

2016

Executive Roundtable

Editor's Note: It's said that the view from the top of the mountain is very different than from sea level. It is with that truism in mind that each year, *Diesel & Gas Turbine Worldwide* asks officials at key companies within the large engine and turbine industries to weigh in on a series of questions intended to provide a high-level view of the conditions, challenges and opportunities they see in the marketplace today and in the future. This year, our panel includes:

WILLI MEIXNER

Chief executive officer, Power and Gas Division, Siemens AG

RICH FREELAND

President and chief operating officer, Cummins Inc.

DR. ULRICH DOHLE

Chairman of the Executive Board and chief executive officer of Rolls-Royce Power Systems AG

JAAKKO ESKOLA

President and chief executive officer, Wärtsilä Corp.

DR. CHRISTOPH TEETZ

President of CIMAC, the International Council on Combustion Engines

Diesel & Gas Turbine Worldwide sincerely thanks our contributors for their time and insights.

DGTW: What's been the impact of the extremely low oil prices we've seen over the last year and what changes has it brought to your businesses? Do you see those prices changing anytime soon?

WILLI MEIXNER

Many of our clients had to respond to this dramatic drop in cash inflow by significantly reducing their investments into new exploration. We have responded to this development early by a major adaption in our global new equipment supply capacity in order to match falling demands.

When we look today ahead for our business addressing the oil industry, we are not so much focused on price but on consumption. And here we see a steady growth from 88 million barrels per day to 92 million barrels per day in 2015, for 2016 there are estimations in the direction of 94 million barrels per day.

So consumption is intact and as a result we see continuing service activities. Besides, we expect continuous depletion of oil fields, which, over time, will automatically lead to a shorting of the oil supply, thus increasing oil prices.

RICH FREELAND

Lower oil prices clearly have had two distinct effects on the economy, one positive and one negative. While the lower prices translate into an increase in household spending, and therefore a boost in consumption, the same reduced prices make it harder to justify a great deal of projects in the energy, infrastructure and industrial spaces, affecting, at least temporarily, the demand for heavy machinery.

Cummins has experienced the good and the bad of lower oil prices. In 2015, Cummins was the first to introduce engine systems certified at Tier 4 final emissions regulations for well servicing and fracking applications in North America. Unfortunately the weaker oil prices led to an abrupt reduction of well servicing and fracking activities and thus lower than expected sales.

On the other hand, lower oil prices were very positive for end users of commercial vehicles and pickup trucks powered by Cummins engines.

As much as analysts suggest that oil prices are artificially low, and that we should see a gradual appreciation of prices in the coming years, the reality is that prices have stayed low for a pe-

riod much longer than expected. What Cummins has been doing as a company is to make sure that it is prepared for both scenarios, of increasing or consistently low oil prices.

DR. ULRICH DOHLE

Markets have been very challenging, especially in the oil & gas and marine offshore sector. Current oil price levels massively hamper investments in new equipment and exploration of new reserves.

We serve a heterogeneous field of applications. Within this diversified product portfolio we clearly have seen shifts away from resource industry-driven markets to infrastructure-related markets and pleasure and passenger marine markets.

Whereas oil exporting countries are negatively impacted, we see positive developments within oil importing countries, e.g., India, which spends less on oil price subsidies and therefore benefits from lower prices. On top of that we expect to see improvements from the consumer-driven markets as inflation rates remain low.

We do not expect these low oil prices to remain over time. We even see the risk of supply/demand shortages in the midterm and focus on being prepared to serve the markets with the best propulsion systems available. Overall we expect higher volatility of oil prices in the future.

JAAKKO ESKOLA

In the energy sector there has been some slowdown and postponing of projects in certain regions. However, we have been able to compensate for this impact by diversifying our scope and focusing on those markets where the effect of lower oil prices has been felt less.

In the marine industry the impact has been twofold: we see certain shipping segments that benefit from lower fuel prices, while at the same time we see a significant decrease in the offshore oil & gas business.

