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## **Company Overview**

### **Our Technology**

Essess is a technology company that is focused on helping building owners increase comfort, save money and eliminate energy waste by using a technology that enables energy efficiency analyses on a large scale. Essess uses a combination of a proprietary thermal imaging technology and proprietary analytics capabilities to provide building owners with a compelling, easy-to-read, thermal image that highlights potential fixes to building structures to increase comfort and reduce energy costs.

Through this technology, Essess provides a low-cost, scalable and rapidly deployable means of identifying potential sources of leaks, a leading source of energy waste in the building sector. Partners, including utilities and home performance professionals, can use Essess's thermal imaging technology to engage customers and to drive business by inspiring them to take action.

### **The Problem**

Energy leaks in buildings cause significant energy waste. Buildings waste approximately 35 percent of energy input annually, and nearly two-thirds of residential building energy loss is caused by energy leaks, equating to \$80 billion of wasted value every year. To date, this problem has not been addressed in a scalable, cost-effective way.

Energy leaks are an important means of saving energy, and there is a huge opportunity to improve how we manage energy through the implementation of a simple energy-saving step -- energy efficiency. Upgrades based on Essess's images can reduce energy consumption, improve energy performance and increase property value.

### **Our Solution**

Essess uses multiple, proven technologies to generate simple reports that identify energy leaks with impressive accuracy. The company's thermal imaging technology was developed at MIT, and Essess employs unique algorithms that use data from its thermal images. The results are shared with building

owners in a simple report that includes graphic visual representations of areas in need of improvement. The report also includes an energy-efficiency score that helps owners understand how their building compares to similar buildings in the area.

## **Our Origins**

Our imaging capability traces its origins to the Duke University Medical Center, where Essess co-founder Dr. Jonathan Jesneck worked on a team conducting research on detecting early invasive breast cancers.

Dr. Jesneck's team developed systems for analyzing mammograms and sonograms using computer-aided diagnostic models to help radiologists detect and diagnose suspicious breast lesions. This technology, currently in use by Siemens Healthcare Diagnostics, helps radiologists differentiate malignant from benign lesions. As a result, radiologists are more likely to prescribe a biopsy on a

truly malignant tumor -- and are less likely to recommend an unnecessary breast biopsy on a benign lesion.

At the Massachusetts Institute of Technology, Dr. Jesneck assisted MIT's Field Intelligence Lab with research on the technical and economic feasibility of using thermal imaging to identify energy loss in building structures. Today, Dr. Jesneck and his team of engineers are commercializing these technologies in collaboration with experts specializing in energy conservation, home improvement, property management, and consumer privacy.

## **Frequently Asked Questions**

### **1. What does Essess do?**

Essess is a tech company focused on helping building owners increase comfort, save money and eliminate energy waste by using a technology that enables energy efficiency analyses on a large scale. Specifically, we use a combination of a proprietary thermal imaging technology and proprietary analytics capabilities to accomplish two main objectives: to

provide building owners with an easy-to-read image that offers visual proof of energy leaks so that they can easily identify potential energy losses, and to quickly, affordably and easily identify energy losses across entire neighborhoods -- even cities -- leading to meaningful gains in energy efficiency.

### **2. Why is it important to identify energy leaks in buildings?**

Buildings consume 40 percent of total energy produced in the United States, and 35 percent of the energy consumed by buildings is wasted. Energy leaks account for a significant portion of this energy waste; for example, in the residential building sector, leaks account for nearly two-thirds of residential energy loss, or approximately \$80 billion of wasted value every year. To date, the problem of energy leaks has not been addressed in a scalable, cost-effective

way. As such, there's a huge opportunity to improve how we manage energy. Improvements to building energy efficiency can reduce carbon emissions, even more significantly than the adoption of renewables in the near-term. Essess's technology can help identify these leaks in a quick, easy manner, thus reducing energy consumption, improving energy performance and increasing property values.

### **3. How does Essess compile thermal images and additional information and how does this help building owners understand energy leaks?**

Essess uses multiple, proven technologies to generate simple reports that identify energy leaks with impressive accuracy. Our thermal imaging technology was developed at MIT. Our thermal imaging team uses camera-equipped vehicles to rapidly capture imaging data from multiple buildings. We then employ algorithms developed in-house that use data from the thermal images. These analyses produce a simple report that provides building owners with information including graphic visual

representations of areas in need of improvements. The report also provides building owners with an energy-efficiency score that helps them understand how their building compares to similar buildings in the area.

