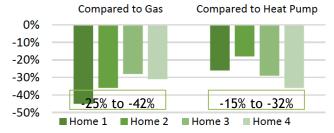


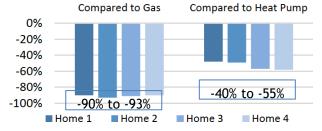
## Home heating and hot water - lowest carbon and cost

According to the IPCC, building electrification backed by a renewable electric grid is key to meeting our climate goals. Heat pumps are the backbone of getting off methane gas but require innovation to meet the challenge. At scale, Harvest's proprietary technology has the potential to mitigate 12.5 GtCO2ea, cumulatively by 2050. TAM=\$24 Billion.

**Bill Reductions** 



#### **Emissions Reductions**



#### Harvest Thermal, Inc.

Contact: jane@harvest-thermal.com Berkeley, CA 94704 - Phone: (408) 597-7152 Website: www.harvest-thermal.com Founded In: 2019 Employees: 15 FTE + contractors

#### **FUNDING:**

Total Raised to Date: \$4.4M

\$1.9M seed convertible note, \$2.5M grants

#### **MARKET SIZE:**

TAM: 12M Systems /Year US and Europe home HVAC installs. (US Census, Eurostat) Estimated Reach: 0.5 % by Year: 2025

#### **TEAM**

Jane Melia, Founder, CEO. Leadership roles in multiple cleantech startups. Cambridge Ph.D.

#### Evan Green, CTO.

Ramped up tech product to 1.5m units/yr. Stanford Ph.D.

#### Michel Maeso, CRO.

Business development leader, multiple successful exits

### Mattias Bottner, VP **Software Engineering**

SW leader – multiple clean energy startups

#### Dan Johnson, Co-Founder, Advisor.

Architect and Building **Efficiency Expert** 

#### David Marple, Advisor.

Astia Lead, Harvest Board Stanford MS and PhD.

#### Steve Horne, Advisor.

Serial entrepreneur and CTO, Harvest Board

## Bob Legendre, Advisor.

Senior VP Supply Chain, Seagate. Former COO SolFocus

Harvest Thermal delivers smart, ultra-efficient, and affordable space conditioning and hot water solutions. A Harvest Thermal system slashes emissions from heating and hot water by 90% compared to gas equipment, and 50% compared to a standard heat pump system, while reducing customer bills by up to 40%.

#### **CUSTOMER PROBLEM**

Homeowners and building professionals need energyefficient, cost-effective. comfortable and safe replacements for furnaces and hot water tanks as the market transitions from gas. Grid managers struggle with negative energy pricing from excess solar at midday and with expensive and destabilizing growing peak loads in the morning and evening, as homes transition to electric.

#### **BUSINESS MODEL**

- 4 BUSINESS LINES:
- 1) New home construction,
- 2) Existing home retrofits,
- 3) Recurring revenue from SaaS, and
- 4) Demand response from energy markets.

#### **COMPETITION**

Incumbent gas faces headwinds from policy, rising costs, and growing consumer resistance. Harvest Thermal outperforms all other heat pump systems in the all-electric market. Harvest systems reduce lifetime operational costs by \$23k compared to methane gas and over \$15k compared to heat pumps in our target markets.

#### **MILESTONES**

Q1 2022: sale and installation of commercial, certified units; 18 installed, waitlist >600. 15 installation companies trained; pilot under discussion with top US builder and top retrofit contractor; 2021: Partnership in place with CEC to deploy 30+ units in new and existing homes; Outsourced manufacturing established, product certification; 2018-2021 pilots demonstrate performance.

#### **TECHNOLOGY**

The Harvest Pod™, a software/ hardware, cloud-enabled platform, leverages the power of advanced analytics, controls and machine learning to deliver the cleanest electric heating, cooling, and hot water at the lowest cost. Managing a single heat pump, the Pod shifts electric load to the cleanest, cheapest times of the day and operates the water tank as a thermal battery, providing steady, comfortable heating and hot water whenever needed.

