ThermoVERSETM

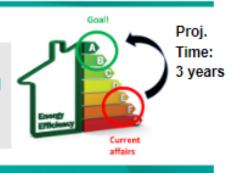
Project Problem Statement

We are developing a smart wallpaper™ for property managers of affordable residential buildings that were built before the 1980's, who want an energy efficiency upgrade that guarantees LEED and carbon neutral certifications, but do not want to displace renters during the upgrade.

Desired end state / impact

Augmented Space Heating & Cooling™:

Grid-interactive space heating, cooling and thermal insulation toward a more decentralized, electrified, resilient, equitable and efficient energy grid.



Background

Friends > Neighbors > Customer Discovery Sidekicks



FOUNDER
Shantonio Birch, PhD
Expertise: Thermal
Science & Scientific
Computing



9-29% savings

CONSULTANT
Mark Kielb
Expertise: Former CTO
of 100 mil. Company,
CEO, Board member of
several companies.

'As is' state	(CONCEPT	PHASE	TRL	>
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2	zone temperature control	3-4	technical energy saving of 0-5%
3	smart thermal insulation		technical energy saving of 9%
4	waste heat upcycling		technical energy saving of 0-5%

Key Milestones	Timeline	Capital Required
Technology Milestone 1: Wafer-sized demo & control desig	October 2022 > December 2022	\$20k (HR) + RnD (\$10k) → \$30k
Technology Milestone 2: Wallboard Implementation	January 2023 > April 2023	\$20/sf (+ outsourcing fees) \$120k
Technology Milestone 3: Wallpaper Implementation	January 2023 > August 2023	\$2.80/sf (+ outsourcing fees) \$15.6k
Commercial Milestone 1: Securing IP & Trademarks	September 2022 >>> 2023	\$30k (<u>Patents</u>) + \$10k (<u>TM</u>) \$40k
Commercial Milestone 2: Conduct Pilot/field testing	March 2024 > February 2025	\$100k (<u>Design</u>) + \$40k (<u>per dwelling</u>) = 140k
Commercial Milestone 3: Build Manufac.facility/warehouse	July 2024 > February 2025	\$55 or \$60 per square foot (cf. \$15-\$25 M for precast concrete facility in CA)
Other Milestone 1: Building the team	September 2022 > April 2023	\$80-110k /yr (per cofounder) \rightarrow 240k + ben.
Other Milestone 2: Securing Key Partners	April 2023 > April 2024	via Letter of Intent

1Yr Total: \$585.6k + \$25M (facility)