Demonstrating renewable heat generation technology – Phase 1

Being able to generate heat energy using solar power methods is a concept that has been done on a smaller scale in limited purposes for many years. Being able to apply solar technology to generate heat on an industrial scale (notably temperatures) is something that is currently being evaluated and pursued with this IMII project with SolarSteam (Lowest Cost Renewable Heat - SolarSteam). The ability to generate enough heat to satisfy industrial process equipment and systems needs has been a challenge with the greatest obstacle being the ability to make enough energy to support the demand. Having a modular solar thermal system, as proposed by SolarSteam, has the potential to be able to provide this needed heat energy from a renewable resource. The SolarSteam system is modular by design meaning it may be custom adapted and deployed to fit process applications adjacent to facilities.

The initial work conducted by SolarSteam was at an early engineering level and detail but shows the overall viability of considering this system for larger industrial applications. The intent of the Phase I work was to demonstrate the potential for a pilot system capable of using solar thermal energy to be positioned at an industrial facility such as an IMII member's site.

The assessments and studies conducted as part of Phase I showed that there is enough potential for this concept to be scaled up that it is worth looking at advanced engineering studies to see if elevated energy outputs could be achieved. The assessments undertaken as part of Phase I work included production analysis, system conceptual visualizations and generating a scaled model. All these elements provided enough potential pathways that additional studies are now being considered.

Results have indicated that there is a pathway to scale where this can be investigated further for larger applications in an industrial setting.

Proponent: *SolarSteam*
Project Duration: April to July 2023

Project Cost:	**$50,500**
IMII Contribution:	$25,000
SolarSteam Contribution:	$25,500

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