ACORN ENERGY, INC.
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE 14A

(RULE 14a-101)

Proxy Statement Pursuant to Section 14(a) of the Securities

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ACORN ENERGY, INC.

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Dear Friends and Fellow Shareholders:

Please consider joining us at our annual shareholder meeting at noon on September 23, 2014 at the Westin Hotel on the Riverfront in Wilmington, DE (818 Shipyard Drive). Please RSVP by responding to this e-mail.

I have enclosed an article from the August 2014 McKinsey Quarterly "Digitizing Oil & Gas Production". The article concludes "There is a clear competitive imperative for increasing automation in oil and gas production. Companies that successfully implement big data and analytics, sensors and other new technologies will be well positioned to meet their industry's challenges."

Each of our businesses in seeking to help the energy industry by providing digital energy solutions.

Thank you for believing in us and our mission. I hope to see you on the 23rd.

John

John Moore

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The rapid progress of technology such as big data and analytics, sensors, and control sys- tems offers oil and gas companies the chance to automate high-cost, dangerous, or errorprone tasks. Most oil and gas operators are starting to capture these opportunities and would do well to accelerate their efforts. Companies that successfully employ automation can significantly improve their bottom line. While automation offers many potential benefits in the upstream value chain of exploration, development, and production, some of the biggest opportunities are in production operations, such as reducing unplanned downtime (Exhibit 1). Given the oil and gas industry's substantial increases in upstream capital investment, optimizing production efficiency1 is essential. Automation creates several opportunities to that end: maximizing asset and well integrity (by which we mean optimizing production without compromising health, safety, and the environment), increasing field recovery,2 and improving oil throughput.3 With the substantial production volumes offshore production platforms, even small improvements in production efficiency will have meaningful financial impact, as additional throughput translates directly into more revenue. In the low-volume regimes of current unconventional mature assets—oil sands, example—carefully targeted automation steps can cut costs and, more important, can also improve the reliability of production equipment, leading to higher revenues that can extend an asset's economic life. Industry challenges Our benchmarking analysis of North Sea offshore platforms illustrates the efficiency challenge that many oil and gas companies face. Research shows that average production efficiency dropped in the past decade, while the performance gap between industry leaders and other companies widened, from 22 percentage points in 2000 to around 40 percentage points in 2012. Automation is an important answer to the industry's upstream challenges. Stefano Martinotti, Jim Nolten, and Jens Arne Steinsbø 1 Production efficiency is the ratio of actual production over the maximum production potential. 2 Field recovery is the amount of oil extracted as a ratio of original quantity contained in the oil bed. 3 Oil throughput is the amount of oil output from the asset in a given time period. B u s i n e s s T e c h n o l o g y O f f i c e Digitizing oil and gas production

Benchmarking data also illustrate the broad opportunity for improvement. Best-in-class players do not incur higher costs to improve production efficiency, and high performance is not linked to a specific asset type or the maturity of assets. Instead, companies with high production efficiency are often similar in their quality of operations, approach to eliminating equipment defects, equipment choices, and planning and execution of shutdowns. While our benchmarking focuses on North Sea offshore platforms, we expect to see similar patterns in other regions. Regardless of location, most oil and gas companies also face issues that complicate efforts to achieve sustained productionefficiency improvements. We believe further automation can play a major role in addressing the following industry-wide challenges. More complex operations. Increasing volume and complexity in hostile, remote locations (for example, arctic, offshore, and deepwater) require reliable remote and automated or semiautomated operations, and logistics optimized for efficiency. Mature assets with declining production need very efficient maintenance schedules to keep production profitable. Zero tolerance for health, safety, and environmental incidents. This is a nonnegotiable imperative. Recent industry experience has shown that in the current highly regulated environment, such incidents can threaten not only profitability but also the very existence of an operator. Automated production control, monitoring the condition of the equipment, and predictive shutdown systems are now basic requirements to prevent or mitigate catastrophic events in geographically dispersed remote operations. The talent and experience gap. The industry is in the most dramatic demographic shift in its history, commonly referred to as “the big crew change.” Thousands of petrotechnical professionals will be retiring soon, resulting in a knowledge and experience crisis for the industry. Retention and recruitment are unlikely to fill the gap completely. This development drives efforts to codify many routine analysis and decision-support processes and, where possible, to automate them. The automation imperative Automation is not without its own challenges. Today’s intelligent oil field is flush with digitally enabled wired systems, equipment, and components. A typical offshore production platform can have more than 40,000 data tags, not all connected or used. Converting this complex flood of data into better business and operating decisions requires new, carefully designed capabilities for data manipulation, analysis, and presentation, as well as tools to support decision making. The impact of addressing these automation challenges can be material. Judging by our benchmarking research, improving production efficiency by ten percentage points can yield up to $220 million to $260 million bottom-line impact on a single brownfield asset. For declining assets, automation could extend field life in an economically viable way. The potential could be even more significant for greenfield assets, where required instrumentation can be included Takeaways New opportunities for automation in the oil and gas industry are being made available by technologies such as big data and analytics, sensors, and control systems. By harnessing these technologies and applying them to support realtime decisions and actions, companies can improve the productivity of their assets and help prevent health, safety, and environmental incidents. To successfully implement automation, oil and gas companies should build multidisciplinary teams and differentiate their automation efforts for greenfield and brownfield assets.