Building owners will be able to use this report to work with energy auditors and contractors or utilities to repair the energy leaks identified in the report, making their homes more comfortable and reducing utility bills.

**4. How does this technology address the challenge of remedying energy leaks in a scalable, cost-effective way?**

Our technology is truly scalable. Since our thermal imaging teams use camera-equipped vehicles, the technology allows for rapid, neighborhood-wide – even citywide – energy efficiency analyses. We’ve worked hard to improve the integrity of our thermal images and the quality of our algorithms, so our model really

revolutionizes the speed and accuracy of structural energy efficiency analyses.

Furthermore, our technology is not capital intensive, so we can provide these thermal images and the associated at a low cost relative to other structural energy efficiency analyses.

**5. How do energy leaks appear in the thermal images, and can you see anything else in the image that might be considered an invasion of privacy?**

Brighter areas and lines appear in areas where there are energy leaks, most commonly found around window glass, doorframes, foundations and other areas. Darker areas indicate proper insulation.

The thermal images do not show any details or information that would compromise privacy. They can’t show facial features, house numbers or license plate numbers. They can’t photograph through glass windows, so they can’t show a home’s interior.

**6. Are you looking to partner with any third parties to bring this technology to market?**

There are two industries in which we see significant opportunity for partnership – the utility industry and the home performance industry.

In the utility sector, companies want more customer engagement. Utilities need additional channels to engage with customers to provide significant value-add, and they’re seeking to position themselves as more than just a resource provider – rather, as partners in energy conservation.

Through this thermal imaging technology, Essess offers utilities a customer-oriented service with tangible added value. The thermal

images and the reports that accompany them complement other energy savings measures, including efforts to modify consumer behavior. The technology provides utilities with an additional pathway for direct customer engagement, and it has the double benefit of meeting energy efficiency regulations and providing easy visibility for their brand, significantly enhancing sustainability bona fides with customers.

Home performance professionals such as energy contractors will be able to use this technology to facilitate business development.

Leads for home performance professionals are hard to come by and, when they do come, are difficult to convert into business. We can improve engagement with new and existing clients, helping home performance professionals win and retain clients, as our thermal images help motivate building owners to act. Our images also complement traditional energy assessments, enhancing credibility and impact. In summary, our technology can facilitate business development and reduce energy assessment time and costs.

## **Leadership**

### **Dr. Jonathan Jesneck, Founder and Chief Scientist**



Dr. Jonathan Jesneck previously worked as a Research Scientist in the MIT Field Intelligence Lab leading computational projects and designing artificial intelligence systems for large-scale distributed data projects. Dr. Jesneck completed his postdoctoral research in the cancer program at the Broad Institute of Harvard and MIT and served as a computational biologist in the Pediatric Oncology Department of the Dana-Farber Cancer Institute, where he led the analysis team for high-throughput screening for drug discovery. Dr. Jesneck received his doctorate, a master's degree in statistics, a master's degree in computational biology, a bachelor's degree in computer science, and a bachelor's degree in biomedical engineering, all from Duke University.

### **Dr. Jonathan Lefman, Senior Scientist, Software Engineer, and GIS Manager**



Before joining Essess, Dr. Lefman was a senior scientist at the Johns Hopkins University Applied Physics Laboratory where he developed and applied novel processing algorithms for LIDAR point clouds and worked with teams to model 3D surface information in LIDAR and imagery data. Before that, he was a physical scientist with Geospatial Research & Development program at the Army Corps of Engineers where he led studies in super-resolution algorithms and topology discovery for LIDAR point clouds and three dimensional aerial images. Dr. Lefman has developed techniques for a variety of imaging systems including GPU-based processing for super-resolution fluorescence microscopy and automated electron microscopy imaging. Dr. Lefman received a doctorate in structural biology from New York University School of Medicine and the National Institutes of Health, and an undergraduate degree in computer science from Boston University.

