



Commercializing Innovative Combustion & Sensing Technologies

NASDAQ: CLIR
Corporate Presentation

September 2023

Presented by Dr. Jim Deller, CEO



Safe Harbor Statement



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The following factors, among others, could cause actual results to differ materially from those set forth in this presentation:

- our limited cash, history of losses, and our expectation that we will continue to experience operating losses and negative cash flows in the near future;
- our ability to successfully develop and implement our technologies and achieve profitability;
- our limited operating history;
- changes in government regulations that could substantially reduce, or even eliminate, the need for our technology;
- emerging competition and rapidly advancing technology in our industry that may outpace our technology;
- customer demand for the products and services we develop;
- the impact of competitive or alternative products, technologies, and pricing;
- our ability to manufacture any products we design;
- general economic conditions and events and the impact they may have on us and our potential customers;
- our doing business in China and related risks with respect to intellectual property protection, currency exchange, contract enforcement, rules on foreign investment and pandemic era regulations;
- the impact of a cybersecurity incident or other technology disruption;
- our ability to protect our intellectual property;
- our ability to obtain adequate financing in the future;
- our ability to retain and hire personnel with the experience and talent to develop our products and business;
- the financial and operational impacts of the coronavirus pandemic on our business and results of operations, including impacts on our day-to-day operations, collaborative arrangements, revenue and marketing efforts and suppliers;
- our success at managing the risks involved in the foregoing items; and
- other factors discussed in the section titled "Risk Factors" in our most recent Annual Report on Form 10-K.

We caution you not to place undue reliance on any forward-looking statements, which are made as of the date hereof or as otherwise specified herein. The Company undertakes no obligation to update any of these forward-looking statements to reflect actual results, new information or future events, changes in assumptions or changes in other factors affecting forward-looking statements, except to the extent required by applicable law. If we update one or more forward-looking statements, no inference should be drawn that we will make additional updates with respect to those or other forward-looking statements.

Company Overview

ClearSign is an emerging leader in industrial combustion and sensing technologies that improve efficiency and lower costs, while dramatically reducing emissions.

We believe global adoption of ClearSign's technologies will significantly improve today's environmental footprint and assist in the transition to the hydrogen economy of tomorrow.



ClearSign in 20 Seconds



Providing Clean Air

Nitrogen Oxides (NO_x) are a highly toxic and highly regulated pollutant from combustion. We essentially prevent the emissions of NO_x from industrial sources.



Customers

ClearSign burner technology enables customers to meet new and anticipated NO_x regulations at a fraction of the cost of traditional solutions.



Enabling Decarbonization

Adding hydrogen to fuel increases NO_x emissions. ClearSign technology enables hydrogen to be burned while remaining compliant with mandatory NO_x emission regulations.



Investment Opportunity

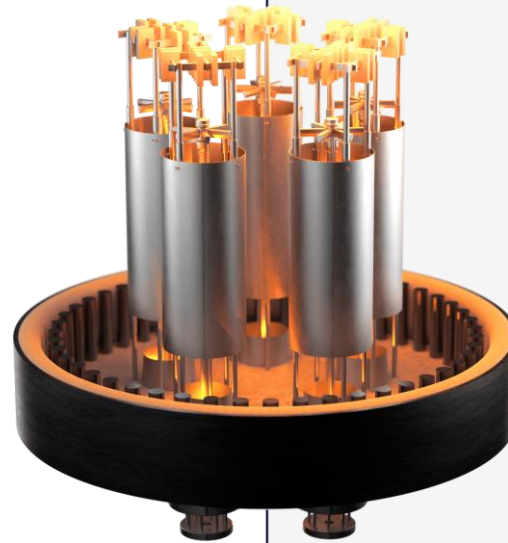
Emerging technology with initial adoption in an expansive market. Highly scalable business model with strong operating margins and comprehensive IP.

Creating Better Solutions

Problem

Nitrogen from the air is converted to NO_x by two chemical paths in a flame. ClearSign technology addresses both of these chemical paths. Incumbent burners address just one.

Flame temperature is the dominant influence on NO_x formation. Hydrogen in the fuel gas increases flame temperature.



Solution

Our burners are designed to install easily into refinery heaters and industrial boilers, either into new equipment or to upgrade the burners in the expansive existing energy infrastructure.

NO_x is an issue across the globe with 24M tons emitted annually from human activity. The US alone emitted ~7.4M tons of NO_x in 2022, excluding wildfires.

