FlowTimes – June 2021

Your strategic update on flow, temperature, and pressure measurement from Flow Research

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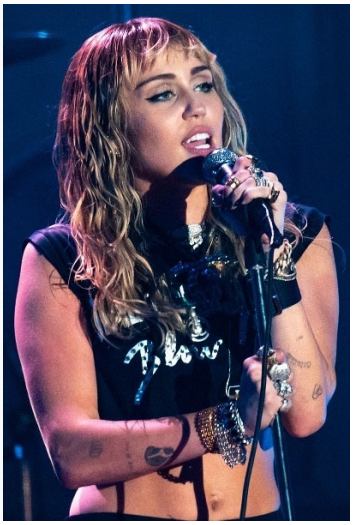
1. Letter from the president: Like a captured eagle, we are eager for the sky



Credit: Ralph_PH: Miley Cyrus Primavera19-226; June 1, 2019

When Miley Cyrus (pictured right) led Saturday Night Live on May 8 with the song "Light of a Clear Blue Morning," I thought that nothing could better capture my feelings as we enter a post-pandemic world. As it turns out, this song was written by Dolly Parton in 1977 after an especially difficult time in her life. But this song rings true today, and so I am excerpting some lyrics from this beautiful song here. To see Miley's rendition of this song on YouTube, go to https://www.youtube.com/watch?v=kVb-DmM3A_c.

It's been a long dark night and I've been waitin' for the morning
It's been a long hard fight, but I see a brand new day a dawnin'
I've been looking for the sunshine; you know I ain't seen it in so long.
But everything's gonna work out just fine. Everything's gonna be all right that's been all wrong.

'Cause I can see the light of a clear blue morning.
I can see the light of a brand-new day. I can see the light of a clear blue morning.
Oh, and everything's gonna be all right. It's gonna be okay.
It's been a long, long time since I've known the taste of freedom.
And those clinging vines that had me bound, well I don't need 'em.
Oh, I've been like a captured eagle; you know an eagle's born to fly.
Now that I have won my freedom, like an eagle I am eager for the sky…

The past has been very hard for so many people. In addition to the needless deaths and suffering, many businesses have been hit very hard due to lack of demand. According to our data, the flowmeter market declined in 2020. We have been busy determining how the pandemic has affected different companies and flowmeter types. The oil and gas industry has been hit especially hard, due to lack of demand and the resulting oversupply. OPEC+ deserves credit for navigating these choppy waters and bringing oil prices back to above $60 per barrel.

Yet there is good news among all this tragedy. Many flow companies are reporting that they are exceeding expectations in the first part of 2021. And these same companies are projecting a strong comeback in 2021 that will put them on the path to greater profitability. Many flowmeter companies were deemed "essential" during the pandemic, and this enabled them to continue operating throughout these difficult times. Hardest hit were small businesses that didn't have the financial "cushion" to see them through a time with consistently declining revenues.

Flow Research continued to do research over the past year. In August 2020, we published a three-volume set of studies on gas flow measurement (www.gasflows.com). In September 2020

we published the 6th Edition of our worldwide Coriolis study (www.flowcoriolis.com). In April 2021, we released our oil and gas industry study, "Flowmeters in the Oil & Gas Industry" (www.oilflows.com). Then in May 2021, published our enormously popular three-volume study "The World Market for Ultrasonic Flowmeters, 6th Edition" (www.flowultrasonic.com).

Yet we remain eager for "the sky." We have an ambitious schedule that requires extensive interaction with many companies. We are especially eager for a return to international travel that will enable to resume one-on-one conversations and group meetings with our flowmeter friends, some we've known for 20 years or more. On top of that, there are many new people in the industry that we would like to meet. We expect 2021 to be a banner year for the flowmeter business and for market research. And we plan to do our job of fully documenting what happened in 2019 and 2020, and what is happening in 2021. Look for a steady stream of new studies and market research in 2021 and 2022 that will continue to justify our reputation for publishing "the best studies money can buy."

