

EXECUTIVE SUMMARY

Summary Business and Technical Information

We have developed a new zero-pollution, primary energy source applicable to essentially all power applications. The theoretically predicted energy breakthrough is based on reacting atomic hydrogen with a catalyst to cause the atom's electron to transition to a lower-energy orbital forming Hydrino[®], a more stable chemical form of hydrogen that we have isolated and characterized by multiple spectroscopies. The proprietary SunCell[®] validated by experts at a scale of 100,000-300,000 W depending on the operating temperature comprises a hydrogen and catalyst injector and an electromagnetic pump that serves as an electrode that further injects molten gallium against a counter electrode to form a Hydrino[®]-reaction plasma with an energy release of 200 times that of burning the hydrogen obtained from water. We possess technology that can service all of the major energy markets: thermal, electrical, and electric motive. SunCell-Boiler, SunCell-Air Heat Exchanger, and SunCell-TPV Electric Power systems can be commercialized using known vendor-supplied components.

The peer-reviewed, enabling, and predictive theory based on classical physical laws has been successful at analytically solving the major problems and mysteries of physics and chemistry from the subatomic to the cosmological scales including molecules of boundless extent and complexity. We have Hydrino[®] "In a bottle", and recently, we have submitted an article to one of the world's top-tier journals on the validation of the existence of Hydrino with a group head of a leading university. We have verified Hydrino by over 20 spectroscopies and methods that identify Hydrino[®] in a dispositive manner by characteristic signatures that do not match any other known species. Patents are issued worldwide.

We have advanced the engineering of the SunCell that operates at very high power and power density running continuously under commercial operating conditions. We have achieved expert validation of a pilot SunCell producing a commercial power level of 250,000 W while operating under commercial steam production conditions, and we have demonstrated this commercial scale power offsite in Washington DC. We are working on commercial packaging and controls.

A market objective is the \$4.8T/y thermal market. We have developed a pilot high temperature SunCell contained in a pressurized vessel that serves as a steam boiler (0.5-15 atm pressure). Additionally, we are working with two companies that specialize in heat-pipe heat transfer to remove heat from the SunCell externally and transfer it to an air stream flowed by a compressor to serve as a hot air heat exchanger. The range of hot air and steam pressure provided by these systems covers essentially all of the thermal market applications.

The electrical market is planned to be served by mating the SunCell to a commercial concentrator thermophotovoltaic (TPV) converter. Using light recycling, the efficiency is projected to be very high. The SunCell-TPV system has application for essentially all power markets including all motive power and thermal markets as well stationary electric power applications. It has no moving parts. It has unprecedented power density. It has a small fraction of the weight and cost of conventional electrical equipment. And it is autonomous of fuels and grid infrastructure.

We plan to make the clean, inexpensive power widely available by outsourcing manufacturing, installation, and maintenance of the SunCells provided under a power generator lease. We are working to engage power users, application engineering firms, power equipment manufacturers, energy services companies, and other stakeholders will get involved in advancing this breakthrough green energy and climate change solution.

Recent Activities

This is our recently updated business plan:

https://brilliantlightpower.com/pdf/Overview_Presentation.pdf

We have advanced continuous steam generation that is validated at our commercial target scale of 250 kW continuous steam production. We have advanced the thermal systems engineering to eliminate the use of an external steam boiler and an external heat exchanger that rely on recirculating molten gallium between the SunCell and the heat exchanger to serve as the heat transfer fluid. Patents have been filed on these innovations. These designs have cut capital costs, development and operational failure risk, maintenance cost, and time to market very significantly. We anticipate having a 100-kW boiler ready for initial installation trials for users in April of this year. Commercial boiler trials will serve as a basis to market green power presales and commercial power validation. We have engaged two vendors that are capable of mass manufacture of the heated air power system comprising a passive heat-pipe-array heat exchanger that is an easy task for them. We anticipate the availability of this system for industry trials later this year. Moreover, the advanced thermal and recent thermophotovoltaic (TPV) electrical systems engineering enables rapid commercialization paths in essentially all power markets that bypasses utilities, engineering firms, OEMs such as boiler, heat exchanger, and microturbine OEMs, and academia except for additional hydrino analytical. A paper has been submitted to a top-tier journal on the independent validation of hydrino with additional hydrino and power validations in progress:

