A bumper crop in wind farming will continue in 2009, especially with the recent extension of the energy tax credit by Congress. (Photo courtesy of Vestas.)

CLOGGED SUPPLY CHAIN HAS GEAR COMPANIES IN

"HURRY-UP-AND-WAIT" MODE

Lead Time Remains Crucial, but Steel is Precious

Jack McGuinn, Senior Editor

Never have so few served so many. That, in essence, describes gear makers and the role they play in our world. Think of it—although the gear cutting industry represents much less than one percent of the global workforce—the gears it produces are what make things run in practically every industry and profession imaginable. From bulldozers to Rolexes, gears are an integral part of the mix.

With that—and the scary Wall Street headlines in mind—*Gear Technology* posed some questions to a number of players in the industry to get their take on how things went in 2008 and, where possible, what they see for 2009.

Many of the major issues facing the industry in 2007 remained a factor this year and will continue to do so in the next. Supply chain kinks plague the makers of very large gears for wind turbine, mining and off-road heavy equipment, for example, as demand far outstrips supply. (American Wind Energy Association figures for example show that the U.S. will increase the installed capacity of wind turbines from 17,000 MW in 2007 to 25,000 MW by year's end.) But the high-grade steel necessary to produce them remains a rare commodity indeed. Reports of lead times for wind turbines of up to four years are not uncommon, as players around the world seek ways to secure the precious steel needed to make them for their own countries. In reaction to this and other applications, companies are striving to introduce new manufacturing capabilities and processes to their production lines in hopes of knocking off a chunk of that lead time that has become the difference-maker in gaining a competitive edge. And in the grand tradition of the squeaky wheel getting the grease, the larger gear companies are closer to the front of the line by virtue of their ordering power. As a result, smaller job shops and the like must wait hat-in-hand for their turn.

Concerning alternative energy developments, Congress finally renewed—for the usual one year—the energy tax credit as part of the Wall Street bailout package in October. Had it not been passed, the wind energy industry and attendant investment in ongoing development would have dried up quickly.

And then there's the price of oil and energy. Never-before-seen prices are driving up the cost of most everything needed to run a business, especially in the shipping department. The cost of shipping is now at record highs, causing some gear makers to rethink their selling efforts overseas, especially to China and other Asian markets.

Also troubling is the continued shortage of skilled workers needed to keep those production lines humming. Anecdotally—supply chain issues aside—a number of gear makers are sitting on orders they can't fill because they don't have the experienced personnel to keep up.

And last, there's the Wall Street blow-up and attendant credit crunch in effect as this goes to press. The bailout that emerged from Congress will be key in determining where all this leads us.

And yet, given the following responses, business remains good for the gear industry. It's slowing down some, to be sure—recent reports show U.S. manufacturing down in general—but it is hard to find any gear companies on life support. And of course slowdowns are relative; as one veteran in the machine tool industry recently answered when asked how his business was doing, "Let's just say we're catching up," thus acknowledging a drop-off while alluding to yet-unfilled orders that will take them through the remainder of 2008 and beyond.

Catching up or not, 85 percent of respondents—compared to 88 percent last year—to our annual gear industry survey are "optimistic about their ability to compete over the next five years."

Some other breakouts from the survey (*with previous year's numbers in parentheses*):

- Thirty-eight percent of gear industry respondents work at locations where employment increased in 2008 (55 percent last year).
- Thirty-six percent of

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gear industry respondents expect employment at their location to increase in 2009 (61 percent last year).

- Sixty-six percent saw production volumes increase in 2008 (71 percent last year).
- Fifty-seven percent expect production volume to increase in 2008 (79 percent last year).
- Sixty-five percent saw sales volume increase in 2008 (71 percent last year).
- Fifty-six percent expect sales volume to increase in 2009 (75 percent last year).
- Forty-two percent work at locations where capital spending increased in 2008 (48 percent last year).
- Thirty-three percent expect capital spending at their locations to increase in 2009 (44 percent last year).

As for other issues affecting the industry, material cost, the economy, finding skilled labor, energy costs and foreign competition headed the list of concerns.

