduct extensive data collection and analysis for the SBU systems. This will include collection of the effectiveness of such designs with respect to energy generation and efficiency.

Solar Intermodal Business Model

The company intends to have three primary revenue streams (1) sales, leasing, and licensing of SBUs; (2) resale or leasing of solar panels (via SBU sales, leasing, licensing); (2) energy generation through solar generation on company real estate developed in opportunity zones; and, (3) zero-emission hydrogen generation and manufacturing through electrolysis and distribution of produced hydrogen.

The Solar Bracket Unit (SBU)

Solar Intermodal's SBU system is designed around the overall standardization of the global intermodal cargo container system. In essence, the company has developed several designs whereby solar panels can be effectively and safely mounted to standardized intermodal containers. Cargo shipping containers are essential to global commerce. The exposed surface

area of each container makes them ideal for the affixation of solar panel arrays. The North American intermodal transportation system is enormous, causing a tremendous amount of fuel consumption and entropy.

The obvious reason for mounting solar panels on the truck trailers and railcars is for mobile power generation. A new generation of EV trucks is coming to market with limited range and no charging stations. Almost all of the locomotives in the world are driven by electric motors, as powered by diesel engines. In this case the diesel engine is acting as the "prime mover" which in turn powers the "electric generator". The electric generator in a locomotive is usually a diesel engine, which after electrical generation powers the electrical "traction motors" which has contact with the rail, driving the locomotive.

While in motion, solar panels, as mounted on the SBU, will supplement the electrical Traction Motors power demands directly using electricity generated by the solar panels. The solar panels may charge battery banks which in turn power the traction motors. While the locomotive is not in motion, power production can occur while the vehicle is sitting idle in the yard or in motion, regardless of the primary power plant fuel source. This electricity can in turn be sold back to the local electrical utility grid.

The company seeks to reduce costs of diesel fuel in freight transportation vehicles by dividing electrical loads with zero-emission renewable energy by providing drive power from the SBU solar panels or continuously charging battery banks of newly developed electric semi-trucks, locomotive hybrids, and battery-powered locomotives. Much of the machinery within locomotives operates on 3-phase 480 volt alternating current to feed the demanding inductive loads of large electric motors. Standard traction motors on locomotives and newly designed electric trucks on the market also use the same electric characteristics however with the help of high frequency computerized controls. Most, if not all, are powered by diesel fueled electric generators.

Mounting the SBU on the containers requires the same loading and unloading equipment currently in existence and used today by truck trailer container and railcar loading docks. Because it utilizes the same loading equipment, there are very few barriers to practical integration of the SBUs into existing trucking and railroad infrastructure.

The potential size of the zero-emissions market is immeasurable. Diesel fuel is used around the world for a wide variety of industrial and commercial applications. It is a significant cost to freight operators and the main source of greenhouse gas emissions. Cutting the cost of using diesel fuel for these operators is the most attractive feature in their adoption to transitioning to the use of zero-emission power. Secondarily, the truck and train operators will be able to generate revenue from the sale of excess electricity to the electric utility grid while SBU-equipped railcars or truck trailers are sitting idle.

SBU Designs

There are three core designs for the SBU; the Intermodal SBU, the Venus SBU, and the Supertrap Deluxe SBU. The first two designs affix the solar panels to the exposed long-sides of a container and the roof on a truck trailer or a train.

Some rail cars and semi-truck trailers can be permanently modified with the bracket frames, solar panels, batteries and other various electronics. The SBU systems provide a means of cascading the connection of one rail car to another through modification inclusive of electrical, circuit breaker panels, and battery banks.

All SBU System configurations are designed to utilize current truck and railroad tooling and infrastructure for installation onto the intermodal container. Most SBU designs can be added and removed from double stacked or signal stacked cargo containers using current on-loading and offloading equipment such as cranes and stacker lifts.