from the start as part of the design. However, operators and drilling contractors are not the only players looking for a share of the production-efficiency gains in oil and gas. (See sidebar, "Automation is changing the competitive landscape.") We expect industry leaders to increasingly adopt automation in upstream production operations, leading to improved efficiency. As a result, the performance gap with industry laggards could widen further. To illustrate how oil and gas companies can unlock the value of automation, we analyzed production maintenance, where the opportunity is particularly attractive. Applying automation to maintenance There are many ways in which automating maintenance can improve production efficiency. For example, radio-frequencyidentification tagging of equipment, along with the use of other sensors, can help track The highest-impact automation opportunities in upstream lie in production operations. Source: Expert interviews; McKinsey analysis Upstream Exploration Development Production Medium-impact opportunity High-impact opportunity Analysis and modeling Seismic analysis Drilling (eg, resource dispatching, well planning, field-development planning) Production optimization (eg, production-flow analytics) Reservoir modeling (eg, real-time feedback to optimize production) Drilling and wells Process-control automation (eg, automation of continuous processes) Business operations Reliability and preventive maintenance (eg, equipment-condition Maintenance monitoring, maintenance-operations planning) Supply chain (eg, planning analytics, automating process steps in day-to-day operations) Supply chain Capital productivity (eg, planning execution, documentation of work-flow automation) Capital productivity Exhibit 1 activity. Tracking, in turn, enables applications that can monitor the condition of equipment and support predictive maintenance and automated operations shutdowns. These applications minimize risk of catastrophic failures and process disruptions, while maximizing equipment reliability and production efficiency. But unlocking the value of automation in maintenance isn't only about having lots of data. Some companies struggle to maintain data quality across their IT networks. Others are not good enough at aggregating data and conducting meaningful analyses. Yet others experience challenges in turning analysis into action. That's why many oil and gas operators need to identify the information shortfalls or leakages that occur when capturing data from processes, systems, and data stores and move them to where operational and business decisions are made (Exhibit 2). Having identified the leakages, they must then address them by improving the automation of their data flows. Automation is changing the competitive landscape To capture the value that automation can bring to oil and gas production, operators and drilling contractors must move fast, because well-positioned equipment manufacturers are also seeking to win a substantial piece of the value at stake. These providers are increasingly making the shift to combining equipment manufacturing with service provisioning. This is made possible by integrating condition- and performancemonitoring technology in their equipment and combining this with a service offering based on big data processing and advanced analytics capabilities. Examples can be observed for equipment in different parts of the production system, including topside, subsea, and down-hole operations. A benefit for equipment manufacturers is that revenue increasingly moves from lumpy equipment sales to more annuity-like services streams. Similar transitions have occurred in other industries, such as aircraft manufacturing. Here, engine manufacturers no longer just sell the engines and spare parts but also offer service contracts that fix the maintenance costs for flight operators. Predictive modeling of engine performance helps create value for customers by reducing downtime and thus improving asset productivity. It also allows the engine manufacturer to better understand customer needs and capture more value from the services provided. Potential drawbacks for operators are that these capabilities are difficult for others to replicate, thus limiting competitiveness in this field of work. For asset owners in the oil and gas industry, it is important to stay ahead of such developments. If they don't, they risk becoming too dependent on technology provided by equipment manufacturers, which might make it difficult to get an integrated view of how all their assets are automated and interconnected. Additionally, they face the risk that improved asset productivity, the single biggest value lever of automation, would be pocketed to a large extent by the equipment providers.

