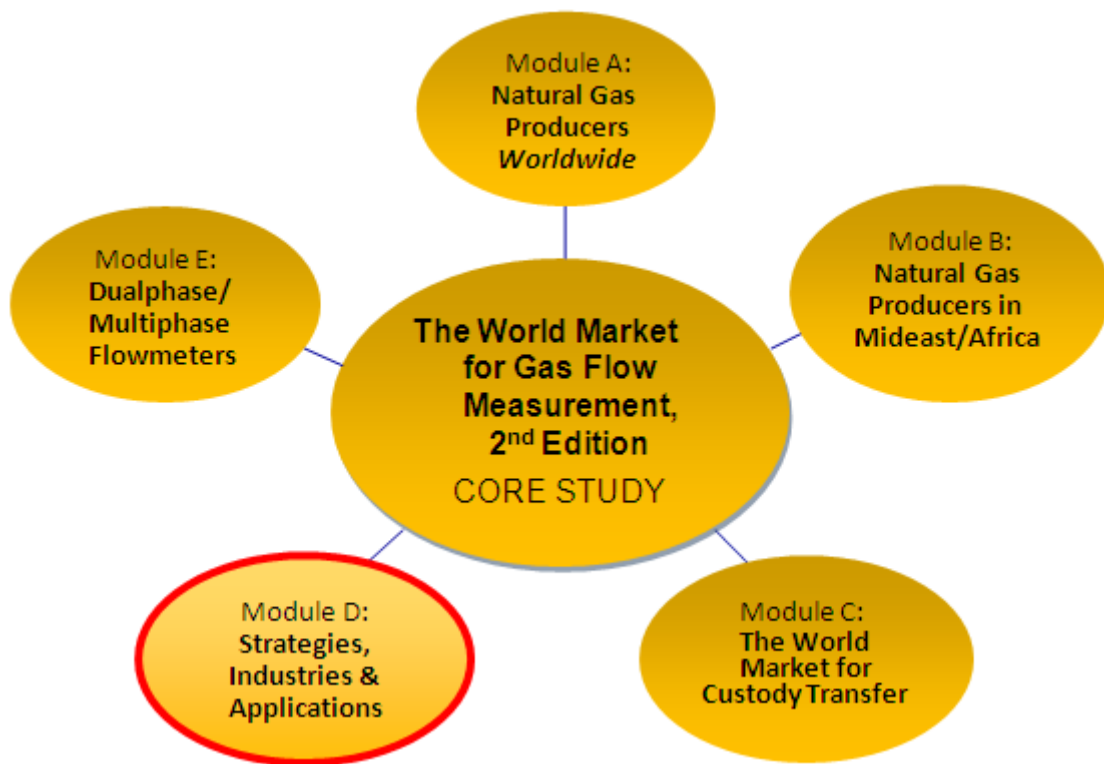


# The World Market for Gas Flow Measurement, 2<sup>nd</sup> Edition

## Module D

### Strategies, Industries, & Applications

#### Overview



**Publication Date: May 2011**



**Flow Research, Inc.**  
27 Water Street  
Wakefield, MA 01880  
United States  
[1] 781-245-3200  
[1] 781-224-7552 (fax)  
[www.flowresearch.com](http://www.flowresearch.com)

[www.gasflows.com](http://www.gasflows.com)



**Flow Research, Inc.**  
 27 Water Street  
 Wakefield, MA 01880  
 United States  
 [1] 781-245-3200  
 [1] 781-224-7552 (fax)  
[www.flowresearch.com](http://www.flowresearch.com)

## **Module D**

# **Strategies, Industries, & Applications**

Flow Research is proud to present a new study on natural gas producers worldwide. *Module D, Strategies, Industries, & Applications*, is a component of a broader study, *The World Market for Gas Flow Measurement*, which examines suppliers, producers, applications, industries, custody transfer, and multiphase flowmeters. This module provides strategies for companies already in the flowmeter market as well as for those considering joining. Module D has multiple purposes:

- Provide a world view of the market and identify future growth areas
- Discuss recent political developments and how they may affect market forces in the near future
- Report on product lines and shipments worldwide for Coriolis, ultrasonic, vortex, thermal, differential pressure, primary elements, positive displacement, turbine, and variable area flowmeters
- Discuss distribution channels and customer types
- Provide forecasted growth rates by both application and industry
- Provide realistic strategies for success for those entering or already in the flowmeter market

### **Rationale for Study**

Gas flow measurement applications and their associated revenues have grown significantly during the last few years. A major driver of this growth worldwide has been the expansion in demand for natural gas and related energy products. There has also been significant new capital projects growth in large regional economies such as India, China, and the Middle East during this time as well. Given the recent volatility of the major oil and gas countries in the Mideast and Africa, we believe that this is an optimal time to quantify the growth in this market, and to take another in-depth look at an expanding market.

