

# SUSTAINABILITY

## RISING TO THE CHALLENGE ▲

*Apache*

# RISING TO THE CHALLENGE SUSTAINABLY ▲

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To successfully contribute to a sustainable future, Apache believes it is essential to deliver profitable, long-term growth while conducting operations in a safe and environmentally sound manner.

At Apache, our mission is not just to be profitable, but to do so in a way that protects and enhances the safety and health of our employees, our communities and the environment. We manage our business to deliver environmental, social and financial returns that benefit our shareholders and other stakeholders.

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## OUR MISSION

To grow in an innovative, safe, environmentally responsible and profitable manner for the long-term benefit of our shareholders.

## OUR CORE VALUES

- ▶ Expect top performance and innovation
- ▶ Seek relentless improvement in all facets
- ▶ Drive to succeed with a sense of urgency
- ▶ Safety is not negotiable and will not be compromised
- ▶ Invest in our greatest asset: our people
- ▶ Foster a contrarian spirit
- ▶ Treat our stakeholders with respect and dignity
- ▶ We derive benefit from the Earth and take our environmental responsibility seriously
- ▶ Conduct our business with honesty and integrity

## OUR VISION

To be the premier exploration and production company with global assets focused on North American growth.





**56%**

of Apache's total water withdrawals were recycled or reused in 2016

**55%**

decrease in volume of toxic chemicals used in hydraulically fractured wells from 2015 to 2016

**12%**

decrease in methane leak/loss rate from 2015 to 2016

**32%**

decrease in total recordable safety incidents for employees and contractors from 2015 to 2016

**27%**

decrease in days away, restricted or transferred rate for employees and contractors from 2015 to 2016

**97%**

of employees are local nationals companywide

**10,000**

girls educated in Apache-funded schools in Egypt, most of whom would otherwise not have had access to education



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## 2017 SUSTAINABILITY REPORT

Welcome to Apache's 2017 sustainability report. To view the report online, please visit the Apache website at [www.apachecorp.com/sustainability](http://www.apachecorp.com/sustainability).

## APACHE WEBSITE

[www.apachecorp.com](http://www.apachecorp.com)

## MEDIA OR OTHER STAKEHOLDER INQUIRIES

Members of the media and other external stakeholders are welcome to contact Apache's Public Affairs office with inquiries or for information about the company. These requests may be directed to [media@apachecorp.com](mailto:media@apachecorp.com).

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**JOHN J. CHRISTMANN IV**  
*Chief Executive Officer and President*

## LETTER FROM THE CEO ▲

There's no denying that the past two years have been challenging ones as the oil and gas industry has faced a significant and sustained drop in commodity prices. However, Apache has risen to the challenge – reducing costs, improving efficiencies and realizing organic growth opportunities – to position our company for long-term success.

At Apache, we believe that our success depends on delivering environmental, social and financial returns – because that is how the company will deliver long-term returns, growth and lasting benefits for shareholders and other stakeholders. That is why, despite the challenges we may face in the oil and gas industry, Apache's commitment to sustainability will not waver. While we have aggressively aligned our costs with the new oil price environment, we have maintained our commitment to environmental, social and governance (ESG) matters. These commitments are part of Apache's Core Values that drive who we are and what we do every day.



“At Apache, we believe that our success depends on delivering environmental, social and financial returns.”

### **RAISING THE BAR IN ALPINE HIGH**

Perhaps our greatest achievement of 2016 was discovering Alpine High, an immense oil and gas resource play in West Texas that we believe will deliver significant value for many years to come. We believe our approach to developing Alpine High is setting a new standard for responsible oil and gas development. We've undertaken extensive assessments of the area, identifying risks and opportunities to ensure that we are developing Alpine High to maximize positive benefits to the community while minimizing any potential negative impacts. Based on these evaluations, we are developing rigorous plans and policies for our operations that protect the unique attributes of the area by incorporating best practices and lessons learned from other developments across the country, as well as participating in cutting-edge academic research.

As in all of our operating areas, we take the concerns of our neighbors and stakeholders in Alpine High very seriously. For example, astronomers at the nearby McDonald Observatory were concerned about the potential impact of light from oil fields on the famously dark skies of West Texas. We worked with observatory staff to develop and implement modifications to the lights and fixtures within our operations, mitigating light pollution. These efforts have also reduced glare and increased safety on our rigs. Observatory staff educated Apache employees on key dark skies issues and ways to minimize lighting impacts. Our employees are now passing this information on to our contractors in the region. Moving forward, we will continue to work with the observatory to ensure that all lights and fixtures we purchase are dark skies compliant, while reviewing our practices to ensure we remain a valued partner in maintaining the area's dark skies for research and recreation.

We are also taking a wide range of proactive steps to protect the unique area around Balmorhea, including the city, state park and lake as well as the spring systems, which are a unique natural treasure in the region. For example, we have voluntarily excluded Balmorhea State Park and the city of Balmorhea from development activity; we are partnering with regional universities to monitor water quality and assess the underground spring systems to ensure our operations do not impact them; and we are developing an extensive recycling program for produced water and using other freshwater alternatives.

#### OUR CORE VALUES IN ACTION

Despite a financially challenging year, we sharpened our focus on delivering on our Core Values across all areas of our business, including our commitments to the environment, our local communities and our employees. Some examples of our Core Values in action in 2016 that I am most proud of include the following:

**Conducting business with honor and integrity:** We continue to strengthen our governance and compensation practices to support our culture of integrity, accountability and transparency. Key improvements in 2016 include revising and expanding our Code of Business Conduct and Ethics; expanding and improving the Apache Hotline, where any person may report, anonymously if they choose, suspected violations of law or Apache policies; and expanding and improving the health, safety and environment goals linked to executive compensation by tying them to the top-quartile, three-year average performance of our industry peers.

**Taking our environmental responsibility seriously:** We have continued to advance our performance in our core environmental focus areas: greenhouse gas emissions and water. We have made progress toward our goal to reduce methane emissions intensity to 0.36 percent of production or less by 2025; we reduced our methane emissions intensity by 12 percent in 2016 from 2015 alone and by 43 percent since 2012. We also continued our efforts to use alternatives to fresh water in our operations; in 2016, 56 percent of our water withdrawals were recycled or reused.

**Never compromising safety:** We continue to see strong improvements in the two primary safety measurements we report to the U.S. government. Incident rates dropped for both employees and contractor workers, thanks in large part to our culture of personal responsibility and to the robust worker training programs we have put in place.

**Treating our stakeholders with respect:** Wherever we operate, we work hard to minimize our impacts on the community and maximize the benefits we bring. To ensure we understand community concerns, we are continually improving our ability to learn about stakeholder concerns – and we're serious about addressing them. This past year, we set up a separate toll-free hotline, which we call the Apache Good Neighbor Line, specifically for community grievances. As part of that tool, we enhanced our grievance tracking system so we can catalog and follow any complaint to resolution. Any inquiry we receive gets a thorough investigation, and our goal is always to provide a timely response.

#### 2016 WORKFORCE SAFETY PERFORMANCE (SINCE 2012)

↓ 54%

workforce<sup>1</sup> total recordable incident rate

↓ 55%

workforce<sup>1</sup> days away, restricted or transferred rate

↓ 27%

Apache employee's vehicle incident rate

<sup>1</sup>Workforce includes employees and contractors

#### OUR GOAL (BY 2025)

0.36% OR LESS

methane emissions as a percentage of total methane production

#### OUR PROGRESS

↓ 43%

decrease in methane emissions intensity since 2012

97%

of employees  
are local nationals  
companywide

29%

of spending was on  
local vendors in 2016

**Investing in our people:** Apache's employees are our greatest asset. They challenge themselves at every turn amidst market fluctuations to do the right thing for our business, for the environment and for our communities. We have continued to support them throughout the challenging industry environment, and they have risen to the challenge, making 2016 an exceptional year for Apache and another step forward in the positive transformation of the company.

Investing in our people also means investing in the communities where we operate. One way we do this is by hiring locally and using local suppliers in all our communities. In 2016, we increased our local-national hiring rate to approximately 97 percent companywide and increased our percentage of local vendor spending to 29 percent, up from 25 percent in 2015. We also follow a "give where we live" approach to corporate philanthropy. Take for example the schools for girls that we have been building and supporting in Egypt for more than a decade. Since 2004, Apache has supported the construction of 201 schools in Egypt where more than 10,000 girls have learned to read and write, with many going on to pursue higher degrees. Most of the girls who attend these schools would otherwise not have an opportunity to receive an education.

These are just a few of the examples of how we as a company have brought our Core Values to life and achieved real improvement in our environmental, social and governance performance. The rest of this report illustrates the breadth and depth of our approach to and progress on key ESG issues. We are excited to share our performance with you and welcome your feedback as part of our relentless efforts for continuous improvement.



**John J. Christmann IV**  
Chief Executive Officer and President



#### **JOHN CHRISTMANN ON RESPONDING TO HURRICANE HARVEY**

Just weeks before we finalized this sustainability report, Hurricane Harvey hit Southeast Texas, causing massive destruction and flooding across the coast, Houston and surrounding areas. The damage is immense, but so is the resilience, strength and heart of the people of this region. We're still assessing the long-term impacts for our hometown, our employees and neighbors, and our industry. Among the millions of locals who were affected by the storm, we know that more than 100 Apache employees have flooded homes and/or were evacuated from their homes. By next year's report, we will be able to say much more about the impacts of Harvey and Apache's efforts to help with the region's recovery and rebuilding. But already Apache's people are jumping in to help each other and our community.



Within days after the storm, for example, teams of Apache volunteers had formed and were out helping Apache employees and others in the community to recover personal belongings from flooded homes and begin cleanup and repair activities.

Through the Apache Employee Relief Fund, which is funded by employee contributions and corporate matching donations, we are helping employees whose homes were flooded or damaged by Harvey with immediate emergency financial needs. We have also implemented two Apache-sponsored programs that will provide financial assistance to those most in need as a result of Hurricane Harvey: (1) a \$500,000 grant program for Apache employees whose homes have been flooded or damaged, to provide immediate financial support for rebuilding, temporary housing and other unexpected expenses; and (2) a low-interest loan program allowing employees to borrow up to half of their annual incentive compensation to help cover recovery expenses. We are also committed to supporting our community. So far, the company has donated \$250,000 to the American Red Cross to fund relief and recovery efforts throughout the area.

Hurricane Harvey also provided an early – and intense – test of Apache’s newly updated Business Continuity Plan, a key effort undertaken in 2016 and described in the Health and Safety section of this report. This plan is designed to mitigate the impact of business interruptions, including maintaining awareness of impact to our employees and their families, by focusing on agile, scalable resource activation through empowered and decisive management. I’m incredibly grateful to the teams involved in developing and implementing this new plan. Thanks to their hard work, we were able to account for and receive status updates from all of our Houston-area employees within 36 hours of the storm, and therefore began helping those most impacted right away. We sent daily or more frequent updates with key storm-related resources and safety awareness messages to our employees.

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I am humbled by the immensity of the destruction Hurricane Harvey brought, but also inspired by the resilience and generosity of our Apache family and the community at large. We are still early in the process of assessing damage and determining how Apache can most effectively help. Moving forward, Apache will continue to play an active role in rebuilding our hometown.

# ABOUT APACHE ▲

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Apache Corporation is a Houston-based oil and gas exploration and production company with operations in the United States, Egypt and the United Kingdom.<sup>2</sup> Since our founding in 1954, Apache has grown to become one of the world's top independent oil and gas exploration and production companies.

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▲  
In 2016, our U.S. operations represented approximately 43 percent of our total production and 56 percent of our proved reserves.

## OUR APPROACH

Apache has built a team of dedicated professionals across many disciplines, unified by common principles and a commitment to building shareholder value. Our unique culture empowers every employee to pursue the company's goals with a sense of ownership and the knowledge that the best answers win.

As we continue to face a challenging business environment resulting from ongoing low commodity prices, our business strategy is based on budgeting conservatively, maintaining flexibility to accelerate drilling activity as warranted, and optimizing our portfolio through divestitures, acreage swaps and leasehold acquisitions that strengthen our core asset position. We will continue to focus on costs and well optimization to protect the structural efficiencies achieved over the last two years.

Equally important, we know that our ability to succeed in the long term is based on operating responsibly and building lasting relationships. Investing in our people, an uncompromising commitment to safety, respect for our stakeholders and communities, environmental responsibility and acting with ethics and integrity are the Core Values that guide our actions and decisions every day.

## OUR OPERATIONS AND REGIONS

In 2016, Apache's asset portfolio included conventional and unconventional and onshore and offshore exploration and production interests in the United States, Canada,<sup>3</sup> Egypt's Western Desert, Suriname and the United Kingdom's North Sea. We organize our operations into regions, which are generally grouped by shale play and/or geographic area.

In North America we had three onshore regions in 2016:

- ▶ The Midcontinent/Gulf Coast Region, which includes the Granite Wash, Tonkawa, Canyon Lime, Marmaton, Cleveland, Woodford Scoop and Eagle Ford shale plays, located in western Oklahoma, the Texas Panhandle and South Texas
- ▶ The Permian Region, located in West Texas and New Mexico, which includes the Permian sub-basins, the Midland Basin, Central Basin Platform, Northwest Shelf and Delaware Basin; examples of shale plays within this region include Bone Spring, Barnett, Wolfcamp, Woodford, Sprayberry and Cline
- ▶ The Canada Region, which includes the Montney and Duvernay shale plays, located in the provinces of British Columbia, Alberta and Saskatchewan

<sup>2</sup>As of August 2017, Apache divested of all our Canadian assets.

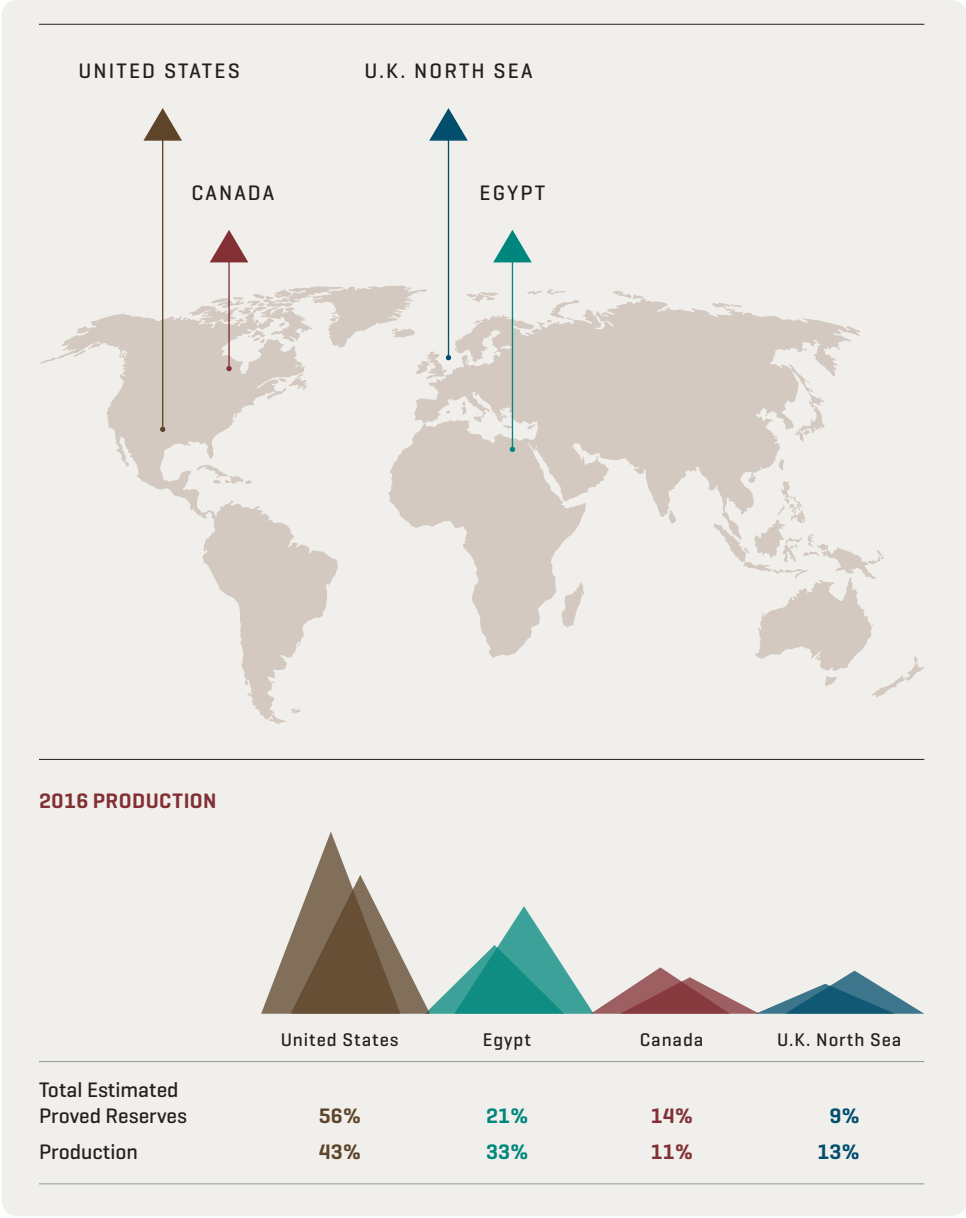
<sup>3</sup>As of August 2017, Apache announced the sale of our Canada region assets. Our 2016 corporate data - including production, reserves, health and safety and environment data - includes Canadian assets.

We have one offshore region in North America – the Gulf of Mexico Region – which consists of both shallow and deepwater exploration and production. In 2016, our North American operations represented approximately 54 percent of our total production and 70 percent of our proved reserves.

We have two international regions:

- ▶ The Egypt Region, which includes onshore conventional assets in Egypt’s Western Desert
- ▶ The North Sea Region, which includes all offshore assets based in the United Kingdom

We also have an offshore exploration program in Suriname.





## ABOUT THIS REPORT ▲



Apache ranked first in *Disclosing the Facts* 2017 scorecard of companies engaged in hydraulic fracturing across North America. This year, the scorecard focused on the important issue of methane emissions. Last year, Apache ranked third among the 28 companies surveyed.

### 2017 SCORECARD

COMPANY	TOTAL
Apache	12
BHP	12
Southwestern	12
Conoco	11
Hess	11
Shell	11
Chesapeake	10
Newfield	10
Range	10
Exxon	9
Noble	9
Pioneer	9
Carizzo	7
CONSOL	7
Devon	7
EOG	6
Anadarko	5
WPX	5
Antero	4
Occidental	4
BP	3
Chevron	2
Continental	1
EQT	1
QEP	1
Cabot	0
Whiting	1
Encana	0

This 2017 sustainability report covers Apache's performance in the areas of governance, economics, environmental stewardship, health and safety, workplace and employee issues, and community involvement.

The report was prepared using the Global Reporting Initiative (GRI) Sustainability Reporting Standards and is in accordance with the GRI Standards at the core level. We also consulted the *Oil and Gas Industry Guidance on Voluntary Sustainability Reporting* developed by IPIECA (the global oil and gas industry association for environmental and social issues), the American Petroleum Institute and the International Association of Oil & Gas Producers. In addition, we referred to *Disclosing the Facts 2017: Transparency and Risk in Methane Emissions*, published by As You Sow, Boston Common Asset Management and the Investor Environmental Health Network. *Disclosing the Facts* is an annual investor scorecard ranking the largest oil and gas companies engaged in hydraulic fracturing. See the Reporting Standards and Scorecards section for an index of indicators from these frameworks that are discussed in this report (p. 129).

### INCREASING TRANSPARENCY

We believe that transparency is critical to our relationships with stakeholders and our ability to continuously improve the sustainability of our operations. In 2017, we further expanded our sustainability reporting to help us be more transparent on a greater number of issues. For example, we increased our reporting on:

- ▶ Internal governance processes
- ▶ Responsible development of our Alpine High operating area
- ▶ Key questions Apache receives from stakeholders and how we are responding
- ▶ Efforts to reduce methane emissions
- ▶ Efforts to reduce potable water used in our operations by using alternative water sources, including recycled produced water, brackish water and municipal wastewater
- ▶ Approach to engaging with community members and addressing their concerns

### ASSURING REPORT CONTENT

At Apache, we demand accuracy and excellence in all our activities, including the content of this sustainability report. This report was reviewed by select members of our executive team, as well as by our Internal Audit function (described on p. 27). While we don't externally assure the report, the rigorous internal audit included verifying or corroborating certain data points and facts, providing accountability for the accuracy of this report.

# IDENTIFYING OUR MOST MATERIAL ISSUES ▲

In 2017, we conducted a materiality analysis to understand internal and external stakeholders' perspectives on the most important sustainability issues associated with our operations. The results of this analysis guided the content we include in this report.

We determined our most material issues through a four-step process:

- 1. Identify issues:** We identified our sustainability-related issues, impacts, benefits, risks and opportunities by interviewing a range of internal and external stakeholders, reviewing documents representing a wide variety of stakeholder views and interests, and reviewing peer companies' material issues. For our internal stakeholders, we considered the perspectives of employees from across our organization. Our external stakeholders included mainstream investors; ESG-focused investors; ESG-focused nonprofit organizations; community members and leaders in areas where we operate; and regulators. Based on these interviews and documents, we developed a comprehensive list of potentially important issues across an extensive suite of topics, including governance, environment, local community impacts and benefits, employees and contractors, and financial performance.
- 2. Prioritize issues:** We prioritized and revised the list of potential material issues based on the level of importance our internal and external stakeholders placed on those issues and the frequency with which they raised those issues. Issues were also prioritized based on their overall potential to impact the environment and society; their likelihood to influence stakeholders' decision-making and assessments of the company; and their impact on Apache's financial performance.
- 3. Review and revise:** We reviewed the initial prioritization with a range of internal stakeholders to confirm the accuracy of the material issue ratings, and revised as needed.
- 4. Determine report content:** We used the final material issues list to evaluate whether we were adequately reporting on the issues that are most important to our internal and external stakeholders. Our analysis confirmed that the issues on which we have consistently reported are in fact the top issues of greatest concern to our stakeholders. We will maintain or increase our reporting on these topics. In this year's report, for example, we have increased our level of disclosure on many topics found to be most important to our stakeholders, including: water use and sourcing; water quality and wastewater management; greenhouse gas (GHG) emissions and energy use; sustainability, health, safety and environment (HSE), and social issue management; regulation and compliance; and risk management. We are also reporting on a range of issues that are important to Apache and our stakeholders but that were not ranked at the highest level of importance by all groups. For example, in this report, we added a discussion of how Apache is addressing the potential risks to our business associated with climate change.



Moving forward, we plan to review and update this analysis regularly, and we will continue to revise our report content based on these analyses.

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Based on our materiality analysis, we found the following issues were of the highest importance to internal and external stakeholders:

- ▶ Employee and contractor health and safety
- ▶ GHG/methane emissions and energy use
- ▶ Impacts on community infrastructure
- ▶ Local economic impacts
- ▶ Proactive community engagement
- ▶ Regulation and compliance
- ▶ Reputation/social license to operate
- ▶ Risk management
- ▶ Sustainability, HSE, and social issue management
- ▶ Water use and sourcing, water quality and wastewater management

This analysis has confirmed that the issues on which we have consistently reported are in fact the top issues of greatest concern to our stakeholders. We will continue our high level of reporting on these topics and on the others identified.

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# Ask Apache

At Apache, we seek to understand and respond to the issues that are most important to our stakeholders. For this year's report, we developed this **Ask Apache** section that identifies the issues stakeholders ask us about most frequently, provides concise but thorough answers about how we are addressing these topics and points to more detailed, related content throughout the report.

Some stakeholders have raised concerns about methane emissions and leaks during the drilling, production, refining and transport of natural gas, with some suggesting these methane losses may reduce or eliminate the overall greenhouse gas (GHG) benefits of natural gas versus other fuels.

## How is Apache addressing methane emissions and leaks in your operations?

Although natural gas produces fewer GHG emissions than many other fuels when burned, we recognize concerns regarding methane leakage. We have been continuing to improve our leak detection and repair (LDAR) program to reduce methane losses, and we are collaborating with industry, government and nongovernmental partners to develop more effective leak detection and reduction methods.

Apache is a charter member of the ONE Future Coalition, an industry group working with the U.S. government to develop and implement voluntary programs that will reduce emissions of methane to less than 1 percent of total methane production across the natural gas value chain. The upstream sector target committed to by ONE Future is 0.36 percent or less of methane emitted from 2025 gross methane production (also called methane emissions intensity) – and Apache has adopted this same goal. We are on track to meet this goal. In 2016, our global methane emissions intensity was 0.43 percent, a reduction of 12 percent compared to 2015.

We use a range of methods to minimize methane leaks throughout the lifecycle of our operations. In the design and engineering of new facilities we seek to minimize the potential for future methane leaks. We also use optical gas imaging (OGI) cameras (also known as FLIR cameras) to examine all new facilities before they come online to verify that our design and construction plans do indeed prevent leaks as expected. Facilities are re-inspected during operations as needed, for example to address improperly functioning equipment or maintenance issues. We also use OGI cameras to inspect wellheads, compressor stations and buried pipeline routes.

Leak detection is an ongoing and regular part of Apache employees' onsite activities. For example, employees are trained to perform olfactory, visual and audio (OVA) inspections for possible leaks. Leaks are fixed immediately upon detection whenever possible. If the leak source cannot be identified with OVA inspections, we use OGI cameras to identify it. We also use these cameras after completing repairs to verify the leaks have been fixed successfully.

We continue to enhance our LDAR program to support compliance with new regulations, and we are evaluating alternative methane detection tools as a supplement to optical gas imaging technology.

Learn more about our methane reduction and overall GHG reduction efforts in the Environment section.



There is increasing interest in how oil and gas companies may be affected by increased carbon regulation as well as how companies are assessing and managing climate change-related risks — such as carbon asset risks or stranded assets. Shareholders are concerned about potential financial risks companies may face due to increased carbon regulations, changes in energy demand and/or competition from lower-carbon energy sources as nations reduce fossil fuel use.

## How does Apache assess and plan for climate change-related risks?

### APACHE'S SCENARIO PLANNING FRAMEWORK



We are paying close attention and giving careful thought to the issue of climate change and the important debate over what it may mean for all of us. As a part of our regular, ongoing scenario planning process we consider climate change-related risks, including forecasts of future demand and pricing in energy markets and changes in government regulations and policy. We also consider a range of pricing scenarios when forming our long-term investment and development plans, including scenarios in a carbon-constrained world. Across Apache, in departments such as Planning, Marketing, Tax, Risk Management, Treasury, Public Affairs, Government Affairs and others, we are carefully analyzing the potential impacts of climate change-related risks on our business. We cast a broad net to do the best scenario planning we can in an uncertain world (see more on p. 27).

But our best protection – from an investment and a policy point of view – is that the duration of our asset profile is much shorter than those of many other companies in our industry, and those of companies in other industries. This, coupled with our relentless focus on being one of the lowest-cost operators in our industry, allows us to be more nimble in adapting to be the best corporate citizen we can be.

