Gas Machinery Research Council

Year End Report to Members - December 2013

Your <u>Gas Machinery Research Council</u> enjoyed a successful year in 2013. This report provides a summary of 2013 and a look ahead to 2014.

HIGHLIGHTS - 2013

- Focus
 - o Purpose: Provide solutions to industry problems
 - Vision: An industry advanced through collaborative research, training and technology
 - Mission: Identify industry problems and provide solutions that improve reliability, efficiency and cost effectiveness

Research Projects

- o High-Speed Compression Package Design Guideline
- Engineering Data to Aid in Compressor Package Mounting
- Performance Augmentation Network Technology
- o Predicting the HP Cost of Reciprocating Compressor Manifolds
- Solutions to Mechanical Vibration Issues
- o Total budget: \$406,050

Training

- o 10 workshops
- Gas Machinery Conference (Albuquerque; 1,110 attendees)
- Total of 1,400 field technicians and engineers attended GMRC training events in 2013

Gas Machinery Conference

- The GMC continues to be the premier machinery conference in North America. This conference includes three days of technical training and presentations, presented by the industry's leading subject matter experts. The program offers short courses, technical papers and new technology updates. The conference includes a vendor exhibit with over 130 companies showcasing the latest equipment, technology and services.
- o Excellent attendance (1110) to the GMC in Albuquerque, NM
- Attendance increased 17% from 2010
- GMC 2013 Chairman: Manny Angulo, CECO Training & Technical Services (2013 Committee roster)

Membership

- New operating company member
 - UGI Energy Services
- New associate members
 - Advanced Engine Technologies
 - Burckhardt Compression
 - Teco-Westinghouse Motor Company
 - Troy Construction

• Financials (summary)

o Income

Membership dues, research co-funding
Training
Training
310,000 (year-end estimate)
594,160 (year-end estimate)

o Expense

Total
Excess of Income to Expenses
523,058 (year-end estimate)
381,206 (year-end estimate)

o Research Reserve 2,903,920

HIGHLIGHTS - 2014

Research Projects

- o Performance Augmentation Network Technology
- Pipe Support Stiffness
- Predicting Power Cost of Reciprocating Comp Manifold Phase II
- o Dampening Solutions to Address Resonance Phase III
- Development of a Theoretical Basis for Oil Consumption in Reciprocating Compressor Cylinders - investigating
- Determination of Compressor Fouling Deposit Rate investigating
- Equation of State (EOS) Comparisons for Pipeline Compression Applications investigating

Training

- Approximately 10 workshops
- o Gas Machinery Conference (October 5-8, 2014; Nashville TN)

• Financials (Budget Summary)

o Income

•	Membership dues, research co-funding	742,500
•	Training	550,000

Expense

• Total 1,617,373 (753,950 increase in research year over year)

Excess of Income to Expenses
Ending Reserve Balance
2,591,249

LEADERSHIP

Board of Directors

- o Craig Linn, Williams Chairman of the Board
- Michael Smith, UGIES Vice Chairman of the Board
- Doug Bird, Dresser-Rand Treasurer
- Quince Och, Spectra Energy Secretary
- o Angus Sites, ExxonMobil
- Kary Saleeby, ExxonMobil
- Orin Flanigan, Adobe Enterprises
- Martin Habel, Solar Turbines Incorporated
- o Kriss McDonald, Ariel Corporation

- Don York, Hoerbiger Services
- Bharat Trivedi, Atmos Energy
- o John Platt, Jr., BP
- Marc Rossiter, Enerflex Energy Systems
- Anders Johnson, Kinder Morgan
- o Mike Grubb, Southern Gas Association/Gas Machinery Research Council
- Project Supervisory Committee
 - Kary Saleeby, ExxonMobil Chairman
 - Josh Shaver, Atmos Secretary
 - o Richard Fink, Spectra
 - Martin Hinchliff, Dresser-Rand
 - o Everette Johnson, Cameron
 - David Krenek, CAT
 - o Rainer Kurz, Solar
 - o Clint Lingel, Ariel
 - Steve O'Toole, Chevron
 - Scott Schubring, Williams
 - Christine Scrivner, Kinder Morgan
- Staff
 - o Pat Downey, Senior Vice President
 - o Jane Butler, Senior Director

DISTINGUISHED SERVICE AWARD

Congratulations to Norm Shade, president, ACI Services, who received the Distinguished Service (Edward N. Henderson) Award, at the Gas Machinery Conference in October. This award is presented for outstanding service not only to GMRC but to the industry.

COMMENTS FROM OUR CHAIRMAN – CRAIG LINN

I hope your company has benefited from your membership to GMRC in 2013. For operating companies, I hope you take some of the smart practices identified through research and apply them for the benefit of your company. For service providers and suppliers, I hope you made contacts that help expand your business.

Our success depends on our ability to continually improve and enhance what we do. Our challenge is to innovate our way of business, constantly looking to bring future smart practices to our members today. To do this effectively we must meet the challenge to:

- Effectively identify the problems and to respond adequately to the rapid pace of technological change in solving future problems
- Effectively get GMRC technology to the marketplace
- Have stable research funding
- Clarify GMRC business relationships with other organizations

These are exciting times for the natural gas industry. We are experiencing significant growth in infrastructure as we develop new gas sources and transportation to markets.

It has been an honor to serve as your Chairman this past year. The organization is financially healthy with a research reserve balance over \$2.9MM and with an annual membership research fee structure. We have increased membership by 5 new members this year. The Gas Machinery Conference continues to be the premier conference for rotating equipment in the industry with attendance of over 1,150 this year. GMRC continues to deliver valuable training to legacy and emerging workers. And we have strong support through co-funding for research by our members.

In closing, we must continue to advance technologies for continued improvements in safety, reliability, fuel consumption, emissions, cost and improving system flexibility. Through research, training and technology, the GMRC can help the industry.

We had a great year again this year but we cannot rest on our success. Become more involved:

- Submit ideas for research
- Participate on the Project Supervisory Committee
- Participate on the Board
- Co-fund Research Projects
- Be an Application Contractor
- Participate in our Training
- Attend the GMC in 2014 (October 5-8; Nashville TN)

I appreciate the support of GMRC Board, the Project Supervisory Committee, the GMC Planning Committee, and the over 300 volunteers who help advance your association's goals.

Craig

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