(*Ed.'s note: For more specifics, turn to our annual gear survey results beginning on page 34.*)

With those numbers in mind, let's get to our experts for their take on things, relative to how their own companies are doing. Only gear cutters (excepting one plastic gear molder) were approached for this article, thus providing some insights from those on the very front lines of the gear industry. Following are excerpts from their responses to a series of questions.

"If the news media would stop trying to scare the hell out of everybody, 2009 should be as good as 2008 for us here at Arrow Gear." —Joe Arvin

Forest City Gear's Fred Young says 2008 is "on track to be about 10 percent ahead of 2007 in sales. As for 2009, "While I see the overall economy slowing in 2009, I believe those of us nimble enough and not afraid to reinvest will be able to continue to secure new business. And regarding sales to China: "We are continuing to sell a modest amount in China, though I suspect their rate of growth will slow along with the world economy. In fact, we see some items returning from overseas sourcing due to an inability to deliver quality product on time. Unfortunately, overseas pricing has in some cases been wildly optimistic to try to gain market share. The Europeans spend a lot of money tooling up for jobs delaying payback by burying start-up costs. This has led to some unrealistic price expectations when the buyer seeks to resource in the U.S."

At **Schafer Gear**, company president **Bipin Doshi** says "2008 is a good year and we expect 5 percent or more growth in revenue. Unless the present economic news has a significant negative effect on the economy, we are expecting 10-plus percent growth in 2009 and an additional 20 percent growth in 2010."

Circle Gear's Michael McKernin says 2008 was—in a word—"Great."

Karl Seitz, vice president of **Seitz Gear Corp**., says "Our domestic sales are about 10 percent above budget and our bookings of new future business are 18 percent above budget. China has some new and exciting programs that will take off in early 2009." As for '09, "We see about a 10 to 15 percent growth in sales domestically and our new programs in our Seitz facility in China will make for a promising year in 2009."

Arrow Gear's Joe Arvin points out that "First off, 2008 is not over; however, my prediction is that 2008 will be our best year since 2001. We have the largest backlog in the history of the company. He adds, "If the news media would stop trying to scare the hell out of everybody, 2009 should be as good as 2008 for us here at Arrow Gear."

Milwaukee Gear's president, **Rick Fullington**, says 2008 was "a good year with both shipments and hours produced up 7 percent. At the same time, quoting levels have been strong. Prior to the (Wall Street) events of the last week, we felt that (business) would be level with our 2008 activity."

With their work in wind turbine gears, **Cam Drecoll** of **Brad Foote** (now a subsidiary of Broadwind Energy, Inc.) is optimistic as well. "Brad Foote continues to grow well above industry levels and has for the second year in a row. 2009 will be another record year for the company."

And speaking of records, **HMC**—another maker of outsize gears—just

A Koepfer MZ 130 is just one of the new machinery additions at Forest City Gear. (Courtesy Forest City Gear.)

enjoyed another one, says sales manager **John Schnarr**. "HMC has recorded another record year for both sales and shipments in 2008, with the final quarter yet to come." As for 2009, "We expect to see a continued demand in several markets that we consider key to our success. Beginning in 2006, our president and CEO, Robert J. Smith III, committed to investing heavily in new plant expansion and machine tool technology. By the end of 2008, our Phase I plan will be providing HMC dramatically increased capacity and capability to better serve our current customer base and expand our market horizons. We look forward to 2009 and the increased opportunities it holds for our company."

Ron Wright, corporate sales engineering manager for **Gear Motions** (**Nixon/Oliver Gear**), says "We are seeing about a five to 10 percent increase in sales."

Lastly, **Frank Romans** at **Chicago** (**now Overton Chicago** [see Industry News]) **Gear**, says "All reports and interaction we see is that 2008 was a booming year for the gear market. In one word, energy—i.e., oil, gas mining and (wind) sources."