2. We're ultra-excited to be shipping *The World Market for Ultrasonic Flowmeters, 6th Edition*

If you're a fan of ultrasonic meters, you're not alone. Our brand new study, ***The World Market for Ultrasonic Flowmeters,6th Edition*** finds that the ultrasonic flowmeter market remains one of the fastest growing flowmeter markets in the world. In fact, many endusers are replacing conventional flowmeter technologies – especially turbine and differential pressure (DP) – with ultrasonic flowmeters.

We're not surprised. Ultrasonic meters enjoyhigh accuracy, high reliability, high turndown ratios, long service life, low maintenance, relatively low cost, valuable diagnostics, no moving parts, and redundancy. They can measure liquids, gases, and steam and have very little, if any,effect on process throughput.

The versatile meter is also available in three designs – inline, clamp-on and insertion – and our study covers them all. The three study components cover the entire scope of the ultrasonic flowmeter market, but they can also each function as standalones.

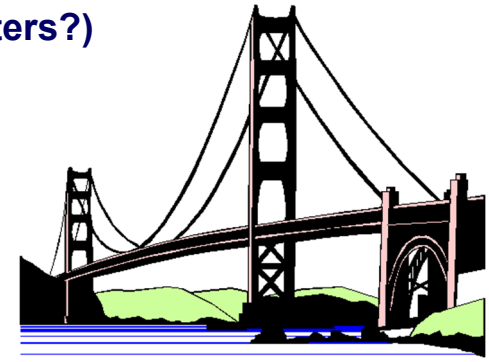
- **Core Study: The World Market for Ultrasonic Flowmeters, 6th Edition**
- **Module A: The World Market for Inline Ultrasonic Flowmeter**
- **Module B: The World Market for Clamp-on and Insertion Ultrasonic Flowmeters**

Flow Research has been covering ultrasonic flowmeters since our first edition in 2001, and this sixth edition builds on the knowledge we've gained over the years – but with a completely fresh look at the market.

You'll learn the market size and market share for all three types of meters in 2019, with forecasts through 2024. We share the most popular industries and applications for ultrasonic meters, and where we see areas of new market growth. Plus we include product analyses and company profiles of the main suppliers, and strategies for manufacturers selling into the market. If you're an ultrasonic flowmeter manufacturer or user – or just thinking about dipping your toes into the market – you'll want to get this study now. We know you'll be ultra satisfied! For complete details, go to www.flowultrasonic.com. To get your copy, click the Order link or contact Flow

Research. Call or email us soon to place your order and receive immediate delivery at 781-245-3200 or email jesse@flowresearch.com.

3. Natural gas – a bridge (over troubled waters?) to renewables



The Biden administration's proposed infrastructure/jobs bill is causing some trembling in the oil & gas industry, as it aims to edge out fossil fuels in favor of renewables by moving toward 100 percent carbon-pollution free power by 2035. However, we believe there is no need for alarm, especially for natural gas. While gas is a fossil fuel, the long-term trend away from "dirty" coal and oil as energy sources benefits natural gas, which burns cleaner. This means gas continues to serve as a "bridge" as standards get stricter. As we said in our December 2020 article in *Fluid Handling*, the road to solar, wind, and other desirable renewable sources winds through natural gas. We believe the demand for natural gas will continue to grow as environmental voices grow louder.

This should be heartening to both new-technology and conventional flowmeter manufacturers, but perhaps even more so for new-technology meters – we see a gradual shift from conventional to new-technology meters in the worldwide flowmeter market, including for gas flow measurement. Here's a quick look at how new-tech and conventional flowmeters play in the gas flow market:

Ultrasonic flowmeters –new-technology meters widely used for gas flow measurement – are one of the three main types of flowmeters used for custody transfer of natural gas. They compete in this space against conventional **differential pressure (DP)** and **turbine** flowmeters. Ultrasonic meters measure the transit time of the signal, and for custody transfer of natural gas, must measure at least three paths. DP flowmeters, which consist of a differential pressure transmitter with an orifice plate or other primary element, use single- and dual-chamber fittings for custody transfer. Turbine flowmeters, like ultrasonic meters, come in large line sizes and excel at measuring high-speed gas flows. However, ultrasonic meters have a leg up over turbine meters because they have no moving parts.

