

## **ClearSign Demonstrates "Non-Contact Electrodes," Transmitting Pulsed Electrical Control Signal Into Flame Without Physical Contact**

### **Proprietary Technique Expands Design Options While Reducing Cost and Complexity for Retrofitting Industrial and Commercial Combustion Systems**

SEATTLE, WA -- (MARKETWIRE) -- 08/02/12 -- ClearSign Combustion Corporation (NASDAQ: CLIR), an emerging leader in combustion and emissions control technology for industrial, commercial and utility markets, reported today that it has successfully demonstrated the ability to apply its proprietary Electrodynamic Combustion Control™ (ECC™) technology to a combustion system without requiring an electrode to have physical contact with the flame.

According to Joe Colannino, the company's Chief Technology Officer, this demonstration points the way to powerful new options for system designers to integrate ECC technology into both retrofit and new build installations. ECC technology works by applying a computer-controlled, high-voltage electrical charge to a flame in order to achieve improved control of flame shape, flame stability, flame chemistry and heat transfer in combustion systems.

"In our earlier efforts, we have applied charge to the flame by mounting an electrically conductive fixture inside, or directly in contact with, the flame. While physical electrodes may continue to be the preferred approach in many applications," Colannino explained, "the use of a 'non-contact electrode' may simplify the job of retrofitting ECC technology to existing systems and/or designing it into new ones."

"We have demonstrated several novel and very effective approaches to transferring the pulsed charge into the flame region," said Colannino. "One method involves transmitting the charge into the larger flame through a smaller secondary or 'pilot' flame in contact with the main flame. We believe that this 'flame-on-flame' technique is unprecedented and we are also encouraged by the broader implications with regard to the electrical characteristics and behavior of flames."

"Charging the flame without physical contact with the flame body significantly expands the design options available to manufacturers and system engineers. In some cases the electrical charge can now be effectively applied at the air inlet, before the fuel and air mixture combust at the burner, simplifying some system designs and enabling ECC technology to be more rapidly and easily integrated."

ClearSign CEO Rick Rutkowski noted that this new approach will make the groundbreaking benefits of ClearSign's technology available in a wider range of system types and operating environments.

"We are intently focused on driving developments that will enable the practical commercial use of our technology while making it both convenient and cost-effective to implement," Rutkowski emphasized. "By eliminating one more design constraint, we simplify the adoption of our technology. This is the kind of innovation that can accelerate market entry and allow us to address the broadest possible market."

"Protecting enabling techniques for system design, such as this, is a fundamental part of our intellectual property strategy, and we believe, further enhances our competitive position," Rutkowski added. "Advances such as non-contact electrodes make strong additions to our large and rapidly expanding intellectual property portfolio."

The company says that to date it has filed more than 35 patents, and has identified and documented more than 150 inventions for which it intends to pursue patent protection.

"Our goal is to turn the economics of emissions control on its head," said Rutkowski. "We believe our technology will enable our customers to reduce multiple types of emissions by suppressing them at the source, and at the same time, will increase system efficiency, throughput and overall productivity. The ability to combine increased efficiency with emissions control is unprecedented and, potentially, a sea change. We're talking about a world where environmental compliance is no longer a cost but instead a source of additional profit and return on invested capital. That's great news for both industry and the environment."

Last year, The McIlvaine Company estimated that global sales of air pollution control equipment in 2011 were \$42 billion. There are approximately 163,000 boilers operating at the commercial and industrial scale in the US.

About ClearSign Combustion Corporation

ClearSign Combustion Corporation designs and develops technologies that aim to improve key performance characteristics of combustion systems including energy efficiency, emissions control, fuel flexibility and overall cost effectiveness. Our Electrodynamic Combustion Control™ (ECC™) platform technology improves control of

flame shape and heat transfer and optimizes the complex chemical reactions that occur during combustion in order to minimize harmful emissions. For more information about the Company, please visit [www.clearsign.com](http://www.clearsign.com)

#### Cautionary note on forward-looking statements

This press release includes forward-looking information and statements within the meaning of the Private Securities Litigation Reform Act of 1995 and the provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Except for historical information contained in this release, statements in this release may constitute forward-looking statements regarding our assumptions, projections, expectations, targets, intentions or beliefs about future events that are based on management's belief, as well as assumptions made by, and information currently available to, management. While we believe that our expectations are based upon reasonable assumptions, there can be no assurances that our goals and strategy will be realized. Numerous factors, including risks and uncertainties, may affect our actual results and may cause results to differ materially from those expressed in forward-looking statements made by us or on our behalf. Some of these factors include the acceptance of existing and future products, the impact of competitive products and pricing, general business and economic conditions, and other factors detailed in our Quarterly Report on Form 10-Q and other periodic reports filed with the SEC. We specifically disclaim any obligation to update or revise any forward-looking statement whether as a result of new information, future developments or otherwise.

#### CONTACT:


Media Contact:

Dennis S. Dobson, Jr.  
(203) 258-0159

Investor Relations:

(206) 538-2732  
[investors@clearsign.com](mailto:investors@clearsign.com)

Released August 2, 2012

 [\*\*ClearSign Demonstrates "Non-Contact Electrodes," Transmitting Pulsed Electrical Control Signal Into Flame Without Physical...\*\*](#)  
(33 KB)

---

<https://ir.clearsign.com/company-news?item=44>