As an independent exploration and production (E&P) company, Apache has much shorter capital and project time frames than other types of companies in the energy sector. We do not have multi-decade projects like some of the major oil and gas, pipeline and utility companies typically have. In addition, our proved reserves, which form the basis of how investors value our company, are based on assets we will monetize in the near term, allowing us the flexibility to pivot when needed. We can shift capital investment away from assets in response to changes in regulations, energy demand or other factors, which limits our financial risks. This point is supported by IHS Energy's *Deflating the "Carbon Bubble"* report, which concludes that integrated oil and gas company investments face limited near-term carbon-related financial risk because "the intrinsic value of most publicly traded oil and gas companies is based primarily on the valuation of proved reserves, 90 percent of which are expected to be monetized in the next 10-15 years."<sup>4</sup>

<sup>4</sup>N. Meyer and L. Brinker, *Deflating the "Carbon Bubble": The Reality of Oil and Gas Company Valuation*, IHS, 2014. <https://ihsmarkit.com/info/0115/carbon-bubble.html>.

Recent studies by the International Energy Agency (IEA) suggest that, even in a carbon-constrained future scenario, where carbon dioxide (CO<sub>2</sub>) in the atmosphere is kept to 450 parts per million, demand for oil and gas will continue to grow for the next 20 years and fossil fuels will continue to make up a significant portion of the overall energy mix. This suggests that oil and natural gas will continue to play an important role, even in a lower-carbon energy future.

We believe that natural gas has a role to play in helping to reduce global greenhouse gas emissions. According to the IEA, global energy-related CO<sub>2</sub> emissions were flat for a third straight year in 2016 even as the global economy grew. The IEA notes this decoupling of economic growth from CO<sub>2</sub> emissions is due in part to the increased use of natural gas in electricity generation, especially in the United States where more natural gas was used in electricity generation than coal for the first time.

We continuously manage our asset mix to further limit our exposure to carbon risk. It is far easier to conduct scenario analyses over five-year time frames than over ones that are decades long. While we do our best to look ahead, we also believe that being conservative, thoughtful, open and nimble are the best ways to run a responsible E&P company in light of today's important environmental policy issues.

We seek to be a resource in discussions about carbon regulations and to educate those who are charged with setting policies. While we do not set policy, we are a proponent of inclusive discussions that focus on sound science and a realistic approach to carbon mitigation.

We believe there are significant benefits to voluntary reduction programs, which give companies the freedom to be innovative and to focus on improving those areas where they can effect the most change. As mentioned previously, we are a founding member of ONE Future, an industry group that aims to achieve an average rate of methane emissions across the natural gas value chain that is 1 percent or less of total natural gas gross production. We have committed to meeting ONE Future's upstream goal to reduce our methane emissions to 0.36 percent or less of total methane production by 2025. And we are taking many steps to reduce GHG emissions from our operations.

Learn more about our methane reduction and overall GHG reduction efforts in the Environment section.



Many people are concerned about the amount of fresh water used in oil and gas production and in hydraulic fracturing in particular.

## What is Apache doing to reduce its use of fresh water?

▲  
In 2016, approximately 56 percent of Apache's total water withdrawals were recycled or reused.

Hydraulic fracturing requires large amounts of water to stimulate oil and gas production, and we recognize stakeholder concerns that our operations may compete with other freshwater uses. We understand that water is a precious resource, and we aim to minimize our use of fresh water. We have a long-standing commitment to – and track record of – using alternatives to fresh water.

We are proactive in seeking out alternative water sources in all of our operating regions, especially in areas of the United States and Egypt that could be considered “water scarce.” Apache was one of the first operators in Texas, a state with many water-stressed areas, to implement innovative approaches for using nonpotable water, including brackish water and produced water recycled from our own operations. In West Texas, we have used approximately 40 percent nonpotable water to run our completion operations on average over the past four years. In 2016, approximately 56 percent of Apache's total water withdrawals were recycled or reused.

To further safeguard freshwater resources, we follow proven well integrity procedures. We test water quality prior to beginning operations in a new area. This ensures that we obtain background water-quality data prior to commencing activity. We also require post-drilling water-quality monitoring as needed based on the location's risk profile.

Learn more about our efforts to use alternative water sources and to safeguard water quality in the Environment section.

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▲  
In West Texas, we have used approximately 40 percent nonpotable water to run our completion operations on average over the past four years.

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## How does Apache utilize the third-party environmental, social and governance (ESG) scorecards?

Apache believes that ESG-related scorecards are helpful for obtaining external feedback and for monitoring the progress of our ESG initiatives and messaging. We also recognize that these scorecards are an important first step into the decision-making processes of our investors and our prospective investors. We strive to ensure that the inputs used by the scorecard services are accurate and up to date.

However, given the sheer number of ESG ratings, rankings and indices – more than 650 according to the Global Initiative for Sustainability Ratings – Apache's internal resources do not enable monitoring and engaging with every scorecard provider. To the extent possible, we seek to identify, monitor and/or engage with the providers that we believe have the greatest market share and credibility with our constituents.

We also use the questions and content of ESG ratings, rankings and indices to inform our decision-making on what sustainability information to disclose publicly through our annual sustainability report, corporate website and other communications. And we seek to identify – and, where possible, correct – inaccurate or misleading information and conclusions in key ratings.

Apache proactively organizes discussions among scorecard providers and rated companies to discuss the limitations and challenges of the different ratings approaches, with the goal of improving their effectiveness. For example, we cofounded an advisory committee to help Bloomberg identify the most relevant criteria for its ESG reporting. We have also worked to raise awareness of the ESG scorecards at leading governance-focused nongovernmental organizations to promote informed discussion on how ratings organizations can effectively provide the information that investors value most.

Learn more about our efforts to increase transparency in the Introduction to this report.



## What is Apache doing to make sure that the local communities where Apache operates benefit from the company's presence?

▲  
In our overseas regions in the North Sea and Egypt, 98 percent and 73 percent of our employees were local nationals, respectively.

▲  
Our operating regions spend, on average, nearly 30 percent of their budgets with suppliers and vendors who are geographically local.

Apache's operations bring significant economic benefits to local communities, including direct jobs for local residents, indirect jobs and economic expansion in supporting industries, and direct local investment by our company. We seek to maximize these benefits in all the areas where we operate.

We focus on hiring qualified individuals who reside in our locations of operation, including the United States, Canada,<sup>5</sup> Egypt, the United Kingdom and Suriname. Companywide, 97 percent of our employees were local nationals in 2016, and in our overseas regions in the North Sea and Egypt, 98 percent and 73 percent of our employees were local nationals, respectively. Local hiring is beneficial for communities and makes good economic sense for Apache. We offer competitive wages and benefits, and we regularly participate in region-specific salary surveys to ensure we provide competitive wages.

We also make it a point to source supplies and services locally whenever possible and ask our vendors to do the same. Welding services, water hauling, roustabout crews, construction crews and civil project installation crews are a few of the categories in which we procure goods and services from local suppliers. One of the benefits of our decentralized organization, with supply chain personnel embedded in each region, is that it furthers our efforts to involve the local community and suppliers in our business. Our operating regions spend, on average, nearly 30 percent of their budgets with suppliers and vendors who are geographically local.

We also contribute to local economies through a variety of taxes and fees. In 2016, Apache paid nearly \$39 million in local property taxes, which help to fund school districts, cities, counties, hospital districts, community colleges and other such entities.

Our "give where we live" approach to philanthropy allows us to zero in on the specific needs of the areas where we operate. We focus on community investments in the key topic areas of health and social, the environment, education and the arts.

While our operations offer myriad benefits to communities, we do recognize that some of the high-activity elements of our production work can create concentrated, if temporary, inconveniences. Our guiding principle is always to minimize these impacts on local residents as much as possible from the outset. On issues ranging from the size of our well pads to our trucking routes, we thoughtfully work out logistics to avoid or minimize issues such as traffic congestion, road safety, dust, noise and odors.

We want to make it easy for community members to share concerns with us and for us to be able to address and resolve those concerns. Moreover, we want to make sure we learn from every complaint and try to avoid any related issues across our operations.

<sup>5</sup>As of August 2017, Apache divested of all our Canadian assets.

We obtain regular formal and informal feedback from local stakeholders to understand and address community concerns; our goal is to mitigate any potential impacts of our operations before they become problems. As part of an effort to be more responsive to community needs, we recently established a formal grievance hotline that is operated 24 hours a day by staff members in Houston, where they monitor security cameras on Apache properties worldwide and catalog any concerns that are flagged. (Apache is one of only a few independent oil and gas companies with a 24-hour call center operated by employees rather than a third party.) Community members may contact Apache with a grievance by calling our toll-free hotline number, the Apache Good Neighbor Line, at 1-866-705-2400.

Learn more about Apache's local economic benefits and commitment to minimizing impacts on communities in the Society section.



# Q & A

# GOVERNANCE▲





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At Apache, we believe that demonstrating good corporate governance and operating responsibly is important to protecting our reputation, responding to the needs of our varied stakeholders and maintaining value for our shareholders. While many companies view corporate governance as a set of written principles, Apache considers it to be an evolving set of actions and engagements. We believe that governance goes beyond, and cannot be fully captured by, typical written principles and environmental, social and governance (ESG) checklists.

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**25%+**

of Apache's nonemployee Board members are female or ethnic minorities

**66%**

of Apache Board members have environmental and regulatory experience

## RECENT IMPROVEMENTS IN CORPORATE GOVERNANCE AND COMPENSATION ▲



In recent years, Apache has steadily improved our governance and compensation practices, including:

- Revising our Code of Business Conduct and Ethics
- Upgrading our fraud and whistleblower hotline
- Expanding and improving the health, safety and environmental goals linked to executive compensation

In an effort to continually improve our corporate governance, we regularly review and update our policies and practices. And, we continually reach out to our many constituencies to ensure that our governance systems are dynamic and robust enough to keep pace with the ever-changing world in which we operate and the evolving needs of our stakeholders.

In recent years, Apache has steadily improved our governance and compensation practices to further strengthen our culture of integrity, accountability and transparency. Many of these improvements are based on feedback from our shareholders.

Key improvements include separating the chairman and chief executive officer (CEO) positions; selecting an independent, nonexecutive chairman; revising and expanding our Code of Business Conduct and Ethics; replacing our prior internally hosted fraud line with the Apache Hotline, a premier externally hosted resource through which any person may report, anonymously if they so choose, suspected violations of law or Apache policies; adopting a set of Human Rights Principles and a Statement on Indigenous Peoples; expanding and improving the health, safety and environmental goals linked to executive compensation by tying them to the top-quartile, three-year average performance of industry peers; and further expanding our regular disclosure of political expenditures. Additional governance and compensation improvements made in recent years include the following:<sup>6</sup>

- ▶ Majority vote standard for the election of Directors
- ▶ Right to call a special meeting at 15 percent of shareholders
- ▶ Clawbacks of incentive awards in the event of a material negative restatement
- ▶ Robust Board review and Board refreshment practices
- ▶ Extensive shareholder engagement practices
- ▶ Proxy access bylaw adopted in February 2016 after supporting a proxy access shareholder proposal in 2015
- ▶ Board declassification and transition to the annual election of all Directors after a management proposal was approved in 2015
- ▶ Further alignment of the annual cash incentive bonus plan with corporate strategy
- ▶ Improvement of the long-term Performance Share program to incorporate total shareholder return and other important financial measures
- ▶ Alignment of the new CEO's target compensation with the median of our peers
- ▶ Implementation of a policy that standardizes executive separation terms

<sup>6</sup>For a more comprehensive list of governance improvements, see [Apache's 2017 Proxy Statement](#).

# CORPORATE GOVERNANCE ▲

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Apache's CEO and president directly oversees the company's business. The Board of Directors, which is elected by the company's stockholders, oversees management and assures that the long-term interests of stockholders are being served. Both the Board of Directors and senior management recognize that the long-term interests of stockholders are advanced by responsibly addressing the concerns of other stakeholders and interested parties, including employees, customers, suppliers, government officials and the public at large.

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## BOARD OF DIRECTORS

Apache's Board plays a vital role in the design, implementation and monitoring of our corporate governance. All of Apache's nonemployee Directors, including the Board chair, are independent under each of the three relevant standards: those of the New York Stock Exchange, the NASDAQ National Market and the Securities and Exchange Commission. Only Apache's CEO – who does not serve as Board chair – is deemed nonindependent under these standards.

We select Board members based on a wide range of criteria, including relevant expertise; dedication to the highest ethical, health, safety and environmental standards; and a willingness to question and challenge management.<sup>7</sup> Currently, 100 percent of Board members have industry experience and 66 percent have environmental and regulatory experience. We conduct a comprehensive Board evaluation process every year for every Director that includes in-depth conversations and personalized feedback.

The Board's diversity encompasses – among other elements – race, gender, age and experience. More than 25 percent of Apache's nonemployee Board members are female or ethnic minorities. These Directors play critical roles on our Board, including chairing the Corporate Governance and Nominating Committee and the Audit Committee and taking a leading role in our shareholder engagement activities.

In recent years, we have taken a number of steps to improve Board composition and succession to ensure we have ongoing exposure to fresh expertise and experience. We reduced the Board's average term length to seven years through year-end 2016, compared with 17 years in 2013. Nine of the Board's 12 members were appointed since 2011, and all Board members are subject to a mandatory retirement age of 75.

**100%**

of Apache Board members have industry experience

**91%**

of Apache Board members have global experience

**54%**

of Apache Board members have CEO experience

<sup>7</sup>For more information on Board selection criteria, see p. 26 of [Apache's 2017 Proxy Statement](#).



Our Board has three standing committees, each devoted to a separate aspect of risk oversight:

- ▶ The Audit Committee oversees the integrity of the company's financial statements, compliance with legal and regulatory requirements, the company's Internal Audit function and independent auditors and the company's accounting and financial reporting, among other duties.
- ▶ The Management Development and Compensation committee oversees compensation of the company's executives and employees and reviews human capital matters, among other duties. In recent years this committee has overseen a major overhaul of our compensation practices, as well as substantial management changes, which includes our new CEO, chief financial officer and other key officers.
- ▶ The Corporate Governance and Nominating Committee oversees the nomination of Directors, the annual Board evaluation processes, oversight of ESG issues and corporate governance issues.<sup>8</sup>

Committee charters and a list of our current Board members can be found on our website.

### ENTERPRISE RISK MANAGEMENT

Employees at all levels of the organization regularly work to identify and manage risk. To support these efforts, we have a Corporate Risk Management Committee, made up of senior management, which ensures procedures are in place for the corporatewide identification of both nonoperational and operational risks. The committee also provides oversight of the ongoing, companywide monitoring and management of risks. The committee reports on its activities to the Board of Directors' Audit Committee at least annually. The Corporate Risk Management Committee is supported by a centralized risk assessment function to ensure regular and thorough review of nonoperational risks.

Apache also has a separate risk management function focused specifically on health, safety, environmental and security risks, to maintain ongoing and intense focus on these critical risk categories. These formal risk management teams work together with all Apache employees to understand and mitigate risks across our operations.

### INTERNAL AUDIT

Apache's Internal Audit group is an independent, objective assurance and consulting function designed to add value by assessing and improving the company's operations. The group achieves these objectives by applying a systematic, disciplined approach to evaluating and improving the effectiveness of risk management, internal controls, governance and business processes. The internal audit process typically includes one or more of the following activities:

- ▶ Considering associated risks
- ▶ Assessing business processes
- ▶ Evaluating the design and effectiveness of internal controls
- ▶ Improving operations
- ▶ Ensuring the accuracy of reported information
- ▶ Monitoring compliance
- ▶ Assuring safeguards are in place and properly functioning
- ▶ Offering insights and advice on areas audited with respect to best practices

<sup>8</sup>For more information on this last bullet, see pp. 25–26 of [Apache's 2017 Proxy Statement](#).

Based on audit results, the Internal Audit group develops specific recommendations for continuous improvement. Our internal audit process is designed to enhance our culture of accountability and to support Apache's Core Values – especially the values of conducting our business with honesty and integrity and seeking relentless improvement in all facets.

The Internal Audit group reports to the Board of Directors' Audit Committee, providing an independent assessment mechanism for the Board concerning the company's business practices and performance.

Internal auditors assess more than 100 different departments and processes across the company. Each year, the group develops audit targets and a formal audit plan based on a detailed risk assessment process. Audits are also scheduled to ensure that every group or process is reviewed at least once every four years, with many reviewed more frequently. Examples of audits conducted include: Apache's enterprise risk management processes; corporate and regional supply chains; various operational and financial functions, information technology systems and processes; and governance practices.

#### COMPLIANCE

Apache maintains a Compliance and Ethics program, overseen by the director of compliance, which promotes responsible conduct in accordance with applicable laws, rules, regulations and government requirements. Our compliance group provides guidance, training, oversight, enforcement and reporting in order to support Apache's unwavering commitment to the highest ethical standards.

The director of compliance ensures that Apache has well-defined and articulated standards and procedures designed to prevent and detect misconduct. These standards, and specifically our Code of Business Conduct and Ethics, include a wide range of examples to distill our overarching policies and standards down to real-world, on-the-job scenarios. Our compliance training reinforces that all employees have a responsibility to report any suspected misconduct or unethical or illegal activity. To facilitate this reporting, in 2017, we substantially upgraded our internal fraud and whistleblower line by launching the Apache Hotline, a 24/7/365 resource through which employees and external stakeholders may anonymously report any alleged violations of law or Apache's policies and standards of conduct. The Apache Hotline is externally hosted and managed by a third party. It has improved functionality and reporting capabilities, allowing us to more efficiently receive, track and investigate reports. We continue to maintain our Procedures for the Submission of Complaints and Concerns regarding Accounting, Internal Accounting Controls, or Auditing Matters, available on our [website](#).

The director of compliance is also primarily responsible for overseeing internal investigations and – where warranted – providing input concerning the enforcement of compliance issues. All reported concerns are investigated by the director of compliance and/or relevant personnel from Human Resources, Accounting, Legal and other departments. Concerns that may involve substantial risk to human health or safety; the potential for criminal liability or fines; potential anti-trust, bribery or corruption violations; or are otherwise found to be of serious concern are escalated for reporting to the CEO, general counsel and senior vice president of human resources for management review, and then promptly reported to a designated member of Apache's Board of Directors.

In 2017, our compliance efforts have also focused on revising, updating and expanding our Code of Business Conduct and Ethics, updating our Foreign Corrupt Practices Act guidance, and developing comprehensive training programs to support the rollout of these resources, as described in the next section.



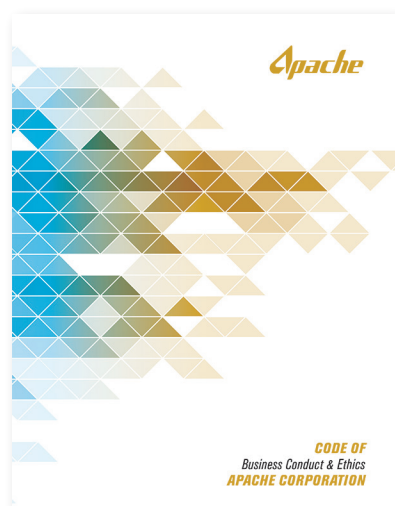
**APACHE HOTLINE**  
**866.756.2599**

**Apache is committed to preserving, protecting and fostering the culture of trust and integrity that has long defined Apache as a company. Doing this requires that every Apache director, officer, employee and contractor voice their concern if they observe or suspect a violation of law or Apache policies.**

**VOICE YOUR CONCERN**



In 2017, we updated and expanded our Code of Business Conduct and Ethics to bring together – in one user-friendly and easily accessible document – the primary policies governing the high standards of conduct applicable to every Apache employee.



## ETHICS AND ANTI-CORRUPTION

Apache is committed to operating with honesty and integrity and following the highest ethical standards. It is our policy to conduct business fairly, ethically and in compliance with applicable laws, regulations and other government requirements. Our Code of Business Conduct and Ethics requires not only the avoidance of misconduct, but also the avoidance of acts or omissions that give the appearance of misconduct.

In 2017, we updated and expanded our Code to bring together – in one user-friendly and easily accessible document – the primary policies governing the high standards of conduct applicable to every Apache employee. The Code addresses issues including but not limited to equal employment opportunity, anti-harassment, social media guidelines, conflicts of interest, handling of confidential information, data privacy and recordkeeping, anti-corruption and anti-bribery, political contributions and lobbying, and insider trading. In addition, the Code emphasizes every employee's duty to report any suspected violation of law or Apache's policies, provides guidance on how to submit a report, explains our no retaliation policy and outlines our investigation and enforcement process.

All employees will receive training on the new Code and, going forward, will be required to certify annually that they have read the Code and fulfilled the requirements and expectations set forth in that document.

Apache derives its competitive advantage through our talent and strategic vision, never through unethical or illegal actions. Our Code's anti-bribery and anti-corruption provisions strictly prohibit any employee from offering or accepting a bribe, kickback or any improper favor in order to secure a business advantage. Moreover, any person acting on behalf of Apache is prohibited from giving or accepting a gift or entertainment that is excessive in value or frequency, violates any laws or regulations, or could be construed as a bribe or a payoff. Apache officers and employees are responsible for promptly reporting any actual, attempted or apparent violations of applicable laws, rules, regulations or the Code of Business Conduct and Ethics.

As a U.S. entity doing business abroad, Apache is also subject to the Foreign Corrupt Practices Act (FCPA) and similar anti-bribery and anti-corruption laws of other nations, which may apply to our interactions with foreign government agencies and/or officials. In 2017, our director of compliance revised and updated the company's FCPA Compliance Guide. Relevant employees are required to read and understand our policies and procedures with respect to matters that may implicate the FCPA or similar laws. Relevant employees within the company will continue to receive training pertinent to their job responsibilities. Apache's director of compliance, in partnership with our Legal department, will act as an ongoing resource for any Apache employee with questions on the FCPA.

Our director of compliance and other employees attend external anti-corruption and compliance education programs and use these venues to stay up to date on best practices. Our Board of Directors periodically reviews our Code of Business Conduct and Ethics and makes updates or revisions as necessary or appropriate.

## EXTERNAL CHECKLISTS, CODES AND PRINCIPLES

Working with a number of our ESG-focused shareholders, Apache developed and adopted a Statement on Political Expenditures and Board Oversight, a set of [Human Rights Principles](#) and a [Statement on Indigenous Peoples](#) (read more on p. 108). These statements and principles are monitored by management, and our performance in these areas is reported regularly to our Board's Corporate Governance and Nominating Committee. We have also worked with shareholders and nongovernmental organizations to identify key values and principles of conduct for other important ESG issues. These are captured in, among other documents, our Code of Business Conduct and Ethics and our [Statement of Core Values](#).

We recognize that it has become popular for shareholders to ask companies to demonstrate their concern for these subjects by signing on to various charters, codes, oaths, checklists and principles created by third parties. We value these debates, but we do not believe that signing third-party documents as a show of support for particular goals is a substitute for trying to achieve those goals.

## PUBLIC POLICY AND POLITICAL DISCLOSURES

Apache participates in the political and public policy process in a responsible and ethical way that serves the best interests of our shareholders and the safety and wellbeing of our workforce and other stakeholders. We operate in the highly regulated oil and natural gas industry, and our operations are affected by actions at many levels of government. Our public policy activities include education and advocacy efforts at the federal, state and local government levels.

Apache is committed to complying with all applicable state and federal rules pertaining to lobbying and disclosures. Relevant reports regarding our activities are publicly available via the appropriate state websites; the Office of the Clerk, U.S. House of Representatives; the Secretary of the Senate, U.S. Senate; and the various state ethics commissions. Our Governmental Affairs function manages and coordinates the company's political and public policy activities.

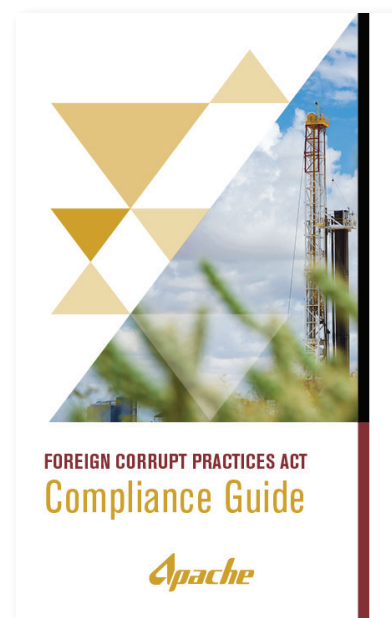
### Political Action Committee

In accordance with federal and state law and a policy statement promulgated by our Board of Directors, Apache does not make corporate contributions to candidates or political committees supporting candidates in federal or state elections. Employees can support candidates for office through the Apache employees' Political Action Committee (Apache PAC), which is funded exclusively through voluntary contributions from eligible employees and Directors. Employees participating in Apache PAC are not reimbursed, directly or indirectly, for political contributions or expenses.

Apache PAC contributes to federal and state political candidates who support responsible oil and natural gas activities and other business issues of interest to the company. Disbursements by Apache PAC are made solely based upon the best interests of the company and its shareholders, not on the personal agendas of individual Directors, officers or employees. All Apache PAC contributions are fully disclosed in reports filed with the Federal Election Commission (FEC) and appropriate state websites and can be accessed on the [FEC website](#).



In 2017, we revised and updated our Foreign Corrupt Practices Act Guide, which provides guidance for employees about anti-bribery and anti-corruption in the context of interactions with foreign government agencies and/or officials.



**Trade Associations**

Apache participates in trade and industry associations and engages directly in advocacy and grassroots communications efforts. The company joins trade associations to share technical and standards expertise and to be part of important public education efforts regarding major issues of common concern to our industry. Our participation in trade and industry associations is subject to management oversight by our Governmental Affairs function, which approves our memberships and serves as the principal representative in such associations.

Apache pays regular membership dues to several trade associations. Some utilize a portion of those dues for nondeductible state and federal lobbying and political expenditures. Per the requirements of Section 162(e)(1) of the Internal Revenue Code, such trade associations must provide us with the percentage of our annual dues that are attributable to lobbying expenses. We disclose these contributions on our [website](#).

**Lobbying**

Apache lawfully engages in the legislative process to communicate our views on legislative and regulatory matters affecting our business at the federal and state level. This activity is subject to various federal and state rules and regulations, and Apache is committed to complying with all of those requirements.

# ENGAGEMENT ▲

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Apache regularly engages with a wide range of stakeholders to gain insights into and input on issues, trends, best practices and specific stakeholder interests and concerns. Key stakeholder groups with whom we engage regularly include shareholders, employees, suppliers, customers, local communities, regulators, local media, government officials and nongovernmental organizations (NGOs).

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The following are some of the key organizations with which we engage on ESG issues:

- ▶ Aspen Institute
  - ▶ As You Sow
  - ▶ Boston Common Asset Management
  - ▶ Berkeley Earth
  - ▶ Ceres
  - ▶ Clean Gulf Associates
  - ▶ Environmental Defense Fund
  - ▶ F&C Asset Management
  - ▶ Interfaith Center on Corporate Responsibility
  - ▶ Investor Environmental Health Network
  - ▶ League of Conservation Voters
  - ▶ Local Authority Pension Fund Forum
  - ▶ Marine Well Containment
  - ▶ Mitchell Foundation
  - ▶ Nathan Cummings Foundation
  - ▶ Natural Resources Defense Council
  - ▶ Oil Spill Response Limited
  - ▶ ONE Future Coalition
  - ▶ Pensions & Investment Research Consultants Ltd.
  - ▶ Sierra Club
  - ▶ Sustainability Accounting Standards Board
  - ▶ The Nature Conservancy
  - ▶ Third Way
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▲  
In 2016, Apache management held 61 in-person meetings with shareholders across the globe. We also conducted a broad outreach program specifically focused on sustainability management and disclosure.