Historically, a large share of our Marine Solutions business has come from the offshore sector, and we are now seeing a rapid change toward other segments, for example gas carriers. This shift has put pressure on our flexibility to adjust according to the market situation, but it has also shown that our strategy of developing the broadest offering of products, solutions, and lifecycle services in the marine industry works.

DR. CHRISTOPH TEETZ

We are currently seeing challenges in oil & gas and marine offshore markets. In the short term we do not expect significantly higher oil prices, in the midterm a slow recovery is probable.

The low oil price also affects the natural gas-related exploration and pipeline expansion plans. Therefore we see the trend toward gas slightly delayed, but clearly still valid. In many regions gas remains the less price-volatile, long-term alternative. Furthermore it offers emissions advantages. We also see the

risks of supply disruptions and hence higher oil price volatility in future due to the actual low CapEx (capital expenditures).

DGTW: How has the slowdown in the China and the struggles of the other emerging economies — Brazil, Russia, etc. — impacted your companies?

WILLI MEIXNER

Of course, we see an impact of the slowdown in those economies. However, the Chinese economy for instance is in the process of reinventing itself with a focus on a higher level of industrial value creation. Consequently China is developing its infrastructure in a different way than previously, and therefore we still see opportunities and pockets of growth there.

One of the growth examples is distributed generation, which is starting to take off and will be a major growth area over the years to come. Same applies to a certain extent to Russia and Brazil, while for Russia in particular the geopolitical imperatives are of course different.

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“There have certainly been times when the boundary conditions for doing business have been better. However, as our CEO Joe Kaeser has recently put it, ‘We are not getting paid for panicking, we are paid for looking at opportunities.’”

- Willi Meixner, Siemens AG



RICH FREELAND

Brazil, China and India are the emerging economies in which Cummins has the strongest presence. The industrial economy in China has slowed as the government tries to accelerate a transition to a more consumer-driven economy.

While industry demand for capital goods including trucks and construction equipment has slowed over the past three years, Cummins has performed well in most of its end markets. We have gained market share in the light-, medium- and heavy-duty truck markets in China as the local governments have started to adopt more stringent emissions regulations. Our market share in the heavy- and medium-duty truck market increased to 18% in the fourth quarter of 2015, up from 16% a year ago.

In India, our business returned to growth in 2015 as the economy improved and the government promoted more investment in infrastructure. India is the one major economy in which we are experiencing rising demand in most end markets. We are also leveraging our very capable and globally cost competitive manufacturing base in India as a source of exports of engines for power generation applications in growth markets such as Africa.

"Conditions in Brazil are very challenging as the economy has entered recession and the Real has depreciated significantly against the U.S. dollar. We expect weak demand in most end markets to persist into 2017."

- Rich Freeland, Cummins



Conditions in Brazil are very challenging as the economy has entered recession and the Real has depreciated significantly against the U.S. dollar. We expect weak demand in most end markets to persist into 2017.

DR. ULRICH DOHLE

Diversity of customer needs and globalization of the markets are clearly our biggest challenges these days. In China, the economic growth slowdown, especially of the construction sector, affected off-highway markets.

The overall growth picture of China, however, is still intact. An increasing middle class and the economic expansion of inland regions will continue and are major goals of the actual Five-Year Plan. This will constantly drive demand for construction and transportation in the coming years.

Power generation and the oil & gas industry are also growing increasingly in importance. Therefore, Rolls-Royce Power Systems and the Chinese engine manufacturer China Yuchai International have now set up MTU Yuchai Power, a joint venture that will produce MTU Series 4000 engines in the Chinese city of Yulin beginning in 2017. Our aim is to establish high-quality products at competitive prices on the Chinese market.

Regarding the economic development of the BRICs, we still believe in these countries. Nevertheless, it's going to be not as unitarily and euphoric as expected.

JAAKKO ESKOLA

Business naturally slows along with a weaker economy. Nevertheless, the demand for electricity and the need for grid flexibility can still grow in the emerging markets, which is good news for us.