### **Key topics addressed in Module D**

- Tactical and strategic recommendations for suppliers in each market segment
- Discussion of market forces at work
- Best areas for future growth
- Strategic action perspectives
- Real world success stories

Module D provides shipments by application and industry for Coriolis, ultrasonic, vortex, thermal, differential pressure, primary elements, positive displacement, turbine, and variable area flowmeters, as well as essential information on:

- Application areas
- Sales by distribution channel
- Gas measurement sales by customer type
- Tactical and strategic recommendations for suppliers in each market

#### **Breakouts by industry and application**

For each technology, the module provides shipments by industry and application for the following geographic breakouts:

- Worldwide
- North America
- Europe (including Central Europe and the FSU)
- Middle East/Africa
- Japan
- Asia without Japan
- Latin America

Data includes dollars and percentages of shipments by flowmeter type in 2010 and forecasted for 2015 in the following industries:

- Oil & Gas
- Refining
- Chemical
- Food & Beverage
- Pharmaceutical
- Pulp & Paper
- Metals & Mining
- Power
- Water/Wastewater
- District Energy
- Other

#### **Application areas:**

- Custody transfer of natural gas
- Non-custody transfer of natural gas
- Process gas measurement
- Liquefied natural gas (LNG)
- Compressed natural gas (CNG)
- Utility applications
- Stack and flare gas
- Other

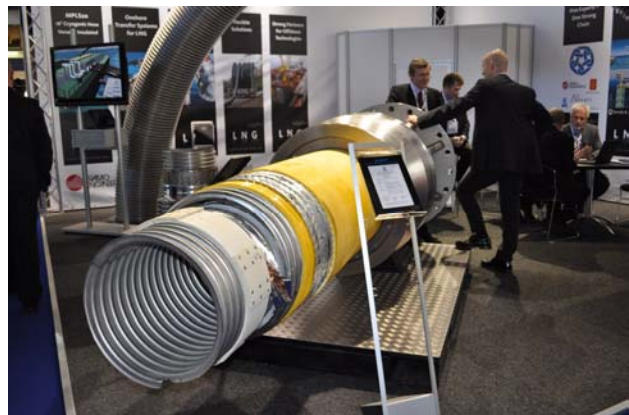
#### *Also included:*

#### **Sales by distribution channel:**

- Direct Sales
- Independent Representatives
- Distributors
- E-Business

#### **Gas measurement sales by customer type:**

- End-users
- OEMs
- Systems integrators
- Engineering and consulting firms



## Study Segment Applications by Gas Flowmeter Type

This study segments applications differently for each type of gas flowmeter. The following are the gas applications included for each flowmeter type.

### New-Technology Flowmeter Applications

#### Coriolis

- Custody Transfer of Natural Gas (CTNG)
- Custody Transfer of Industrial Gases
- Utility / Billing (fiscal measurement)
- Process Gas Measurement
- Boiler Control
- Liquefied Natural Gas (LNG)
- Compressed Natural Gas (CNG)
- Density

#### Ultrasonic

- Custody Transfer of Natural Gas (CTNG)
- Metering of Industrial Gases
- Utility / Billing (fiscal measurement)
- Check Metering (gas)
- Process Gas Measurement
- Flare/Stack Gas
- Leak Detection (gas)
- Liquefied Natural Gas (LNG)
- Compressed Natural Gas (CNG)
- Allocation Metering

#### Vortex

- Custody Transfer of Natural Gas (CTNG)
- Metering of Industrial Gases
- Utility / Billing (fiscal measurement)
- Boiler Control
- Leak Testing
- Airflow in HVAC Systems
- Compressed Air
- Liquefied Natural Gas (LNG)
- Flue / Flare / Stack Gas
- Engine Testing

#### Thermal

- Continuous Emissions Monitoring (CEM)
- Flare Gas/Flue Gas
- Landfill Gas Recovery
- Biogas Recovery
- Biomass Fermentation and Recovery

### Thermal (Cont.)

- Coal Mine Methane Recovery
- Boiler Inlet
- Wastewater Treatment
- Compressed Air
- Natural Gas Submetering

### Traditional Tech Flowmeter Applications

#### Differential Pressure (DP) Transmitters and Primary Elements

- Custody Transfer of Natural Gas (CTNG)
- Subsea Exploration and Production
- Process Gas Measurement
- Flare / Stack Gas
- Liquefied Natural Gas (LNG)
- Compressed Natural Gas (CNG)
- Allocation Metering
- Wastewater Treatment
- Compressed Air

