



29/01/2021

ASX:14D

QUARTERLY SHAREHOLDER UPDATE

- Positive Aurora Project business case projects revenues up to \$60m with 14D TESS
- Proprietary SiBox technology confirming robust and efficient energy storage solution
- Key CEO and director appointments boost board and management

The quarter delivered major commercial and technological advances for your Company and our ability to deliver for shareholders has been enhanced by key board appointments: Jamie Summons as Managing Director, and Peter Gan as a non-executive director. Their extensive management experience in finance, energy markets and renewable generation will be a major boost to your Company's governance and capability.

The successful SPP capital raising allowed us to commission expert modelling of a combination of batteries, TESS and PV to model a 182MW hybrid silicon power plant on our Aurora Project, projecting net cash flows growing to \$60m as it delivers multiple services to the National Electricity Market and off-market derivatives.

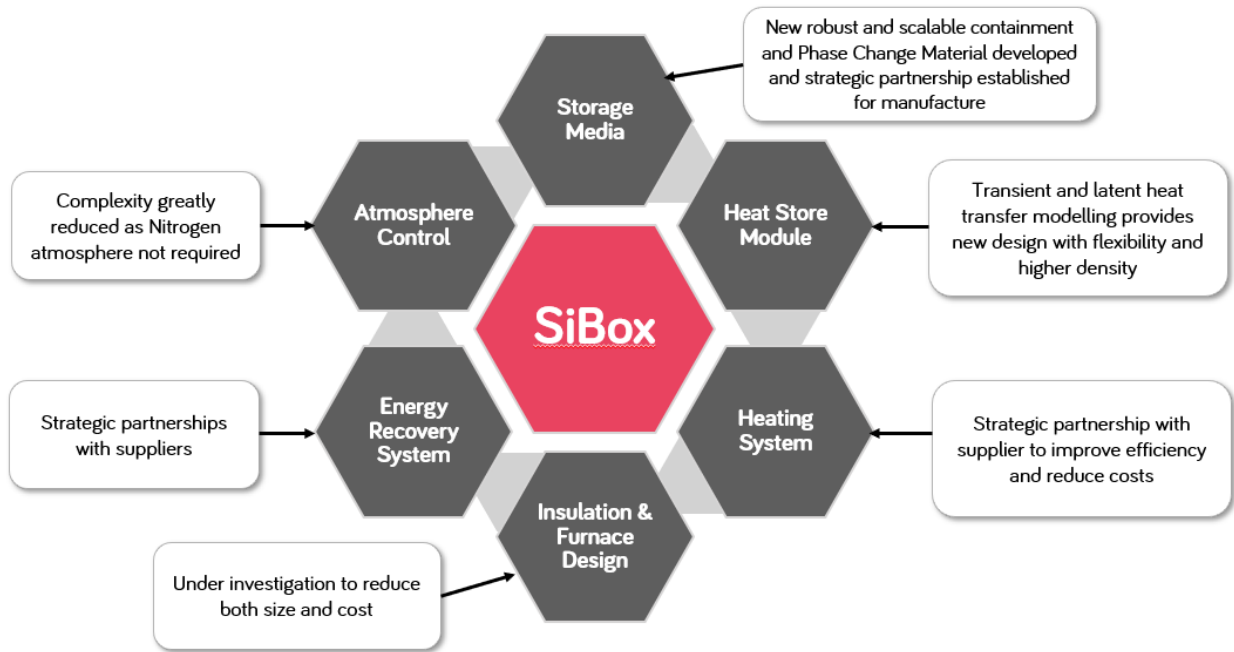
Our core SiBox thermal energy storage technology continues to confirm its potential for game changing energy storage. Our team has mapped out a pathway to a very competitive levelised cost for electricity storage using the SiBox technology at our Aurora Project. The SiBox technology can also uniquely provide heat solutions for very high temperature industrial processes.

We are progressing cooperative commercialisation agreements with several key industry partners to secure substantial investment in SiBox development and applications. The Company is an Affiliate Partner in the Heavy Industry Low-Carbon Co-operative Research Centre (HILT CRC) bid to engage with target companies and explore how SiBox technology can help decarbonise heat for industrial processes and high temperature hydrogen production.