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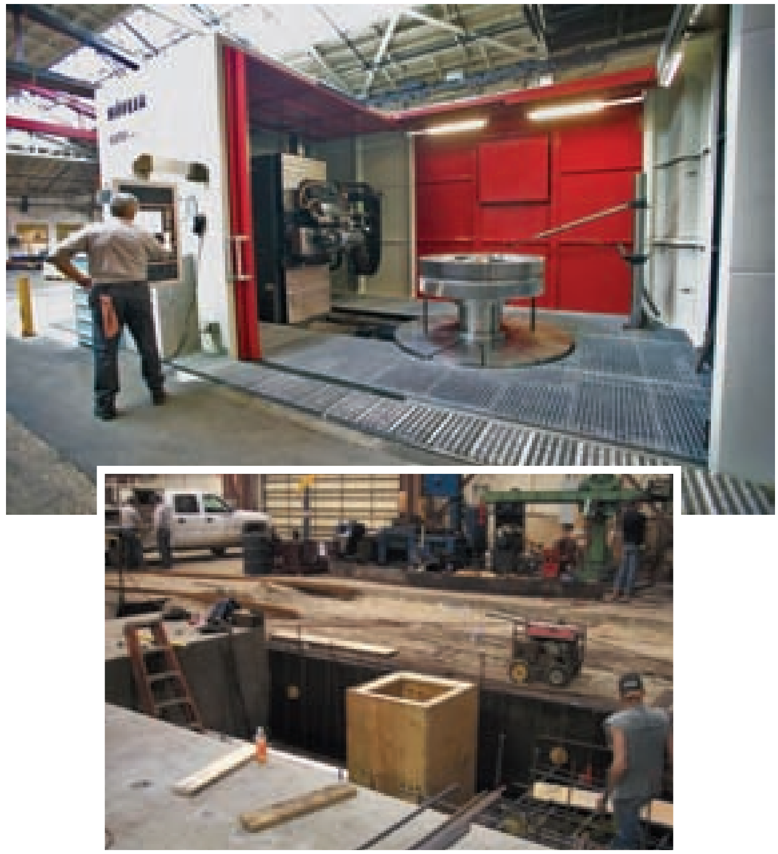

(Top photo) Big gears and those who make them will continue to be a mainstay in 2009. (Courtesy Brad Foote Gear Works.) (Bottom photo) HMC personnel preparing the way for the Hofler 600 form grinder, the world's largest gear grinder. (Courtesy HMC.)

Gear Technology then asked these gentlemen what they perceived as the most significant development in the gear industry in 2008.

For FCG's Young, it's in the wind. "The most significant development is the realization that wind energy is a real thing for at least five to 10 years and deserving of investment. Those late to jump on the bandwagon are finding a lengthy time to acquire gear equipment. This has caused some to buy their way into the industry. As an adjunct, some folks are also cognizant that growth opportunities are more prevalent in higher-quality applications and that one has to have the equipment on the floor and operating to take advantage of work that comes knocking." Young also mentions FCG's recent acquisition of ISO 13485 certification for medical device manufacturing as a significant development.

For Schafer Gear's Doshi, it was "significant buyouts by investment companies of several gear manufacturers and a focus on wind energy markets."

Karl Seitz cited "more efficiency and the latest technology in inspecting plastic gears."

At Arrow Gear, "There are three things," says Arvin. "One, we stopped taking LTA's (long-term agreements) with year-over-year price reductions. We had given our largest customer a 49 percent price reduction over the past 10 years, due to their LTA which required (price deductions). Second, we raised our prices for the first time in 10 years. Third, we have more business (backlog) than we produce."

For Fullington, "It tended to be the opportunity—both directly and indirectly—associated with anything energy related. The weak dollar certainly helped and more international gear companies looked for investments in the U.S."

Brad Foote's Drecoll believes that "The changes in the gear industry continue to be more evolutionary. Tooth grinding technology continues to get better; non-destructive testing continues to evolve, allowing for better detection of flaws. The level of required quality continues to be pushed upwards. Anyone can now do a single gear to the old AGMA 15, but the challenge is to compete in serial production at DIN 3."

And echoing Young, HMC's Schnarr says "The emergence of wind energy as a viable alternative, and the increased demand it has placed upon manufacturers, has had a dramatic

continued

effect on changing the complexion of the entire gear industry."