Thermal flowmeters (new technology) are used almost exclusively to measure gas flow, especially stack gas flows. They typically inject heat into the flowstream and then measure how quickly the heat dissapates. The demand to measure greenhouse gas emissions is spurring growth in the thermal flowmeter market.

Positive displacement (PD) flowmeters, which calculate flow from the number of times small compartments are filled and emptied, excel at measuring low flow and are widely used for utility gas flow measurement. These conventional meters compete in the gas utility market against turbine meters and, more recently, against new-technology **Coriolis** meters, which are starting to make an impact on the market. **Vortex** meters (new-tech) can also accurately measure gas flow, but really excel at steam flow.

Three of the most important applications for gas flow measurement are custody transfer, flare and stack gas flow measurement, and liquefied natural gas (LNG). Other applications include

submetering, compressed natural gas (CNG), shale gas, landfill gas and biogas, industrial gas placement, and process gas measurement. We believe these applications are here to stay for the forseeable future.

So, to quote from another article by Jesse Yoder, this one in *Fluid Handling*, "While the 2020s in terms of energy may be marked for its drive to renewables, in terms of the sources of energy, it may well be considered "the decade of natural gas."

Check out these two full articles: "The road to clean energy winds through natural gas" in *Flow Control,* December 2020, and "It depends on the application" in *Fluid Handling International*, March-April 2021.

4. *Flowmeters in the Oil & Gas Industry* – we're bullish

Still wondering about the future of the oil & gas industry? We're bullish. Even with increased focus on "going green," oil remains an important fuel, and, as we've said, gas use continues to grow, viewed as a "cleaner" and "bridge" fuel. We truly believe oil & gas will remain a significant market for many years.

But what's happening right now? Leading up to 2020, when oil prices restabilized, there was significant new growth in capital projects in large regional economies such as North America, India, China, and the Mideast. Throughout 2020, oil prices fluctuated and there was volatility in some major oil and gas countries, as well as other global events, including the Covid-19 pandemic. Despite the continuing pandemic, from the end of 2020 into the beginning of 2021, oil prices again reached the $60 per barrel range, and even touched $70 per barrel on June 8. As vaccines roll out, some activities have already resumed with pandemic adjustments, and more are poised to resume. We expect pent-up demand to create a strong year in 2021.

Clearly, this is an important time to take an in-depth look at the market for flowmeters for the oil & gas industry.And we have! Our ***Flowmeters in the Oil & Gas Industry***, hot off the presses, takes a look at flowmeters sold into the oil & gas industry worldwide and by region to show you the market from multiple perspectives. We also discuss natural gas and oil production and consumption around the world – and some of the major natural gas and oil companies operating in these region to to help you develop selling strategies.

Bargain alert! We are offering a major discount on ***Flowmeters in the Oil & Gas Industry*** when you order it with any other study. The combo package gives you the in-depth analysis of a particular flowmeter type, along with a detailed analysis of the oil & gas industry they are sold into, for a win-win. For complete details, go to www.oilflows.com. To get your copy, click the Order It! link or contact Flow Research at 781-245-3200, or email jesse@flowresearch.com.

5. Breaking up is hard to do

During the past several years we have seen a trend in companies that have been reorganizing, continuing acquisitions, forming joint ventures or spinning off businesses. The purposes of these changes are to refocus on core strengths, to better align with changing times, or to create better

group related types of services and products. Along with this, there has been a trend toward all-in-one companies that aim to provide all relevant services and products to a particular industry. Some examples of these changes and trends are:

- TASI's series of acquisitions for broader range of instrumentation offerings
- Rockwell Automation and Schlumberger joint venture Sensia to create a fully integrated digital oilfield automation solutions provider
- GE / Baker Hughes separation to sharpen business focus
- Technip and FMC merger to combine and streamline products and services to oil & gas
- ABB-Hitachi deal selling 80% of ABB's Power Grids unit to Hitachi

Recently both Siemens and TechnipFMC have gone through spinoff or split changes. Siemens joined the trend having decided its business focuses would be better served by organizing its healthcare business as a separate company within Siemens AG under the name Siemens Healthineers (May 2, 2016). Siemens later organized its energy-related businesses into Siemens Energy (September 28, 2020).