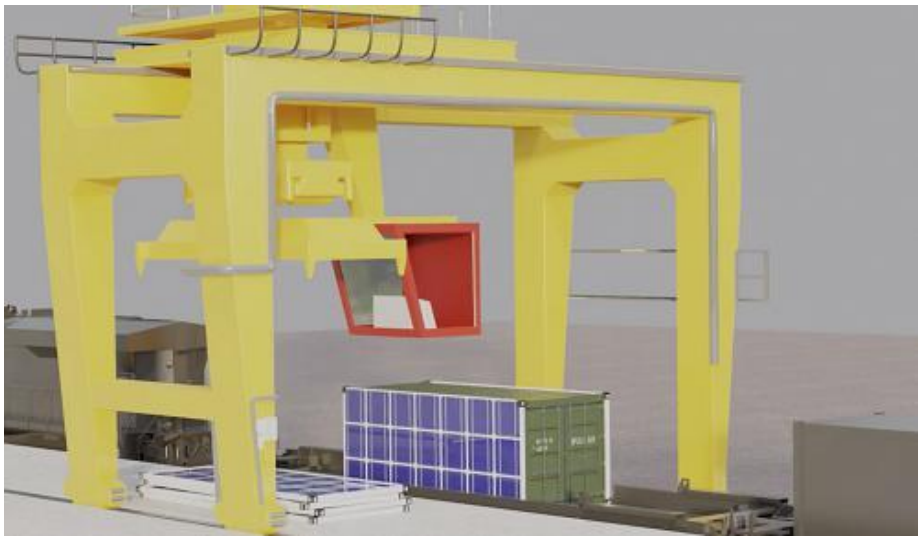

Fig 1 - Intermodal SBU

The standard Intermodal SBU is a configuration that matches dimensions of solar panels along the top sides and long sides of intermodal cargo containers, from cubed-corner to cubed corner. This configuration applies to all lengths of containers. The Intermodal SBU utilizes the standardization of intermodal equipment to attach and detach to the cargo containers themselves. In addition to the solar panels, the Intermodal SBU contains connector hardware, circuit breaker panels, and revenue-grade electric meters. The Intermodal SBU may also be attached and detached to other types of railcars such as box cars and auto train haulers, or to semi-truck trailers for electric trucks.

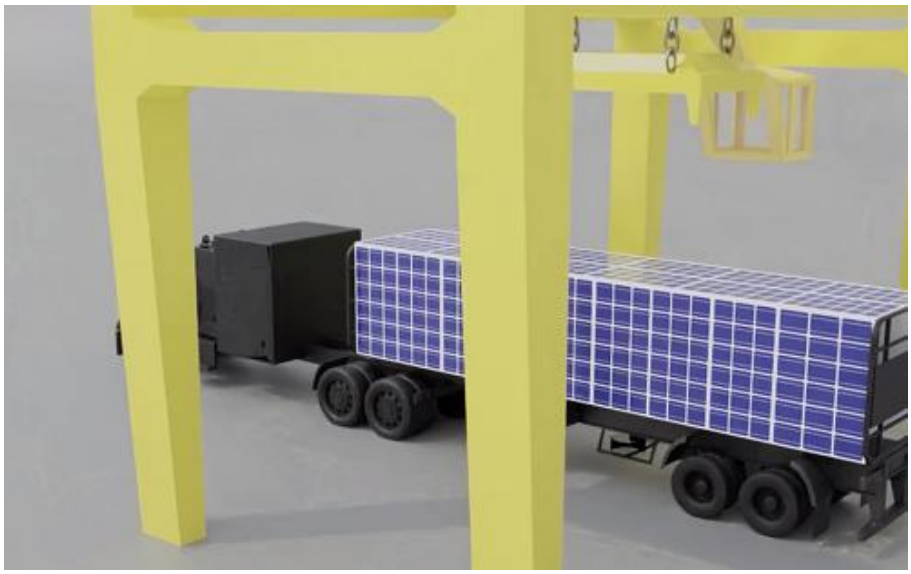

Fig 2 - Venus SBU

The Venus SBU is a more advanced design than the Intermodal SBU, designed specifically for use on semi-trucks to charge the batteries of EV trucks while in motion or parked at a warehouse.. Essentially the Venus SBU is a series of modifications to a standard Intermodal SBU. The solar bracket is affixed to the container trailer to the full dimensions of the trailer length and width. The top of the Venus SBU closes onto the cargo container once it is loaded onto the trailer so as to encapsulate the container in solar panel arrays. The electric modification contains an extra battery storage bank and varies computer control systems added to the trailer, including any inverters as necessary to increase the hauling range of a standard EV truck.

Fig 3 - Supertrap Deluxe SBU

The Supertrap Deluxe is applicable for both single stack flatcars and double stack intermodal cargo container rail well cars. The Supertrap Deluxe SBU requires a series of physical and electrical modifications to be made to either a flat car or a double-stacked rail well car. The solar panel SBU's slide along a track installed on the car, encapsulating the cargo in a telescopic manner. During the loading phase the SBU's retract to the front and rear of the rail car. A gantry crane operator or side car loader can place the cargo container, or any cargo for that matter, into the bed of the rail car with minimal contact with the sides. Once loading is completed, the SBU's move forward and surround and encapsulate the cargo with solar panels.

Power Generation on Company and Third-Party Real Estate – OPPORTUNITY ZONES

The company intends to lease or purchase real estate (the "property") in the Northeast part of the United States. This company property will function as a research and development, manufacturing, and power generation site, to be built in an opportunity zone.

The company has modeled possibilities on the initial site and intends to place a utility-scale solar farm on the property. This is in conjunction with SBU research and development and manufacturing operations.