#### Positive Displacement

- Custody Transfer (gas)
- Utility/Billing
- Processing (in a plant)
- Fuel Metering (gas)

#### Turbine

- Custody Transfer (gas)
- Utility/Billing
- Processing (in a plant)
- Shale/LNG

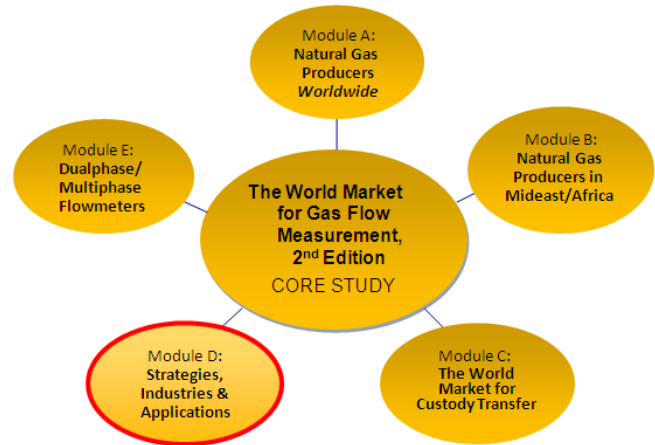
#### Variable Area

- Industrial Gases
- Dosing / Filling / Batching (gas)
- Industrial Burner Control
- Compressor Monitoring
- Flow Control in Semiconductor Applications

## The World Market for Gas Flow Measurement, 2<sup>nd</sup> Edition

### A Modular Approach to the Gas Flow Market

*The World Market for Gas Flow Measurement, 2<sup>nd</sup> Edition* features a core gas flow measurement study and five modules that can be ordered as add-on or standalone reports. Together they provide a comprehensive picture of the gas flow market from multiple perspectives. It shows where growth is occurring (and where it is not) and where to expect the highest returns. The in-depth research in the modules, including Module D, complements and builds on the detailed results of the core study.



This modular study has multiple goals:

- Determine worldwide supplier market size for gas flow measurement in 2010 for each technology type
- Forecast market growth through 2015 for all eight types of flowmeters used in this market
- Identify the industries and applications where gas flow measurement is used and provide shipments by application and industry
- Identify market growth sectors
- Create company and country profiles of the main suppliers into the gas flow measurement market as well as the main gas providers throughout the world, with a special focus on the Middle East
- Analyze products for the main companies selling into the gas flow measurement market
- Provide product descriptions, line size data, and average selling prices in this market
- Offer strategies to manufacturers for selling into the gas flow measurement market
- Show average selling prices by geographic region and factors contributing to and limiting growth

#### What's in this for my company?

- See the emerging applications and where the growth is.
- Understand world and regional markets.
- Get to know your competition – what other suppliers manufacture, where, and for whom.
- Make the best decisions with the best information.

## Background of Study

Flow Research has followed the flowmeter, pressure, and temperature markets for more than ten years. During this time, we have completed multiple studies on the many flowmeter technologies, pressure transmitters, and temperature sensors and transmitters in use today. Our study on differential pressure (DP) transmitters and primary elements revealed for the first time the actual size of the worldwide DP flowmeter market, including primary elements.

In 2004, Flow Research published a market study on the worldwide gas flow measurement market called *The World Market for Gas Flow Measurement* ([www.gasflows.com](http://www.gasflows.com)). This included all flow technologies used to measure gas flow. In 2010, we updated all of our worldwide flowmeter numbers as part of our global study covering all types of flowmeters, *The World Market for Flowmeters, 3<sup>rd</sup> Edition* ([www.floweverything.com](http://www.floweverything.com)), just published in October 2010.

Flow Research recently completed a six month study on the worldwide market for custody transfer of natural gas. The research included onsite interviews with natural gas suppliers in the Middle East. The purpose of the interviews, which were conducted in UAE, Saudi Arabia, Qatar, and Oman between September and November 2009, was to identify trends in natural gas flow measurement and to better understand growth in the natural gas market in the Middle East, Europe, and worldwide.



Our ongoing cycle of regularly scheduled editions of individual flowmeter types have focused on both the flowmeter technologies and markets – including both new-technology and traditional technology flowmeters – as well as temperature sensors and transmitters on a regional and worldwide basis. We understand how and why flowmeters perform critical tasks within nearly all instrumentation industries and markets, whether in North America or beyond.