TechnipFMC also decided on a separation of business focuses into TechnipFMC (upstream), and Technip Energies (mid- and downstream). Given both the complexities of the companies and the challenges of the pandemic, these companies have found that "breaking up is hard to do," but having eventually succeeded in finalizing them, the hope is that all individual companies will be better adapted for future needs and viability. Despite some difficulties (for which they are in great good company), there are signs these strategies may work out well as the businesses settle into their new identities and the business world recovers from the pandemic.

Siemens AG spins off energy-related segments to become Siemens Energy

Already in May 2019, Siemens had announced, as part of its Vision2020+ plan, that it would spin off its Gas and Power business. It's been a long time coming through a complex process, plus a pandemic to further complicate matters, but September 28, 2020 marked the official listing on the prime standard segment of the Frankfurt Stock Exchange of the new company named Siemens Energy and the completion of the spinoff. Siemens AG initially spun off 55% of Siemens Energy to shareholders but plans to reduce its remaining direct stake of 35.1% significantly within 12–18 months of the listing. (The Siemens pension fund owns 9.9% in Siemens Energy.) Siemens Energy will function as an independent company.

The spinoff is intended to make Siemens a more transparent and leaner company with a clear focus on the core business of its retained industrial units and to give the new Siemens Energy the clear focus of services and products along the full energy value chain. Siemens Energy says that its business is "solutions across the entire energy value chain" covering generation, transmission, industrial applications, new energy business (e.g., hydrogen), and renewable energy. But the company says that it also aims to be more than just an energy company. "We strive for sustainability in our decarbonization journey, innovation centered on future technologies, and transformation among future focused offerings, portfolio, and mindset. Together as one team across 90 countries, we are committed to making sustainable, reliable, and affordable energy possible. This is how we shape the energy of tomorrow."

To find more information about Siemens Energy, visit www.siemens-energy.com.

TechnipFMC completes split into TechnipFMC, Technip Energies

In early February 2021, TechnipFMC finally announced it was going ahead with the paused split into two companies. The company had intended to split sometime during the first half of 2020, but these plans had been put on hold since March 2020. Almost a year later, the spinoff transaction was completed on February 16, 2021, making TechnipFMC and Technip Energies independent, publicly traded companies.

TechnipFMC describes itself as a leading technology provider to the traditional and new energies industry; delivering fully integrated projects, products, and services. Its purpose is to improve its clients' project economics, enhance performance, and reduce emissions. Its vision is to continually advance and drive real change in the energy industry.

The company is organized by its two remaining business segments – Subsea and Surface Technologies – has headquarters in London, Paris, and Houston, and has approximately 22,000 employees. For more information, visit www.TechnipFMC.com.

Technip Energies, formerly the third business segment of TechnipFMC but now fully independent, describes itself as a leading engineering & technology company for the energy transition, with leadership positions in LNG, hydrogen, and ethylene as well as growing market positions in blue and green hydrogen, sustainable chemistry. and CO_2 management. Offering a comprehensive portfolio of technologies, products, projects, and services, it says its combined engineering and construction (E&C) capabilities, technological know-how, and flexible operating model allow it to support its customers from early engagement to delivery, to help them turn their vision into a sustainable reality.

Arnaud Pieton, Chief Executive Officer of Technip Energies, stated: "Technip Energies is a driving force to address the energy transition challenge which our industry and our world need to tackle. We believe the future of energy is shaping tomorrow, and we have a significant role to play, in line with our mission of designing and delivering added value energy solutions."

Technip Energies also announced the appointment of a new member of its Board of Directors, Simon Eyers, effective February 16, 2021. "We are pleased to welcome Simon Eyers to the Technip Energies Board," said Pieton. "Simon's deep understanding of global energy markets and strong experience with the development of new technologies will be invaluable as we grow our business in the future."

Operating in 34 countries, Technip Energies is headquartered in Paris. For more information, visit www.technipenergies.com.