Technology advances

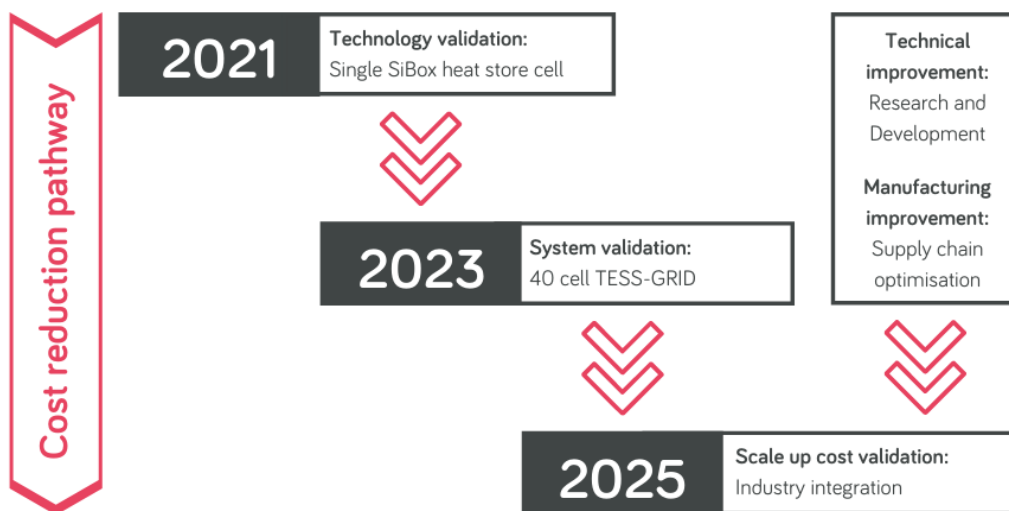
The new SiBox thermal energy storage technology developed by your Company's technical team contains many improvements that build on previous research and development and lessons learnt from the operation of TESS units, as illustrated on the following page. In-house testing and engineering of each of these sub-systems, supported by our partnerships with key specialist external companies, has continued to confirm their benefits for delivering a robust and competitive technology.

In the quarter, activity was focussed on verifying the robust performance of the SiBox storage media. This included executing an agreement with a top-tier European supplier to contribute their expertise in manufacturing and supply of storage media for the SiBox. Pre-manufacturing samples from this supplier are currently being tested in our research facility and their laboratory.



The SiBox heat store will be the basis for all scaled up devices, so building a single heat store cell is a major objective in 2021. Its design, incorporating new heat transfer models, will be validated in performance tests over the coming year. Following this we plan to assemble 40 of these cells into a heat store module that will be integrated with an energy recovery system to form a TESS-GRID system for the Aurora site. Demonstration of the SiBox technology at Aurora will enable it to be scaled up for commercial applications requiring long duration heat or electricity supply from renewables. As illustrated in the figure below, this process of scale up with validation is expected to deliver a competitive levelised cost of storage (LCOS).

In parallel with the SiBox development program, further research and development will also drive down the cost and increase performance of the thermal energy storage technology. R&D will commence in early 2021 on the next generation of storage media in partnership with the University of Adelaide.



GAS-TESS

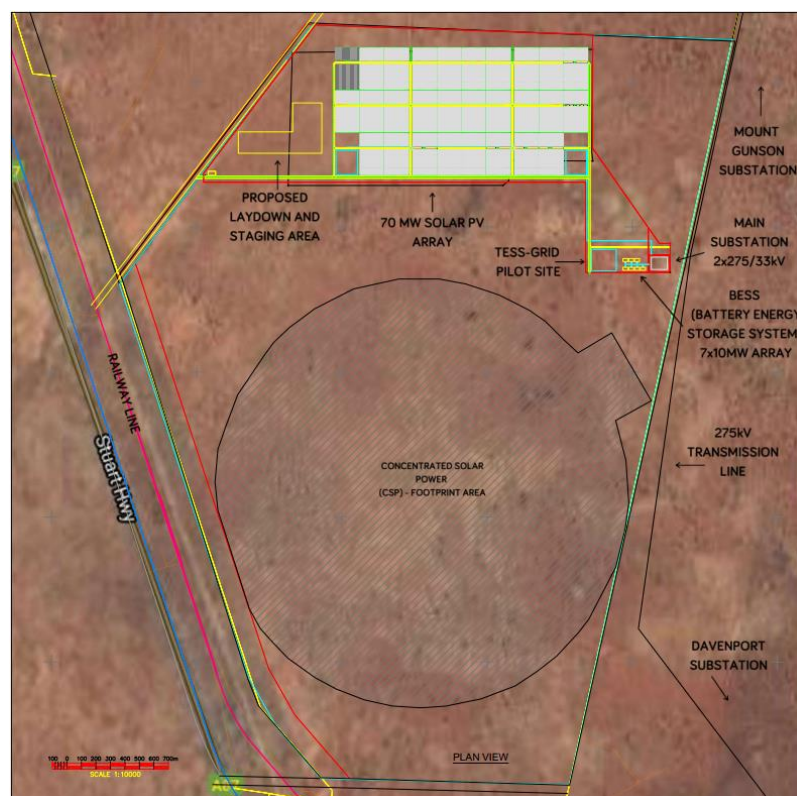
The GAS-TESS team and Glenelg WWTP operators having been working through final approvals of the solar PV, reciprocating gas engines and GAS-TESS as an integrated generation site. The main activity has been evaluating scenarios to determine the most favourable configuration for operating a variable biogas production facility with a combination of GAS-TESS and reciprocating gas engines. This hybrid power plant is projected to maximise the economic return on investment in generating technology by improving the utilisation of variable biogas production and minimising flaring.