#### GO-TO-MARKET STRATEGY

RETROFITS: Growing our installer and thought leader network while fulfilling a 500-customer waitlist. Start in SF Bay area and replicate model in other geographies. In parallel develop partnerships with large energy retrofit partners for scale. **NEW HOMES: Pursue** partnership opportunities and pilots with US homebuilder.

#### **DEFENSIBILITY**

We have protected our technology with 5 patent applications, one of which has been granted to date as well as trade secrets and first-mover advantage. We continue to innovate, enhancing our cooling capability, integrated pod/ tank, support for utilities, etc.

#### **EXIT STRATEGY**

A \$24 billion market awaits a killer app like ours. Within 5 years: 50k units/year with \$115M revenue and EBITDA of ~\$50M. Exit could occur within this timeline at a valuation ~\$500M. Logical acquirers are HVAC manufacturers (Daikin, Trane, Mitsubishi, Rheem, Resideo).

# harvest thermal



We reinvented heating and hot water to slash your home's carbon footprint and lower your energy bills.

Harvest Thermal™ helps you lower carbon emissions by up to

90% While reducing your utility bills by as much as

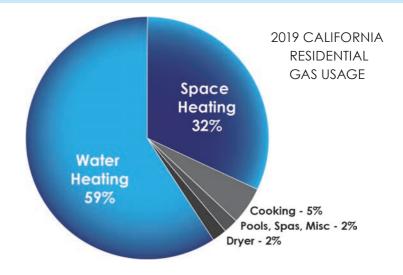
40%

It's the smartest and most affordable, all-electric solution for home heating and hot water.

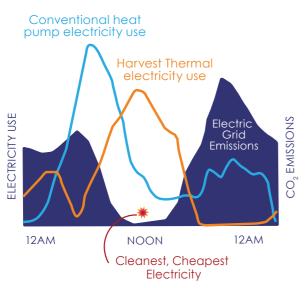
## The dirty secret about gas.

The biggest source of carbon emissions from our homes is not electricity, it's "natural" gas. Almost 90% of that gas is used for space heating and hot water.

Your home can be on the frontlines of reversing climate change, with the ultra-efficient, super-smart Harvest Thermal System.



# Finally, greener is cheaper.



Today's electricity is cleaner than gas. And modern heat pumps are the most efficient way to deliver both heating and hot water to your home.

## But not all electricity is created equal.

The Harvest Pod™ automatically "shifts" the heat pump's run-time to when electricity is cleanest and cheapest. This revolutionary approach lowers your energy bills while dramatically reducing your carbon footprint.

Best of all, with the Harvest Pod you are helping create a fully renewable electricity grid so everyone wins!

## Home comfort, optimized.



Your comfort is the Harvest Pod's #1 priority. It learns from you and responds to your commands. It can be connected to the cloud to incorporate the latest energy and weather forecasts and keep your system updated. It is future-proofed and enabled for demand response.

Harvest Thermal is feature rich, offering capabilities such as **filtration mode** for easy breathing on smoky or smoggy days and **night cooling™** to bring in cool night air after a warm summer day.

When we had gas heat, it seemed as though I was always too hot or too cold, and constantly trying to adjust the thermostat. But since installing the Harvest Thermal System, I've stopped thinking about it. — Danny W.

## The best all-electric solution.

Most homes have two heating systems: one for air and one for water, often fueled by fossil gas. At Harvest Thermal, we had a better idea.

With our system you always use the cleanest and cheapest electricity, slashing emissions and bills, without sacrificing comfort.

We deliver heating and hot water using just one, ultra-efficient, climate-friendly, all-electric heat pump, controlled by the intelligent Harvest Pod.<sup>TA</sup>

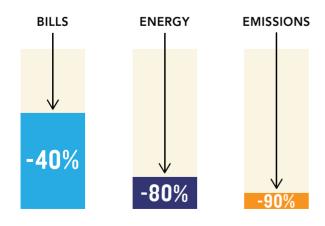
The Harvest Pod uses machine learning to always deliver the right amount of heating and hot water adjusting to the weather and your family's changing lifestyle.

