ThermoAura, Inc.

Successful Connection Powered by FuzeHub

Executive Summary

ThermoAura Inc. located at 3 University Place, Rensselaer, NY 12144 was founded in June 2011 by Drs. Rutvik J. Metha, Theo Borca-Tascuiuc and Ganpati Ramanath. The company manufactures a high performing nano-enhanced thermo electric material that is 25% more efficient and costs 40% less to manufacture than its competitors.

Thermoelectric materials convert heat to electricity or produce cooling from electricity and have a wide range of uses in the automotive, medical and energy industries. ThermoAura's approach using nano-enhanced technology is a game changer in an industry that has seen little if any change in over 40 years. By using advanced manufacturing processes the high performing material has some unique characteristics that support the development of revolutionary advances in the use of thermoelectric solid-state for cooling and heat-to-power generation.

The company is currently building a 10-ton manufacturing facility on SUNY Albany's East Campus located in Rensselaer, NY. Once completed, the facility will begin to manufacture and distribute its products across the globe.

ThermoAura used the services provided by FuzeHub to locate and engage the necessary consultants to assist with the design of the plant and equipment required to meet the demand for its products. FuzeHub was able to identify a number of consultants who had the appropriate background and experience to assist with the engineering design, vendor selection and equipment sourcing, identification of environmental and OSHA regulations, site selection, work flow and process design, as well as contract negotiations.

The consultants identified by FuzeHub helped ThermoAura fast track the development and installation of plant and equipment saving the company both time and money. As a result ThermoAura was able to:

- Select the appropriate facility maximizing the use of space and resulting in reduced operating expenses.
- Established the creditability needed to negotiate with vendors and other service providers eliminating risk and increasing bargaining power.
- Identify and address the regulatory concerns and secure the necessary licenses and permits from local, state and national governing bodies

Situation

ThermoAura is commercializing a University technology. The challenge is scaling the operation from the lab to full scale manufacturing by the end of 2013. The urgency is driven by customer demand. The problem for ThermoAura is that the company does not have staff members with the necessary background and experience necessary to develop the manufacturing site. It is important that the company have access to capital, equipment and people to reach this critical milestone.

Needs

Transitioning from an academic lab base operation to a commercial manufacturing operation requires a different skill set not currently available on staff. Additionally, the skills required to set the operation up are different from those required to operate the facility once it is on line. The primary tasks that the company needs to address are:

- Identification of an appropriate facility that can accommodate the transition and support the growth to a full scale 10 ton per year operating site;

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- Identification and sourcing of the necessary equipment to transition its lab operation to a full commercial operation;
- Validation of the work flow and process assumptions from the initial input of the raw material to the finished product;
- Development of a new supply chain that could provide larger quantities of materials at lower costs for scaled production;
- Development of a safety plan and procedures manual.

Dr. Mehta's effort to secure local investment was a success. The company has received angel funding from Eastern New York Angels (ENYA), as well as grant funding from NYSERDA and NSF. At the time ThermoAura received angel funding Mr. Richard Frederick, co-founder of the Eastern New York Angels (ENYA) stated, "We believe that the company has a game-changing technology that will improve the performance of thermal electric materials."

"Getting the company to this point has not been easy", said its founder Dr. Rutvik Metha. "We thought that the transition from lab to commercial scale would be relatively simple however we found out that we needed the expertise that FuzeHub provided."

Engagement

The company reached out to FuzeHub to find solutions after attending the Capital Region Solutions Forum in Troy during the first annual Advanced Manufacturing Conference. Critical connections were soon made, and FuzeHub engaged ThermoAura with two NYMEP Centers (Center for Economic Growth and Hudson Valley Technology Development Center) who joined forces to provide the manufacturing and engineering expertise that was needed.

Strategy

A multi-phase plan was developed for ThermoAura. During Phase 1 the consultants analyzed the regulatory environment and included an environmental impact assessment. Phase 2 focused on building out the manufacturing facility.

Phase 1 took approximately one month to complete. Once that was done the company assessed the risks and regulatory hurdles , then made an informed decision to move forward and realize its potential for job creation. Phase 2 is now underway and expected to last for 3 to 4 months. During this Phase the consultants working with the company will develop a comprehensive plan to build and operate the facility.

ThermoAura plans to produce 10 tons of material per year within 24 months. Valued at $10-million (USD), this novel nanotech product will require a doubling of the staff from 6 to 12. "Others may have products that do similar things," Dr. Mehta says, "but ThermoAura can manufacture it faster and more efficiently."

Outcomes

- Looked at a number of facilities and signed a lease with SUNY Albany's East Campus.
- Ordered furniture and finalized the office layout.
- The manufacturing space and chemical storage facilities were designed.
- Met with a facilities engineering team to design the power and ventilation systems.
- The equipment has been designed, spec'd and ordered.
- Applied to NY State to be accepted into the Start Up NY program.

"When I started my PhD I never dreamed that I would be in this position. But with the assistance of the consultants from FuzeHub, ThermoAura is poised for greatness."

-- *Rutvik Mehta, Founder and CEO, Thermo Aura*