## STAKEHOLDER ENGAGEMENT OVERVIEW

The table below summarizes how we engage with key stakeholder groups.

Stakeholder Group	Engagement Methods	Read More in this Report
Shareholders	Annual stockholder meeting Investor days ESG-focused investor meetings Governance conferences Ongoing one-on-one investor discussions	Shareholder engagement, p.34
Employees	Quarterly employee town halls Regional employee meetings Ongoing employee training Employee satisfaction surveys	Employee engagement, p. 96 Employee training and performance feedback, p. 94
Landowners and mineral owners	Ongoing engagement via our landmen Community grievance hotline and resolution process	Community engagement, p. 101
Local communities	Local community outreach and philanthropy Community grievance hotline and resolution process Community open houses Local job fairs and other recruitment efforts	Community engagement, p. 101 Our approach to developing Alpine High, p. 39
Suppliers and contractors	Contractor vetting process Contractor assessments Contractor engagement meetings	Managing contractor safety, p. 84
Regulators and government entities	Supporting regulatory development as relevant	Public policy and political disclosures, p. 30 Reducing fugitive methane emissions, p. 62 Seismicity and oil and gas operations, p. 60
NGOs and academics	ESG investor engagement Research support and funding	Water quantity and quality, pp. 55, 59 Our approach to developing Alpine High, p. 39
Local media	Regular contact and response to local television stations, newspapers and radio stations Helping to support local initiatives on local and national media channels	



## SHAREHOLDER ENGAGEMENT

Apache places significant importance on engagement with our shareholders and other investors. We regularly seek shareholders' feedback on topics such as corporate governance, business strategy and compensation, and ESG issues.

Apache's shareholder engagement starts at the top. Our independent Board chair and other Board members are accessible to shareholders at a variety of events, including our annual meeting, our investor days, some of our ESG-focused meetings and a number of governance conferences. At this year's Governance Week in London, for example, our independent Board chair, the chairwoman of the Corporate Governance and Nominating Committee and another Director attended and engaged with shareholders. In addition, Board members engage with shareholders individually throughout the year. They can also be contacted through our corporate secretary,<sup>9</sup> who relays communications to them as appropriate.

Apache's CEO maintains an active schedule of meetings and communications with shareholders. In addition to regular shareholder engagement on operational and financial performance, he holds an annual one-on-one meeting with our "lead active shareholder," who is designated by a group of our more involved shareholders to discuss ESG issues and progress on previously set targets and goals for the coming year. That meeting is followed by a larger meeting of active shareholders who can pose questions on any subject and get answers directly from the CEO.

In addition, Apache's technical experts meet throughout the year with shareholders to discuss a wide variety of issues, including the alignment of financial and ESG goals; emissions, chemical and water issues related to exploration and production operations; stranded assets; and climate change-related concerns.

## ENGAGING ON ESG ISSUES

We recognize that gaining outside perspectives on key environmental, social and governance issues helps us better understand and address these topics. That's why we engage regularly and frequently with shareholders, government agencies and regulators, and NGOs on ESG issues. For example:

- ▶ We host multiple meetings each year for active shareholders, each focused on an individual environmental or social issue. We invite peer companies to these meetings to improve in-person dialogue on ESG issues across the industry.
- ▶ Our CEO meets every year in person with our active shareholders in a multi-hour, no-holds-barred discussion of ESG issues.
- ▶ A number of our Board members have been speakers at major ESG conferences, enabling further in-person discussion of ESG issues.
- ▶ We are a founding member of ONE Future, a coalition of industry companies focused on reducing methane emissions across the entire natural gas value chain.
- ▶ We regularly make our leading engineers, geologists and other experts available to NGOs to help inform their work.

▲ In response to growing investor interest in ESG performance, Apache has added an ESG performance snapshot to our investor relations website.



<sup>9</sup>See p. 5 of [Apache's 2017 Proxy Statement](#).

## CASE STUDY ▲

### IT'S NOT JUST LUNCH ANYMORE: APACHE'S WOMEN IN GOVERNANCE LUNCH HAS GROWN INTO A LEADING, GLOBAL ESG CONFERENCE

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In 2012, Apache organized the first Women in Governance luncheon, an event that brought together female proxy voters and directors to discuss best practices and trends within the governance space. The luncheon helped to disseminate good governance practices and facilitated networking among professional women. This annual event – and the networks and relationships it has helped to spawn – has been instrumental in helping to promote more women on public boards as well as advancing the development and implementation of governance best practices.

Over the past six years, the Women in Governance luncheon has expanded into a week-long conference that brings together leading governance, sustainability, responsible investing and proxy voting entities to discuss and advance ESG issues. The centerpiece of the conference remains the women's luncheon and roundtable, which brings together approximately 50 women who sit on the boards of major public companies and 50 female proxy voters from institutional investor organizations for in-person, director-shareholder conversations.

In 2016, the event expanded to include events for both men and women and sessions including director trainings, panel discussions and other ESG programming, which were hosted by organizations such as Black Rock, TIAA, Institutional Shareholder Services, Glass Lewis, UBS, Boston Common Asset Management, the Environmental Defense Fund, the Investor Environmental Health Network and Diversified Search.

In 2017, the conference moved from New York – its location for the previous six years – to London, expanding the global reach and size of the event. Many attendees hailed from the world's largest companies and asset managers. In addition to the Women in Governance luncheon, this year's event included a board chair luncheon that brought together shareholders and chairpersons of boards. Apache's independent Board chair attended this luncheon.



“Apache originally organized the Women in Governance lunch back when the idea of directors having lunch with the people who elect them was not only novel, but worrisome to many people. It was an era in which it was common for companies to visit analysts and portfolio managers regularly but not proxy voters – many of whom are women.

The Women in Governance lunch has played a large role in demystifying director–shareholder engagement. It created a venue in which directors could listen and better understand the issues important to the proxy voters and for the proxy voters to engage directly with directors rather than just read about them in the proxy.

More importantly, the Women in Governance lunch has evolved into Governance Week – an entire week of meetings for directors, corporate executives, shareholders and ESG stakeholders that promotes dialogue on environmental and social responsibility concerns in addition to governance issues. The event attracts attendees from all over the world and facilitates understanding and cooperation in places where there used to be conflict. Apache’s Board fully supported this expansion; it is one example of Apache’s willingness to be first and to lead the way to show how engagement can be done properly and purposefully.”

AMY H. NELSON  
*Member of Apache’s Board of Directors*

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AMY H. NELSON

# HEALTH, SAFETY, SECURITY AND ENVIRONMENT GOVERNANCE ▲

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At Apache, safety is not negotiable and will not be compromised. As a company, we derive benefit from the Earth, and we take our environmental responsibility seriously. To ensure we live by these Core Values, Apache has a corporate Health, Safety, Security and Environment [HSSE] department, led by the vice president of corporate HSSE, as well as regional HSSE departments.

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▲  
In 2017, we expanded the HSSE goals linked to management compensation to include a comprehensive assessment of both leading and lagging measures to drive excellence in facets of HSSE beyond safety.

Our HSSE management develops and oversees implementation of the company's HSSE policies, standards and practices, and work rules, which define workforce expectations and behaviors that drive Apache to build and maintain a culture of safety and environmental responsibility. We have a suite of worldwide HSSE standards that set company performance expectations for all our operations. In some cases, our regions develop location-specific HSSE policies and programs to address locally specific issues.

All of our active operational areas have internally reviewed guidelines and procedures to ensure responsible operations given local characteristics, geophysical features and regulations. We use adopted operating procedures typical of our industry at all Apache sites, and further tailor them to account for local issues and requirements.

Apache establishes corporatewide HSSE performance goals as well as region-specific performance goals that support the corporate goals. All of these goals are a component of incentive compensation plans for all employees, including senior management. For years, management compensation has been tied to key employee safety metrics. In 2017, we expanded the HSSE goals linked to management compensation to include a comprehensive assessment of both leading and lagging measures to drive excellence in facets of HSSE beyond safety. In addition, we now base the HSSE goals linked to management pay on the top-quartile, three-year average performance of industry peers.

Our Board's Corporate Governance and Nominating Committee regularly reviews the management of ESG issues. In addition, the Management Development and Compensation Committee sets company compensation goals, which include health, safety and environmental goals. The Board assesses performance against these goals at every Board meeting.

Apache has a sophisticated, companywide system for HSSE incident reporting and response. Incidents are recorded and tracked in an incident reporting and management software system. Incidents are rated using a variety of criteria, including severity, event type and status, and are reported through a round-the-clock-staffed incident management center. Incident information is shared with relevant personnel, including, where appropriate, the Board of Directors. Each incident is actively managed through resolution of the event, including to assess and mitigate impacts, perform external reporting as appropriate, and determine causal factors. Lessons learned from each event are also shared throughout the organization.



#### GOVERNANCE DOWNLOADS

- ▶ [Apache's Corporate Governance Principles](#)
  - ▶ [Apache's Directors' and Officers' Stock Ownership Requirements](#)
  - ▶ [Apache's Policy regarding Margin Loans and Pledges by Directors and Officers](#)
  - ▶ [Apache's Policy Prohibiting Hedging Securities by Directors and Officers](#)
  - ▶ [Apache's Executive Compensation Clawback Policy](#)
  - ▶ [Apache's Policy on Parachute Payments for Executives and Accelerated Vesting of Equity upon Change in Control](#)
  - ▶ [Apache's Policy on Political Contributions and Lobbying Disclosures](#)
  - ▶ [Apache's 2016 Disclosure of Political Contributions and Lobbying Disclosures](#)
  - ▶ [Apache's 2015 Disclosure of Political Contributions and Lobbying Disclosures](#)
  - ▶ [Apache's 2014 Disclosure of Political Contributions and Lobbying Disclosures](#)
  - ▶ [Apache's Code of Business Conduct and Ethics](#)
  - ▶ [Procedures for the Submission of Complaints and Concerns regarding Accounting, Internal Accounting Controls, or Auditing Matters](#)
  - ▶ [Apache's Human Rights Principles](#)
  - ▶ [Apache's Statement on Monitoring Human Rights Principles](#)
  - ▶ [Apache's Statement on Indigenous Peoples](#)
-



# OUR APPROCH TO DEVELOPING ALPINE HIGH▲





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In September 2016, Apache announced a significant new oil and natural gas discovery located in Reeves County, Texas, which we call Alpine High. Our development of Alpine High will bring significant benefits to the local economy, schools and public services. But we're mindful that this resource play is located in a special place, an area that both locals and visitors hold dear for its natural beauty. Developing oil and gas resources in this area is a responsibility we take very seriously. In fact, we believe our approach to Alpine High sets a new standard for responsible oil and gas development.

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# SETTING A NEW STANDARD FOR RESPONSIBLE DEVELOPMENT IN ALPINE HIGH ▲

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Alpine High is located in the southwest corner of the Permian Basin. The play extends over 336,000 net acres across the southern half of Reeves County, Texas.

While much of this area has lagged the rest of the state in economic growth, our development of Alpine High will benefit the local community and its economy. But we know that Texans – including our employees and their families – as well as visitors, appreciate this area for its scenic landscape and abundant natural resources. We are very mindful of the need to develop the oil and gas resources in this region responsibly.

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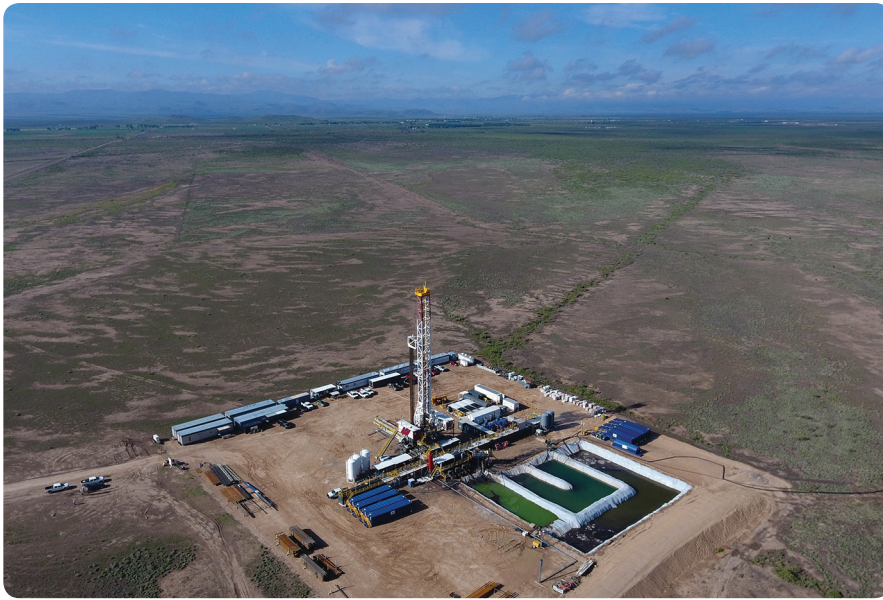
By going above and beyond, we hope to build relationships with the community and set an example for other operators in the area, demonstrating how corporate objectives and environmental care can work in tandem with one another.

## **TAKING RISK ASSESSMENT AND AVOIDANCE TO A NEW HIGH**

We are developing Alpine High to maximize positive benefits to the area while minimizing potential impacts. We believe our approach sets a new standard for responsible oil and gas development.

Everywhere Apache operates, we seek to first understand the area and then create a development plan tailored to its unique attributes. At Alpine High, we are taking this risk assessment process to a new level. In addition to undertaking our own thorough evaluations of baseline environmental and cultural resources, we have hired world-leading impact assessment firms and an independent laboratory accredited through the National Environmental Laboratory Accreditation system to support Apache's internal processes. We are also engaging proactively and regularly with the community to understand and address residents' concerns. And, we are partnering with regional academic institutions to assess the area and thoroughly understand its unique natural and cultural features.

Based on these evaluations, we are developing rigorous plans and policies for our operations that protect the unique attributes of the area while incorporating best management practices and lessons learned from other developments across the country as well as cutting-edge academic research. For example, we are assessing baseline water resources, using closed-loop drilling systems in certain parts of the play, and implementing "dark skies" lighting.



By going above and beyond, we hope to build relationships with the community and set an example for other operators in the area, demonstrating how corporate objectives and environmental care can work in tandem with one another.

Finally, as we undertake exploratory operations and begin producing oil and gas, we are following strict compliance and control systems and maintaining comprehensive community engagement and ongoing environmental and cultural assessments to ensure that we deliver on our promises.

Based on our extensive research and engagement so far, we have developed comprehensive assessment processes and mitigation plans for more than 17 areas of potential risk, including but not limited to surface water and groundwater protection; produced water disposal; emissions from flaring and ongoing operations; potential safety and nuisance impacts such as road conditions and noise; driving safety; dark skies and biodiversity; locations of cultural resources; and pipeline construction. Moving forward, we will continually monitor and reassess each of these risk areas and adjust our mitigation strategies as needed.

# ALPINE HIGH PROCESSES ▲

## RISK ASSESSMENT AND MITIGATION

### UNDERSTAND RISK

We're engaging with the local community, undertaking extensive research and partnering with external research organizations and universities to assess baseline conditions and thoroughly understand the region's unique natural and cultural features.

### AVOID IMPACTS

We've identified and developed mitigation plans for 17 areas of potential risks, including water systems, emissions, safety, biodiversity and cultural resources.

### ENSURE PERFORMANCE

We've developed stringent compliance and control systems to ensure that we implement our risk mitigation plans effectively and reassess potential risks on an ongoing basis.



#### UNDERSTAND RISK

Studying groundwater and surface water systems and baseline water quality in the Alpine High resource area with the University of Texas at Arlington

Assessing potential risks to underground water systems with the National Cave and Karst Research Institute and University of Texas at Austin

Engaging with community members to understand their needs and concerns



#### AVOID IMPACTS

Protecting water systems: no development activities in or under Balmorhea State Park or the City of Balmorhea; ongoing monitoring of water quality; working to source all operations with nonpotable recycled produced water and brackish water

Following stringent "dark skies" equipment and process requirements

Reducing emissions by minimizing flaring and capturing operational emissions

Minimizing road and traffic impacts with advanced logistics and route management



#### ENSURE PERFORMANCE

Conducting ongoing assessments for potential cultural sites, with a stop-work requirement for any potential discoveries

Implementing systems to regularly monitor aquifer levels and water quality in existing water wells

Performing weekly drills focused on preventing loss of control and conducting regular well control audits

Implementing regular road monitoring and repair programs

Having the Apache security team routinely monitor employee and contractor road safety



#### **PARTNERING WITH UNIVERSITIES TO UNDERSTAND RESOURCES AND MITIGATE RISKS**

Our extensive research partnerships with regional academic institutions are a key element of our industry-leading approach to identifying and avoiding potential risks in Alpine High. Through these projects, we are assessing baseline conditions and thoroughly understanding the region's unique natural and cultural features. We will continue to work with these partners as we develop specific operational plans to safeguard local resources. Our key research partnerships include the following:

- ▶ Baseline water quality assessments of groundwater and surface water, with the University of Texas at Arlington
  - ▶ Desktop studies to identify vulnerabilities to water resources in the area's underground cave and spring systems, with the National Cave and Karst Research Institute, a nonprofit, federal government-supported organization headquartered in Carlsbad, New Mexico, and with the New Mexico Institute of Mining and Technology
  - ▶ Ongoing, third-party expert assessments of the cultural history of the area and potential cultural sites and artifacts
-





### ENGAGING WITH THE COMMUNITY

We always strive to treat residents in our operating areas with the dignity and respect that neighbors deserve; this includes working to understand their concerns and needs. In Alpine High, we have proactively engaged with a full range of stakeholders, including community leaders, government officials, natural area managers, landowners, Native American cultural and historical experts, academic researchers and environmental groups. We have sought to work effectively with those who welcomed our work in the region as well as those who viewed our operations with skepticism.

We try to make it easy for community members to share their concerns with us and learn about our operations. In November 2016, for example, we hosted a community open house to provide an opportunity for Apache employees and local residents to discuss our operations. Moving forward, we will continue to engage with local institutions and develop partnerships. For example, we are forming a community advisory council of local stakeholders to provide an ongoing conduit for open and effective dialogue. And, we are developing a rig tour program to give stakeholders a chance to experience our operations first hand. We also implemented our corporate community compliance tracking and response system, the Apache Good Neighbor Line, in Alpine High to give residents a way to communicate with the company (see p. 107).

### MAXIMIZING LOCAL ECONOMIC BENEFITS

Apache has made a multi-decade commitment to developing Alpine High and an equal commitment to supporting our neighbors in Reeves County. Local economic benefits include jobs in the oil and gas industry, jobs and increased revenues for supporting industries and service providers, royalty and tax payments to governments, and contributions to schools and public services.

As in all of our regions, Apache actively seeks to hire locally in Alpine High. In June 2017, we hosted a job fair to encourage residents to seek employment opportunities and careers with Apache. We are proud to report that in the last few months we have added a dozen direct Apache employees who call Reeves County home.

Apache's presence in the region will also result in considerable investments in schools and local services. For example, a significant royalty owner in the area is the Texas General Land Office, whose royalty and bonus payments will go to support the state's Permanent University Fund and Permanent School Fund, which help finance Texas public schools.



"We were delighted to hear the news about what some geologists call the largest oil and gas find in a decade.... Based upon our preliminary pro forma, we think the State of Texas [education fund] will benefit with \$2 billion of leases, royalty and bonus payments [from Alpine High]."

GEORGE P. BUSH

*Texas Land Commissioner*

We aim to understand the community's needs and priorities so we can determine how best to help. For example, we learned that local Balmorhea schools have not seen the benefits of oil and gas development that have helped other West Texas schools. The needs in the community are great, so Apache has begun to make investments. Since late 2016 we have donated more than \$150,000 to the Balmorhea school system for infrastructure and technology updates and other special projects. Recently, Apache also donated a much-needed fire truck to the Balmorhea Volunteer Fire Department. As we expand our operations, we will continue to work with the communities in Alpine High to determine how we can support them.



“Saying football is important to communities in West Texas is an understatement. When our six-man football team qualified for the state championship game in Arlington, it was a big deal to our community and anyone with ties to Balmorhea. People across Texas, and even from other states, reached out to support our team, including employees from Apache Corporation. Several of their people had visited our school and knew the status of our bus fleet. They knew a charter bus would go a long way in helping us get our students to Arlington, and they stepped up to provide one.”

MANUEL ESPINO

*Superintendent, Balmorhea Independent School District*

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## **PROTECTING THE ENVIRONMENT**

Southern Reeves County is home to many natural treasures, including Balmorhea State Park, the San Solomon Springs system and the associated aquifers. Water is scarce in this area of West Texas, and we are using a wide range of measures to ensure we protect this and other environmental resources in Alpine High.

### **Safeguarding Water**

We are implementing a suite of best management practices to protect the water resources in Alpine High:

**Ongoing monitoring of groundwater and surface water** – In addition to the extensive baseline water assessment we are undertaking, we will be conducting ongoing water quality and quantity testing throughout our operations. We are also developing systems to monitor aquifer levels and water quality in existing water wells.

**Using alternative water sources** – Apache is a leader in reducing the use of fresh water in our operations by recycling our own produced water and using other nonpotable water, including brackish aquifer sources (read more on p. 55). We have already built four produced water recycling systems in the Alpine High region. We are also developing brackish water sources from the nonpotable Rustler aquifer. In Alpine High, our goal is to source 100 percent of the water needed to supplement our recycled produced water program from nonpotable water sources.

**Bolstering already-strong well integrity practices** – We are adding onsite Well Control Specialists in key areas. We are also performing weekly drills focused on preventing loss of control and conducting regular well control audits.

**Protecting underground aquifer and spring systems** – In the design of our development plans we are augmenting existing scientific knowledge of the area's spring system with studies currently underway through our academic partnerships.

**Minimizing the risk of spills** – In certain areas of Alpine High where we have elevated caution for operational risks, we are implementing closed-loop drilling systems, using liners under drilling equipment, and installing automated tank level indication and shut-in devices. We also utilize truck escorts when transporting drill cuttings for disposal.



#### **PROTECTING THE DESERT OASIS OF WEST TEXAS, BALMORHEA STATE PARK AND THE SAN SOLOMON SPRINGS SYSTEM**

Apache is committed to protecting these natural resources. Although the footprint of Balmorhea State Park and its spring system is a small part of the overall Alpine High area — the park covers approximately 40 of the nearly 400,000 acres of the resource play, or 0.01 percent — its natural beauty is cherished by many, and protecting the spring system is a key concern for both local residents and Apache. Examples of our efforts to protect this resource include the following:

- ▶ Apache has worked with the community to address specific concerns regarding development in the region. As part of this effort, we have committed to not pursuing development activities within the city of Balmorhea and within Balmorhea State Park.
- ▶ Apache is partnering with regional universities to augment current scientific knowledge through additional studies of the Cretaceous aquifer and the associated springs and cavern systems, to ensure Apache's operations do not impact local aquifer systems.
- ▶ We are developing a plan to meet our water needs that supplements an extensive water recycling program with brackish water resources, minimizing our use of fresh groundwater.



### Minimizing Air Impacts

As in all of our operations, we are implementing best practices to reduce methane leaks and other emissions in Alpine High. We are undertaking baseline air quality studies and will be tracking air emissions and quality to identify and mitigate any future impacts.

Emissions can be higher from temporary exploratory wells, like the kind we are currently operating in Alpine High, than from production wells. We are taking a number of steps to reduce air emission impacts from our exploratory wells. For example, we are:

- ▶ Shutting in flares from exploratory wells as soon as possible, even before reaching permitted flare volumes
- ▶ Using reduced-emission completions technologies, which capture methane emissions from the completion process even in temporary test wells
- ▶ Implementing the more stringent truck loading and tank emissions controls required for permanent wells on our temporary test wells

### Protecting Biodiversity

As part of our initial assessment and risk analysis process, and before placing any wells, we assessed the presence of threatened or endangered species for the entire Alpine High region and confirmed we will not be impacting sensitive areas, critical habitat or water resources. We identified a small area of critical habitat for the black-capped vireo, a federally listed endangered bird that uses the region in its annual migration. We regularly screen their designated habitat for the presence of nesting birds, and we will not operate in those areas if nesting birds are present. We are also developing training and guidance for employees on the identification of endangered species and what to do if a suspected species is identified during operations.

We are using native grasses and other locally appropriate plants when reclaiming test well sites. We have a full-time staff member in charge of biodiversity issues associated with well reclamation. We monitor vegetation at all closed and reclaimed wells for one year to ensure it is thriving. We often plant trees around existing well sites, as a complement to our Apache tree planting program (see p. 119).



### **WORKING PROACTIVELY TO ENGAGE THE COMMUNITY**

We take community concerns seriously and work with residents to find mutually agreeable solutions. Residents' primary concerns focus on environmental impacts (discussed on previous pages) and the issues discussed below.

#### **Protecting Cultural and Native American Resources**

Apache has great respect for the cultural resources of all our local communities, and we take special care to respect Native American communities (see p. 108 for more on our efforts with regard to indigenous communities). We undertook extensive archeological and cultural impact assessments in Alpine High, including regarding possible Native American cultural sites. These assessments looked at potential impacts from our own operations as well as from pipelines being developed to facilitate our operations. We are training employees how to identify a possible unexpected discovery of a potential cultural site during operations, including requiring a stop-work for any suspected cultural discovery until it can be investigated.

#### **Encouraging Driver Safety and Mitigating Road Impacts**

Our operations can increase traffic, especially truck traffic on local roads – many of which were not built to carry heavy trucks. The increase in traffic can damage roads and create safety risks and inconveniences for local residents. We have extensive driving safety and courtesy training and enforcement programs for Apache employees, including remote vehicle monitoring systems. We extend these expectations to our contractors through strict guidelines and standards on driving behavior. An Apache security team regularly monitors and enforces local driving regulations and Apache requirements. Other proactive measures to minimize our traffic-related impacts include:

- ▶ Employing a route assessment and optimization program to identify the best routes and times for our trucks to operate
- ▶ Using escort and pilot vehicles for heavy and large loads
- ▶ Managing road dust through road watering and other programs
- ▶ Regularly assessing road damage and working with relevant local officials to address concerns

#### **Minimizing Noise**

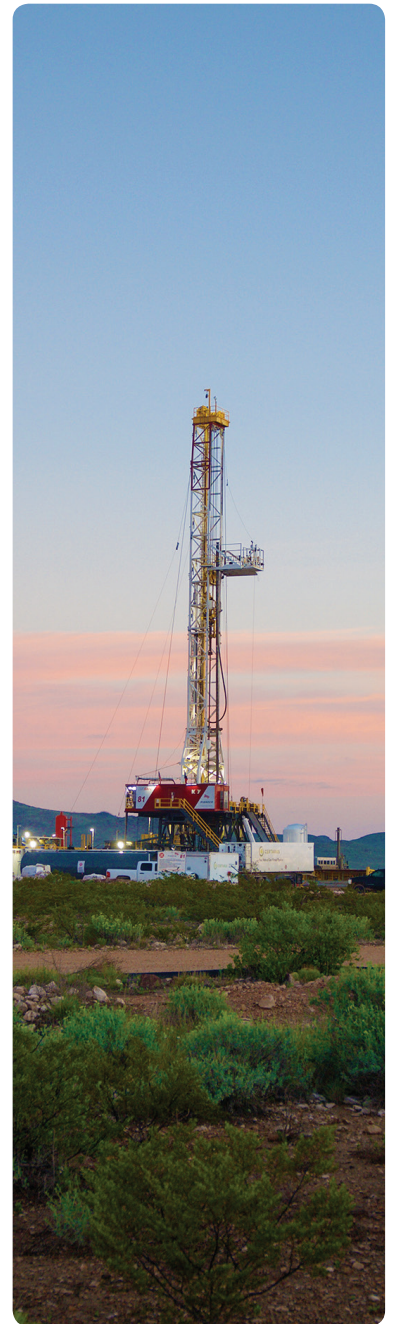
We have voluntarily imposed the city of Fort Worth's noise ordinance to our well sites within a five-mile radius of the city of Balmorea. These are some of the strictest industry-related noise regulations in the state and are more stringent than the local noise requirements. We conducted noise sampling and modeling for our drilling, completions, and compressor activities to ensure offsite equipment noise levels, at nearby private property lines, do not exceed city of Fort Worth's noise ordinance limitations.