Supremely comfortable. Whisper quiet. Affordable. The lowest carbon solution for your home heating and hot water.



The new system is quiet and the temperature is stable. We now have a much more comfortable home. More importantly, it is now a high-performance home, saving money and avoiding dangerous CO, emissions. — Karen H.

## Harvest Thermal by the numbers.



Reduces  $CO_2$  emissions by up to 90% compared to gas furnaces and water heaters and 50% compared to standard heat pump systems.

Reduces bills for heating and hot water by 40% compared to gas and up to 30% compared to standard heat pump solutions.

Uses the most-climate-friendly heat pump on the market.

# Good for your home



Whisper-quiet heating with constant, even temperature improves home comfort. Better in-home air quality and lower fire risk improves home safety.

# Good for your wallet



Cuts energy bills up to 40% using a super-high-efficiency heat pump and thermal storage. Leverages time-of-use rates by using cheaper, midday energy all-day.

# Good for your planet



Going electric with Harvest cuts your heating and hot water carbon footprint by up to 90%. Enables a fully renewable and reliable electric grid.

## What choice will you make?



Join our vision for a smarter all-electric future, one home at a time.

"I like what my Harvest system says about me, that I value green energy, but I also like that it saves me money." — Lisa F.



You can reach us at: decarb@harvest-thermal.com harvest-thermal.com See our video demos and customer testimonials here: harvest-thermal.com/company





harvest thermal



## **Performance Report**

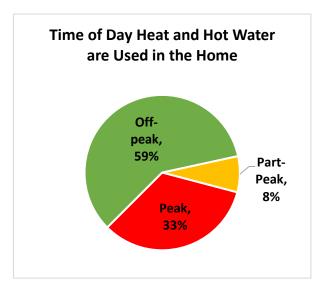
### Redwood City, CA 94063

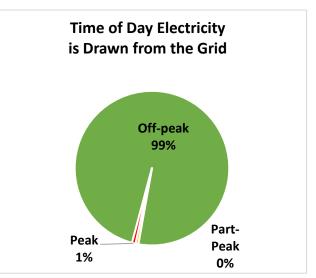
**Period:** Sun. Apr. 24 to Tue. May. 31, 2022

### Summary

You reduced greenhouse gas emissions from the energy to heat your home and hot water by 99% thanks to super-high efficiency heat pump operation and shifting electricity demand to times when renewable resources are available.

## **Load Shifting**





<sup>\*</sup> Peak = 6 AM - 8 AM and 4 PM - 10 PM, Off-peak = 9 AM - 3 PM, Part-peak all other times<sup>2</sup>

## **Energy Efficiency**

Heat pump

4.19

This is 5 times more efficient than an 80% gas furnace

Harvest system

3.16

Compares with 54% for conventional gas systems (3)

<sup>&</sup>lt;sup>1</sup> Heat pump efficiency is defined as the energy delivered by the heat pump per unit of energy used by the heat pump. Harvest system efficiency is the energy delivered to the home per unit of energy used by the entire Harvest system, including the heat pump, air handler, circulator pump, electronics, and thermal losses.

<sup>&</sup>lt;sup>2</sup> Peak times are times of highest emissions on the grid in California on average.

<sup>&</sup>lt;sup>3</sup> Weighted average of minimum efficiency gas furnace and water heater