There has been some increase in competition for us in the energy sector, as manufacturers that previously focused mostly on the marine market seek alternative outlets due to the shipping industry's slowdown. We have, however, been able to maintain strong market shares. China's development follows very much that of the different segments in the global marine industry.

Our strategy is, be close to our customers, and to this end we are building yet another joint venture factory in China. The same needs for flexibility apply in our Chinese operations, just as they do globally.

Some years back we would, of course, have hoped to see much more business from Brazil and Russia compared to what we actually see today. We are closely following the development of these markets, and are ready to ramp our activities up or down based on need.

DR. CHRISTOPH TEETZ

The slowdown in China, Brazil and Russia has a significant impact on our business and led to a very challenging market environment. However, the long-term potential of the emerging markets persists and we expect a performance improvement in the long run.

DGTW: In which countries/regions do you anticipate most demand/growth in the next three to five years, and why?

**WILLI
MEIXNER**

We see Iran, Cuba and other countries on their way back into the global community. Bringing their (energy) infrastructure into the 21st century breeds certainly some opportunities for infrastructure companies like Siemens.

By the same token, we see opportunities in Africa, which from a demographic perspective is currently the fastest-growing region globally. The recent 459 MW award to build a third power plant in Nigeria is a great example for the power solutions our teams can develop in these countries.

**RICH
FREELAND**

Given the current uncertainty in the global economy, it's hard to predict growth over the next three to five years. Nonetheless, there are a few bright spots in the markets that we serve.

As mentioned previously, truck, construction and power generation markets in India have been growing at a very fast pace as a result of important legislative and structural reforms conducted by a business-friendly government.

The European truck market shows signs of steady recovery, stimulated by a favorable monetary policy of the European Central Bank.

North America has not yet reached a point of complete saturation and might still grow at reasonable rate, especially in markets such as construction and medium- and light-duty truck.

**DR. ULRICH
DOHLE**

India has shown recent success in re-organizing its economy and reinstalling global thrust. It has shown a strong economic growth and is expected to maintain that momentum. Southeast Asia and parts of the Middle East shall provide upward market poten-

tial. Nevertheless we do not expect this to happen short term.

In the coming years, the ongoing globalization, diversification of markets and stricter emissions regulations will offer opportunities for growth all over the globe.

Also, we remain positive on seeing market improvements within the industrialized world as they are phasing in emissions-friendly technologies. We are on the forefront of this and invest plenty of efforts in supplying the right solutions.

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JAAKKO ESKOLA

In the energy sector, we see growth in the USA as ultrafast gas power plants offer utilities and IPPs a new business model in certain regions — namely cashing in on spikes in the price of electricity. We also see opportunities in Mexico because of the new energy reforms that enable private companies to own power plants and sell electricity.

In Southeast Asia, e.g., Indonesia, the huge development potential of the region, combined with the availability of oil and natural gas, is creating demand for our solutions. Finally, the strong growth in wind and solar energy creates opportunities worldwide, because the inherent variability of these sources needs to be balanced by fast backup power, which is our specialty.

In the marine industry, China and Korea will continue to be the leading shipbuilding countries, along with Japan, whose position is supported by domestic demand. Segment specific strong pockets can be found in other places, for example the cruise industry in Europe, with China also emerging as a long-term challenger in the cruise business. Servicing of our marine and power plant customers with spare parts, maintenance and

operations is a globally active business for us and we foresee that trend to continue.

DR. CHRISTOPH TEETZ

We expect the highest growth rates in India and, despite the current situation, in China. Also we expect sound developments in other emerging markets — especially in Southeast Asia and Sub-Saharan Africa. Growth drivers are several anticipated megatrends, such as:

- A growing population.
- An increasing middle class.
- Rising dependency on reliable energy.
- Urbanization and increasing mobility.

These trends will increase the demand for propulsion systems.

DGTW: From a technology standpoint, what's the greatest challenge you face in the next five years, and what do you see as the greatest opportunity?