### Protecting Dark Skies

The Alpine High area is known for its clear, dark skies. That's what makes it a perfect place for the astronomical research done at the nearby McDonald Observatory. Apache has worked proactively with the observatory to develop dark skies protections for our facilities. McDonald Observatory staff facilitated informational sessions at our San Antonio, Houston and Midland offices to educate Apache employees on key dark skies issues as well as ways to minimize lighting impacts. In addition, observatory personnel have visited our drilling locations for periodic lighting inspections. (Read more about our efforts to protect the area's dark skies on p. 103.)

### Addressing Seismicity

Oil and gas production can require the need for wastewater disposal. Though we aim to recycle as much produced water as possible, when we cannot, we use regulated disposal wells. In some instances, these types of wells have been implicated in inducing seismic activity (read more on p. 60). Apache's primary method for addressing the potential for induced seismicity is to reduce reliance on injection disposal by utilizing recycling programs for produced water as much as possible. We are also taking other steps to address induced seismicity when we do need to dispose of produced water in deep wells. Apache's analysis of potential disposal well sites includes assessing the proximity of disposal wells to populated areas. In addition, we follow the Texas Railroad Commission's stringent requirements for produced water disposal, including evaluating and avoiding possible fault lines. We also conduct analyses of possible seismic impacts before disposing of wastewater in injection wells. Before using third-party disposal wells, we conduct audits to ensure the disposal provider and their wells are in compliance with regulations. Apache encourages others in the exploration and production industry to conduct wastewater disposal responsibly.





# ENVIRONMENT▲





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At Apache, protecting the environment is part of the mission and Core Values that guide our daily work. At every stage of our business, we consider how our behaviors affect the planet and seek to reduce our impacts – from limiting impacts on sensitive species and habitats, to protecting water quality and finding alternatives to freshwater use, to reducing the lifecycle methane emissions of our operations, to engaging our employees in waste reduction programs.

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**0.36%** OR LESS

our methane emissions intensity goal by 2025; we are on track to meet this goal

**97%**

of Apache's water withdrawals were nonpotable in 2016





We deliver on our Core Value to “take environmental responsibility seriously” in many ways. First and foremost, Apache is committed to complying with regulatory requirements applicable to our business. We seek to go above and beyond regulations by being good stewards of the land and water in our areas of operation and maximizing the environmental benefits of the resources we produce. We harness the innovative spirit of our operations staff, as well as their technical and scientific expertise, to develop new, industry-leading methods for conserving water, reducing emissions and protecting land. This commitment is backed up by a comprehensive Health, Safety, Security and Environment (HSSE) management system (see p. 37) and an internal audit system designed to help ensure that we accurately measure and achieve compliance (see p. 27).

As shown in our Key Performance Data section (see p. 125), our efforts to reduce environmental impacts are paying off: We have consistently improved in our major environmental performance metrics since 2012.



#### **ADVANCING OUR ABILITY TO OPERATE RESPONSIBLY**

Due to continuing low commodity prices, 2016 was a year of reduced activity for Apache. But that doesn’t mean we weren’t busy. We initiated and progressed a range of research projects that will help us improve our environmental performance. Innovation and relentless improvement are Core Values at Apache, ones we don’t let rest just because commodity prices are low. Some of the projects we began in 2016, described in more detail elsewhere in this report, include:

- ▶ Initiating multiple studies to assess baseline water quality and enhance understanding of the aquifer and spring systems in the Alpine High area [p. 44]
- ▶ Improving well cement testing methods [p. 54]
- ▶ Increasing our understanding of how hydraulic fracturing additives perform and respond in high-heat and high-pressure environments [p. 59]
- ▶ Investigating opportunities to replace biocides with nontoxic biocatalysts and enzymes in hydraulic fracturing fluids [p. 59]
- ▶ Piloting an electrokinetic system for saltwater remediation [p. 72]
- ▶ Field testing an innovative approach to reduce volatile organic compound (VOC) emissions using tree fungus [p. 67]

# WATER QUANTITY AND QUALITY ▲

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At Apache, we understand that water is a precious resource, and we aim to minimize our use of fresh water. We seek innovative ways to reuse and recycle water, use nonpotable water sources, and reduce the amount of water required for our operations. We also follow stringent procedures for safeguarding water quality and handling produced water responsibly. In addition, we collaborate with governments and other stakeholders to identify important local water issues and work to find locally beneficial alternatives to fresh water. See our Water Withdrawals by Region data table on p. 127.

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## **SAFEGUARDING WATER QUALITY**

We test water quality prior to beginning operations in a new area. This ensures that we obtain background water-quality data prior to commencing activity. We also require post-drilling water-quality monitoring as needed based on the location's risk profile.

Ensuring the integrity of our wells is another way Apache safeguards water quality. We take great care to minimize the chances of any well failure that could impact local water resources. Our engineers, geologists and geophysicists design our well drilling and completion plans based on a detailed understanding of local geologic and operational conditions for the entire zone of impact for each well they drill. They also consider the potential for impact to adjacent wells or faults and include mitigations to prevent adverse impacts. Depending on well spacing and fracture direction, fracture volumes and pressures can be adjusted and nearby wells remotely monitored using appropriate surveillance technologies.

We carefully design the surface casings for our wells to protect freshwater resources. This includes verifying well quality with pressure tests and physical inspections. We monitor and record essential data from cement jobs and performance evaluations to ensure adequate isolation of producing intervals, including zonal isolation from protected water resources. We use advanced cement testing methods, including cement bond logs, ultrasonic testing and temperature testing, to ensure the cement has bonded properly to the protective casing and the formation. We also require pressure testing and monitoring of all hydraulic fracturing operations.

In 2016, we joined with the Colorado School of Mines in a study to develop better testing methods for the section of well casing just above what is known as the "shoe," or the end of the well casing. This testing process will improve upon cement bond logs and other current testing procedures by allowing direct testing of the lowest well casing sections and by more effectively sensing small channels that can be present in the well cement.



# USING ALTERNATIVE WATER SOURCES ▲

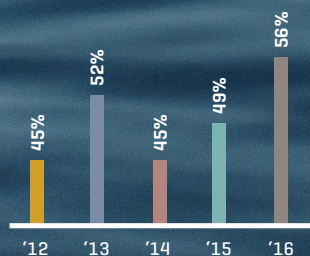
## APACHE'S LEGACY OF LEADERSHIP

56%

of Apache's total water withdrawals were recycled or reused in 2016

### WATER RECYCLED/REUSED 2012-2016

Total Volume Recycled/Reused<sup>10</sup> as a Percentage of Withdrawals [%]



<sup>10</sup>Recycled and reused water is defined as water used for a new or similar purpose. This includes water used for enhanced oil recovery.

Apache has been an industry leader in finding alternative water sources in order to minimize our use of valuable freshwater resources. We are proactive in seeking out alternative sources in all of our operating regions, especially in areas of the United States and Egypt that could be considered “water scarce,” depending on conditions, location, pricing and regulations. Apache was one of the first operators in Texas, a state with many water-stressed areas, to implement innovative approaches for using nonpotable water, including brackish water and produced water recycled from our own operations. We understood there was a high level of public concern about water use by our industry, and we wanted to demonstrate we could operate with alternatives to fresh water. Furthermore, our early efforts were driven by a severe drought in Texas; many of our employees there are locals who were also interested in conserving fresh water.

Our ability to use alternative water for hydraulic fracturing – especially our ability to treat and reuse produced water – is linked to our level of drilling activity. Below some threshold, activity levels do not support the infrastructure or treatment processes required for successful reuse of produced water. In 2016, we significantly cut back drilling and completions in response to continuing low commodity prices. As a result, we treated and recycled much less produced water than in previous years. But we have a long-standing commitment to – and track record of – using alternatives to fresh water, which we will continue as we ramp up drilling again.

We began our search for alternative water sources in the Barnhart area of the Wolfcamp Shale in Irion County, Texas. There, we developed a way to use brackish water from the Santa Rosa aquifer – water that is far too salty to be used for drinking water – for hydraulic fracturing. We developed treatment systems to remove magnesium, iron, bacteria, organic material and fine solids from the water, as these materials can complicate water chemistry and damage pipelines, pumping equipment and the formation. We also developed storage, treatment and containment systems to hold the water until it could be pumped to operating sites in the area. We have replicated and substantially upgraded this system in other areas, using it to treat brackish water and recycle our own produced water.

The systems we have developed allow us to avoid using fresh water needed by municipal water systems, farmers and others in our local communities. In addition, recycling water helps reduce the costs associated with purchasing and transporting water and disposing of wastewater in deep injection wells.



We tailor our efforts to use alternative water sources to each of our regions and seek solutions that take advantage of specific opportunities that benefit local communities. For example, Apache developed a strategy with the city of College Station, Texas, and the Texas Commission on Environmental Quality to use treated municipal wastewater from that city's treatment plants – water that would otherwise be a waste stream. Since beginning this project in 2015, we have purchased 4.1 million barrels (more than 170 million gallons) of this treated municipal wastewater. We also utilized municipal wastewater in our former Canadian operations.

Today, we continue to use alternative water sources and recycle produced water as much as possible. We collect, store and treat produced water for reuse. We transport this water by pipeline to company drilling sites where infrastructure is available and by truck when pipeline infrastructure is not available. In the Alpine High play, our newest oil and gas discovery, we have already built four produced water recycling systems (see p. 46). We also continue to use alternative water sources in Texas, Oklahoma and Egypt. See the Key Performance Data section for complete data on our water use (p. 125) and Water Withdrawals by Region (p. 127).

▲  
“Using alternatives to fresh water is a win-win-win as far as I’m concerned. In addition to working for Apache, I own land in West Texas and I run cattle, so having fresh water is very valuable to me personally. The fact that Apache has led the way in using nonpotable water is a huge benefit for everyone. It conserves fresh water for local residents and ranchers. Moreover, it benefits Apache, saving the cost of trucking water in and out, reducing wear on roads and eliminating the need for wastewater disposal.”

GREG HICKS  
*Apache Senior Advisor*

▲  
In West Texas – one of our primary operating regions and a water-stressed area – we have used an average of approximately 40 percent nonpotable water to run our completion operations over the past four years. This nonpotable water has included brackish water, recycled produced water and municipal or industrial wastewater.



GREG HICKS



# ALTERNATIVE WATER SOURCES ▲

## CONSERVING FRESHWATER RESOURCES

### ALTERNATIVE WATER SOURCES APACHE USES

1



Brackish  
water from  
nonpotable  
aquifers



Recycled  
produced  
water



Purchased  
municipal  
water

2

This water is collected, treated, tested  
and pumped to wells for use

3

This recycled and reused water is used in  
hydraulic fracturing, enhanced oil recovery  
and other operational activities



**50%**

average amount of water  
recycled or reused for the  
past 5 years



**97%**

water withdrawals in  
2016 that were nonpotable

**4.1+ million  
barrels**

amount of municipal  
wastewater we've  
purchased to avoid  
using fresh water  
in our operations

### BENEFITS OF USING ALTERNATIVE WATER SOURCES



Preserves fresh water  
for other uses



Reduces water sourcing  
and wastewater disposal  
costs for Apache



Reduces the amount  
of water that needs  
to be disposed



## MANAGING PRODUCED WATER

Produced water is water that comes from oil and gas wells during the production process and is the primary source of the water we manage. It is typically brine and can contain minerals and organic materials, depending on formation characteristics. We handle this produced water very carefully to avoid impacting soil, groundwater and surface water quality.

Produced water is collected and separated during production activities and stored in closed tanks or highly engineered, lined and continuously monitored impoundments. We routinely inspect holding tanks and transfer pipes to ensure we prevent leaks. Loss of primary containment is rare, but, should it occur, we have secondary containment and detailed spill prevention, countermeasure and control plans to address losses.

As much as possible, we reuse produced water for enhanced oil recovery and well completion activities (see p. 55). When this is not possible, we dispose of produced water in permitted injection wells in accordance with regulatory requirements and industry best management practices.

## GREENER CHEMICALS FOR HYDRAULIC FRACTURING

Hydraulic fracturing fluid is typically composed of water, sand and a small amount of chemical additives used to facilitate the fracturing process and protect the well from damage. The content of these additives, and the potential for their accidental release into water supplies, is a commonly noted concern. We are taking many steps to use "greener" chemicals in our operations, to help minimize these risks.

The additives in our hydraulic fracturing fluids serve five primary functions:

- ▶ **Friction reducers** minimize friction and pressure in the well casing. They allow the fluid to carry more sand into the fractures, making them wider and more permeable in order to produce oil and gas. Friction reducers also reduce the horsepower required to fracture the well, which lowers emissions from pressure pumping.
- ▶ **Gel systems** thicken water to allow it to carry more sand into the fractures.
- ▶ **Scale inhibitors** prevent scale from forming in the well casing. Scale can slow the flow of oil and gas to the surface and degrade the casing.
- ▶ **Surfactants** are detergents that help wash out contaminants downhole so the well can yield more oil and gas.
- ▶ **Biocides** reduce bacterial growth in the well, as such growth can damage both the casing and the producing formations.

In short, friction reducers, gel systems and surfactants are used during hydraulic fracturing to maximize the release of hydrocarbons into the wellbore. Surfactants, biocides and scale inhibitors are used during and after hydraulic fracturing to ensure the hydrocarbons flow and to protect casing integrity.

## Disclosing Chemical Data

Apache has been an industry leader in transparency about hydraulic fracturing additives. We report all of our U.S. hydraulic fracturing activity to the [FracFocus.org](https://www.fracfocus.org) website (described below). We also follow Texas' more stringent disclosure regulations in all of our U.S. operating locations.

Apache has actively promoted industry participation in the FracFocus chemical registry. This web-based

~55%

decrease in the environmental risks associated with our hydraulic fracturing additives, achieved by decreasing the volume of toxic chemicals we used in hydraulically fractured wells in 2016

system publishes detailed information about chemicals used in hydraulic fracturing on a well-by-well basis and links to a geographical coordinate system within GoogleMaps. On FracFocus.org, authorities and reporting agencies can gather and analyze information on any dataset, and the public can easily determine the details of chemicals used in specific wells or areas.

Some vendors and chemical suppliers maintain legal rights granted by state or federal authorities to protect intellectual property and refuse to fully detail the composition of additives. Working with vendors, we have developed and use self-sourced fracturing chemicals with lower environmental risk so that we can reduce the use of unknown chemicals that can be held as confidential business information. We also help our vendors develop procedures to ensure that data from well completions is submitted to the FracFocus website.

#### **Chemical Risk Reduction Strategies**

We are working to reformulate the chemicals we use in fracturing, including through collaboration with service companies to identify chemical and technological alternatives that lower the potential environmental impacts of fracturing chemicals. We do periodic reviews of FracFocus information and meet with vendors and regional experts to discuss using more sustainable chemical alternatives.

We encourage service companies to provide environmentally responsible chemical additives at economically acceptable prices. We are also working to reduce the use of benzene, toluene, ethylbenzene and xylene (BTEX) as well as endocrine disruptors and carcinogens listed by the U.S. Environmental Protection Agency (EPA). And, we are using additives with less risk of bioaccumulation and that are more biodegradable. We require using alternatives to BTEX whenever reasonably practicable.

We are on the forefront of incorporating recently developed “dry” hydraulic fracturing technologies. For example, we are replacing liquid guar slurry, friction reducers and scale inhibitors with powdered materials where feasible. Using powdered materials has many benefits. It significantly reduces the volume of liquid chemicals that need to be transported by truck, which in turn lowers truck emissions and improves road safety. Dry fracturing also reduces VOC emissions and risks relating to handling, containment and spills. We are also creating certain chemicals onsite, thereby eliminating the need to transport them.

#### **Collaborating to Advance Greener Chemicals**

Apache is promoting industry and academic collaborations to further the use of greener chemistry in the oil and gas industry. Some of our key partnerships and research projects include the following:

- ▶ **Researching alternatives to biocides with the American Chemical Society’s Green Chemistry Institute** – Apache was a founding member of the Green Chemistry Institute’s Hydraulic Fracturing Roundtable, and an Apache employee is the current chairperson. The roundtable is a consortium of operators and service companies that pool and attract resources to develop more effective and sustainable chemistry for common hydraulic fracturing needs. With this group, we are currently researching opportunities to use biocatalysts and enzymes to replace biocides in hydraulic fracturing, which would provide a nontoxic way to address biomass accumulation in hydraulically fractured wells.
- ▶ **Understanding the environmental fate of hydraulic fracturing additives with the University of Texas at Arlington** – In 2016, we initiated a multi-year study to help understand how fracturing additives change and behave under high pressures and temperatures throughout the well fracturing process. We will use the results of this study to advance our efforts to use more environmentally friendly fracturing additives and better control the impact of additives on the environment.

# SEISMICITY AND OIL AND GAS OPERATIONS ▲

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The potential for induced seismicity from industry operations, especially with respect to injected wastewater disposal, has received substantial media and public attention recently. Apache has been attentive to the topic for quite some time, as have state regulators in the areas where we work.

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The scientific community is studying the potential for earthquakes that can be felt at the surface due to fluid injection (saltwater disposal). According to the U.S. Geological Survey, the risk of occurrence is or can be impacted by variations in several factors, including:

- ▶ The injection rate and total volume of fluids injected
- ▶ The presence of pathways for the fluid pressure to travel from the injection point to faults
- ▶ The presence of certain types of faults that are large enough to produce felt earthquakes
- ▶ Increased pressure in the pores and fractures of the rocks caused by fluids within the formations in the disposal zone
- ▶ The magnitude and orientation of stresses that are acting on faults

Apache's primary strategy for mitigating potential induced seismicity is reducing the amount of water we need to dispose in the first place by recycling and reusing produced water in our own operations. In addition, we are exploring ways to recover and reuse water that has already been disposed in injection wells, which could reduce water pressure in disposal reservoirs. These practices have the added benefit of reducing our freshwater needs (see p. 55).

In an effort to be on the leading edge of these strategies, we collaborate with institutions of higher learning, including Stanford University, and fund research to better understand and model the fundamentals of induced seismic activity. For example, we support and engage with the [Center for Integrated Seismicity Research](#), which is housed at the University of Texas' Bureau of Economic Geology, and the state of Texas' TexNet project, a seismic monitoring effort.

Saltwater disposal wells in the U.S. have been regulated for decades under the EPA's Underground Injection Control program. In most oil and gas states, the EPA delegates authority to state agencies to oversee and issue the required permits. State regulators determine satisfactory permitting criteria for drilling and operating saltwater disposal wells. In states where Apache currently operates, regulators have recently enhanced disposal well regulations. For example, the Texas Railroad Commission now requires the assessment of land up to 100 square miles surrounding a new disposal well. If significant seismic events that require further research occur, the Commission will require changes to the permitted rate, volume or injection depth, or possibly deny a permit.

In support of these efforts, we share our technical expertise with regulators – via official testimony, requested reviews of proposed regulations and other means – to advance strong and effective regulations. This sort of input has resulted in significant improvements to operating and reporting rules.

Regulators in all U.S. states and Canadian provinces where Apache operates have the authority to limit or halt injection if they suspect links to seismic activity. These powers have been invoked when seismic activity has occurred near saltwater disposal wells with respect to operations not involving Apache.

The process of hydraulic fracturing itself is not considered by the scientific community to be a significant seismic hazard. Fracture height growth is controlled by several natural barrier mechanisms, including formation stresses and impermeable fracture barriers as well as direct control of fracturing. Apache monitors the pressure and rate of all hydraulic fracturing and uses proven monitoring methods, such as tracers, microseismic listening and real-time offset well pressure reporting where appropriate. If any unusual fracture growth is noted, the fracturing is modified or stopped. We also avoid fracturing “out of target section” into overlying or underlying rocks that do not contain hydrocarbons, because that introduces unwanted fluids (such as salt water) into the production. Apache is leading industry studies by the Society of Petroleum Engineers on how to avoid potential damage from fracture communication with other wells.



# AIR EMISSIONS ▲

Greenhouse gases (GHGs) are emitted from the production of oil and natural gas, from methane leakage during production and transport, and from the ultimate burning of oil and natural gas to produce energy. We are working to reduce the impacts of our operations on all of these fronts.

## REDUCING FUGITIVE METHANE EMISSIONS

Natural gas that escapes into the atmosphere between the wellhead and the end user is referred to as the “leak/loss rate,” and these escaping emissions raise the lifecycle carbon intensity of natural gas and reduce the amount of natural gas operators can sell. The reduction of these emissions is therefore an important environmental and economic issue for natural gas producers. We are working hard to reduce our own leak/loss rate and to collaborate with others in the industry to develop better approaches to leak detection and reduction.

Apache is a charter member of the ONE Future Coalition, a group of 10 companies from across the natural gas value chain, including the production, processing, transmission and distribution sectors. In 2016, ONE Future worked with EPA and White House staff to develop and implement voluntary programs that will reduce emissions of methane to less than 1 percent of total methane production across the natural gas value chain. The upstream sector target committed to by ONE Future is 0.36 percent or less of methane emitted from 2025 gross methane production. Apache has adopted this same goal. Currently, we are working with the American Petroleum Institute to develop and track voluntary activities to reduce methane emissions.

These types of voluntary programs provide operators with the flexibility to reduce methane emissions in the most efficient manner possible using innovative techniques that they determine, which avoids the pitfalls of traditional command-and-control regulations.

We use a range of methods to minimize methane leaks, such as careful design and engineering of new facilities and preventive maintenance programs. We adhere to applicable design standards and use equipment specifically designed to perform in severe service conditions, where the materials produced are more corrosive. Our prevention maintenance programs utilize historical operational data to facilitate proactive upkeep, repair and replacement programs and help to minimize methane leaks from equipment by preemptively identifying maintenance issues or improperly functioning equipment.

Leak detection is an ongoing and regular part of Apache employees' onsite activities. New and existing facilities are inspected during regular operations. Field employees are trained to perform olfactory, visual and audio (OVA) inspections for possible leaks as a part of their overall competency training. New employees must demonstrate competency in safety and operating requirements, such as OVA inspections, before conducting field work without the supervision of more experienced employees. See the diagram at right which describes the components of an OVA inspection.

## OLFACTORY, VISUAL AND AUDIO INSPECTION



Identify abnormal odors, which could indicate the presence of leaking natural gas, some components of which have a strong odor



Observe site conditions and note changes in equipment and the site, which could be related to or result in leaking equipment



Listen for auditory cues that equipment is not operating correctly and may be leaking

Our objective is to repair leaks at the time they are detected, and when this is not possible, the leak is repaired when required resources become available and safe operating conditions can be assured. Leak repair can be delayed slightly if replacement parts are not onsite, repairs require facility shut down, or the source of the leak cannot be detected at the time of initial discovery. If the leak source cannot be identified with OVA inspections, we use optical gas imaging (OGI) cameras to identify the leak and verify that it has been repaired successfully.

OGI cameras, which are similar to “night vision” cameras, distinguish between temperature differences to detect escaping gas, which appears as a white or black cloud relative to the ambient air. Opgal and FLIR manufacture two of the commonly used cameras. All employees and contractors using OGI cameras are trained to ensure the cameras are used correctly. Select employees increase their knowledge by attending advanced training courses to attain certification.

As a part of our leak detection and repair (LDAR) program, all facilities constructed after September 2015 are inspected with an OGI camera before they come online, to verify that our design and construction plans do indeed prevent leaks as expected. The inspections focus on all the components of the facility that have a potential for methane leakage including actuators, flanges, manifolds, pressure vessels, tanks and valves. These facilities are reexamined annually with an OGI camera. We also use OGI cameras to inspect wellheads, compressor stations and buried pipeline routes near residential communities and public facilities.

We continue to enhance our LDAR program to support compliance with new regulations, and we are evaluating alternative methane detection tools as a supplement to optical gas imaging technology.



#### **DECREASING PRODUCTION-RELATED GHG EMISSIONS AND ENERGY USE**

We are working to decrease production-related GHG emissions and energy use by improving the efficiency of our production processes and using lower-emission energy sources to power our operations. We include GHG emission reductions in management and employee compensation incentives. Our AIM for Zero HSSE program (see p. 83) also includes cash awards for GHG reductions.

We seek to minimize emissions by reducing the venting and flaring of gas. We flare gas from oil wells only when pressures and volumes are too low to access pipeline capacity or when there is no pipeline infrastructure immediately available, as can be the case with test wells. In our Alpine High play, where we are in the early stages of exploration and development and have a relatively large number of test wells, we are shutting in those wells to eliminate flaring long before we have reached our permitted flaring amounts. (To read more about Alpine High see p. 39.) We also conduct reduced-emission completions, a process that captures gas produced during well completions and workovers so it can be processed for sale rather than flaring it. In 2016, we performed reduced-emission completions for 100 percent of the natural gas wells completed using hydraulic fracturing.

We avoid directly venting natural gas wherever practicable. We flare rather than vent if some form of gas release is required for safety or other reasons, because flaring has lower GHG impacts than venting.

We also have practices in place to reduce emissions from planned events such as liquids unloading and compressor blowdowns. In 2016, emissions from planned events were less than 0.5 percent of our total GHG emissions.

In 2016, we completed projects that increased our operational efficiency and reduced emissions. The projects accounted for a reduction of approximately 120,000 tonnes of carbon dioxide equivalents (CO<sub>2</sub>e). These efficiency projects – which included electrification, power efficiency and operational changes – will also contribute profit to our bottom line by reducing operating costs.

Three of these projects were in our Egypt operations:

- ▶ We installed a crude oil pipeline that reduced diesel fuel used for truck hauling.
- ▶ We ran overhead electrical transmission lines from production facilities to oil and gas fields to reduce diesel generation fuel use.
- ▶ We installed new compressors at production facilities to reduce flaring.

Where we have access to the electrical grid at well sites and facilities we prefer to power the operations using electricity rather than with internal combustion engines, which reduces fuel consumption and associated GHG emissions.