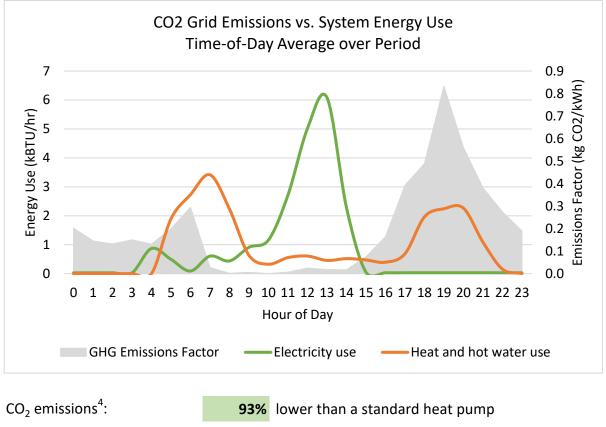


## Costs (with PG&E's EV rate)

Harvest system energy costs: 34% lower than a standard heat pump

50% lower than a standard gas furnace and water heater

## CO<sub>2</sub> Emissions



CO<sub>2</sub> emissions<sup>4</sup>:

93% lower than a standard heat pump

99% lower than a gas furnace and water heater

## **HAPPY HARVESTING!**

<sup>&</sup>lt;sup>4</sup> on California's electric grid, per CPUC Avoided Costs Calculator 2021 emissions factors



## **Performance Report**

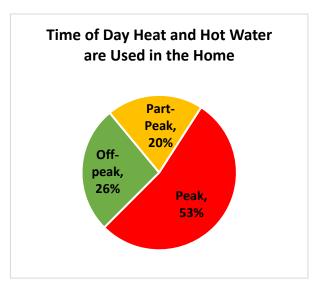
### Daly City, CA 94015

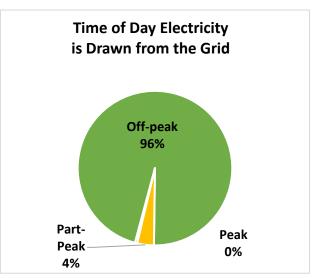
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You reduced greenhouse gas emissions from the energy to heat your home and hot water by 98% thanks to super-high efficiency heat pump operation and shifting electricity demand to times when renewable resources are available.

## **Load Shifting**





<sup>\*</sup> Peak = 6 AM - 8 AM and 4 PM - 10 PM, Off-peak = 9 AM - 3 PM, Part-peak all other times<sup>2</sup>

## **Energy Efficiency**

Heat pump

3.54

This is 4 times more efficient than an 80% gas furnace

Harvest system

2.93

Compares with 50% for conventional gas systems (3)

<sup>&</sup>lt;sup>1</sup> Heat pump efficiency is defined as the energy delivered by the heat pump per unit of energy used by the heat pump. Harvest system efficiency is the energy delivered to the home per unit of energy used by the entire Harvest system, including the heat pump, air handler, circulator pump, electronics, and thermal losses.

<sup>&</sup>lt;sup>2</sup> Peak times are times of highest emissions on the grid in California on average.

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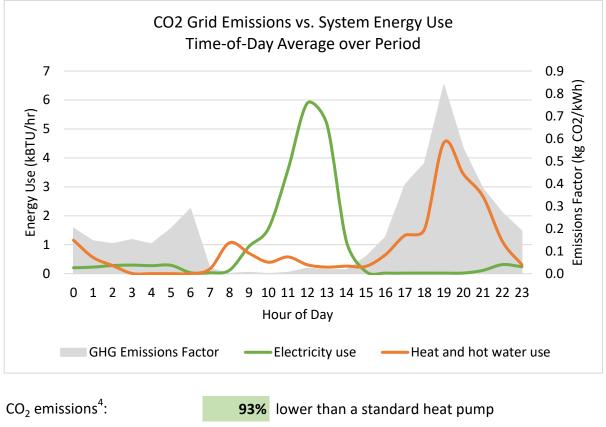


## Costs (with PG&E's EV rate)

Harvest system energy costs: 39% lower than a standard heat pump

47% lower than a standard gas furnace and water heater

## CO<sub>2</sub> Emissions



CO<sub>2</sub> emissions<sup>4</sup>:

93% lower than a standard heat pump

98% lower than a gas furnace and water heater

#### **HAPPY HARVESTING!**

<sup>&</sup>lt;sup>4</sup> on California's electric grid, per CPUC Avoided Costs Calculator 2021 emissions factors