https://assets.researchsquare.com/files/rs-144403/v1_stamped.pdf

We are working on relationships with other vendors, a certification company for UL certifications, and an automation company for control systems. Moreover, we are working on engaging a vendor to supply the dense receiver arrays for the TPV-SunCell electrical system to complete the core suppliers for commercial systems. We have completed financial projections for the thermal, electrical, and motive power markets and are planning a SunCell demonstration in Boston as a kick-off to raise \$50M, the projected figure in our Use of Proceeds plan to achieve initial commercialization in these markets.

On February 4 and 5th, we previously demonstrated to about 200 people from academia, business, media, and political fields, the continuous production of over 100,000 W of steam by our breakthrough Hydrino primary power source. An expert presented his validation results of

100,000 W of continuous steam production by the corresponding SunCell which harnesses hydrino power (~ 15,000 viewers so far):

<https://www.youtube.com/watch?v=JJln7jVclFA&feature=youtu.be>

In six out of six live demonstrations, the SunCell performed flawlessly:

https://www.dropbox.com/sh/za60iuhxm8xzqi3/AACaiCkbL0Ze706K9Bx_00jqa?dl=0

Supporting Documents

Business

Full Business Presentation

https://brilliantlightpower.com/pdf/Business_Presentation.pdf

Overview Business Presentation

https://brilliantlightpower.com/pdf/Overview_Presentation.pdf

New Developments

<https://brilliantlightpower.com/news/>

Patents

https://brilliantlightpower.com/pdf/Overview_Presentation.pdf

Power and Engineering

SunCell 100 kW Continuous Steam Production Validation

<https://brilliantlightpower.com/validation-reports/>

https://brilliantlightpower.com/pdf/Report_on_Water_Bath_Calorimetry_12.04.20.pdf

Additional Validation Reports

<https://brilliantlightpower.com/validation-reports/>

SunCell Operational Videos

<https://brilliantlightpower.com/plasma-video/>

Magnetohydrodynamic System

https://brilliantlightpower.com/pdf/MHD_Paper.pdf

Hydrino

Hagen EPR paper

https://assets.researchsquare.com/files/rs-144403/v1_stamped.pdf

The “Hydrino States of Hydrogen” paper

<https://brilliantlightpower.com/hydrino-states-of-hydrogen/>

[https://brilliantlightpower.com/pdf/Hydrino States of Hydrogen.pdf](https://brilliantlightpower.com/pdf/Hydrino%20States%20of%20Hydrogen.pdf)

Analytical Presentation

https://brilliantlightpower.com/pdf/Analytical_Presentation.pdf

Theory

Grand Unified Theory of Classical Physics

<https://brilliantlightpower.com/GUT/GUT-CP-2020-Ed-Web.pdf>

Atomic Theory Presentation

<https://brilliantlightpower.com/wp-content/uploads/theory/TheoryPresentationPt1-web-032017.pdf>

Molecular Theory Presentation and Millsian

<https://brilliantlightpower.com/wp-content/uploads/theory/TheoryPresentationPt2-web-032017.pdf>

<https://www.millsian.com/>

Collective Phenomena, High Energy Physics & Cosmology

<https://brilliantlightpower.com/wp-content/uploads/theory/TheoryPresentationPt3-web-032017.pdf>

Peer Review Reports

<https://brilliantlightpower.com/theory/>

Journal Publications

Peer Reviewed Publications List

<https://brilliantlightpower.com/pdf/Publications.pdf>

Exemplary Peer Reviewed Articles

<https://www.dropbox.com/sh/proq7b4ur0vttl5/AACk3xqTrew9A7DyZfAgaGsia?dl=0>