In addition, Apache installs low-bleed or no-bleed natural gas or compressed air pneumatic controllers, which have reduced methane emissions, on all new facilities. In our U.S. onshore operations, 35 percent of existing controllers are high-bleed natural gas pneumatic controllers. We are also replacing high-bleed pneumatic devices with reduced-emission alternatives when economically feasible. As a part of the ongoing program to replace high-bleed controllers, Apache's Permian region reported that compressed air pneumatics had been installed at five new facilities. High-bleed controller replacements reduced methane emissions by 34,500 tonnes of CO<sub>2</sub>e in 2016.

#### Using Natural Gas in Place of Other Fuels

Natural gas is a cleaner-burning alternative to coal, diesel and gasoline. Using natural gas to power drilling and completion operations can displace up to 70 percent of the diesel fuel normally used. It also lowers costs and can solve logistical problems related to transporting and storing diesel at the rig sites. We have converted drilling rigs, completions equipment and vehicles to use natural gas power, to reduce our carbon footprint and our fuel costs.

In 2016, for example, we installed a pipeline to supply natural gas to power turbine generators at our Aviat gas field in the U.K. North Sea. Also, we were one of the first companies to use natural gas to power our hydraulic fracturing stimulation equipment, which is one of the most energy-intensive parts of the natural gas production process. We have worked with suppliers to develop systems that quickly connect natural gas to our pumping engines, making natural gas a viable fuel to rapidly and routinely move from job to job.

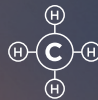
More than 40 percent of our U.S. vehicle fleet runs on compressed natural gas (CNG), reducing emissions and fuel costs. The company has also provided funding to help our employees convert their personal vehicles to run on CNG and donated to charitable organizations and local municipalities to help them convert their vehicles to run on CNG.

**65%**

of the pneumatic controllers in our U.S. onshore operations are intermittent, low- or no-bleed devices


# REDUCING METHANE EMISSIONS ▲

## PROTECTING AIR QUALITY




### WHAT IS METHANE?


Methane is a naturally occurring resource that Apache extracts from the earth and is the major component of natural gas.



**0.36%**  
Apache's methane emissions intensity goal by 2025



**0.43%**  
Apache's methane emissions intensity in 2016



**12%**  
Reduction in Apache's methane emissions intensity from 2015 to 2016



### DRILLING & COMPLETIONS

We use reduced-emission completions in 100% of our hydraulically fractured wells, which reduces emissions from flaring and recovers natural gas otherwise lost in the completions process.

When needed, Apache preferentially flares rather than vents gas, and only vents when dictated by safety or operational conditions.

In new areas of development, limited pipeline infrastructure can necessitate flaring. However, once pipeline infrastructure is complete, flaring and associated emissions decrease as gas is captured and put in pipelines.



### PRODUCTION

We use special equipment and processes to capture emissions that are commonly released during production. For example we use vapor recovery units, we capture tank emissions, and we use plunger lifts to reduce methane emissions from gas well liquids unloading.

We routinely inspect facilities for natural gas leaks and fix them immediately.

We use OGI cameras to identify leak sources and confirm repair effectiveness.

We also install low-bleed or no-bleed pneumatic controllers, which have reduced methane emissions, on all new facilities; we are replacing high-bleed controllers across our operations.

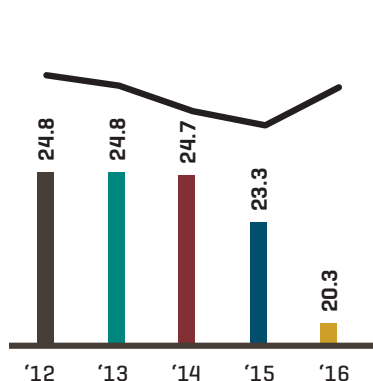
## AIR EMISSIONS PERFORMANCE

Apache tracks carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) emissions from our drilling, completion and production operations. To determine our overall GHG inventory, we monitor a range of emission sources, including combustion, storage, loading and transport, flash gas, flaring, dehydration, venting, fugitive emissions, electricity and gas processing.

We focus on emissions intensity, rather than on gross GHG tonnage, to gauge our progress and performance in controlling emissions and the success of our efforts to improve operational efficiency. Emissions intensity is calculated by dividing annual emissions by annual production volume. We do not target gross GHG emissions because they are skewed by numerous variables, including the divestiture or acquisition of facilities, commencement of new facilities, declining gas and oil production at old facilities, and changes in equipment, regulations and/or transport availability. Emissions intensity is a better metric as it accounts for and normalizes these kinds of operational changes over time.

Our global methane emissions intensity, or methane leak/loss rate, was 0.43 percent of our total gross methane production in 2016, down from 0.49 percent in 2015. Methane emissions intensity accounts for gas vented directly to the atmosphere during compressor maintenance, well blowdowns, pipeline blowdowns and fugitive emissions, as well as unburned methane in the exhaust from combustion sources, engines and flares. While there has been some fluctuation in this metric over time, we have seen an overall downward trend, with a decrease of 43 percent since 2012.

### APACHE GLOBAL GHG EMISSIONS INTENSITY<sup>11</sup>

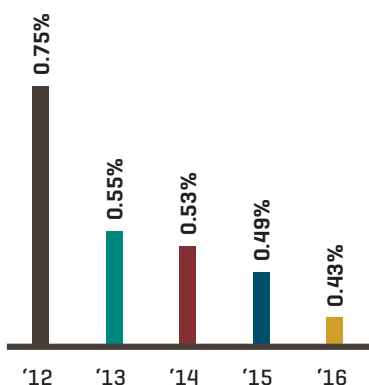


Emissions intensity  
(tonnes of CO<sub>2</sub>e/MBOE)

— Gross Mboe

<sup>11</sup> Approximately 90 percent of our emissions are determined using engineering calculations, EPA emissions factors and IPIECA and API AP-42 emissions factors for the oil and gas industry. "Mboe" stands for thousand barrels of oil equivalent.

### APACHE GLOBAL METHANE<sup>12</sup> EMISSIONS INTENSITY [leak/loss rate]



<sup>12</sup> Approximately 90 percent of our emissions are determined using engineering calculations, EPA emissions factors and IPIECA and API AP-42 emissions factors for the oil and gas industry.

**13%**

decrease in GHG emissions intensity in 2016 compared to 2015



# HARNESSING THE POWER OF FUNGUS ▲ TO REDUCE VOC EMISSIONS AT WELL SITES

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There's a fungus among us at an Apache well site in Snook, Texas, and it's working hard to reduce volatile organic compound emissions. In 2016, Apache collaborated with researchers at Texas A&M-Kingsville and the Houston Advanced Research Center to field test the use of a tree fungus that eats VOC emissions. Researchers installed a mobile reactor on the well pad filled with water, oxygen and the fungus. They captured the low-level VOC emissions that are normally vented from the well site and ran them through the reactor, which eliminated up to 90 percent of the VOCs. In addition to supplying the test site, Apache employees helped researchers improve the reactor to increase VOC uptake. The process is now being fine-tuned and improved for potential wider-scale application.



This mobile unit, which houses a reactor filled with VOC-eating tree fungus, was tested at an Apache well site in Texas where it removed up to 90 percent of emissions from the site's tank battery unit.



# WASTE ▲

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Apache's primary solid waste streams are drilling residuals and waste from our office buildings. We also are prepared to address the presence of naturally occurring radioactive material (NORM).

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## **DISPOSAL OF DRILLING RESIDUALS**

Drilling residuals are the mixture of mud, cuttings and drilling fluids that come out of a well during the drilling and completion process. We capture drilling residuals onsite and dispose of them based on composition and in accordance with applicable regulations in the given operating area.

## **MANAGING NATURALLY OCCURRING RADIOACTIVE MATERIAL**

NORM may sometimes be found in rock formations where oil and gas operations are taking place. Trace amounts of radioactive isotopes that exist in the rocks can be transported to the surface in produced water from oil and gas formations. In most cases, the elements encountered are barium and radium, which present measurable radioactivity above natural background levels only when aggregated or highly condensed. In oil and gas production operations, concentration of NORM can occur when specific scale materials build up over time in water handling equipment. Radioactivity levels are very low and only pose a concern to workers if the material comes into prolonged direct contact, or is ingested or inhaled.

When Apache's operations generate produced water that may contain NORM, we carefully monitor water handling operations to reduce precipitation or deposits that can concentrate NORM. We routinely survey production equipment for the presence of NORM and take appropriate measures to prevent human exposure if it is detected. If NORM is found to be present, equipment with activity levels above regulatory thresholds will be labeled to advise workers of the presence of NORM and to prevent disturbance of the scale material. Equipment containing NORM will be decontaminated by service companies specializing in the management of NORM whose workers are trained to manage the material in a manner that prevents exposure. The removed NORM materials will be disposed of in accordance with applicable regulatory requirements to isolate the material from any future exposure.



#### AIMING FOR ZERO OFFICE WASTE

In 2016, Apache launched a revitalized recycling initiative at our corporate headquarters in Houston entitled AIM for ZERO waste. This initiative grew out of a third-party audit of office-related waste that found we were diverting 53 percent of total waste from landfill. That wasn't a bad score, but we knew we could do better. We developed the AIM for ZERO waste program to address specific areas for improvement identified in the audit and to engage more employees in reducing waste to landfill.

We kicked off the program with an Earth Day event at which employees signed a pledge to stop using polystyrene foam packaging (i.e., Styrofoam); reduce, reuse and recycle materials whenever possible; and adopt and implement other Earth-friendly habits beyond the workplace. As part of this effort, Apache made it a policy to stop purchasing polystyrene cups and instead equipped the breakrooms with ceramic cups, inscribed with the new AIM for ZERO program logo. We also communicated opportunities for recycling within the building through education and improved labeling.

We also reevaluated purchasing methods and worked with suppliers to reduce packaging and other noncritical waste coming onto the property. We have dramatically reduced paper use and associated paper waste by implementing a new approach to printing (see case study on the following page). We are continuing our commitment to recycling electronic waste as well; we recycled approximately 46.2 tons of this type of waste in 2016. And, we began offering reusable to-go food containers in our corporate dining facility, which we estimate has already eliminated more than 11,000 nonrecyclable polystyrene to-go boxes that otherwise would have ended up in the landfill.

In 2017, we rehired the third-party auditor to measure our progress. Our Houston office had improved significantly, with a landfill diversion rate of 70 percent – an improvement of nearly 20 percentage points from a year earlier.

Also in 2017, we expanded the AIM for ZERO waste program to our Midland and San Antonio offices. Both kicked off the program on Earth Day, modeling their activities after the corporate office initiative. The Midland office conducted a third-party waste audit in early 2017 to develop a baseline for its improvement and scored a 54 percent for total diversion of waste from landfill. A follow-up assessment will be conducted during the first quarter of 2018. The San Antonio office will conduct its first waste audit in early 2018 to establish a benchmark score.

## CASE STUDY ▲

### LITTLE THINGS ADD UP: APACHE'S NEW PRINTING STRATEGY IS REAPING ENVIRONMENTAL AND COST REWARDS

In 2016, as part of an effort to reduce costs and paper use, Apache launched a new printing strategy in which we replaced most in-office, single-user printing and copying devices with a few larger, central units on each floor. The results have been impressive. In the past year, Apache's Houston and Midland offices have reduced daily printing and copying paper use by about 300,000 pages per month, or the equivalent of not cutting down two dozen trees each month. Paper costs have also been reduced by 27 percent.

In this transition, Apache took approximately 600 printing devices out of service. We are recycling or repurposing all of these, as part of our commitment to handling IT waste responsibly.

Reducing the number of printers and copiers has also reduced energy use and its associated costs and emissions. In addition to reducing the electricity needed to run the printers and copiers themselves, the smaller number of machines has reduced in-room air temperatures, lowering cooling-related energy use.

Apache also sources paper responsibly. 100 percent of our daily use office and copier paper is certified by the Sustainable Forestry Initiative, which ensures that forests are managed sustainably to provide long-term benefits for the environment and local communities – including benefits such as clean air and water, habitat for wildlife and protection for species at risk.

"I've been really pleased by how many different benefits we've seen from this change in our printing strategy," said Rachel Roan, Apache's IT customer support supervisor. "We knew it would cut some costs and save some paper. But the magnitude of the improvements has been amazing. We've cut paper use by nearly 45 percent, which we estimate has saved over 250 trees in the past year. The add-on benefits of energy savings are great too. All the little improvements keep adding up, and up and up."

↓ **27%**  
decrease in paper costs

▲  
In the past year, Apache's Houston and Midland offices have reduced daily printing and copying paper use by about 300,000 pages per month, or the equivalent of not cutting down two dozen trees each month.



↓ 28%

fewer hydrocarbon spills  
greater than one barrel in 2016  
compared to 2015

## SPILLS ▲

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To minimize the possibility of spills, we continually monitor asset integrity. We also train employees to identify and mitigate risks as part of their regular job duties, and we select contractors who do the same.

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In the event a spill does occur, field personnel respond promptly, following a carefully planned spill response protocol to detect the spill location and alleviate the potential for damage. We have detailed response plans for all our operations. We are also committed to following all local and national cleanup and reporting requirements. (Read more about our crisis and emergency management process, which includes spills management, on p. 86.)

In 2016, we had 299 hydrocarbon spills to the environment that were greater than one barrel in size, down from 417 in 2015.

### RESPONDING TO OFFSHORE SPILLS

The Marine Well Containment Company (MWCC), of which Apache is a member company, was formed by major oil companies in the wake of the 2010 Gulf of Mexico oil spill. Its proprietary system was designed and built for use in the deepwater U.S. Gulf of Mexico in water depths from 500 feet to 10,000 feet, temperatures up to 350 degrees Fahrenheit and pressures up to 15,000 pounds per square inch. The system has the capacity to contain up to 100,000 barrels of liquid per day and handle up to 200 million standard cubic feet of gas per day. It includes three capping stacks, two of which are rated for 10,000 pounds of pressure per square inch and the third rated for 15,000 pounds.

Ten companies hold equal stakes in the MWCC and divided the initial \$1 billion outlay to build the system. The system's equipment is listed in the emergency response plans for 156 oil and gas leases in the Gulf.

We have also enhanced our spill response capabilities by joining Clean Gulf Associates, the Marine Spill Response Corporation, the National Oil Spill Response Corporation, the Oil Spill Prevention and Response Advisory Group in the United Kingdom, and Oil Spill Response Limited, as well as by engaging Wild Well Control.

Apache also helped to develop a dispersant supply program in coordination with Total Fluides and Clear Coast, LLC, to provide significant quantities of dispersant for any worldwide, long-term well control event in a marine environment.

# CASE STUDY ▲

## DEVELOPING ADVANCED REMEDIATION TECHNIQUES TO PROTECT SENSITIVE ECOSYSTEMS

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In 2016, Apache developed and tested an innovative new method for saltwater remediation. We tested the technique at a long-abandoned production site, previously occupied by past operators and surrounded by bogs and boreal forest. Until now, no one had been able to successfully complete saltwater remediation without damaging the sensitive ecosystem.

Jason Ho, a staff production engineer in Apache's Emerging Technology Group, was tasked with finding an innovative approach to remediating the top 6 to 7 feet of soil, without causing collateral damage to the surrounding ecosystem. "In this case, we couldn't use the typical remediation method of excavating the soil and taking it to a landfill," Ho explained. "The affected areas are widely dispersed across nearly 16,000 square kilometers (approximately 6,170 square miles). And, in such a remote location, there aren't any landfills nearby."

Ho investigated an electrokinetic (EK) remediation technique previously used by the U.S. military for heavy metals. He believed that, with some modifications, the process could work for saltwater remediation on the abandoned production sites.

The EK process generates an electric field throughout the low-permeability soil, which then separates positively and negatively charged ions associated with foreign materials and forces them to flow in desired directions to collection tubes. Adding water then makes it possible to extract the ions with very limited soil disturbance. The charged materials are separated, and the salt ions are collected and safely transported to a disposal well.

Ho and his team successfully piloted this approach in 2016. We expanded the process to almost the entire site in 2017.

# MANAGING UNCONVENTIONAL DEVELOPMENT RESPONSIBLY ▲

▲  
Apache has been proactive in understanding and addressing the concerns and potential impacts of developing our unconventional resources.

Over the past few years, Apache has shifted its focus toward developing unconventional oil and gas resources, primarily from shale plays onshore in North America. Advances in drilling and extraction technologies have made it possible to access these oil and gas reserves, which were formerly considered uneconomical and technically difficult to develop. At the same time, the industrywide increase in unconventional development has garnered significant public attention, with some voicing concerns about potential environmental impacts such as water-quality impairment and methane emissions. Apache has been proactive in understanding and addressing the concerns and potential impacts of developing our unconventional resources.

## WHAT ARE UNCONVENTIONAL OPERATIONS?

Unconventional oil and gas development accesses reserves in low-permeability rock formations, which require some different techniques and technologies than those used in conventional development, where rocks are more permeable. The primary unconventional techniques are directional – or horizontal – drilling and multi-stage hydraulic fracturing of horizontal wells. Hydraulic fracturing is a process for stimulating a well to enhance production. In this process, water, sand and small amounts of chemicals are injected into the well. The high-pressure injection creates and opens fissures in the low-permeability rock formation, which releases the oil or gas. All of this occurs thousands of feet below the surface and far below groundwater aquifers, under many layers of impermeable rock.

## HOW IS APACHE MANAGING UNCONVENTIONAL DEVELOPMENT RESPONSIBLY?

Many of the processes and issues associated with unconventional development are the same as with conventional oil and gas extraction, which we have been managing responsibly for decades. Nonetheless, we recognize the unique issues associated with unconventional development and have responded with stringent operating procedures to address those issues and respond to public concerns.

- ▶ **Reducing Freshwater Use** – Hydraulic fracturing requires large amounts of water, and we understand concerns that our operations may compete with other freshwater uses. We have developed innovative approaches to reducing our freshwater use, including using nonpotable water such as recycled produced water (water that comes back up the well during production), brackish water and municipal wastewater. Where we operate in potentially water-scarce regions, including parts of Texas and western Oklahoma, we are especially focused on using alternative water sources. (Read more on p. 55.)



- ▶ **Protecting Water Quality through Well Integrity** – Risks to water quality – in particular the potential for contamination of freshwater sources with hydraulic fracturing fluids or oil and gas leakage – is a frequently voiced concern. To protect water quality, we follow rigorous well integrity protocols, including pressure testing and cement bond logging, with ultrasonic and temperature testing to ensure the cement has bonded properly to the protective casing and the formation. (Read more on p. 54.)
- ▶ **Using Greener Fracturing Chemicals** – We are reducing the environmental and water-quality risks associated with fracturing chemicals. We require using alternatives to BTEX whenever possible. And we are at the forefront of implementing dry fracturing additives, which reduce environmental risk and the quantities of chemicals needed. We report our U.S. hydraulic fracturing activity through the online FracFocus database, which publishes detailed information about chemicals used in hydraulic fracturing on a well-by-well basis. (Read more on p. 58.)
- ▶ **Reducing Greenhouse Gas Emissions** – When burned, natural gas produces fewer GHG emissions than many other fuels. However, concerns have been raised about how methane leakage during production and transportation impacts the lifecycle GHG emission benefits of using natural gas. We continue to improve our leak reduction program to reduce methane losses, and we are collaborating with industry, government and nongovernmental partners to develop more effective leak detection and reduction methods (see p. 62). We are also reducing our GHG emissions by improving operational efficiency and using cleaner fuels, including natural gas, to power our operations (see p. 64).
- ▶ **Addressing Induced Seismicity** – The potential for induced seismicity from industry operations, especially with respect to injected wastewater disposal, has received substantial public attention. The process of hydraulic fracturing itself is not considered by the scientific community to be a significant seismic hazard. However, Apache is at the forefront of addressing the potential for induced seismicity that could result from our operations or wastewater disposal. One of our key mitigation strategies is reducing the amount of water that needs to be disposed in the first place by recycling and reusing produced water when practicable. In addition, it is standard Apache practice to continuously monitor hydraulic fracturing for unusual fracture growth so that operations can be modified if needed. In areas of heightened concern for seismicity, we have used seismic arrays to ensure that our operations have no significant adverse impact. In addition, when we do send production or flowback water for disposal, we choose reputable disposal operators and audit select operations to ensure they adhere to regulatory and permit requirements. (Read more on p. 60.)
- ▶ **Addressing Community Concerns** – Apache has worked hard to build strong relationships and foster candid, two-way communications in the communities where we operate. We work with local community members and governments to address concerns ranging from environmental issues to road safety to noise, dust, odors and light. We also want to make it easy for community members to share concerns with us and for us to be able to address those concerns. We provide multiple grievance mechanisms in all our operating regions. We address the complaints received and escalate them as appropriate through our management hierarchy. Our comprehensive stakeholder engagement tracking and response system includes a follow-up tracking system for each individual stakeholder communication and facilitates aggregated analysis to help us identify trends and share lessons learned across our organization. (Read more on p. 106.)

**3%**

of our operational water withdrawals were potable fresh water in 2016

▲ In 2016, we set up a toll-free hotline number, the Apache Good Neighbor Line, specifically for any community grievances managed through our Apache Incident Management Center.

## BIODIVERSITY ▲

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At Apache, we view ourselves as stewards of the lands and waters where we work. Protecting species and habitats from potential adverse effects of our operations is an important priority. We conduct biodiversity assessments as part of our pre-development planning processes and adjust our development plans accordingly to protect threatened and endangered species and habitats. We also participate in collaborative efforts to minimize our impacts on biodiversity.

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In 2017, Apache was named Landowner of the Year in Wyoming for our conservation efforts at the Ucross Ranch.



**NATHAN LINDSEY**  
*Conservation & Steward Manager*

### PROTECTING SENSITIVE SPECIES IN THE PERMIAN REGION

In Alpine High, Apache's newest operating area, we undertook a comprehensive biodiversity assessment before beginning exploration. We identified a small area of critical habitat for the black-capped vireo, a federally listed endangered bird that uses the region in its annual migration. We regularly screen their designated habitat for the presence of nesting birds, and we will not operate in those areas if nesting birds are present. (Read more on p. 48.)

Apache has been recognized for its leadership in protecting rangeland biodiversity and advancing sustainable range management at the Ucross Ranch, which is partially owned by Apache and managed by the Apache Foundation, a nonprofit subsidiary of Apache Corporation. Since 2005, Apache has managed the ranch as a model for profitable and sustainable land-use management practices. For example, we have proven the benefits of a short-duration rotation grazing strategy for cattle that has reduced bare ground on rangelands from approximately 50 percent to less than 2 percent and significantly improved streambank stability, all while tripling the sustainable stocking rate for cattle. In large part due to these practices, the ranch provides excellent habitat for mule deer, white-tailed deer, pronghorn, sage grouse, sharp-tailed grouse, turkey, grey partridge and many species of waterfowl. In 2016, the Apache Foundation worked with the Wyoming Game and Fish Department to open public access routes across the ranch to provide improved hunting opportunities for deer, pronghorn and game birds on adjacent Wyoming State Trust lands. Apache was named a 2017 Landowner of the Year by the Wyoming Game and Fish Department for our efforts to sustainably manage the Ucross Ranch.

Apache has also participated in a collaborative conservation effort to protect the population and habitat of the lesser prairie chicken (LEPC), a species of prairie grouse endemic to the southern high plains of the United States. As part of this effort, which was initiated to help prevent the species from having to be listed as threatened or endangered, Apache enrolled nearly 1 million acres in conservation plans and paid fees to help landowners conduct conservation efforts on their own properties. Through a combined effort by 177 companies, including 110 oil and gas operators, 7 million acres have been conserved and more than \$49.8 million in funding for conservation programs has been collected from private industry. The conservation efforts focus on protecting, improving or restoring native habitat, to help LEPC populations recover and thrive. Thanks in part to the success of the conservation plans, the LEPC is no longer a protected or candidate species as defined by the Endangered Species Act (ESA).

However, Apache remains enrolled in the LEPC conservation plans.

We undertook a similar process in New Mexico and West Texas regarding the dunes sagebrush lizard. As with the LEPC, this species was removed from consideration for listing under the ESA due in part to voluntary conservation activities carried out by companies in the oil and gas industry, including Apache.

#### **CONSERVING THREATENED ECOSYSTEMS AND SPECIES IN THE GULF COAST REGION**

Apache is working hard to find environmentally sound solutions to help protect swamps and marshes in the Gulf Coast region, as well as the species that call these areas home. These swamps and marshes are among the nation's most at-risk wetlands. Louisiana, for example, has lost up to 40 square miles of marsh per year for several decades, due to the natural processes of subsidence, saltwater intrusion and shoreline erosion, as well as human activities such as dredging for canals.

Wetlands serve as breeding grounds for thousands of species of aquatic life, land animals and birds, and provide habitat for more than 5 million migratory waterfowl each year. Wetlands act as a buffer against hurricanes and provide flood control by holding excess water during heavy rainfall. They replenish aquifers and purify water by filtering out pollutants and absorbing nutrients. On the Gulf Coast, wetlands also provide billions of dollars in revenue and thousands of jobs in oil and gas development, shipping, fisheries, ecotourism, recreation and other industries.



#### **APACHE RECOGNIZED FOR CONSERVATION EFFORTS**

In 2016, Apache received the Governor's Award for Conservationist of the Year in Louisiana in recognition of the company's outstanding contribution toward preserving natural resources and for an overall commitment to habitat restoration.

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#### **Restoring Wetlands**

Apache has helped to restore hundreds of acres of wetlands and marshes in Louisiana, including the Liner's Canal in Terrebonne Parish and the St. Louis Canal Freshwater Introduction Project near Grand Bois. These projects increase freshwater flow into areas severely threatened by saltwater intrusion. Apache partnered with local governments, nonprofit organizations and other oil and gas companies on these projects.

In 2016, we completed the second phase of a wetland conservation project on our own lands in Cameron Parish, near Holly Beach, Louisiana. Through this project, which was funded in part through a competitive grant program managed by the Louisiana Coastal Protection and Restoration Authority, we constructed a series of linear earthen embankments in shallow, open-water environments. The embankments, which were planted with native vegetation, help to protect and restore the wetlands by creating emergent wetlands and edge habitat for the benefit of many species of wading and shore birds, mammals, fisheries and alligators; reducing water turbidity and increasing submerged aquatic vegetation growth to benefit fisheries and waterfowl; and reducing wind and wave erosion to surrounding wetland habitat.

Our marsh restoration projects also provide storm protection, improve water quality and boost recreational activities such as birdwatching, boating, fishing and hunting.



#### **Protecting Threatened Gulf Coast Species**

For years, Apache has been helping alligators thrive in the coastal marshes of Louisiana by supporting a sustainable harvest that has helped bring the reptiles back from the brink of extinction. Once unregulated, alligator hunting was banned in Louisiana in 1963 after alligator populations dropped dramatically. In the early 1970s, the Louisiana Department of Wildlife and Fisheries (LDWF) began a sustainable use management program to study the lifecycle of alligators and come up with ways to prevent poaching and allow harvesting while managing the population. Apache participates in the LDWF sustainable harvest program on the 270,000 acres of coastal Louisiana land we own, which is in prime alligator habitat.

Wetlands along the Gulf Coast are also home to populations of bald eagles, a formerly endangered species. Apache works with state wildlife officials in determining the placement of well sites to avoid interfering with bald eagle nesting sites.