WILLI MEIXNER

Digitalization, and as we at Siemens name it Industry 4.0, breeds a lot of opportunities for new businesses and new business models. Siemens has recently announced to acquire CD-adapco, a U.S.-based company specialized in computational fluid dynamics (CFD). CFD is used to simulate fluid flow, heat transfer and fluid structure interaction of liquids and gases. If you bear in mind the physics of turbomachinery, you might have some ideas about the efficiency and effectiveness this will bring to our gas turbine business.

RICH FREELAND

In the past decade, technology has primarily been driven by aggressive emissions requirements in developed markets. We should see the same emissions standards come to force in developing countries in coming years. But, our markets and technologies are shifting. Going forward, in all markets, fuel economy and information connectivity will be key drivers of new technology development.

As a company, we enjoyed a decade and a half of success due to our industry-leading emissions innovations and breakthrough clean-air technologies like advanced turbomachinery, electronic high-pressure fuel systems, cooled exhaust gas recirculation, diesel particulate filters, and NO_x aftertreatment. Meeting emissions regulations will only grow in importance globally in the future, but we anticipate it will no longer drive innovation and business growth in the same way it has historically.

Our next phase of success will be characterized by our ability to deliver differentiated products, information and technologies for our customers. To define these problems and opportunities requires a deep understanding of our customers, of their needs and what's important to them, and of how we can use technology and advances in our products to enable their success.

"Markets have been very challenging, especially in the oil & gas and marine offshore sector. Current oil price levels massively hamper investments in new equipment and exploration of new reserves."

- Dr. Ulrich Dohle, Rolls-Royce Power Systems



Our high-horsepower QSK95 engine is a good example of a new product that holds to these new customer requirements and technological challenges, and has been very successful in data centers, locomotives and innovative marine applications.

DR. ULRICH DOHLE

The increasingly demanding climate targets and environmental regulations are now having more and more impact on our products. We see this as a great challenge and opportunity.

We focus increasingly on environmentally friendly solutions that look to the future and are designed to reduce pollutant emissions, in addition to providing low consumption of energy and raw materials. We are currently looking at and testing a variety of innovative propulsion systems, ranging from hybrid propulsion systems to gas engines for mobile applications. We are also working on engines that can operate on fuels generated from renewable sources or on alternative fuels.

The recovery and use of engine waste heat in particular offers the potential for an even more efficient use of the energy input. A great challenge is, to improve the entire propulsion system even further, to reduce 15 to 25% of the energy input.

JAAKKO ESKOLA

One of the greatest challenges is the rapid development of new energy technologies. We know that our fast-reacting gas engine power plants fit many markets perfectly, but maintaining a leading position can never be guaranteed. We have to keep our own R&D operations up to speed. The greatest opportunity, especially now after the COP21 summit in Paris, is clearly the enormous growth in wind and solar energy. To keep the lights on 24/7, grid flexibility is needed to support these variable renewables and we have the best technology for doing that.

In shipping, the transition toward gas is both a challenge and an opportunity. The challenge relates to infrastructure and gas availability issues, while the opportunity comes from the fact that we can offer our customers proven technologies that will support them in complying with emissions reduction legislation. In both of our end markets, customers are beginning to see the benefit of asset optimization by the technology provider, and we are introducing new digital service models to further enhance the lifecycle value of our customers' installations.

DR. CHRISTOPH TEETZ

Emissions legislation is and will continue to stay one of the biggest challenges in our industry. Furthermore, we expect a growing necessity to offer hybrid and natural gas driven solutions to serve the increasing diversity of customer demand.

DGTW: How concerned are you about the political situations in various regions of the world, particularly the refugee situation in Europe, the ongoing Russia-Ukraine conflict and the continuing turmoil in the Middle East?

WILLI MEIXNER

There have certainly been times when the boundary conditions for doing business have been better. However, as our CEO Joe Kaeser has recently put it: "We are not getting paid for panicking, we are paid for looking at opportunities."

