

February 8, 2016



# Value Engineering Program Results in Improved AOT(TM) Efficacy and Efficiency

SANTA BARBARA, CA -- (Marketwired) -- 02/08/16 -- [QS Energy, Inc.](#) (the "Company") (OTCQX: QSEP), a developer of integrated technology solutions for the energy industry, today announced completion of a value engineering program designed to improve the efficacy and efficiency of its AOT™ (Applied Oil Technology) crude oil viscosity reduction hardware. This program began mid-2015 with analysis and testing of selected AOT components to address internal electrical field issues encountered during AOT operations on a commercial pipeline transporting ultra-light crude oil known as condensate. The resulting value engineered design improves the overall efficiency of electric field generation. Tests performed on the re-engineered AOT unit at Industrial Screen and Maintenance (ISM), one of QS Energy's supply chain partners in Casper, Wyoming, demonstrated the highest efficiency electric field generation measured to date. The value engineered AOT system is expected to be re-deployed on a customer's condensate pipeline within the next few weeks.

"As a result of an extended series of testing protocols on a primary condensate line, we have implemented internal design modifications to optimize the efficiency of AOT, impacting both crude oil and condensate operations," stated Greggory M. Bigger, QS Energy Chief Executive Officer and Chairman. "Thanks to the collaborative efforts of several specialists, we believe these improvements will expand our reach to a broader range of feedstock and accelerate our time to market."

Based in California with distributors in the Middle East, Europe, Africa, and Scandinavia, QS Energy is currently commercializing AOT as the industry's only solid-state system using electrical fields to reduce the viscosity of crude oil, enabling higher volumes to flow more efficiently through pipelines. AOT was originally developed in partnership with Temple University and has since been independently tested in both field tests and commercial operating environments by the U.S. Department of Energy, ATS RheoSystems and PetroChina. Previous third-party analysis of this patented technology have shown viscosity reductions ranging from 20 to 56 percent, which to a commercial pipeline operator translates to reduced operating costs and a significant increase in pipeline capacity and revenues.

Design modifications made to AOT were undertaken specifically to address performance



[Greggory M. Bigger, Chief Executive Officer and Chairman of the Board, QS Energy Inc.](#)



[Display of an Ohmmeter, a scientific instrument used to measure electrical resistance, showing a reading of 27.68 giga-Ohms during testing of retrofitted AOT unit.](#)

issues encountered on a pipeline exclusively pumping ultra-light crude oil condensate. Under operating conditions, conductive particulate matter within the condensate caused a sharp drop in impedance within the AOT. Subsequent analysis and testing led to changes in electrical insulation, inlet flow improvements and other component modifications. As Mr. Bigger explained, "These design modifications and resulting efficiency gains reach beyond the condensate market.

The improved efficiency has the potential to significantly reduce power supply requirements on crude oil pipelines, as experienced during an earlier deployment on a high volume, mid-continent pipeline."

The AOT treatment vessel functions by creating an electrical field across a grid pack to create a dipole moment within particulate matter suspended within the crude oil, such as asphaltenes and paraffins, causing molecular conformation, which reduces fluid viscosity. Under typical operating conditions, the AOT internal grid pack operates at a resistance level in the 200 mega-ohm range, consuming milliamps of electricity to reach the high kilovolt range, which is sufficient to effectively treat most crude oils and condensates. This process, known scientifically as electrorheology and dielectrophoresis, acts to counter the thick and sticky nature of crude oil which makes it resistant to flowing within a pipeline.

Tests performed at Industrial Screen and Maintenance on an unmodified AOT grid pack, measured impedance at approximately 200 mega-ohms of resistance. Under similar conditions, the re-engineered AOT grid pack measured more than 20 giga-ohms.

"The re-engineered AOT measured 100 times more impedance than the pre-modified unit," Dan Miner, President of Industrial Screen and Maintenance, explained. "As modified, the AOT needed only 500 to 800 nano-amperes to achieve a test voltage of 15,000 volts. After more than three years of working with QS Energy on the commercial AOT design and fabrication, these are by far the best post-manufacturing test results we've seen. This new design exhibits dramatic improvement."

For further information about QS Energy, Inc., visit [www.qsenergy.com](http://www.qsenergy.com), read our SEC filings at <https://ir.stockpr.com/qsenergy/all-sec-filings> and subscribe to Email Alerts at <https://ir.stockpr.com/qsenergy/email-alerts> to receive company news and shareholder updates.

Safe Harbor Statement:

Some of the statements in this release may constitute forward-looking statements under federal securities laws. Please visit the following link for our complete cautionary forward-looking statement: <http://www.qsenergy.com/site-info/disclaimer>

About AOT™ (Applied Oil Technology)

Developed in partnership with scientists at Temple University in Philadelphia, AOT (Applied Oil Technology) is the energy industry's first crude oil pipeline flow improvement solution using an electrical charge to coalesce microscopic particles native to unrefined oil, thereby reducing viscosity. Over the past four years AOT has been rigorously prepared for commercial use with the collaboration of over 30 engineering teams at 19 independent oil production and transportation entities interested in harnessing its proven efficacy to increase

pipeline performance and flow, drive up committed and uncommitted toll rates for pipeline operators, and reduce pipeline operating costs. Although AOT originally attracted the attention of pipeline operators interested in improving their takeaway capacity during an historic surge in upstream output resulting from enhanced oil recovery techniques, the technology now represents the premiere solution for improving the profit margins of producers and transporters during today's economically challenging period of low spot prices and supply surplus.

About QS Energy, Inc.

QS Energy, Inc. (OTCQX: QSEP) provides the global energy industry with patent-protected industrial equipment designed to deliver measurable performance improvements to crude oil pipelines. Developed in partnership with leading crude oil production and transportation entities, QS Energy's high-value solutions address the enormous capacity inadequacies of domestic and overseas pipeline infrastructures that were designed and constructed prior to the current worldwide surge in oil production. In support of our clients' commitment to the responsible sourcing of energy and environmental stewardship, QS Energy combines scientific research with inventive problem solving to provide energy efficiency 'clean tech' solutions to bring new efficiencies and lower operational costs to the upstream, midstream and gathering sectors. More information is available at: [www.QSEnergy.com](http://www.QSEnergy.com)

Company Contact

QS Energy, Inc.

Tel: +1 805 845-3581

E-mail: [investor@QSEnergy.com](mailto:investor@QSEnergy.com)

Investor Relations & Media Contact

Steve Bonser

QS Energy, Inc.

Tel: +1 805 845-3581

E-mail: [steve.bonser@QSEnergy.com](mailto:steve.bonser@QSEnergy.com)

Source: QS Energy, Inc.