#### **MARINE ANIMALS AND SEISMIC SURVEYING**

In our industry, gathering and analyzing seismic survey data is vital for identifying potential oil and gas exploration and development sites. It has been suggested that marine life can be sensitive to the sound frequencies used in seismic surveying in offshore locations. Apache has had experience in this area with past operations in the Gulf of Mexico, the North Sea, Alaska and more recently in Suriname. We have developed careful location-specific management programs, incorporating the latest technology and tools, to assess, mitigate and minimize the potential impacts of seismic operations on marine ecosystems.

As an example, consistent with best practices for wildlife protection, initial volumes from sound emitters are gradually increased from the softest possible signal to the regular operating volume. This alerts marine animals to our presence and allows them time to relocate before the process begins.

We also include experienced, certified observers on ships during survey operations, to look for signs of sensitive animals in the area. When exclusion zones are so large that it's impossible to observe the entire zone from the water's surface, we may also employ observers in fixed-wing aircraft or helicopters. Any sighting of a marine mammal or other sensitive species entering the exclusion zone triggers an immediate shutdown of seismic operations. In addition to protecting the animals during surveying, the information gleaned from these observations can lead to a better understanding of animal behavior and locations, which we can, in turn, use to improve our operational processes.

During exploratory work in Suriname, Apache conducted passive acoustic monitoring in the seismic data-gathering process, to detect and classify marine mammals vocalizing underwater even when not seen from the surface. Also, our program in Suriname included a stop-work provision not only for marine mammals but for sightings of a sea turtle species that inhabits the region.

#### **RESTORING HABITAT DURING DECOMMISSIONING**

Apache is mindful of the benefits of restoring wildlife habitats after our operations have concluded in an area. In our Alpine High region, for example, we have established an extensive native revegetation program for restoring test well sites (see p. 48).

We also seek to support biodiversity when decommissioning offshore platforms. Once a platform has been decommissioned, Apache works with the Louisiana and Texas state governments to identify and approve platforms that can be reused to enhance aquatic ecosystems – for example, by converting the platforms into artificial reefs.

When the platform at Ship Shoal 26 in the Gulf of Mexico had reached the end of its life, it was required by law to be removed. Exploration and production have coexisted successfully with sport fishing in this area for decades, and the area is well known by anglers for its speckled trout. Apache did not want the removal of the platform to disrupt fish habitat in the area. The structures and pilings from Ship Shoal 26 were removed and the concrete was used to create three artificial reefs. As a result, the thriving aquatic ecosystem and hotspot for saltwater anglers was preserved.



# HEALTH AND SAFETY▲





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The safety of our employees, contractors and communities is Apache's highest priority and is deeply rooted in our Core Values.

For us, safety is not negotiable and will not be compromised.

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**54%**

decrease in total recordable incident rate since 2012

**100%**

of Apache regions host annual biometric screenings for employees to measure key health indicators



# BUILDING A SAFE WORKPLACE ▲

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## 2016 WORKFORCE SAFETY PERFORMANCE (SINCE 2012)

↓ 54%

workforce<sup>13</sup> total recordable incident rate

↓ 55%

workforce<sup>13</sup> days away, restricted or transferred rate

↓ 27%

Apache employees' vehicle incident rate

<sup>13</sup>Workforce includes employees and contractors

44million

hours worked (employees and contractors)

Employees and contractors who engage in drilling and production operations face inherent risks. As with other companies in the oil and gas industry, our daily work involves large and powerful machinery, flammable materials and chemicals. Workers are often outdoors, in all seasons and all types of weather. And our people drive tens of millions of miles each year, putting them at risk for driving incidents. We are committed to building and maintaining a safe workplace for all employees and contractors. And we are committed to the identification and successful management of safety hazards in the workplace.

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Our people work to identify, assess and mitigate risks associated with our operations. Whether during pre-job planning, onsite observations or post-incident investigations, employees and contractors have a responsibility to manage these risks to help ensure that all workers arrive home safely at the end of their work days.

We also encourage safe behavior by recognizing the efforts of our employees and contractors. When key milestones are reached – such as zero injuries, zero vehicle incidents or zero environmental incidents during a particular time period – workers and work groups are acknowledged and commended for their performance. In addition, employee compensation, including senior management compensation, is tied to key employee safety metrics. In 2017, we improved the Health, Safety, Security and Environment (HSSE) goals for our senior managers' compensation incentives by establishing targets for key safety indicators based on the top-quartile, three-year average performance of industry peers. (Read more about HSSE management in the Governance section on p. 37.)

## HEALTH AND SAFETY TRAINING AND EDUCATION

We offer a wide range of training programs for employees and contractors, to promote their full understanding of and compliance with our health and safety policies and programs and to help build the skills needed to work safely. We also encourage personal responsibility for safe operating conditions and have built a culture of individual accountability for safety issues. We empower our people to stop work at a job site if they have any safety concerns.

Our cloud-based training platform gives employees easy access to safety-related information. This web-based tool is used by many of our regions to launch, administer, track and manage classroom and e-learning courses. It streamlines our business processes, ensures consistent messaging, allows greater flexibility and provides an opportunity for employees to learn at their own pace. We have been updating our training programs to capture field knowledge gained from years of on-the-job experience from our workforce and are building that knowledge into specific courses that can be shared across the organization.

We impose on our contractors our expectation that they have high-quality training programs for their employees as well. Although our contractors typically train their employees themselves, we evaluate the effectiveness of their training programs when making decisions about which contractors will work for us. We also are part of ISNetworld, which is used in our industry to track and quantify contractor safety programs. (Read more about contractor safety on p. 84.)

#### **DRIVER SAFETY**

In 2016, our employees drove more than 47 million miles, down from 51 million miles the previous year. Many of these miles were in remote areas. Operating a motor vehicle is one of the riskiest activities our workforce performs on a daily basis. In fact, driving issues are the main source of industrywide safety incidents. Driving behavior is also one of the key concerns raised by those who live in the communities where we operate.

Apache has adopted a multi-faceted approach to help ensure the safety of our workers and to make the roads in our communities safer. This approach includes top management support, a comprehensive fleet tracking system, driver feedback, and a host of training programs and policies, educational campaigns and outreach activities. Our focus over the past couple of years on improving driving performance has helped to lower incident rates over time.

Our incident rates have been consistently declining, with a reduction of 81 percent documented between 2011 and 2015. In 2016, however, we experienced an increase of 9 percent over the prior year. While many of our 2016 incidents were low-speed, low-impact events related to vehicles backing up in parking areas, we will adjust our training programs accordingly so we can reduce all incidents going forward.

In the U.S., our fleets use GPS monitoring devices to track and record vehicle locations and driving behaviors (e.g., speeding, harsh braking, rapid acceleration and seat belt usage). Coaching and training are provided when positive or negative driving behaviors are observed, to further improve performance and demonstrate our commitment to driving safety. This connected fleet program is also helping Apache increase operational efficiency and reduce our carbon footprint by identifying opportunities to decrease excessive idling, which also helps to improve our overall reputation.

Apache's management teams support driver safety performance by analyzing and acting on key driver trends, communicating expectations and enforcing vehicle policies. Employees are reminded of our driving policies and rules as needed through companywide communications and during safety meetings. We implement regular driver training initiatives across our global operations, including classroom, on-road and e-learning training. Lessons learned from vehicle incident investigations are also shared, to prevent similar incidents from recurring and to raise awareness.



Apache takes a multi-faceted approach to help ensure the safety of our workers and to make the roads in our communities safer, including top management support, a comprehensive fleet tracking system, driver feedback, and a host of training programs and policies, educational campaigns and outreach activities.



**A**pache  
**I**mprovement  
**M**ethods  
 for  
**Z**ero incidents  
**E**mpowered employees & others  
**R**esponsibility for yourself & others  
**O**perational excellence



#### **IMPROVING ROAD SAFETY THROUGH INDUSTRY, GOVERNMENT AND COMMUNITY COLLABORATION**

As oil production has grown in the Permian Basin, so too has road traffic. And with more vehicles on the road come more accidents. Following a call to action from within the industry to improve road safety, Apache helped form the Permian Road Safety Coalition, a collaboration between industry peers, government officials, researchers and community members. The coalition works with safety experts, law enforcement, industry leaders and public officials to make roads safer for drivers and passengers by advocating responsible driving habits. Launched in 2015, the group has already made progress by sharing knowledge, raising awareness, sponsoring forums and advocating for safer roads. Apache has led the coalition's Best Practices Steering Committee and continues to play an active role on the committee.

#### **AIM FOR ZERO**

We are constantly focused on working safer and working smarter. Our AIM for ZERO process is one part of our Operational Excellence Framework, which seeks to establish and maintain a safe and environmentally responsible workplace for everyone. Formally rolled out in 2016, AIM for ZERO provides the tools and resources needed to empower our people to identify potential hazards and stop work whenever it is necessary.

The framework supports our culture of safety and encourages our people and our contractors to report ideas, suggestions and observations that may mitigate workplace risks – and to halt work if they see something that seems unsafe. Employees and contractors can make their voices heard by:

- ▶ Filling out an online form
- ▶ Filling out hard copies of forms at our various locations of operations
- ▶ Dialing a telephone hotline

All submissions trigger actions by regional and corporate team members, as well as preventative measures and/or process improvements to be implemented through the development of mitigation plans. Perhaps even more important, we make it clear that employees will never be reprimanded for reporting a safety concern or incident or for stopping work they deem unsafe.

AIM for ZERO is not a program; it's a state of mind and an empowerment tool for employees to do what they need to do to protect their safety, the safety of others and the safety of the environment. We know zero is an aggressive goal – zero incidents, zero near misses, zero preventable occurrences and zero fatalities. But we believe it's the mindset we need to deliver true operational excellence.



## MANAGING CONTRACTOR SAFETY

Like the majority of oil and gas companies, Apache relies on contractors to support all elements of our operations – from exploration to production to well closure and remediation. Indeed, contractors typically account for about two-thirds of our total workforce hours each year. We are as committed to the safety of our contractor workforce as we are to the safety of our own employees. We instill in the contractor organizations Apache's own core values of safety and environmental responsibility and require contractors to demonstrate that they have safe and effective safety management systems in place (discussed below). Contractor safety performance has improved significantly over time, due in large part to our enhanced focus on verifying safety systems and engaging with contractors. (See data tables on p.85.)

Apache uses various third-party databases and company protocols across the organization to evaluate potential contractors before hiring. Over the years, we have refined our standardized contractor safety auditing processes, which address selection, evaluation, monitoring and post-contract review. All contractors working for Apache are required to have written safety and environmental programs and procedures in place. Depending on the type of service or work, contractors are required to develop specific safe work practices to demonstrate that their personnel can perform their job functions safely.

In addition to the third-party verifications, we conduct our own periodic contractor safety audits, both on job sites and in contractor field offices. The frequency of the audits and spot checks varies by region of operation. Contractor audits assess a range of issues, including safe work practices and safety programs, and ensure that written safety programs are being followed on the ground. In 2016, our health and safety teams were able to spend more face-to-face time with contractor companies to reinforce that safety is a Core Value for us and that we expect the same of them.

In 2017, we plan to implement additional programs to elevate our contractor safety performance. These measures include an analysis of our current processes, revisions to our contractor databases, enhancements to our grading criteria and increased outreach activities in order to improve operational efficiency and overall safety and health performance.

We recently launched a portal to make it easier for contractors to access key health, safety, security and environmental information. This portal provides workers the ability to review relevant policies, work rules, onboarding procedures and emergency information, and to record hazards or observations made within our operations. By making it easier for contractors to access information, we have streamlined various business processes and strengthened our ability to communicate information, which further solidifies our safety efforts and places environmental responsibility at the forefront of everything we do.

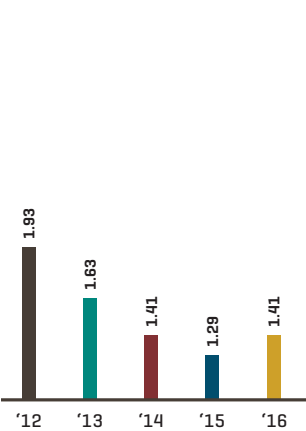


Contractor safety performance has improved significantly over time, due in large part to our enhanced focus on verifying safety systems and engaging with contractors on safety issues. [See data charts on the following page.]

# STEADY IMPROVEMENT IN HEALTH AND SAFETY PERFORMANCE ▲

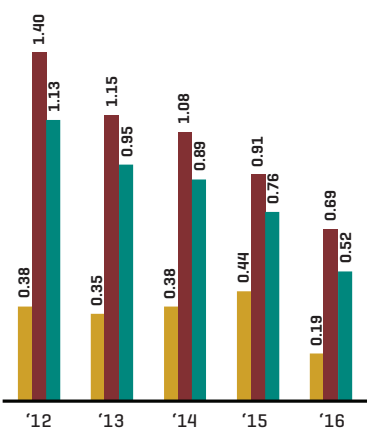
We have seen a steady improvement in our safety performance over the last five years, thanks largely to robust worker training programs and a culture of personal responsibility that empowers individuals to stop any work that they consider to be unsafe. In 2016, key safety performance measures for our global workforce – including both employees and contractors – improved for total recordable incidents and days away, restricted or transferred incidents. Vehicle incident rates, however, increased over the prior year and were just above our industry peers’ average frequency.

VEHICLE INCIDENT RATE  
(Apache employees)<sup>14</sup>



<sup>14</sup>Vehicle incident rate is calculated by multiplying the total number of vehicle incidents by 1 million miles driven and then dividing by total mileage.

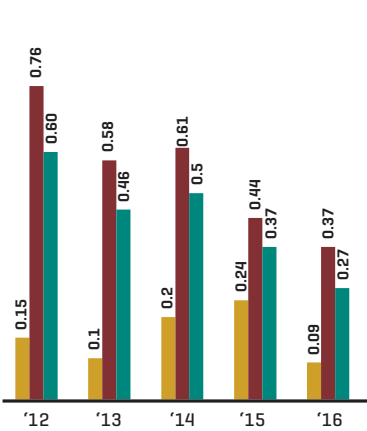
TOTAL RECORDABLE INCIDENT RATE (TRIR)<sup>15</sup>



- ↔ Employees
- ↔ Contractors
- ↔ Workforce

<sup>15</sup>Total recordable incident rate is calculated by multiplying total number of recordable injuries by 200,000 hours and then dividing by total person-hours worked.

DAYS AWAY, RESTRICTED OR TRANSFERRED (DART)<sup>16</sup> RATE



- ↔ Employees
- ↔ Contractors
- ↔ Workforce

<sup>16</sup>Days away, restricted or transferred rate is calculated by multiplying total number of DART injuries by 200,000 hours and then dividing by total person-hours worked. The 2012 figure for the workforce DART rate was adjusted slightly to correct a rounding error.

Regrettably, in 2016 two fatalities occurred that were associated with work being performed for Apache. In each case, the fatality was of a contractor involved in a single-vehicle accident in the Western Desert of Egypt. Driving skill levels and driving conditions are significant challenges in Egypt, and Apache continues to educate our workers and contractor community on safe driving behaviors and practices.

# CRISIS AND EMERGENCY MANAGEMENT ▲

Apache's approach to crisis and emergency management follows a four-part process: plan, prepare, respond and recover.

Apache has diverse operations in multiple countries with varying operational risks and diverse local, regional and national crisis management regulations and requirements. In response, we have developed a corporate Crisis Management Plan that establishes our Corporate Preparedness Framework. This framework outlines our planning process and personnel response training should an emergency incident occur. All of our regions are required to meet a corporate standard for emergency response preparedness, including developing plans for the region staff and separate response plans for each asset, based on relevant local regulations.

Our Corporate Preparedness Framework is designed to do the following:

- ▶ Secure and protect our people, contractors, neighboring communities, facilities, information, operations and the environment in a manner consistent with related laws and policies, as well as with our corporate Core Values
- ▶ Quickly and effectively identify, respond to, manage and recover from crises
- ▶ Minimize the impact of incidents on Apache's people, facilities or operations and stakeholders
- ▶ Maintain response capabilities through ongoing planning, training and quality assurance activities

Our Corporate Preparedness Framework also establishes an iterative and ongoing process for identifying risks, preparing and training for crises, managing crises and learning from crises for continuous improvement.

We are developing and updating our business continuity plans for each region in order to identify the critical processes, personnel and resources needed to resume business operations as quickly as possible should a business interruption occur. Mitigation strategies for a business continuity response are based on thorough risk and business impact analyses. By the end of 2017, all Apache regions will have either initiated this analysis process or completed their business continuity plans.

## CRISIS MANAGEMENT APPROACH



#### **GLOBAL CRISIS RESPONSE TEAM**

To support our crisis response capabilities, Apache has a Global Response Team of more than 100 employees from every region and our corporate office who train together in hypothetical crisis situations to provide support to local emergency response teams. This team ensures that Apache can respond quickly to emergency incidents and maintain comprehensive internal management of both short- and longer-term crisis events. As a result, nearly any potential crisis can be managed by internal employees with an understanding of, and commitment to, Apache's Core Values and long-term success.

#### **CRISIS RESPONSE TRAININGS**

Our Global Response Team, Crisis Management Team, regional incident management teams and all Apache employees train regularly to be ready for any potential incident. For example, Apache's executive leadership participates in quarterly, case-study-based training on crisis management topics, including reviewing crises experienced by other companies, crisis communication and specific Apache crisis management plans. Senior management also participates in an annual, all-day crisis drill, based upon hypothetical scenarios involving Apache assets and operations. The Apache Global Response Team undergoes even more intensive training, including regular region-based scenario training and an annual three-day, field-based training. All Apache employees who have been identified as having a role in crisis management receive at least annual – and for many, quarterly – training on crisis support, crisis communication and business continuity plans.

#### **INDUSTRY COLLABORATIONS AND PARTNERSHIPS**

We participate in several industry collaborations to improve our emergency response capabilities. Apache is a member of Marine Well Containment Co. for well control issues in the Gulf of Mexico, and Oil Spill Response Limited, which provides well control and spill response support in the North Sea. We also have a contract with Wild Well Control for any well control, capping stack or subsea debris cleaning and dispersant applications that may be required for an incident in any other area of operations.



## GLOBAL WELLNESS ▲

The health and safety of our workforce depends on much more than on-the-job safety. The company's global wellness programs offer health services and resources to encourage employees to adopt healthy lifestyles for themselves and their families.

Several Apache office locations have onsite cafeterias and fitness facilities. Cafeterias offer subsidized dining options that include healthy choices and easy access to nutrition information. Where available, fitness facilities are open at no charge to employees and offer a wide variety of exercise equipment, fitness and training classes, and programming to encourage employees' overall physical health. In regional offices, we shape our fitness and wellness programs to fit the employee base and take into consideration the needs of those employees working in the field.

All Apache regions host annual biometric screenings for employees to measure key health indicators, such as body mass index and cholesterol levels. After the assessment, each employee receives a personalized report with the results and recommendations for improving health. Employees can access their health information online through a workplace wellness program that includes additional resources such as tips for healthy living, webinars and peer challenges. They can also log their activities on fitness apps.

In the North Sea region, a wellness committee meets several times a year to discuss new programs. A dedicated wellness coordinator demonstrates senior management's support. In 2016, the region ran a prediabetes awareness event that gave staff and contractors the opportunity to have their blood sugar levels checked.

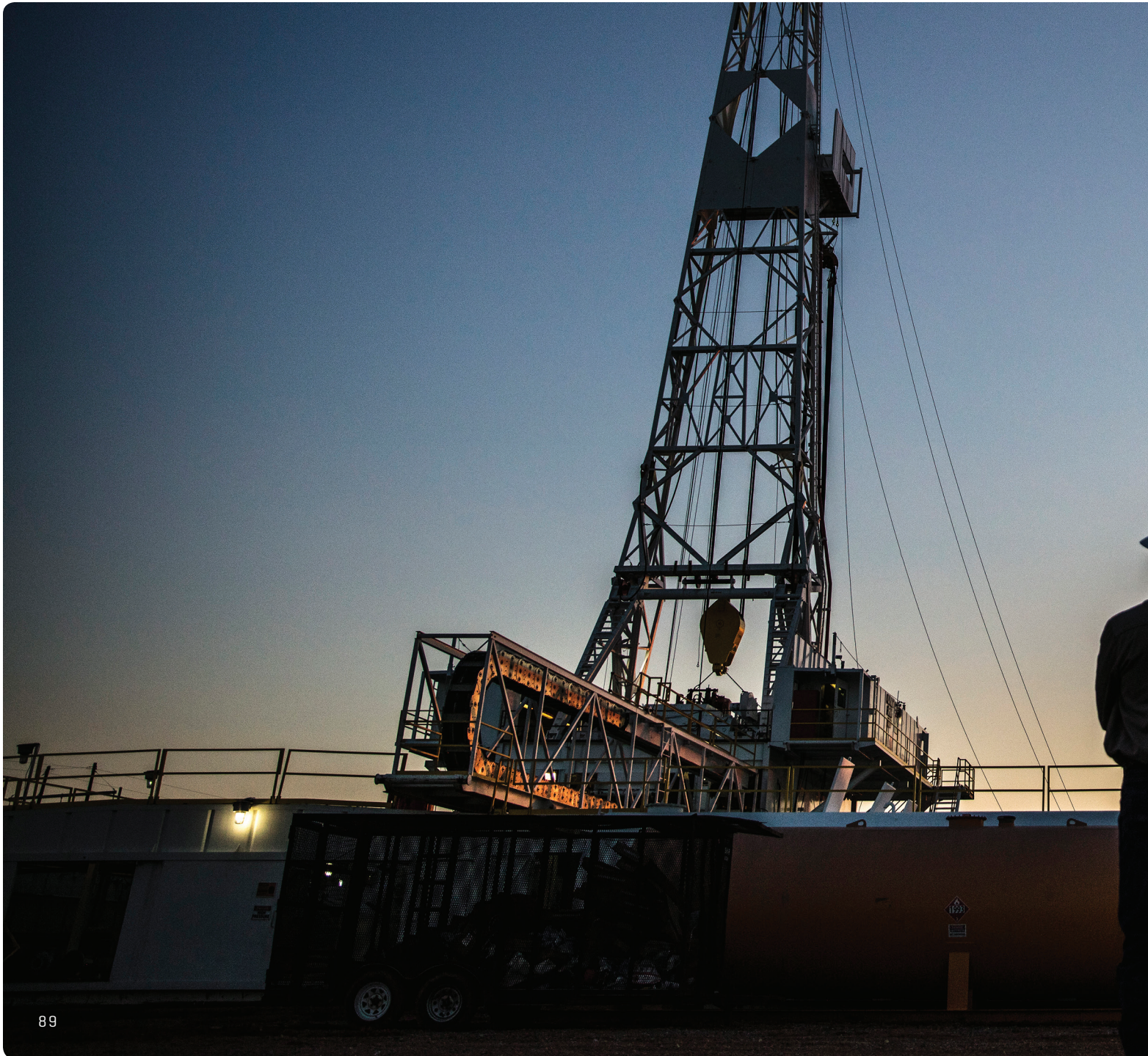


"At Apache, a culture of wellness is embedded in our company. We focus on weight loss, increasing exercise, obesity prevention, blood pressure, diabetes, cholesterol management, smoking cessation and good mental health. We are also very committed to promoting healthy living through healthy eating in all of our onsite restaurants. Apache provides the resources, tools and a support system that empowers and motivates employees to take responsibility for their own health."

SALLY GOUCK  
*Apache's U.K. regional  
wellness coordinator*



# WORKFORCE▲





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At Apache, our people are our greatest asset. We are an organization of innovative, motivated, dedicated and diverse individuals who work together to make Apache one of the world's top independent oil and gas companies. Our employees constantly push themselves to seize new opportunities and are admired for their ability to navigate the ever-shifting challenges of the energy industry.

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**3,727**

Apache employees worldwide,  
as of December 31, 2016

**44million**

hours worked in 2016  
(employees and contractors)



## EMPLOYEE DIVERSITY ▲

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Our employees represent a dynamic diversity of races, religions and cultures, reflecting the communities in which we operate. This diverse workforce provides us with a competitive advantage by ensuring we have a full range of ideas, viewpoints and approaches to solving business challenges.

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The oil and gas industry has historically been male-dominated, but in recent years there has been an increase in the number of women entering relevant fields such as geology and engineering. Apache is focused on recruiting more women into our workforce, and we're proud of the recent improvement we have seen in our gender balance.

Our Apache Women's Network (AWN), which recently celebrated its second anniversary, aims to provide a supportive and collaborative community of employees by offering networking, educational development and service opportunities through informative and professional programs and events. The AWN has implemented a pilot program to encourage more women in leadership at Apache and a mentoring program to help boost employee engagement and career counseling. Participation in AWN chapter meetings has increased over the past year.

Apache also hires qualified individuals with disabilities. We partner with various outreach organizations to enhance our ability to attract and retain talented individuals with disabilities. Providing opportunities for these individuals makes good business sense and provides for a diverse workforce that includes people with a variety of skills, talents and perspectives.

Apache is an equal opportunity employer. Furthermore, our Code of Business Conduct requires that we conduct business, including employment practices, in accordance with all applicable laws, rules, regulations and government requirements. All employment-based decisions are made without regard to race, color, religion, sex, familial status, marital status, sexual orientation, genetic information, gender identity, national origin, age, veteran status, disability or any other status protected by applicable federal, state or local law.

These standards support our commitment to equal employment opportunities, prohibit harassment and discrimination in the workplace and align with applicable laws and regulations in the countries where we operate. Any form of discrimination by or toward employees, contractors, suppliers or customers in any Apache workplace is strictly prohibited.







#### **HIRING VETERANS**

Apache is honored to employ veterans from all branches of the military. Among our Core Values are respect, honesty, integrity, a sense of urgency and top performance. Military veterans have demonstrated these same values through their service, and they translate well to the Apache workforce.

We partner with veterans' recruiting organizations as part of our efforts to increase the number of veterans we hire. Apache is proud to annually honor our employees and their family members who are veterans with a ceremony and the presentation of a commemorative coin. [Read about our donations to veterans' organizations in the Society section on p. 121.]

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# CASE STUDY ▲

## EXPANDING LOCAL HIRING IN EGYPT



▲ We seek to hire locally in all our operating regions. In 2016, 80 percent of our new hires in Egypt were Egyptian nationals, and approximately two-thirds of these were in technical and professional positions.

Apache places a high priority on investing in the regions where we operate. The practice of hiring locally ensures that our operations are conducted in a respectful manner, in alignment with local values and cultures.

When Apache begins operations in another country, we typically draw the majority of our workforce from the pool of local talent. That was the case in both Canada and the North Sea, where many potential employees already had deep expertise in the oil and gas industry.

In Egypt, however, it was a different story. We first began operating in Egypt more than 20 years ago through a joint venture with the Egyptian Petroleum Company. Our joint venture agreement specified that we hire nine nationals for every expatriate employee. Initially, we hired oil and gas experts from abroad and tapped the local talent market primarily for administrative positions, offering full-time jobs and benefits to Egyptians who might not otherwise have been able to find comparable employment.