Breaking Barriers

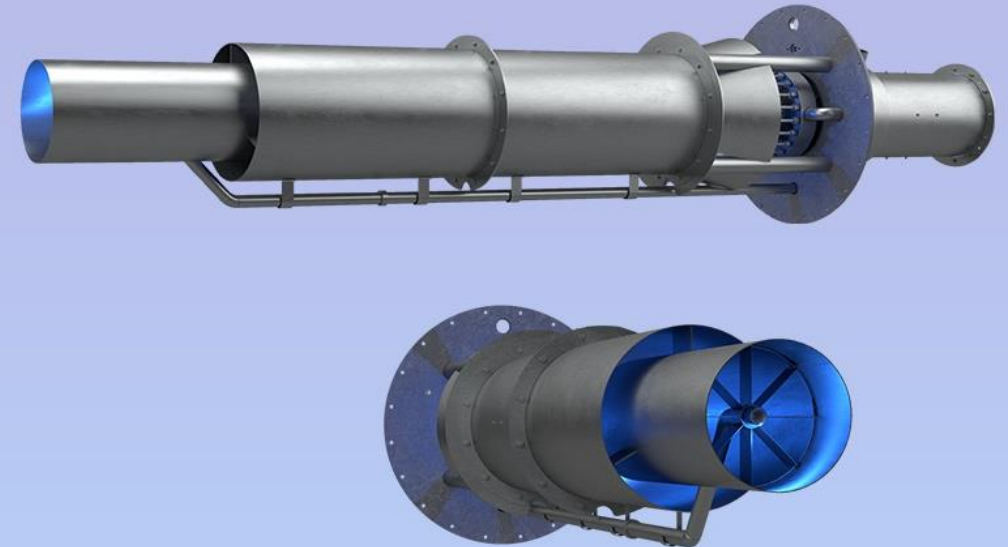
- Paradigm breaking technology providing unique performance and value
- Products engineered for industry standard deployment
- Sales, supply and service capabilities developed to comply with typical industry processes and requirements

**Doesn't merely treat emissions –
reduces their creation in the first place**



**Refinery and Petrochemical
Process Heater Technology**

Boiler Technology



Cost Effective Solutions

Fire Tube Boiler Burner Replacement – Livingston, CA



- 600 HP Fire Tube Boiler
- Original NOx = 9 ppm

ppm (parts per million)

*SCR (selective catalytic
reduction – alternative tech.)*

<u>Economics</u>	<u>CLIR</u>	<u>SCR</u>
NOx, ppm	2.5	2.5
Capital Cost	\$250,000	\$450,000
5 yr operating cost	\$5,000	\$270,000
Total cost	\$255,000	\$720,000
Cost Ratio	1.0	2.8

Infrastructure Client - Los Angeles, CA



- Small process heater
- Original NOx = 30 ppm
- New permit NOx requirement = 7ppm

<u>Economics</u>	<u>CLIR</u>	<u>SCR</u>
NOx, ppm	6	5
Capital Cost	\$450,000	\$2,200,000
5 yr operating cost	\$25,000	\$500,000
Total cost	\$475,000	\$2,700,000
Cost Ratio	1.0	5.7

Structured for Growth

- Attractive operating margins
- Asset light structure that leverages national and global incumbent partner company's infrastructure
- Highly scalable
- Licensing opportunities
- Protected by strong IP portfolio
- Led by established industry experts

Provides a cost-effective solution versus additional cap-ex and op-ex costs associated with existing methods



Domestic & Global Market Opportunity

Estimated Process Burners Installed

28,000	California and Texas
72,000	Total in US
42,000	Europe
280,000	Worldwide

Estimated Boiler Burners Installed

7,000	California
5,000	Texas
57,000	Total in US
350,000	In Critical Emissions Regions of China

Representative average per burner price = \$100,000

**“You have the
best burners
in the world”**

- Lead engineer from 2022 California Refinery
project customer demonstration

Process Burner data: Energy Information Administration – Refining Capacity 2021 & 2022 bp
Statistical Review of World Energy (estimation based on 1 burner per 250 bpd)
US Boiler burner data from CA air board records and scaled by population for other regions and
American Boiler Manufacturers Association 2015 Survey
China data from confidential sources

Driven by Political & Social Initiatives

- Regulation of critical emissions tightening - including NOx
- Transition to Hydrogen economy
- ESG reporting and disclosure initiatives
- Global “good citizen” momentum
- Substantial government funding – IRA, Dept. of Energy

