

## New Tech Helps Handle Uncertainties

By Dan Holder

America's oil and natural gas producers are enjoying a solid market future for at least the next two decades, with the U.S. Energy Information Agency continuing to forecast fossil fuels will supply more than three-quarters of the world's energy consumption through 2040.

The EIA's *International Energy Outlook* for 2017 predicts natural gas will remain the fastest-growing fossil fuel, with consumption increasing by 1.4 percent each year for at least the next 22 years. The agency sees crude oil production climbing through 2025, and then leveling as tight oil development shifts to less-productive areas.

Innovations such as long-lateral horizontal drilling and multistage hydraulic fracturing are responsible for the resurgence in domestic oil and gas production, but the industry is counting on a new generation of technology advances to satisfy future energy needs. New production equipment, services and procedures are engineered to help operators mitigate the impacts of production declines in shale wells, handle changing oil chemistries in producing wells, boost production with fiberglass sucker rods, and improve efficiencies in electric submersible pumping operations.

### Wet Gas Production

The oil and gas industry also is seeing the benefits of advances in a range of other technologies.

According to Sven Olson, senior consultant and former chief executive officer of Leistritz Advanced Technologies Corp., current and future regulatory environments

often require technological solutions. He cites multiphase pumping systems mitigating the impacts of venting and flaring regulations as one example.

"The more you can commingle production and move production away from the producing field to a central facility, the more you move away from the issue of venting and flaring," he says.

Looking forward, Olson suggests that as operators develop horizontal stacked pays, they are eventually likely to embrace multilateral architectures. One challenge for multilaterals is the varying pressures encountered when drilling into different zones, where high-pressure legs can disrupt production from lower-pressure zones. Olson says that multiphase pumps

decrease the wellbore pressure, eliminating those multilateral challenges.

Global market conditions, including rising demand for liquefied natural gas cargoes, hold the potential to support increased U.S. natural gas production, and Olson asserts that multiphase pumps are poised to play a key role in developing the wet gas plays that will help meet those energy needs.

He points out that liquids in the wellbore, such as water, propane or butane, could block production if casing pressure fell below export flowline pressure. "Freeing wellbores from liquid is a big thing, and it's drawing more interest," Olson notes, adding one key target market for this technology is the Permian Basin.



The multiphase blow down unit from Leistritz is a portable, self-contained system for removing liquids and gases from the wellbore while increasing well pressure. Connected to the well's export line, the unit draws down the well's back pressure to increase production stream velocity.

# Cutting-Edge Tech Trends



An operator's typical response is to flow the liquids into a portable tank and vent the well to atmosphere until the gas can again move up the production casing. In addition to the environmental consequences of releasing volatile organic compounds, Olson says operators incur costs when moving the liquids off site. Other industry solutions, including soap sticks, plunger lifts, pumpjacks or ESPs, have their own disadvantages, he adds.

Leistritz now offers a multiphase blow down unit, which Olson describes as a portable, self-contained system that removes liquids and gases from the wellbore while increasing well pressure, allowing both gas and liquids to flow into production

pipelines. After connecting the unit to the well's export line, it begins to draw down the well's back pressure, increasing the production stream velocity and drawing gas from the bottom of the well. Olson says the gas drags liquids with it, restoring the well.

"Instead of having a gas well shut in because it could not overcome the static liquid pressure, you remove the liquids from the wellbore and get the gas flowing again," he says. "In applications in Colorado, portable multiphase pump units have been installed near a well, fueled by a natural gas engine. That got several waterlogged gas wells back in production."

The company also is expanding mul-

tiphase pumps into roles now assigned to compressors, Olson reveals.

"Technological and system developments now allow multiphase pumps to handle full gas flows and liquid flux, which is something compressors are not happy with," he says. "There are instances where a compressor with an upstream scrubber will be full of liquids. That interrupts the gas flow because the compressor has to blow the liquid with the blow case. An operator could use a multiphase pump hooked to the scrubber and remove whatever gases or liquids are in the scrubber, bypass the compressor, and commingle everything downstream. That allows the compressor to do its job all the time." □