In 2015, we changed our hiring approach in Egypt. Since many Egyptians had gone to work in the oil and gas industry over the last 20 years, we set out to search for and employ more Egyptian nationals with relevant expertise in engineering and the geosciences who could add value to our operations. As a result, in 2016, 80 percent of our new hires in Egypt were Egyptian nationals, and approximately two-thirds of those were in technical and professional positions.

"There are many advantages to hiring local talent, and we're already seeing the benefits of increasing the number of Egyptian nationals," said Mark Avery, Apache's senior manager responsible for international human resources and development. "Local hires know the customs, culture and language. They know how to present information in ways that others working in the region will also understand. Seeking out and employing technically competent nationals sends a strong message about our commitment to doing business in the country."

"In Egypt, much of the work that is done is built upon relationships," Avery continued. "Having a greater number of employees who speak the language and who are connected to their communities benefits Apache."

A greater local presence also benefits our volunteer programs in Egypt, such as our ongoing work to support education for girls and our donations to local hospitals. (Read more about these efforts in the Society section on p. 114.) And of course, hiring local employees provides significant economic benefits to communities in Egypt, particularly in those areas where high-paying jobs can be hard to find.

# EMPLOYEE TRAINING AND PERFORMANCE FEEDBACK ▲

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We believe our success as a company depends on well-trained and supported employees. We provide a wide range of professional development and training programs because we believe that when employees develop new skills, our work environment becomes infused with energy and creativity. This, in turn, enhances our ability to attract and retain the best talent.

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Apache promotes a variety of learning opportunities for leaders and supervisors as well as mid-level and field employees. To boost the nontechnical and managerial skills of employees worldwide, we developed a core set of “success skill” training initiatives based on the needs of our corporate headquarters and operating regions. We also develop the next generation of leaders and help existing leaders improve their skills through our flagship leadership development programs. To help employees at all levels learn from each other, we host the annual Apache Technology Forum, where employees share information on innovative industry solutions, practices and performance improvements. We also offer an educational assistance program that reimburses eligible employees for academic courses and degree programs provided by accredited colleges and universities.

Our Apache Knowledge Management System helps managers assess and nurture the knowledge and experience of employees. It also serves as an online resource for employees to track their progression in a professional discipline, document skills, record technical and operational expertise, and note educational and professional achievements. Finally, we are committed to a robust performance management process as well as learning and development planning programs, through which employees work with their managers to identify strengths and growth areas to further their careers.

All of these programs deliver challenging and rewarding developmental experiences while equipping employees for Apache’s current and future business needs.

In recent years, we have placed more emphasis on promoting people from inside the company. We also encourage employees to consider job changes that may not necessarily be promotions but rather lateral movements from one department to another, to broaden their development and gain new experiences. All job changes at Apache – whether promotions or lateral moves – are looked at positively by management. Our Human Resources team meets bimonthly to talk about job openings across the company and consider whether someone internally is available to fill those positions.

▲  
We are committed to a robust performance management process as well as learning and development planning programs, through which employees work with their managers to identify strengths and growth areas to further their careers.



▲  
We are introducing a new human resources tool, branded “A” Game Resources, that will provide a new approach to performance, goal management, compensation planning, leadership development and learning, to help employees develop business and career goals and succeed in their roles.

In 2017, we will be introducing a new human resources tool, branded “A” Game Resources, that will provide a new approach to performance, goal management, compensation planning, leadership development and learning. The performance and goals tools will help drive performance and assist employees in developing business and career goals while tying those goals to specific competencies, learning activities and achievements. Employees will be able to receive real-time feedback from their managers to help them grow and succeed in their roles. The “A” Game Resources will also include Apache Academy, which will transform the way training and development opportunities are delivered to every Apache employee. Through a university-style framework, employees will be able to access a vast library of virtual courses, books, videos and instructor-led training sessions. Apache Academy will be accessible from desktop computers as well as mobile devices and tablets. These new resources will help every employee bring their “A” game to Apache.

#### **INTERNSHIP AND ROTATIONAL DEVELOPMENT PROGRAMS**

Our robust internship program helps us build a pipeline of exceptional talent for our company while fostering economic opportunity in the communities where we operate. This program, which we continued to run in 2016 despite the down market, offers internship opportunities in a variety of technical and professional disciplines that provide a broad introduction to the company and to the oil and gas industry. Interns work on real projects in the office and in the field and interact directly with top leaders in the company.

Apache also invests in a variety of science, technology, engineering and mathematics (STEM) initiatives in partnership with community colleges and universities. We recruit top-tier talent from these colleges and universities for summer internships that feed directly into career development programs. Recent graduates receive structured training and development, providing valuable opportunities for advancement. These programs bring qualified applicants into the technical and professional arena and assist in promoting these employees into managerial roles.

Apache's internship and development programs specialize in petroleum and drilling engineering, the geosciences, and land disciplines. The engineering development programs include subspecialties such as production, completions, drilling and field operations. These programs involve extensive educational and on-the-job training with cross-functional and professional rotations.

We also use an internship model to promote skills building and development of existing employees. We have rotational development programs designed to help employees develop a network across geographical regions and provide them with practical experience in a range of environments, as well as the chance to accomplish challenging projects and assignments that contribute to the company's success.

The success of these programs is critical to Apache's future, as the ability to hire and retain top-tier diverse talent ensures that Apache maintains a quality pipeline of future leaders.



# EMPLOYEE ENGAGEMENT ▲

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We believe that engaging employees in our corporate mission and values is critical to enhancing safety, morale, satisfaction and performance.

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Our CEO hosts quarterly town hall meetings at our corporate headquarters, during which he fields questions from employees. He also hosts employee events at regional offices during his visits throughout the year. These meetings provide employees with an opportunity to hear about the company's strategy and corporate updates as well as ask questions of management.

We also have employee resource groups to foster employee interaction and networking, such as the Apache Women's Network (AWN), discussed previously in this section, and the Apache Young Professionals' Network (AYPN), both of which are open to all employees. The AYPN was formed to foster camaraderie among young professionals at Apache and has grown to more than 450 members. The group creates opportunities for members to learn about the various functions and divisions within the company and organizes educational, service and social events.

We conduct an annual employee survey to hear directly from our people about their experiences working at Apache. The survey, conducted through Workplace Dynamics, allows anonymous employee feedback on topics such as working conditions, career opportunities, compensation, managers and company direction. This feedback provides valuable data to Apache managers to inform decisions and opportunities that enhance the employee experience. Survey responses from our Houston employees earned us spots in the *Houston Chronicle's* "Top Workplaces" lists for 2016 and 2017; responses from our San Antonio employees earned us a similar position in the *San Antonio Express-News's* ranking for 2017.

Volunteerism is another important employee engagement tool at Apache. Read more about our people and their commitment to our communities in the Society section.



# CONTRACTOR MANAGEMENT, ENGAGEMENT AND TRAINING ▲

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Our vendor selection process takes into consideration environmental, health and safety requirements – which are Apache-identified criteria based on regulatory, company and industry best practices – as well as technical capabilities, product quality, service quality, financial qualifications and of course cost. We also take into account vendors' company policies regarding local hiring and support of indigenous peoples and local economies. We are committed to complying with applicable supplier-related requirements in each country where we operate.

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Apache's contracts for goods and services typically include requirements for supplier compliance with applicable local laws and regulations in areas such as safety, health, human rights, the environment, process safety, drug and alcohol use, business ethics, conflicts of interest, the Foreign Corrupt Practices Act, the U.K. Bribery Act and other applicable anti-corruption laws.

We actively engage with our contractors to promote effective, two-way communication. Every year, each of our U.S. regions facilitates several town-hall-style meetings with contractors and their employees. The primary focus of these meetings is to review key health and safety information as well as communicate new policies and procedures.

For example, in 2016, we held monthly safety meetings with core contractors in each of our Permian region's 29 foreman areas. In these meetings, regional leadership communicated the importance of Apache's job safety analyses, hazard identifications, and practices that encourage employees and contractors to stop any job they feel is unsafe. Through these meetings, the region engaged with more than 1,000 contractors over the course of the year. The sessions provided a unique opportunity for contractors to connect with Apache employees and for all levels of regional personnel to better understand the fundamental goal of every project: to go home safe each day.



Apache seeks to support and engage employees to build morale, satisfaction and performance. We have earned recognition as a top workplace in both the *Houston Chronicle* and the *San Antonio Express-News* based on surveys of our employees.

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SOCIETY▲





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Apache is committed to being a good neighbor. We actively engage with stakeholders in our communities to understand their concerns and needs, maximize our positive contributions and minimize any potential negative impacts of our business. We foster dialogues with community members to help us understand and protect their ways of life.

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**10,000**

girls educated in schools  
Apache helped build in Egypt

**97%**

of Apache employees are local  
nationals companywide



# COMMUNITY ENGAGEMENT ▲

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Being a good neighbor means taking the time to listen. Apache operates in numerous communities around the world, each with its own characteristics and needs. We believe it's essential to develop positive relationships with our communities by treating those who live and work in them with dignity and respect – and by listening to, and addressing, their concerns.

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We follow the same high standards of community engagement and responsiveness everywhere we operate. But our approach is tailored to the unique circumstances of each area. For example, since beginning exploration activities in southern Reeves County, Texas, home of the Alpine High play, we have undertaken extensive engagement and research efforts to protect the unique features of the area and to understand concerns among landowners and other community members, such as the impacts of bright lights on their famously dark skies and reservations about water quality and usage. (Read more about our work in Alpine High on p. 39.)

We develop relationships within our communities through a broad and inclusive process that spans from project initiation to completion. We maintain regular and open communication with local officials and community leaders to promote friendly and proactive dialogue, and we encourage community members to reach out if they have any issues to discuss. Building these partnerships provides a foundation for positive socioeconomic outcomes for both our company and our communities.

## **UNDERSTANDING AND ADDRESSING COMMUNITY CONCERNS**

We obtain regular formal and informal feedback from local stakeholders to understand and address community concerns; our goal is to mitigate any potential impacts of our operations before they become problems. We then take that input into consideration in our decision-making processes, both in the planning phases and after we begin operations. As part of our early engagement in the Alpine High region, for example, we held a community open house to share information on our plans and to respond to stakeholder questions about jobs, business opportunities and other elements of the project.

In each of our operating regions, Apache employs dedicated community and landowner engagement teams that maintain proactive, responsive and ongoing communication channels with local residents. Our landmen are often the first employees to develop positive working relationships with surface and mineral owners in a new operating area. They meet with mineral owners to negotiate leases and rights of use and work with surface owners to discuss and mitigate their concerns and make sure they know Apache is available for assistance should any problems arise.

Our public and government affairs teams also conduct regular stakeholder outreach and engagement through meetings, informal conversations and ongoing dialogue. And in our recent materiality analysis, we interviewed a number of external stakeholders, including representatives of the school district where our Alpine High play is located and the McDonald Observatory (see case study on p. 103).

While we take great pride in the work of our community outreach professionals, we expect everyone at Apache to be a community ambassador. Employees are trained to be open and responsive to community members' concerns and to share honest, factual answers about our operations and potential impacts.



As we were preparing this report, Hurricane Harvey struck Southeast Texas, bringing with it widespread destruction and flooding. Many of our people were directly impacted, and the damage to our communities was only beginning to be fully understood in the weeks leading up to the launch of this publication. Apache plans to take an active and ongoing role in helping Houston and surrounding communities recover and rebuild. In the early days after the hurricane, Apache donated \$250,000 to the American Red Cross and established various relief funds and grant programs for our people. [Learn more in the CEO letter on p. 7.]

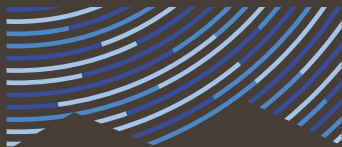
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# CASE STUDY ▲

## KEEPING THE SKIES DARK IN WEST TEXAS

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**McDonald Observatory**  
The University of Texas at Austin

The McDonald Observatory thrives on the darkness of the West Texas sky. This University of Texas facility ranks among the best in the world for astronomical research and boasts the 400-plus-inch Hobby Eberly Telescope, which discovered the largest black hole ever detected and continues to do cutting-edge research on dark matter and other emerging astronomical science topics.

Not long after our 2016 announcement of the Alpine High oil and natural gas field discovery, located about 30 miles from the observatory, executives from Apache were introduced to Bill Wren, special assistant to the observatory superintendent. Wren highlighted scientists' concerns around the potential impact of lights from oil fields on the dark skies. Apache agreed to work together with the observatory on a number of important modifications, including installing hoods on certain lights, experimenting with different fixtures, and readjusting our lighting so it points downward rather than up toward the night sky. There are now hundreds of lights in the Alpine High play, and our field personnel are assigned to check each one individually every week to ensure we stay in compliance with dark skies measures.

"We approached Apache and presented the case for maintaining dark skies for cutting-edge research. And the response from Apache has been so constructive," Wren said. "They allowed us to make recommendations and to educate their staff about how poorly installed lighting can light up the night sky and create debilitating glare in their workers' eyes."

"Our collaboration with the McDonald Observatory enables both of us to accomplish our goals in a complementary, collaborative manner," said Castlen Kennedy, vice president of public affairs at Apache. "Since the announcement of Alpine High, the measures put in place have mitigated light pollution from our operations while also reducing glare and increasing energy efficiency. We hope it serves as an example to other operators of what's possible when we look for mutually beneficial solutions."

In addition to lighting measures, Wren noted that Apache has also limited flaring – a major contributor to sky glow. "This, to me, is an extraordinary step and is really leading by example," Wren said. "We are very grateful to Apache for working with us so constructively and making changes."

Wren has personally advised about the lighting on the rigs of most of our contractors in Alpine High, helping to adjust the angle to minimize light pollution. Apache's health and safety teams now regularly check that the lights at our operations are "dark skies-friendly."



"There isn't a light in the Alpine High play where we haven't consulted the McDonald Observatory or utilized their expertise to protect the night sky," Kennedy noted.

In collaboration with the observatory, the Permian Basin Petroleum Association, the largest oil and gas trade association in West Texas, developed recommendations for lighting to help ensure that all operators in the area do their part to minimize light pollution. Apache will follow these recommendations – from the number of lights and the lumen output of each bulb to fixture design and direction – and will continue to work with the observatory to mitigate the impact our activities may have on one of the darkest areas in the continental United States.



Apache has worked proactively with the McDonald Observatory to develop dark skies protections for our facilities. In addition, observatory personnel have visited our drilling locations for periodic lighting inspections.

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# CASE STUDY ▲

## ENGAGING WITH THE BEDOUIN COMMUNITY

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In Egypt, the Bedouin are a nomadic tribe who have lived in the desert for hundreds of years but are not recognized as indigenous by the Egyptian government. As the nearest neighbors to our operations in the Western Desert, they are the focus of our stakeholder engagement program.

We meet regularly with the Bedouin community – in particular with the heads of families, known as chiefs or sheiks – to provide updates on our exploration and production activities and listen to any concerns they may have. We also provide employment opportunities to the Bedouins and help them obtain work identification cards, a requirement for employment that can be logistically difficult to obtain. We typically hire Bedouins for contract work, and in 2016 and 2017 Apache employed nearly 100 Bedouins as contractors.

After the completion of drilling, Bedouin contracts and services are transferred to Apache's Egyptian joint venture operations, although our engagement with the community continues. During regular, ongoing meetings with Bedouin chiefs, we learn about challenges we can address to improve Bedouin quality of life, such as increasing access to education. In addition to the schools for girls that we support in Fayoum, Minya and Giza (see sidebar on p. 114), we have also built eight co-ed primary schools that educate almost 300 students in rural Bedouin communities.



Apache management and Bedouin chief break ground at eighth school in Western Desert.

## **MINIMIZING COMMUNITY IMPACTS**

While most of the high-activity elements of our operations are short lived, we know that they can create some concentrated, though temporary, inconveniences. Our guiding principle is always to minimize these impacts on local residents as much as possible from the outset. On issues ranging from the size of our well pads to our trucking routes, we thoughtfully work out logistics to avoid or minimize issues such as traffic congestion, road safety, dust, noise and odors.

During the pad siting process, we take multiple factors into consideration, including accessibility and road conditions. We often drive the roads in the region to get a ground-level view of the situation and preemptively address potential concerns, such as vulnerable roads, residential density or other factors.

Once we commit to a pad location, we develop approved routes for heavy trucking to reduce the potential for widespread disturbance and traffic congestion. We then require all heavy trucks servicing the location to use the approved routes, which minimizes impacts on other road users. We also implement dust suppression measures to reduce impacts on nearby residents and for the safety of vehicles traveling the road.

We contribute to repairing roads as needed. For example, Apache was part of an industry group that worked with the Texas legislature to provide more than \$5 billion in extra funds to the Texas Department of Transportation and local counties for use in road and highway construction and maintenance in the areas that have seen a dramatic uptick in oil and gas development activity.

We also work to reduce our impacts on local roads and communities by fostering safe driving practices among our employees and contractors (see p. 82). For example, we use vehicle monitoring devices to help ensure employees operate vehicles safely on public roadways.

In the town of Toyah, Texas, near our Alpine High play, truck traffic has increased due to a number of oil and gas companies working in the area. Local officials wanted to build a bypass road to keep the traffic out of town. Before doing so, however, Toyah city officials, community members and representatives of Reeves County met with Apache employees to discuss the complicated and time-consuming task of determining who owned the land rights along the planned road. To facilitate the road's construction, Apache employees examined the titles and provided Reeves County officials with the details they needed to secure the rights to plan a new road. Also in the Toyah area, we have committed \$2.5 million to repair and maintain two county roads that we use extensively.

Noise, light and odor are other common community concerns. We install sound barriers as needed and use specialized lighting to reduce impacts on nearby residents. Odor from our operations can occur when a formation contains hydrogen sulfide. If hydrogen sulfide emissions cannot be addressed through the well siting process, we install emission controls to mitigate odors and emissions during the production stage.

## **ADDRESSING COMMUNITY COMPLAINTS**

While we work hard to address concerns before residents feel the need to complain, we also want to make it easy for community members to share concerns with us and for us to be able to address and resolve those concerns. Moreover, we want to make sure we learn from every complaint and try to avoid any related issues across our operations.

As part of an effort to be more responsive to community needs, we recently established a formal grievance hotline through our Apache Incident Management Center. Known by the acronym AIM, the center is operated 24 hours a day by staff members in Houston, where they monitor security cameras on Apache properties worldwide and catalog any concerns that are flagged. (Apache is one of only a few independent oil and gas companies with a 24-hour call center operated by employees rather than a third party.) In 2016, we set up a separate, toll-free hotline number, the Apache Good Neighbor Line, specifically for any community grievances.

We also established a tracking and ticketing system and a matrix for cataloguing types of concerns. Each grievance we receive is consolidated and maintained in a central system, and issues are routed to the appropriate region contact for further action. All inquiries receive a thorough, individualized investigation to determine the underlying details and develop appropriate resolutions. Company representatives work to address each situation and provide a timely response to the inquiry.

In 2016, we received fewer than 10 complaints through the hotline. These complaints covered issues such as excessive noise and light, vehicle speed and debris on properties. All of the complaints were addressed. For example, one complaint about debris was swiftly resolved by putting receptacles at the entrance to a landowners' property where we had drilling operations.

The number of formal complaints might rise as we continue to promote the hotline number and encourage people to call us if they have any problems. We look forward to the opportunity to better understand and address community concerns.

We also formally track grievances brought to the attention of our people in the field, including project managers at job sites and the Apache landmen, whose primary job is engaging with the surface and mineral owners on and around our operations.



#### **THE APACHE GOOD NEIGHBOR LINE**

We have grievance mechanisms for public feedback, concerns and comments in all of our operating regions, including in-person at our offices and via email, phone and social media. Community grievances can also be made to the company via the toll-free Apache Good Neighbor Line: 1-866-705-2400.

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# HUMAN RIGHTS ▲

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Respect for human rights is at the core of Apache's values and operations. We worked together with our long-term shareholders in a multi-year process to develop the foundation of the company's [Human Rights Principles](#), which we formally adopted in 2013.

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The principles are consistent with the framework laid out by John Ruggie, the United Nations' special representative on business and human rights. Aimed at the honest, fair and dignified treatment of all human beings for whom our operations create opportunities, our Human Rights Principles formalize practices already in place throughout our regions. In accordance with the principles, the company's monitoring results are thoroughly assessed and reported annually to the Corporate Governance and Nominating Committee of our Board of Directors.

Three of Apache Corporation's subsidiaries based in the United Kingdom – Apache North Sea Limited, Apache Beryl I Limited and Apache North Sea Production Limited – recently published a [statement](#) under the U.K. Modern Slavery Act. (Read more about Apache's efforts to fight human trafficking on p. 109.) This law requires certain companies doing business in the United Kingdom to post a statement regarding the steps the company has taken to ensure, as much as reasonably possible, that modern slavery or human trafficking is not taking place within the organization or its supply chain.

## RESPECTING INDIGENOUS PEOPLES

An integral part of Apache's business is building enduring relationships with the communities in which we operate. This commitment includes recognition of and respect for indigenous people who live and work in these communities and have a strong connection to the land. At shareholders' request, we adopted a [statement](#) concerning indigenous peoples as part of our Human Rights Principles.

Through open consultation, Apache has endeavored to incorporate indigenous perspectives into project planning, design and execution, and operational planning. In Alpine High, for example, we assessed the area for potential Native American cultural sites and have a program in place to address any previously unidentified cultural sites we uncover in the course of operations (read more about Alpine High on p. 39). During the exploration and development phase of a project, Apache promotes open communications by conducting community meetings and working directly with indigenous groups and local nongovernmental organizations.

Whether through education, training, employment or benefit agreements, Apache also strives to ensure that our projects have direct and long-lasting benefits for national peoples and their local communities. As discussed on p. 105, for example, we provide employment opportunities for the local Bedouin communities in Egypt.

Our global operations have evolved over the years, and today we have few remaining locations with indigenous populations. When we were operating in Australia, Apache employees took part in a one- or two-day Aboriginal Cultural Awareness Training designed to help employees develop an understanding of the traditional laws and customs of the Aboriginal people.

#### ADDRESSING HUMAN TRAFFICKING

To do our part to fight human trafficking, Apache proactively informs employees and major contractors and suppliers of the resources available that describe trafficking behaviors to watch for and contact numbers to use to report these behaviors, if observed. For example, the advocacy organization [Truckers Against Trafficking](#) provides an educational video, downloadable cards and phone numbers to help truck drivers in North America combat human trafficking. Apache has provided this information to our drivers – employees and contractors alike. The drivers can hand the cards out to anyone they believe is being trafficked.

**National Hotline: 1-888-3737-888 (Multi-Lingual)**  
**1-800-222-TIPS (Canada)**  
**01800-5533-000 (Mexico)**  
**Text INFO or HELP to BeFree (233733)**

**Report by Email: [help@humantraffickinghotline.org](mailto:help@humantraffickinghotline.org)**

**Warning:** Please do not approach traffickers. Call the hotline, and if instructed, the local police (911). Allow law enforcement to deal with traffickers and recover victims. Approaching traffickers is not only dangerous for you and their victims but could lead to problems in the eventual prosecution of traffickers. Also, if at a truck stop/travel plaza, please notify the manager-on-duty of the suspicious activity; she/he needs to be aware of what is taking place on the lot and assist in ending it.

**If you have seen the TAT Training DVD and reviewed this wallet card, please register as TAT Trained on our website at [truckersagainstrafficking.org](http://truckersagainstrafficking.org).**

**Make the Call,  
Save Lives.**



**1-888-3737-888 (US)**  
**1-800-222-TIPS (Canada)**  
**01800-5533-000 (Mexico)**  
**Text INFO or HELP to BeFree (233733)**  
**[www.truckersagainstrafficking.org](http://www.truckersagainstrafficking.org)**

BUSINESS

# LOCAL ECONOMIC IMPACTS ▲

Apache’s operations often bring benefits to communities in the form of local hiring and spending.

We focus on hiring qualified individuals who reside in the areas where we operate, including the United States, Canada, Egypt, the United Kingdom and Suriname. In Egypt, for example, we directly employ 310 Egyptian nationals. Through our joint ventures with the national oil company, the Egyptian General Petroleum Company, an additional 3,792 Egyptian nationals are employed, and nearly 3,000 more work as contractors for Apache or our joint venture partners.

We offer competitive wages and benefits, and actively recruit qualified candidates with demonstrated skills and experience specific to the particular requirements for each job. We regularly participate in region-specific salary surveys to ensure we provide competitive wages to attract and retain top talent. In all locations, we make compensation enhancements based upon salary survey results when needed.

Read more about local hiring in our newest area, Alpine High, on p. 39.

**97%**  
of employees are  
local nationals  
companywide

## LOCAL HIRING 2016<sup>17</sup>

Country	Employees	National employees in other locations	Expatriate employees	Percent of national employees
Canada	510	26	4	99.22%
Egypt	310	1	84	72.90%
U.K. North Sea	618	4	10	98.38%
United States	2,289	71	3	99.87%

<sup>17</sup>As of December 31, 2016

## LOCAL SPENDING

Like hiring locally, sourcing supplies and services locally makes economic sense and engenders goodwill in the communities in which we operate. For that reason, Apache makes it a point to develop strong relationships with local suppliers and contractors.

Many products and services for the oil and gas industry are commonly provided by large suppliers – including products such as offshore rigs, turbines, wellhead equipment and steel pipe. Apache also seeks to purchase from local businesses. Welding services, water hauling, roustabout crews, construction crews and civil project installation crews are a few of the categories in which we procure goods and services from local suppliers. One of the benefits of our decentralized organization, with supply chain personnel embedded in each region, is that it furthers our efforts to involve the local community and suppliers in our business. Our operating regions spend, on average, nearly 30 percent of their budgets with suppliers and vendors who are geographically local.

**LOCAL SPENDING 2016<sup>18</sup>**

Region	Total spend	Local spend	Percent local spend
Permian	\$954,339,505	\$229,573,310	24%
Midcontinent/Gulf Coast	\$165,109,495	\$36,913,357	22%
Canada	\$233,062,039	\$106,277,788	46%
Egypt	\$503,798,485	\$254,031,215	50%
Gulf of Mexico	\$62,918,836	\$8,506,327	14%
North Sea	\$882,137,567	\$177,580,765	20%
Corporate	\$157,988,736	\$56,605,151	36%
<b>TOTAL</b>	<b>\$2,950,354,662</b>	<b>\$869,487,915</b>	<b>29%</b>

<sup>18</sup>As of December 31, 2016

We also contribute to local economies through a variety of taxes and fees. In 2016, Apache paid nearly \$39 million in local property taxes assessed upon reserves in place. Texas is one of only two states that allows local governments to tax oil and gas reserves. In some cases those tax payments make up a very large percentage of the total revenue collected by school districts, cities, counties, hospital districts, community colleges and other such entities.



# PHILANTHROPY AND VOLUNTEERING ▲

We follow a simple philosophy when it comes to community philanthropy. We “give where we live,” zeroing in on the specific needs of the areas where we operate. Our corporate outreach program is employee-driven, empowering our people to decide where their volunteer hours go and giving them a say in how corporate dollars are spent within local communities.

Apache employees in each region who have ideas for community service projects make proposals to cross-functional committees of Apache employees, which review such projects. The committees typically support the majority of proposals but emphasize those activities that focus on health and wellness, education and environmental improvements.