Aurora Solar Energy Project

During the quarter the Office of the Technical Regulator (OTR) assessed the Aurora Solar Energy project plan and granted a certificate of compliance.

ElectraNet was contracted to develop the electrical specifications to enable the Project to connect to ElectraNet's transmission network. ElectraNet will also carry out a due diligence assessment on the draft generator performance standards (GPS) and customer performance standards (CPS) for the Project to comply with the National Electricity Rules.

The siting of the battery (BESS) and thermal storage (TESS) systems was finalised for submission to the South Australian Government for a variation to the existing development approval. The siting provides for future expansion while conforming with the existing development approvals. As shown on the map, the siting avoids high-value vegetation following recommendations of a Flora and Fauna Survey prepared by ESB Ecology and corresponds with the Cultural Heritage Clearance Survey Report.



In the next quarter, a key focus is the grid connection studies to demonstrate GPS compliance to ElectraNet in an Application to Connect. Concurrently, Expressions of Interest are being sought for tenders for engineering and construction of the first stage of the project. This will provide firmer capital estimates for development of the project.

Aurora Project business case

Late in the quarter, the Company reported a positive business case for development of the first stages of its Aurora Solar Energy Project on the National Electricity Market (NEM). Independent consultants modelled spot energy prices and Frequency Control Ancillary Service (FCAS) revenues from the operation of a hybrid power plant comprising 70MW of solar PV with a 70MWh/70MW battery (BESS) on the high voltage transmission line to the Davenport substation in Port Augusta. The hybrid plant simulations were then extended to include a (nominal) 1414 Degrees 1GWh/42MW Thermal Energy Storage System (TESS-GRID) operating with the BESS and PV. Each device has separate inverters and operates through a Power Plant Controller to optimise dispatch of solar PV, BESS and TESS to the transmission line. The BESS and TESS charge and discharge with grid electricity or from the PV.

According to volatility in any particular year, net revenues from operating in the NEM spot market could range between A\$25m and A\$30m for the PV-BESS stage. The projected net earnings almost double with the TESS, ranging between A\$45m and A\$60m. Net earnings include provision for plant operating costs estimated up to A\$3.5m for the project when all devices are operational. Electricity markets are volatile and may be greatly influenced by policy changes so these earnings estimates are indicative.

Capital cost of the first stage of development, including inverters, substation and connection to the high voltage transmission is estimated at A\$199m. The second stage with TESS-GRID (and CSP) will utilise the same connection as the first stage PV-BESS. Further financial modelling will be undertaken to optimise the hybrid plant size, and this is likely to lead to adjustment of storage capacity and MW of output, potentially reducing capital outlay. Capital cost for supply of a TESS-GRID to the project will be estimated following completion of the pilot phase in 2024. The target is \$210,000 per MWh for a storage and energy recovery system.

Finance

At quarter end 1414 Degrees held \$5.7m in cash following the Share Purchase Plan closing over target with \$3.176m. An approximately \$1.3m R&D tax rebate is pending. The payroll continued to be supported by JobKeeper receipts which will be continued until the end of March 2021 with the company's enrolment in the second extension of the JobKeeper 2.0 program.

Corporate

Your company continued its corporate strengthening to meet key strategic goals of revenue generation and technology development. During the quarter, Jamie Summons was appointed Managing Director and Peter Gan as a non-executive director. Jamie brings a strong finance and energy market background to his new role. Peter brings extensive experience in listed companies and finance. Their term commenced in January 2021.

The new year will be very productive for shareholders as we move to tap the many revenue streams available to our Aurora Project. We also expect significant developments in SiBox applications through partnerships to support processes such as high temperature hydrogen production.

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ABOUT 1414 DEGREES LIMITED

1414 Degrees believes in a sustainable energy future, where energy is available to all, at all times. Its clean energy storage, SiBox, is designed as a low-cost solution for reliable renewable generation. The 1414 Degrees thermal energy storage system (TESS) is unlike any other energy storage system in the world.

1414 Degrees' technology can store energy generated from electricity or gas and supply both heat and electricity in the proportions required by consumers. It is unique in its combination of low cost, flexibility of location, scalability, and sustainability.

For more information, please visit www.1414degrees.com.au