RICH FREELAND

Overall, we are in the middle of a challenging business environment. The turmoil in the Middle East is likely to get worst in the short term. Low oil prices combined with political unrest are likely to persist, forcing the migratory waves that we have been observing recently. This could result in additional pressures on the economy of Europe, the closest harbor for the refugee population from the Middle East.

As a global company, we continue to monitor situations and conflict around the world, and do everything we can to support and insure the safety of our employees and customers.

DR. ULRICH DOHLE

We are quite concerned and impacted. But we have to react to such happenings quickly and accordingly. It has been quite challenging in the last view years with a wide variety of crisis popping up.

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"Our strategy is, be close to our customers and to this end we are building yet another joint venture factory in China. The same needs for flexibility apply in our Chinese operations, just as they do globally."

- Jaakko Eskola, Wärtsilä Corp.



JAAKKO ESKOLA

Of course it's always a concern if security is at risk. We operate in all these areas and take safety very seriously. During recent years we have seen that unanticipated changes can emerge very quickly, and we have not seen any indications so far that these changes are likely to move towards a better situation.

Again, agility comes up as a key requirement. We need to be agile in the business environment, while at the same time focusing on keeping the business environment safe, both for our employees and our partners, and supporting the operations of our customers — even in high-risk areas. Unfortunately, it is not getting any easier to predict outcomes or anticipate events.

DR. CHRISTOPH TEETZ

We are absolutely concerned about the current situation, but we have to learn to handle the instable political situation and to work and deal within this difficult environment. Nevertheless, there are also some positive signals like the developments with Iran.

DGTW: If you had a chance to speak to the world's political and economic leadership at a forum such as Davos, what would your message to them be?

WILLI MEIXNER

The perhaps single biggest threats to the global economy are geopolitical tensions at the moment. So it's all about fostering stability — stability in the political realm, but also from an economic or business point of view.

Here's another example: The predictability of legal frame-

works is a key driver for investment decisions. Now think of the current Brexit debate. It is not helpful for investors. But investments bring prosperity and often stability as well.

RICH FREELAND

We must put in place good rules for competition, particularly as it relates to trade and the environment. More trade equals more business connections. The more we do business with one another, the more we understand each other and have less conflict. For environmental regulations, they must be clear and enforceable — and, it's the right thing to do for the health and safety of our planet.

Along these lines, political leadership should always keep in mind that, as much as political debate can be at times influenced by a nationalist rhetoric, companies operate today in a global environment, with responsibilities to multiple stakeholders and contributions from a very diverse workforce. As our company's history shows, diversity — of nationality, ethnicity, religious preference, etc. — fosters creativity and spurs growth, being therefore a political and economic objective to attain, not to fight against.

DR. ULRICH DOHLE

Let's get things done. We have talked a lot on lower emissions, more renewables within the electricity mix and less carbon intensive fuel within the mobile applications. The industry has developed — and still is developing — the right solutions, e.g., gas for mobile, hybrid and diverse low-emissions engines.

Let's lay the groundwork for their successful introduction by convincing that this is the path to proceed. Let's focus on creating a positive investment climate and create a sentiment of trust in global growth.

JAAKKO ESKOLA

It would be very much to ask for the same things that we do in our business life. We ask for stability and predictability. Long-term decisions based on facts, and at the same time to have enough agility to change when surprises emerge. Working together to achieve joint goals usually creates a win-win situation for all parties.

In 2016 we have a unique opportunity to really change the world, and boost production of wind and solar energy more than ever. We are proud to be part of that process. In fact, our power plants not only support, but actually enable, much more wind and solar, by filling the gaps in their output. At the same time, our marine installations support and allow truly sustainable shipping. We don't only want to make business. We also want to make a difference.

DR. CHRISTOPH TEETZ

The political and economic leadership should stand up for a stable political situation worldwide to enable a sustainable economic growth.

"Emissions legislation is and will continue to stay one of the biggest challenges in our industry."

- Dr. Christoph Teetz, CIMAC