Solar Intermodal will be acquiring large inventories of solar panels for installation and use for its SBU systems. As the company increases its inventory of panels, the company intends to install, for the purpose of solar power generation, the excess panels on company property and at third-party satellite locations such as industrial buildings, rail yards, and freight yards in opportunity zones.

The demand for the solar-generated electricity derives from both government incentives and utility company clean energy purchasing requirements. The clean zero-emission solar-generated electricity produced will be sold back to the local electric utility grid, generating revenues.

The Model Company Site

A model site for lease or purchase by Solar Intermodal includes a connection to a rail line and major highways. The connection to a rail line will permit the company to receive and install SBUs on containers, truck trailers and railcars, before delivering the SBU-outfitted containers trucks trailers and railcars back to the railroads and truck fleet warehouses. The cars and trailers will generally stay static on company property for some time before delivery.

These static railcars, truck trailers and containers with the SBUs, using the power generated as the containers sit for solar-energy generation activities, including sale of the energy back to the electric grid and hydrogen generation activities. An industrial sized battery storage facility and green hydrogen production facility may be powered by these panels on site. When railcars, truck trailers or containers are needed, they are simply disconnected from the company electrical grid, and sent on their way.

The company property may also install arrays of permanently mounted solar panels throughout the facility, including within trenches located between parked rail cars to reflect light onto the

SBU equipped containers or railcars. Below is an image of a proposed site plan for the company property. The company will obtain similar property for truck related activities.

Fig 4 - OPPORTUNITY ZONE Real Estate

Hydrogen Generation

Ancillary and complimentary to the power generation activities on the company property, the company intends to place hydrogen production facilities on the site. Hydrogen production is relatively simple in its concept. The company intends to use the process of electrolysis to manufacture hydrogen on a commercial scale, using the on-site solar electricity generation to fuel the electrolysis process. Solar Intermodal hydrogen production facilities will be located on its planned model sites and use utility scale solar panels and the SBU System equipped rail cars and tractor trailers to power commercial grade electrolyzers. Clean electric power is also stored in commercial sized battery storage banks. To prevent battery overcharge, excess power is also diverted to the commercial grade electrolyzers to produce green hydrogen.

The electrolyzers are powered by electricity generated by a zero-emission source (solar panels) therefore placing the company in the forefront of the rapidly growing hydrogen manufacturing industry. The company intends to utilize third-party contractors to manufacture, store, and distribute the hydrogen produced using the Company's equipment on the Company's site.

SBU Market

The initial market for the SBU Systems will be EV trucking market, followed by the intermodal railroad industry. It is estimated that approximately 25,000,000 containers complete hauls (point A to B is a haul) in the United States each year. The majority of freight railroads move train cars with a diesel-electric locomotive contributing to the factor that the amount of diesel fuel burned in a year is enormous and, in turn, so is the operating expense of diesel for railroads and trucks.

Because these carriers are in the business of transporting massive amounts of cargo for long distances, the net cost-reduction realized by adopting solar-powered locomotives and using EV trucks would be higher than other rail and truck carriers.

The global diesel fuel market is expected to record $93 billion in incremental growth from now through 2024 despite societal pressure for cleaner technologies. In 2019, diesel fuel consumption by the U.S. transportation sector was about 47.2 billion gallons (1.1 billion barrels). This amount accounted for 15% of total U.S. petroleum consumption and, on an energy content basis, for about 23% of total energy consumption by the transportation sector. Increasing adoption of zero-emission technology that will allow the transportation industry a new avenue to generate energy efficiently and cost effectively will completely disrupt the market. These demand drivers for economical energy will continue to bolster the potential for Solar Intermodal and the demand for the SBU system.

The trucking market for the SBUs is electric, hybrid and hydrogen semi-truck operators. The Venus SBU is specifically designed for use on EV trucks. This customer type values low cost energy efficient logistics and the independence the SBU System provides, especially with a lack of charging stations. Accessibility to effortless renewable energy generation for their operations that is able to plug into the electric truck charger receptacle would be invaluable; providing extra battery to extend the range of the vehicle lowering time and costs of shipments.

Solar-Generated Electricity Market

The company intends to sell the electricity generated by the on-site solar panels back to the local utility in which the company property will lie, in an opportunity zone.

The utility companies may have a renewable energy generation quota whereby a certain percentage of their electricity is generated from green sources. Solar intermodal intends to fulfill that demand.

Hydrogen Generated by the Company

The market for zero-emission generated hydrogen includes, but is not limited to: hydrogen fuel cell manufacturers, retail hydrogen distributors including hydrogen fueling stations (for vehicles powered by hydrogen), medical hydrogen consumers, industrial hydrogen consumers, and other commercial consumers of hydrogen.

Competing Technology

With respect to the SBU system, there is no direct competing technology or companies with a similar product to the SBUs. However, solar generated electricity and hydrogen manufacturing are relatively mature industries with many competitors for these two revenue streams.