ClearSign is part of the solution



Evolving Regulations Impacting Our Market

- Regulations finalized in major areas of California*
- Anticipate revisions in industrial regions of Texas and Utah, other regions of California and North Eastern USA
- EPA ozone enforcement
- Proposed SEC Climate Disclosure Requirements
- New and expanding regulations in China

*Los Angeles Area and San Joaquin Valley District



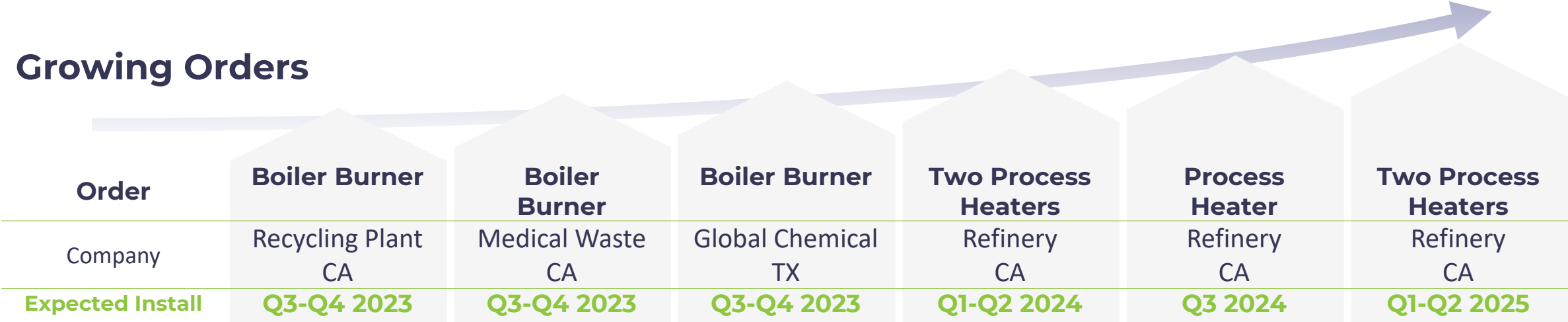
Global Orders and Installations



Commercialization Advancing



Growing Orders



Expanding Technology -

to develop technology for H₂ economy and decarbonization



Engagements with Diversifying Markets



ESG Credentials – Technology & Company

Environmental Impact

- Stewards of the environment, work space managed to conserve resources
- Developing and providing technologies enabling reduction of toxic air emissions, enhanced safety, increased efficiency and the use of hydrogen as a fuel

Social Impact

- Inclusive and fair employer, with considerate and respectful culture
- Emphasize ethics, employee wellbeing and customer satisfaction

Governance Framework & Structure

- Robust governance and regulatory policies
- Diverse BOD and leadership team with fair and reasonable compensation



Aspiring to the highest ESG standards

Investment Summary

Gaining traction and positioned for growth

Asset light, highly scalable business model

High margin business with robust IP portfolio

Significant potential upside with growing adoption in large global market

Experienced and proven team

Commitment to ESG Principles

Capital Markets Snapshot



NASDAQ CLIR

Market Cap	\$50.5M
Cash & Short-Term Investments	\$8.5M
Long-Term Debt	\$0
Shares Outstanding	38.6M
Insider Holdings	20%
Patent Portfolio	110
Headquarters	Tulsa, OK
State of Incorporation	Delaware

Above data per Q2 2023 10-Q

News Releases

- Announces Support and Collaboration from SoCalGas for its Flexible Hydrogen Fueled Ultra Low NOx Process Burner Project– Sep 20, 2023
- Announces Promotion of Brent Hinds to Chief Financial Officer – Aug 8, 2023
- Announces Hire of Tina Unachukwu as Director of Customer Relations and Business Development – Aug 1, 2023
- Collaboration Partner Narion Corp. Receives SBIR Grant to Develop Flare Methane Sensor - Jul 13, 2023
- Receives Follow on Process Burner Order for Two Multi Burner Heaters from a California Refinery - May 18, 2023
- Receives Engineering Order for Two Multi Burner Heaters from a California Refinery - Apr 19, 2023
- Announces Successful Testing of Ultra-Low NOx Hydrogen Burner - Apr 5, 2023

Sell-Side Analyst Coverage

HC Wainwright - Amit Dayal



**Included in the Russell
MicroCap Index**

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