### **Navi Singh, Head Of Solutions Delivery and Business Development**



Navi Singh, an experienced corporate strategist, is responsible for working with Essess's customers and strategic partners to customize the company's technology to meet industry-specific needs. Prior to joining Essess, Mr. Singh was the director of corporate strategy at AARM Corporation, an alternative asset risk management firm associated with Harvard Business School. Before AARM Corp., Mr. Singh was a member of the molecular neurobiology lab in the Biomedical Sciences Research Complex at the University of St. Andrews. Mr. Singh received his master's degree from Harvard University and his bachelor's degree from the University of St. Andrews in Scotland, U.K.

### **Ed Waingortin, VP Marketing**



Ed Waingortin is a seasoned marketing executive with over a decade of experience leading marketing efforts for leading technology companies and start-ups. Previously, Mr. Waingortin was the VP Marketing of Keniks, a performance marketing agency focused online customer acquisition, which was acquired LiveOps in December 2010 and rebranded as LiveWeb. Before that, Mr. Waingortin developed and executed marketing initiatives at numerous start-ups including QuinStreet (NASDAQ: QNST), CyberSource (acquired by Visa), and Picazo Communications (acquired by Intel), among others. Mr. Waingortin received his master's degree in business administration from Harvard University and his bachelor's degree from Boston College.

## **Press Releases**

### **Essess Secures \$6M in Series A Funding**

*Born out of the MIT Field Intelligence Laboratory, Essess attracts \$6M investment from Vocap Ventures and DFJ Athena, amongst others, to advance innovation in energy loss detection and analytics*

Cambridge, MA – April 16, 2012 – Essess ([www.essess.com](http://www.essess.com)), a technology company that enables energy efficiency analyses on a large scale, today announced the closing of a \$6 million Series A funding round from both existing and new investors including Vocap Ventures and DFJ Athena.

“Essess clearly provides the first viable and scalable technology to assess residential and commercial energy efficiency. We look forward to supporting Essess leadership as they realize their goal of enabling energy efficiency,” said Vinny Olmstead of Vocap Ventures.

Essess uses a combination of a proprietary thermal imaging technology and proprietary analytics capabilities to provide building owners with a compelling, easy-to-read, thermal image that highlights potential fixes to building structures to increase comfort and reduce energy costs. Utilities can use Essess to augment both structural and behavioral energy efficiency campaigns. Likewise, energy auditors and home performance professionals can use Essess in marketing energy audits and efficiency upgrades.

“Buildings consume 40 percent of total energy produced in the United States, and 35 percent of the energy consumed by buildings is wasted,” said Dr. Jonathan Jesneck, Essess co-founder and Chief Scientist. “In the near-term, improvements to building energy efficiency can reduce carbon emissions even more significantly than the adoption of renewable energy sources.”

#### About Essess

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## **Essess is Named to the Sustainia100 at Rio+20**

*Essess is recognized for its ability to advance sustainability and increase quality of life at a global scale.*

Cambridge, MA – June 21, 2012 – Essess ([www.essess.com](http://www.essess.com)), a technology company that enables energy efficiency analyses on a large scale, today announced that it has been chosen by Sustainia ([www.sustainia.me/solutions](http://www.sustainia.me/solutions)) as one of the Sustainia100 at Rio+20—the United Nations Conference on Sustainable Development.

Sustainia is a global community of organizations and corporations including the UN Global Compact, Cisco Systems, General Electric, Philips Lighting, and UBS Investment Bank. Sustainia works to promote sustainability through the implementation of leading, readily-available technologies.

Sourced from 56 countries, the Sustainia100 represents the most innovative and scalable solutions needed to create sustainable societies. The Sustainia100 award committee includes Connie Hedegaard (European Union Commissioner for Climate Action) and Arnold Schwarzenegger (former governor and Founding Chair of the R20 Regions of Climate Action Group).

“Sustainia100 is a clear demonstration of the benefits sustainable solutions hold,” said Arnold Schwarzenegger. “They can improve our lives now, if we get into the mode of action.”

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In the near-term, improvements to building energy efficiency can reduce carbon emissions even more significantly than the adoption of renewable energy sources. Essess’s technology can help identify these leaks in a quick, easy manner, thus reducing energy consumption, improving energy performance and increasing comfort.

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