Many forms of leakage impair automation in maintenance. One example is having only isolated data availability from individual equipment components, as opposed to more network-based availability. Another is having only equipment-level profiles of components at risk, as opposed to comprehensive coverage at the asset level. A third example is to only catalog critical equipment failures rather than conduct extensive root-cause analysis of them. Automated support of real-time decisions and actions to reduce planned and unplanned downtime require the following elements. Data capture. This involves automated hardware sensors and manual data capture by engineers. Both should be deployed based on a detailed analysis of use cases, which a method for gathering the functional requirements of applications.4 Hardware sensors should help ensure sufficient coverage of data, as well as provide redundancy (that is, data backups) for high-value measurements of equipment-performance data. High-precision hardware sensors are usually more costly than low-precision sensors and should be used only in critical cases. Manual data capture is useful when parts of assets are not yet equipped to monitor and measure performance or for For more information use cases, see Michael Huskins, James Kaplan, and Krish Krishnakanthan, nhancing the efficiency and effectiveness of application development," McKinsey on Business Technology, August 2013, mckinsey.com. McKinsey On Business Technology 2014 — Oil and Gas Automation Exhibit 2 of 2 Limiting data leakages can improve operational and business decisions. Funnel elements Information-leakage Data capture Infrastructure Data management Analytics Visualization People and skills Data integrity not maintained Data not streamed/stored Data not accessible Data not analyzed Data not communicated Data not used in decision Operational and business decisions Processes and systems Exhibit 2 inspections and failure analysis. Using regulatory-certified handheld electronic devices for manual data capture improves data accuracy, consistency, and availability. Data infrastructure and data management. Data infrastructure—ranging from transactional data in relational (such as enterprise-resource-planning) databases to data in Apache Hadoop or similar big data analytics platforms—should allow companies to couple data from disparate sources of equipment and manual capture to aid decision-support analytics. Streaming of real-time data in situations requiring immediate data availability also needs infrastructure support. Technology choices should be made on an individual basis by evaluating the data flow and asking several questions: Is the volume of data high? Is it real time or batch? Are the data unstructured or structured? For example, for unstructured data processing, a solution like Apache Hadoop is more relevant than traditional relational databases. Data analytics. Industry leaders are using analytical models to predict failures of critical equipment components. The next level of sophistication includes connecting all the parts of the end-to-end production value chain to optimize the balance between production and downstream stages, for example, by adapting upstream production levels to account for expected future demand shifts in downstream retail. It also includes using simulations to test failure scenarios in platform operations and employing text mining for analysis of unstructured input from engineers and operators. Data visualization and staff training. Software applications are needed that present data and insights in a way that is closely tied to priority operational and business decisions. One example is knowledge systems that suggest actions to maintenance engineers who take into account previous repair approaches as well as the specific history of the asset. Managers and staff must have adequate training to collaborate and work with these applications.

Success factors for automating oil and gas production In our experience, companies that have successfully pursued automation programs for production efficiency have employed several effective approaches. Building multidisciplinary teams Successful automation programs have staff with backgrounds ranging from process automation, process-domain expertise (for example, in maintenance), data management, and cybersecurity to interface design. These multidisciplinary teams include representatives from every aspect of the organization's IT function. Sometimes the teams also include equipment vendors. Differentiating greenfield and brownfield automation In greenfield automation programs, the digital processes are built in during project development to ready the technology for future advances, taking into account the five- to seven-year life cycle of these projects. For brownfield programs, companies develop overlays (for example, upgrades of wireless and mobile) that pull the required data flow out of the platform to support analytics units. This approach helps to avoid being locked in by technology choices from the past. Some companies use a library of reusable software components to achieve economies of scale across offshore platforms. In our experience, this library approach is preferred to mandating a single, centrally developed overlay across platforms. Thinking big, piloting small, scaling fast Companies with successful programs think in terms of total life-cycle costs and economics. They build a digitization team and make automation part of a corporate digitization program. Their automation programs are integrated with all aspects of their complex organizations, work processes, and human behaviors. Industry experience and prudent risk management dictate that this level of complexity be thoroughly tested and proved in small-scale pilot implementations. Once the concept is proved, rapid scaling is needed to secure the payoff. Such a scale-up requires tools and capabilities in technology-enabled transformation, change, and risk management. . . . There is a clear competitive imperative for increasing automation in oil and gas production. Companies that successfully implement big data and analytics, sensors, and other new technologies will be well positioned to meet their industry's challenges. • The authors wish to thank Enrico Benni, Stuart Morstead, Don Painter, and Tor Jakob Ramsøy for their contributions to this article. Stefano Martinotti is a principal in McKinsey's Abu Dhabi office, Jim Nolten is an associate principal in the Amsterdam office, and Jens Arne Steinsbø is an associate principal in the Oslo office.