"For our company," says Overton's Romans, it was "the consolidation of gear companies by either larger companies or investment companies. No doubt the wind energy market has been the key to the increased value of gear companies.

We then asked if they foresee what the "next big thing" will be in 2009.

"Energy of all kinds," says McKernin.

"The biggest issues for 2009 are the world economy and the price of natural gas and oil," says Romans.

"Business will continue to slow," says Young, "in some areas, especially related to home building and automotive, but opportunities will be available even in those areas where people are trying to develop more fuel-efficient cars requiring higher-quality gears that come in smaller, more compact, high-power density. Make that gear ground rather than shaved, for instance. This trend will continue in other industries where people understand we have to become more efficient at producing higher-quality products.

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For Doshi, the trend will be "continued focus on energy- and commodity-related markets.

Says Fullington, "The U.S. credit crisis and its global impact will be the story in 2009.

And Drecoll—"Look for robotic Barkhausen effect to move into the marketplace on a more widespread basis.

Schnarr says HMC "will continue to see strong demand from all markets related to energy. That includes the old standard sources of oil, gas and coal, as well as developing wind and nuclear generation." In addition, "Increased development of emerging nations will continue to increase demand for energy resources and raw materials. The building of their commercial infrastructures will pace the increased demand for minerals (coal, copper, iron and aluminum) and affect requirements at both ends of the spectrum, from mining to processing."

As for Arvin, he's taking the practical view: "I will be able to tell you this time next year."

And last, given the good year the industry enjoyed in '08, we asked who was investing in new machinery.

"On $10,000,000 sales in '07 we have added about $6,000,000 worth of new gear toys in the past one-and-ahalf-years, which we are in the process of digesting," says Young. "We have integrated a new-technology chamfering machine in our deburring area. We've also added a new, more compact, vertical generating grinder (with form grinding ability as well), which will operate off our (new) centralized filtration and chiller system, allowing us to recapture some more valuable (shop floor) real estate. Also due in is a replacement for our Swiss hobbing machine, which features very high speed for gears and threads." Young also mentions the possible addition of a video inspection system "for burrs in very obscure locations on parts. My bankers willing, I have a yen to acquire some more gear grinding equipment (in 2009) and possibly upgrading some of our older gear hobbers."

Schnarr says new machinery acquisitions and a new facility were a big part of HMC's 2008. "In 2008, we moved into a new, high-bay (11,250 sq. ft.) welding and fabrication building (if you build it, big-gear customers will follow), and added several new machine tools: Höfler 6000 form grinder; Höfler Rapid 6000 form grinder; and a Hankook-VTC-3040Y vertical turning center."

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As for Brad Foote, "BFGW announced earlier this year the addition of 14 Höfler grinders and hobber/gashers for installation in 2008," says Drecoll. "Brad Foote will have 18 large carburizing furnaces running by year's end. 2009 will bring further growth to support our customer needs."

And at Seitz Gear, "We have added a new 300-ton electric machine," says Seitz, "with more to follow in '09. We also plan to increase our capabilities in inspecting our gearing and component parts."

Back at Gear Motions, Wright says "We have bought new equipment this year and will likely buy more next year."

At Milwaukee Gear, says Fullington, "We'll include a form grinder and gear checker," among other equipment."

Circle Gear is taking a wait-and-see approach regarding capital investment for 2008 and beyond, for more than one reason. "Cost is the main factor why we are not buying new equipment, and a lack of market consistency," says McKernin. "New equipment requires years (in payment), and none of our customers are placing orders out past six months. It's hard to commit to a multiyear payment schedule without a long-term commitment from a client."

And "Yes," says Arvin, "we have

continued

added gear grinding and gear cutting equipment in ’08 and will be adding more gear cutting equipment in ’09.”

So there you have it—an unscientific look at some success stories in 2008 to help round out the state of the gear industry in a manner that goes beyond the hard numbers. All in all, a very good year is almost in the books, with seemingly more to come in 2009.

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