For more analyses of issues involved in company restructuring, see our upcoming issue of ***Market Barometer*** *(www.worldflow.com).*

6. Magmeters – ever popular and, well, magnetic

Magnetic flowmeters, first commercially produced in the 1950s, now generate more revenues worldwide than any other type of flowmeter – and more than 50 suppliers worldwide offer magnetic flowmeters. Magmeters are among the most widely used types of meters for measuring the flow of water and other liquids. In fact, according to our last study, more than 40 percent of their revenues are from the water & wastewater and chemical industries.

Our user interviews show that interest in magnetic flowmeters remains very high, and we believe that this is a perfect time to accurately quantify the size and growth of this flowmeter technology and to provide a comprehensive view of its expanding market. To that end, we are now collecting data for ***The World Market for Magnetic Flowmeters, 7th Edition***, which we expect to publish in Q3 2021.

The study will determine the regional and worldwide market size and market shares of the leading suppliers in 2020 and forecast market growth through 2025. It will also analyze products from all of the primary magmeter suppliers and profile the significant worldwide suppliers. We will also identify the top industries and applications and propose market and product strategies.

For complete details, go to www.flowmags.com. Call or email us soon for special pricing at 781-245-3200 or jesse@flowresearch.com.

7. Studies from Flow Research

Upcoming studies:

- ***The World Market for Magnetic Flowmeters, 7th Edition*** (Q3 2021)
  www.FlowMags.com
- Covering all the main flowmeter types: www.FlowVolumeX.com (Q3 2021)
  Volume X: The World Market for Flowmeters, 8th Edition
  Volume X: Module A: Strategies, Industries, and Applications
- ***The World Market for Pressure Transmitters, 5th Edition*** (Q3 2021)
  www.PressureResearch.com
- ***The World Market for Turbine Flowmeters, 3rd Edition*** (Q4 2021)
  www.FlowTurbine.com
- ***The World Market for Positive Displacement Flowmeters, 3rd Edition*** (Q4 2021)
  www.FlowPD.com

Recently published studies:

- Ultrasonic flowmeters series,www.FlowUltrasonic.com, published May 2021
  Core Study: The World Market for Ultrasonic Flowmeters, 6th Edition
  Module A: The World Market for Inline Ultrasonic Flowmeters
  Module B: The World Market for Clamp-on and Insertion Ultrasonic Flowmeters
- ***Flowmeters in the Oil & Gas Industry***, www.oilflows.com, published April 2021
- ***The World Market for Coriolis Flowmeters, 6th Edition***, www.FlowCoriolis.com, published September 2020
- World Market for Gas Flow Measurement 4th Edition, www.GasFlows.com, published August 2020
  Core Study: The World Market for Gas Flow Measurement, 4th Edition
  Module A: Applications and Strategies for Gas Flow Measurement
  Module B: Natural Gas Production, Consumption, and Flow Measurement in the Oil & Gas Industry

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8. The 'quest for efficiency' in the oil & gas industry

Real-world digital applications help customers do more with less, according to Allan Rentcome, CEO of Sensia. "The quest for efficiency in the oil and gas industry is probably more important today than ever before."

Sensia, headquartered in Houston, is a joint venture formed by Rockwell Automation and Schlumberger in October 2019 to become the oil and gas industry's first digitally enabled, integrated automation solutions provider. They wanted the venture to drive efficiency, optimize performance and reduce risk. Today the venture continues to focus on solving oil & gas automation challenges by unifying sensing, intelligence, and action. Its 1,000+ experts serve customers in more than 80 countries.

Rockwell Automation, a global supplier of industrial automation and information, including Allen-Bradley programmable logic controllers (PLCs), owns 53% of Sensia. The company contributes its oil & gas engineering and support services, plus solutions for turbomachinery control, monitoring and control, and a Connected Production environment to the joint venture. **Schlumberger,** an oil & gas technology and services giant, owns the remaining 47%. It contributes its entire measurement business, including Cameron products, as well as some software systems and a subset of artificial lift products. **Sensia Measurement Solutions** provides flow measurement products, systems, and services for oil & gas, including primary elements and turbine, ultrasonic, Coriolis, differential pressure, and positive displacement flowmeters.

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