We believe Flow Research has the perfect qualifications for undertaking this study. We have been following the gas flow market regularly since we published the first edition of our worldwide gas flow measurement study in September 2004. Our quarterly publications, *Market Barometer* and *Energy Monitor*, serve as regular updates to our knowledge base of the entire range of instrumentation technologies used within the worldwide flow and energy industries.

We have also done user interviews that show that the interest in gas flow measurement remains at a very high level. You can trust Flow Research to give you data and insights you can use today. Our recent trip to Gastech 2011 allowed us to talk directly to flowmeter suppliers and natural gas producers from around the world about the hot topics in gas flow today.



## Background

Dr. Jesse Yoder is President of Flow Research Inc., a company he founded in 1998. Dr. Yoder has 22 years of experience as a writer and analyst in process control and instrumentation. Since 1990, he has written more than 100 market research studies, most of them in flow and instrumentation. Some of the recent and currently planned Flow Research studies are as follows:

Volume I	The World Market for Coriolis Flowmeters, 4 <sup>th</sup> Edition (December 2011)**
Volume II	The World Market for Magnetic Flowmeters, 4 <sup>th</sup> Edition (May 2009)
Volume III	The World Market for Ultrasonic Flowmeters, 4 <sup>th</sup> Edition (October 2011)**
Volume IV	The World Market for Vortex Flowmeters, 3 <sup>rd</sup> Edition (July 2010) <i>New release</i>
Volume V	The World Market for DP Flowmeters and Primary Elements (January 2007)
Volume V-A	The World Market for DP Flow Transmitters (September 2007)
Volume V-B	The World Market for Primary Elements (September 2007)
Volume VI	Worldwide Survey of Flowmeter Users, 2 <sup>nd</sup> Edition (January 2006)
Volume VII	The World Market for Positive Displacement Flowmeters (Q2 2011)**
Volume VIII	The World Market for Turbine Flowmeters (Q2 2011)**
Volume IX	The World Market for Pressure Transmitters, 3 <sup>rd</sup> Edition (May 2011)**
Volume X	The World Market for Flowmeters, 3 <sup>rd</sup> Edition (October 2010) <i>New release</i>
Volume XI	The World Market for Gas Flow Measurement, 2 <sup>nd</sup> Edition (Q2 2011)**
Volume XII	The World Market for Steam Flow Measurement (March 2008)
Volume XIII	The World Market for Mass Flow Controllers (July 2008)
Volume XIV	The World Market for Thermal Flowmeters (October 2009)
Volume XV	The World Market for Liquid Analytical Instruments (Feb. 2011) <i>New release</i>

\*\**Studies in progress* These studies are described at <http://www.flowresearch.com/flow.htm>

Dr. Yoder has also written more than 110 articles on flow and instrumentation for trade journals. Links to many of these can be found at <http://www.flowresearch.com/articles.htm>.

Norm Weeks, Senior Market Analyst, joined Flow Research in November 2004 after a 24-year stint with Verizon. At Verizon, Norm specialized in creating innovative customer solutions, product management, and product marketing. He is now a market analyst for Flow Research, has completed several studies, and regularly contributes articles and editorial assistance to our *Market Barometer* and *Energy Monitor* publications.

Belinda Burum, Vice President and Editor, has worked in high tech for 16 years as a writer and marketing communications manager. She joined the company in 2002, and has since then worked on many projects. In addition to her work on market studies, Belinda serves as associate editor of the *Market Barometer* and the *Energy Monitor*.

Besides writing and publishing market studies, Flow Research ([www.flowresearch.com](http://www.flowresearch.com)) performs user surveys and provides quarterly updates on the flow and energy industries. The *Energy Monitor* analyzes the current state of the oil & gas, refining, power, and renewables industries, and the implications for instrumentation suppliers. It and the *Market Barometer* are part of the Worldflow Monitoring Service ([www.worldflow.com](http://www.worldflow.com)).

# Module D

## Strategies, Industries, & Applications

### Overview



*Amsterdam, The Netherlands  
Photo by Flow Research*



**Flow Research, Inc.**  
27 Water Street  
Wakefield, MA 01880  
United States  
[1] 781-245-3200  
[1] 781-224-7552 (fax)  
[www.flowresearch.com](http://www.flowresearch.com)

#### Why Flow Research?

- We specialize in flowmeter markets and technologies.
- We have researched all flowmeter types.
- We have interviewed gas flow end-users onsite in many countries.
- We have more than ten years of historical data on the gas flow measurement market.
- We follow the flowmeter and energy markets on a quarterly basis through our *Market Barometer* and *Energy Monitor* publications

[www.gasflows.com](http://www.gasflows.com)