In addition to employee volunteering, we support a variety of causes and nonprofit organizations through direct corporate giving and employee matching gifts. Among the many charities supported by Apache employees are Special Olympics, the American Red Cross, the Houston Food Bank, the Muscular Dystrophy Association, Project C.U.R.E., the Lupus Foundation, the Children's Cancer Foundation in Egypt, Maggie's Cancer Caring Centres of Aberdeen, the Alzheimer's Society of Canada, as well as the many others described below.

Specific examples of our philanthropic and volunteer efforts are described in this section, grouped into the key topic areas of education, health and social, environment and the arts.

## 2016 COMMUNITY INVESTMENTS

### BY CATEGORY

Arts **3%**

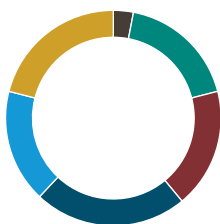
Education **18%**

Environment **18%**

Health & Safety **23%**

In-Kind<sup>19</sup> **17%**

Matching Contributions<sup>20</sup> **21%**



<sup>19</sup>In-kind contributions are primarily for the Fund for Teachers program and Springboard, both of which are discussed in the Education subsection below.

<sup>20</sup>Matching contributions include employee matching gifts and Apache's match.

## EDUCATION

Apache promotes educational opportunities for teachers and students across the globe. Our education work in Egypt, described in the case study on the next page, has long been one of our premier philanthropic projects.

Another is the Fund for Teachers program, originally the brainchild of Apache founder Raymond Plank and now a thriving, Houston-based nonprofit. Founded in 2001, the [Fund for Teachers](#) impacts future generations by enriching the personal and professional growth of teachers. During the 2016–2017 school year, the Fund for Teachers provided nearly 540 grants to support self-designed summer fellowships. These fellowships took teachers out of the classroom to self-guided cultural expeditions, service-learning projects and national conferences, providing them with the opportunity to reflect on how their experiences could shape future curricula. Apache proudly supports the Fund for Teachers, its investment in outstanding teachers and its inspiring impact on students and their schools.

We also make frequent donations to schools and school districts within our areas of operation, responding to local needs. For example, we are supporting several projects of the Balmorhea Independent School District in Texas to address needs identified by the community near our Alpine High operations. (Read more on p. 39.)

We also support higher education. For example, we pledged \$2 million over three years to the Colorado School of Mines, one of the universities from which we actively recruit students. Half of that amount went toward upgrading the Petroleum Engineering Department's drilling laboratory. Another portion was used to purchase a micro drilling rig that the school is using to research and test potential improvements to current drilling practices. The funds have also been used to create a new graduate fellows program and to support several other academic departments.

# CASE STUDY ▲

## CREATING EDUCATIONAL OPPORTUNITIES FOR GIRLS IN EGYPT

In many rural villages in Egypt, schooling is just for boys. Apache has been helping to change that through our support of a nonprofit organization whose mission is increasing educational opportunities for disadvantaged children – especially girls.

Apache founder Raymond Plank launched Springboard – Educating the Future, in 2004, as part of his larger commitment to educating underserved populations. More than a decade later, Apache remains one of the primary funding sources of the organization as it works to advance education for girls. Springboard also works with governmental and nongovernmental organizations, as well as individuals and other corporations, in support of the Egyptian government's Girls' Education Initiative.

Through Springboard, Apache has supported the construction of 201 mostly one-room schools in Egypt, which together have taught more than 10,000 girls how to read and write. About 4,000 have graduated to date, with some of those going on to secondary schools to pursue advanced degrees.

In addition to contributing capital for school construction, Apache supports annual school maintenance – 70 schools were maintained in 2016 – and provides supplies and financial aid awards for graduates to help them get accepted into universities and secure scholarships. Several Apache executives sit on the board of directors for Springboard, whose budget averages about \$140,000 each year.

Our regional office in Egypt also has provided full scholarships to support Egyptian students at the American University in Cairo who are majoring in petroleum engineering. Apache employees and their families also frequently support the schools, donating supplies such as stationery, backpacks and clothing. And in 2016, our fifth-annual Fun Run/Walk/Cycle event in Egypt raised enough money to purchase 16 laptops for 16 schools.

Also in 2016 in Egypt, and as part of our “give where we live” approach to philanthropy, Apache responded to a pressing medical need by donating six infant incubators to four Egyptian hospitals. At one of the locations, a newborn's life was saved as a result of having the incubator available – just one week after we made the donation.



El Hawanem School built by Apache

### SUPPORTING EDUCATION IN EGYPT

**201**  
schools built

**10,000**  
girls educated

## HEALTH AND SOCIAL

Around the globe, Apache donates funds to a wide variety of organizations and programs aimed at improving individual and public health and social conditions.

### Health Care and Medical Research

In Suriname, Apache actively supports educational and residential facilities for disadvantaged and disabled young people, providing more than \$420,000 over several years. We recently provided funding to renovate the kitchen facility of Huize Tyltyl, a facility that caters to young people with disabilities. Apache partnered with engineering consultants and local contractors to complete the remodeling project, which involved replacing outdated equipment, increasing storage space and bringing the kitchen up to local building codes. The renovated kitchen is now able to accommodate wheelchairs, allowing some residents to help with food preparation and cleanup.

Also in 2016, Apache donated \$135,000 to help prevent flooding at Huize Tyltyl. In past years, the facility would be forced to evacuate residents as many as five times during the rainy season, due to flood waters overflowing into the building. Funding from Apache supported the construction of a clay dam and the installation of four water pumps.

Over the years, hundreds of Apache employees have participated in two separate 150-mile bike rides in Texas, including the Cactus & Crude Ride in Midland, for which Apache is the lead sponsor. Both rides raise funds for the Multiple Sclerosis (MS) Society, which is dedicated to finding a cure for this debilitating disease. Through fundraising efforts, Apache employees have raised more than \$1 million to combat MS.

Apache has also been the title sponsor of the Mayor's Wellness Weekend in Houston, which features the Tour de Houston Bike Ride through the city and the Bayou City Classic Fun Run around the downtown area. The purpose of Wellness Weekend is to promote exercise and healthy outdoor activity. Both the ride and the run raise money for the Houston Parks and Recreation Department to restore and replant city parks, which had been decimated by years of drought. Donations to date from these two events total more than \$790,000.

Also in Houston, Apache has supported the University of Texas MD Anderson Cancer Center for many years, including support of the hospital's Moon Shots program. Moon Shots is designed to accelerate the conversion of scientific discoveries into clinical advances and significantly reduce cancer deaths. It has improved surgical outcomes for ovarian cancer, expanded the potential impact of new drugs, and developed a novel family outreach program to head off cancers fueled by known genetic risk mutations.

In Canada, Apache is a long-term supporter of Ronald McDonald House, which helps to support the families of sick children. Each summer, Apache employees and their families take part in the "Rock the House Run presented by Apache" to raise funds for the charity. Apache Canada has contributed more than \$600,000 to Ronald McDonald House since 2006. In Houston, Apache employees have raised and donated enough money to have a room named after the company in the Houston Ronald McDonald House, and once a month employees provide and serve dinner to the children and families in residence at the House.



▲ In Suriname, Apache actively supports educational and residential facilities for disadvantaged and disabled young people. We've provided more than \$420,000 over several years, including funding to renovate facilities and prevent flooding.



# CASE STUDY ▲

## VOLUNTEERING WITH PROJECT C.U.R.E.

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Established in 1987, Project C.U.R.E. is the world's largest distributor of medical donations to developing countries. About a decade ago, several Apache employees from our Houston office began volunteering regularly at the organization's local warehouse, packing and loading equipment and supplies that had been donated by area hospitals and physicians' offices.

One of the benefits we have at Apache is "half-day Fridays," a shorter workday in exchange for longer days Mondays through Thursdays. On the fourth Friday of the month, a team of Apache employees leaves the Houston office at lunchtime and spends several hours sorting equipment bound for impoverished nations around the world. A core group of about 15 people rotate in and out of the monthly shifts.

In 2013, Lynn Blandford, an accounting manager at Apache, saw a flyer about the project in the Houston office and decided to give it a try. She loved it so much that she became team captain for the volunteers after a colleague retired later that year. As captain, she's responsible for organizing the shifts of volunteers each month and spreading the word about the program.

"The C.U.R.E. staff are so friendly and are particularly appreciative of the Apache group," Blandford said. "I felt like I was making a small difference somewhere far across the world."

We are currently working on expanding our Project C.U.R.E. volunteer efforts to other regions where we operate, particularly in local communities that lack basic supplies and more sophisticated medical equipment.



#### **First Responder Donations and Disaster Relief**

We all rely on first responders in our communities. Therefore, Apache feels it's important to give back to the emergency crews who work so hard to protect us. In 2016, we made donations to more than two dozen volunteer fire departments in our U.S. areas of operation, helping to fund a variety of equipment and supply needs.

In Scotland, we recently made a donation to a new emergency volunteer group in Ellon, near Aberdeen. The group responds to life-threatening conditions when an ambulance is delayed. Apache's donation helped to cover the cost of defibrillators, oxygen and kit bags.

Apache also has a long legacy of providing aid in response to disasters. In Texas since 2011, we have provided both grants and matching donations to the Missions on Wheels organization, which maintains mobile emergency support equipment that can respond quickly to disasters in the region.



#### **HELPING OUR COLLEAGUES**

The Apache Employee Relief Fund (AERF) was established in 2001 to provide bridge funding to help employees recover from catastrophic events such as hurricanes, tornadoes, flooding, fires and medical emergencies. The goal is to ensure that employees and their families receive assistance following devastation or loss. Funded through employee donations, the AERF has distributed more than \$600,000 to employees since its inception. In the spring of 2017, we held a fundraiser in Houston for the AERF. Through the generous contributions of our employees, we raised more than \$95,000, shattering our \$10,000 goal.

## ENVIRONMENT

Apache supports several important environmental initiatives, including a tree grant program (see case study on the next page), Ucross Ranch in Wyoming, the FinS program in Canada and a beach cleanup effort in Texas.

Established by Apache founder Raymond Plank in 1981, Ucross Ranch in Wyoming is a 20,000-acre working cattle ranch where artists, writers and composers are provided free residency and space to work. Part of the attraction for these visitors, however, is the birds that fill the landscape, such as bald eagles, great blue herons, bobolinks, owls, greater sage grouse and Swainson's hawks. The ranch is designated an Important Bird Area by the National Audubon Society.

In recent years, the Apache Foundation has worked hard to improve the quality and condition of the Clear and Piney Creeks, which flow through Ucross Ranch. Efforts have been made to narrow the streams back to their original width, to decrease bank erosion and provide critical fish habitat. In 2016, the Apache Foundation completed two large fish passage projects on Piney Creek, enabling fish to migrate the entire length of the creek for the first time in more than 100 years. In conjunction with the fish ladder project, we invited children from the local school to participate in fish tagging. The students tracked the fish and their migration efforts both onsite and in the classroom. (Learn more about Ucross in the Biodiversity section on p. 75.)

Apache Canada has been an exclusive sponsor of Fish in Schools: Raise and Release Program (FinS), an annual education initiative run by the Bow Habitat Station in partnership with Alberta Environment and Sustainable Resource Development. Through FinS, more than 10,000 students and teachers in over 45 participating schools grow trout in Apache-sponsored fish tanks and then release the fry into an approved body of water. The curriculum includes the study of life-cycle stages, fish needs, adaptations, habitat and water quality. With the help of their teachers, students learn how to care for the fish; maintain a healthy aquarium environment, including monitoring the water quality and temperature; and ensure the fish are getting the right amount of food.

And, in Texas in February 2017, a team of Apache volunteers helped in a one-day event to clean up San Antonio waterways. More than a dozen employees pulled trash out of Salado Creek.



Students release trout they raised through the FinS program.

# CASE STUDY ▲

## APACHE TREE GRANT PROGRAM: FOUR MILLION AND COUNTING

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**4million**  
trees donated  
by Apache

Trees beautify our neighborhoods, provide habitat for wildlife and help to mitigate greenhouse gas emissions. It's estimated that an individual tree can remove 48 pounds of carbon dioxide per year from the atmosphere.

For more than a decade, we have been donating trees to a wide variety of nonprofit and governmental organizations, including cities, counties, schools, parks, universities, youth associations, wildlife refuges and community groups. In some cases, our employees have volunteered their time to plant the trees.

In January 2016, we marked the 10-year anniversary of our popular tree giveaway program by donating our 4 millionth tree – a 16-foot-tall live oak – to Memorial Park in Houston, Texas.

During the 2016–2017 planting season, we donated more than 280,000 trees in Texas, Louisiana and Wyoming. For example, the Texas nonprofit Friends of the Wildlife Corridor planted 10,000 Apache-donated saplings in the Lower Rio Grande Valley National Wildlife Refuge. This donation will help to preserve and expand the unique habitat in the valley, a biologically diverse area home to 17 federally listed threatened, endangered and migratory species such as the ocelot and jaguarondi.

In large part due to our tree program, Apache was recognized as the 2016 Conservationist of the Year in the Louisiana Governor's State Conservation Achievement Awards. The state recognized our consistent support of bottomland hardwood habitat restoration in that state.

Other Apache-sponsored projects have included the planting of more than 600,000 pine tree seedlings to restore and reforest the 3,700-acre Bastrop State Park in Bastrop, Texas, and the planting of 68,000 saplings on 352 acres of Santa Fe National Forest in New Mexico. Both protected areas had been previously decimated by wildfires. We are now integrating our tree planting program into our newest region, Alpine High, as part of our native vegetation restoration of test well locations.

Our tree grant program also supports tree-planting in our corporate headquarters city of Houston, which has lost millions of trees due to drought and hurricane damage. For example, Apache sponsors the popular Tour de Houston Bike Ride and Bayou City Classic Fun Run, which both benefit the nonprofit Houston Parks and Recreation Department and its efforts to reforest the city.

And through our Trees for Tots program, employees plant young redbud trees in Houston's Memorial Park to celebrate the birth or adoption of a child to an Apache employee's family. More than 130 trees have been planted since we began the initiative in 2013. Although most trees have been planted in Memorial Park, some have been taken home to be planted in an employee's yard.





▲ Apache employees helped plant nearly 1,000 pine trees in Herman Brown Park in celebration of Houston Arbor Day, January 21. The trees, donated by Apache, were planted in an effort to replace greenery lost in the park following a drought.

▲  
“Habitat restoration on the South Texas Refuge Complex has been an ongoing effort for more than 40 years, with a major emphasis on reforesting lands that had previously been cleared or altered for agricultural purposes. This program restores the ecological function of the Tamaulipan thornscrub forests and preserves the species that these forests support, such as the endangered ocelot and a host of migratory birds. The generous support we receive from Apache Corporation and others enables the U.S. Fish & Wildlife Service to purchase native tree seedlings and further leverage its ecosystem restoration capabilities. Without these funds, the annual habitat restoration goals would be impossible to achieve and ultimately result in fewer acres in South Texas reclaimed for native wildlife.”

KIMBERLY WAHL-VILLARREAL  
*Restoration ecologist, South Texas Refuge*



#### HONORING VETERANS

Every May during Military Appreciation Month, Apache employees honor veterans by holding collection drives for snacks, toiletries and other goods to send to service members deployed overseas. Since the program began in 2013, Apache Cares has collected items for nearly 10,000 care packages for troops stationed all over the world. We collect cash donations to help cover the postage expenses, and Apache matches each gift.

Also during Military Appreciation Month, we honor Apache employees who have served in the military as well as those employees with military loved ones. Our company shows our appreciation to these individuals with a commemorative coin. We have recognized more than 200 veterans since we began the program in 2014.



#### HABITAT FOR HUMANITY

Apache employees have a long-standing commitment to Habitat for Humanity, which builds affordable housing for people in need. Each year, Apache volunteers gather in Houston to build a Habitat home together. During 2016, nearly 100 Apache volunteers built their eighth sponsored home for Habitat.

## THE ARTS

Apache has been a strong supporter of the arts since the inception of the company more than 60 years ago. Over the last 20 years, the company has donated approximately \$26 million to arts groups in the United States and around the world, through grants, employee matching gifts and in-kind donations.

As discussed previously, the highly regarded Ucross Foundation in Wyoming hosts an artists-in-residence program open to all forms of artistic expression. The Foundation provides room, board and facilities for artists to find their muse – and the opportunity to do some of their best work without outside distractions.

In Houston, Apache has supported the Tony Award-winning Alley Theatre for nearly 15 years. The Alley is one of the largest theater companies outside of New York and provides audiences with a variety of top-quality work, including new plays and classics, the rediscovered and the rarely performed. Also in Houston, we provided capital funding for the Houston Museum of Natural Science's development of a 10,000-square-foot hall dedicated to Egyptian antiquities.

In Canada, we have lent our support to the Glenbow Museum, Calgary's largest museum, and the Writers' Trust of Canada, which celebrates the talent and achievements of novelists, poets, biographers and other nonfiction writers through programs and awards.

Apache also has an active program to encourage our employees to enjoy the arts. At Apache Night at Theatre Under the Stars in Houston, for example, more than 1,000 employees, families and friends attend several exclusive-to-Apache performances of major theater productions such as *Les Misérables*, *Spamalot*, *Dream Girls* and *The Little Mermaid*. We provide similar opportunities with Family Night at the Houston Museum of Natural Science, during which employees and their families have exclusive and complete access to all museum exhibits and the Giant Screen Theatre; and the exclusive Apache Family Night at the Houston Ballet, where employees and their families launch the holiday season at the final dress rehearsal performance of *The Nutcracker*.

Finally, in Midland, Texas, we help to support local community theater through the Arts Council of Midland as well as SeptemberFest at the Museum of the Southwest. And in the U.K. we help to support the Aberdeen International Youth Festival and the Pitmedden Music Festival. Each of these examples conveys our mission to "give where we live."



# APPENDIX▲





# KEY PERFORMANCE DATA ▲

	UNITS	2016	2015	2014	2013	2012
<b>FINANCIAL AND PRODUCTION HIGHLIGHTS<sup>21</sup></b>						
Oil and gas production revenues	\$ Million	5,367	6,510	12,795	14,825	14,965
Natural gas production	MMcf/d	1,103	1,149	1,371	1,720	2,080
Oil and natural gas liquids (NGL) production	Mbbls/d	338	352	369	381	384
Proved reserves	MMboe	1,311	1,564	2,396	2,646	2,852
<b>WATER WITHDRAWALS BY SOURCE</b>						
Water withdrawals	Mbbls	1,037,827	1,209,370	1,221,590	1,186,080	1,227,820
Groundwater						
Potable	Mbbls	18,370	34,350	50,060	57,680	49,760
Nonpotable	Mbbls	1,011,720	1,157,030	1,142,040	1,113,030	1,099,550
Municipal water	Mbbls	2,946	3,960	9,170	3,380	7,780
Municipal wastewater	Mbbls	-	4,110	-	-	50
Surface water						
Potable	Mbbls	4,791	9,920	14,870	9,110	6,750
Nonpotable	Mbbls	-	-	5,450	2,880	63,930
Water intensity	bbls/boe	3	4	3	3	3
Reused/recycled	%	56	49	45	52	45
Hydraulic fracturing water details (U.S. only)						
Nonpotable water	%	26	41	32	38	N/A
Produced water captured for reuse	%	7	17	15	9	N/A
Nonpotable water withdrawals	%	97	96	94	94	95
<b>GREENHOUSE GAS EMISSIONS</b>						
GHG emissions	tCO <sub>2</sub> e	7,860,000	7,750,000	8,870,000	9,050,000	10,240,000
GHG emissions intensity	tCO <sub>2</sub> e/Mboe	20.3	23.3 <sup>22</sup>	24.7	24.8	24.8
Methane emissions intensity (leak/loss rate)	%	0.43	0.49	0.53	0.55	0.75
Operated direct emissions (Scope 1)						
Carbon dioxide	tCO <sub>2</sub> e	4,500,000	4,300,000	4,400,000	4,300,000	4,200,000
Methane	tCO <sub>2</sub> e	2,300,000	2,200,000	2,700,000	3,100,000	4,700,000
Nitrous oxide	tCO <sub>2</sub> e	60,000	50,000	270,000	250,000	40,000
Operated direct emissions (Scope 1) by source						
Flaring	%	23	24	21	23	17
Venting	%	5	6	10	10	14
Fuel combustion	%	50	48	47	44	46
Fugitives	%	16	16	16	17	16
Other	%	6	7	7	6	7
Electricity (Scope 2)	tCO <sub>2</sub> e	1,000,000	1,200,000	1,500,000	1,400,000	1,300,000
Purchased fuel	MWh	3,600,000	3,280,000	3,900,000	8,890,000	8,950,000
Distillate fuel oil No. 2	MWh	920,000	330,000	390,000	980,000	1,000,000
Natural gas	MWh	2,680,000	2,950,000	3,510,000	7,910,000	7,950,000
<b>SPILLS</b>						
Hydrocarbon spills	# >1 barrel in size	299	417	432	418	446

	UNITS	2016	2015	2014	2013	2012
<b>OFFICE WASTE</b>						
Total waste diverted from landfill (Houston only)	%	70	53	N/A	N/A	N/A
Recycling electronics (Houston only)	tons	46	33	N/A	N/A	N/A
Monthly average paper output (Houston and Midland)	#	300,000	800,000	N/A	N/A	N/A
Black & white	#	100,000	380,000	N/A	N/A	N/A
Color	#	200,000	420,000	N/A	N/A	N/A
Recycled paper used (Sustainable Forestry Initiative)	%	100	100	N/A	N/A	N/A
Annual paper costs	\$	38,000	52,000	N/A	N/A	N/A
<b>HEALTH AND SAFETY</b>						
Hours worked - workforce (employees + contractors)	Million hours	44	53	83	87	79
Employee total recordable incident rate	Per 200,000 hours worked	0.19	0.44	0.38	0.35	0.38
Contractor total recordable incident rate	Per 200,000 hours worked	0.69	0.91	1.08	1.15	1.40 <sup>23</sup>
Workforce total recordable incident rate	Per 200,000 hours worked	0.52	0.76	0.89	0.95	1.13
Employee days away, restricted or transferred rate	Per 200,000 hours worked	0.09	0.24	0.20	0.10	0.15
Contractor days away, restricted or transferred rate	Per 200,000 hours worked	0.37	0.44	0.61	0.58	0.76 <sup>23</sup>
Workforce days away, restricted or transferred rate	Per 200,000 hours worked	0.27	0.37	0.50	0.46	0.60 <sup>23</sup>
Vehicle incident rate (Apache employees only)	%	1.41	1.29	1.41	1.63	1.93
<b>OUR PEOPLE</b>						
Number of full-time employees	#	3,727	3,860	4,850	4,973	N/A
United States	#	2,289	2,247	2,685	2,724	N/A
Canada	#	510	526	678	782	N/A
United Kingdom	#	618	673	688	674	N/A
Egypt	#	310	414	415	402	N/A
Australia <sup>24</sup>	#	-	-	384	391	N/A
<b>COMMUNITY INVESTMENTS</b>						
Education	%	18	25	N/A	N/A	N/A
Health and social	%	23	30	N/A	N/A	N/A
In-kind	%	17	12	N/A	N/A	N/A
Arts	%	3	3	N/A	N/A	N/A
Environment	%	18	15	N/A	N/A	N/A
Matching contributions	%	21	15	N/A	N/A	N/A
<b>COMMUNITY ENGAGEMENT</b>						
Global local vendor spending	\$ Million	869	1,709	2,928	3,058	N/A
Global vendor spending	\$ Million	2,950	6,852	10,924	12,651	N/A
Total percentage of local spending	%	29	25	27	24	N/A
Global local hiring	#	3,727	3,860	8,570 <sup>25</sup>	8,816 <sup>25</sup>	N/A

<sup>21</sup>Unless otherwise specified, amounts attributed to revenues, earnings and production exclude discontinued operations related to Argentina and Australia and have been recast to reflect retrospective application of the successful efforts method of accounting. For more information, please see the company's Form 8K as filed with the Securities and Exchange Commission on Aug. 4, 2015.

<sup>22</sup>The GHG emissions value in 2015 was adjusted slightly to account for improved data.

<sup>23</sup>Data for 2012 was adjusted slightly to correct for rounding errors.

<sup>24</sup>Australia assets were sold in June 2015.

<sup>25</sup>Numbers include joint-venture employees in Egypt.

MMcf/d = millions of cubic feet of natural gas per day

Mbbls/d = thousands of barrels of oil or NGL per day

MMboe = millions of barrels of oil equivalent

Mbbls = thousands of barrels

bbls/boe = barrels of water per barrels of oil equivalent

tCO<sub>2</sub>e = metric tons of carbon dioxide equivalent

tCO<sub>2</sub>e/Mboe = metric tons of carbon dioxide equivalent per thousands of barrels of oil equivalent

MWh = megawatt hour

## WATER WITHDRAWALS BY REGION ▲

REGION	MUNICIPAL WATER [MBBL/YR]	WASTEWATER [MBBL/YR]	POTABLE GROUNDWATER [MBBL/YR]	NONPOTABLE GROUNDWATER [MBBL/YR]	POTABLE SURFACE WATER [MBBL/YR]	NONPOTABLE SURFACE WATER [MBBL/YR]	TOTAL WITHDRAWAL [MBBL/YR]	WATER INTENSITY [BBL/BOE]
Canada	6	—	6,720	47,390	2,250	—	56,366	3
Egypt	780	—	3,180	265,140	1,660	—	270,760	1
North Sea	440	—	—	208,250	220	—	208,910	7
Gulf of Mexico	1,410	—	—	1,380	—	—	2,790	0
Midcontinent/ Gulf Coast	—	—	1,200	26,840	660	—	28,700	1
Permian	310	—	7,270	462,720	1	—	470,301	7
U.S. Total	1,720	—	8,470	490,940	661	—	501,791	5
<b>TOTAL</b>	<b>2,946</b>	—	<b>18,370</b>	<b>1,011,720</b>	<b>4,791</b>	—	<b>1,037,827</b>	<b>3</b>



# AWARDS AND RECOGNITIONS ▲

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Apache is proud to be frequently recognized by third parties for our sustainability efforts, from our work to mitigate our impacts on the environment to the social causes we support. Recent awards include the following:

- ▶ 2017 Ranked first among the 28 largest oil and gas companies – *Disclosing the Facts 2017: Transparency and Risk in Methane Emissions scorecard*
- ▶ 2017 Trendsetter in Political Disclosure and Accountability (top 90% of companies in the S&P 500) – *CPA Zicklin Index of Corporate Political Disclosure and Accountability*
- ▶ 2017 Top Workplace in Houston – *The Houston Chronicle*
- ▶ 2017 Top Workplace in San Antonio – *San Antonio Express-News*
- ▶ 2017 Landowner of the Year – Wyoming Game and Fish Department
- ▶ 2016 Most Responsible Companies in the Energy Sector – *CR Magazine*
- ▶ 2016 Top Workplace in Houston – *The Houston Chronicle*
- ▶ 2016 Governor's Award, Conservationist of the Year – Louisiana Wildlife Federation and the National Wildlife Federation
- ▶ 2016 Award for Excellence in Corporate Social Responsibility – Oil & Gas Awards, Southeast and Midcontinent
- ▶ 2016 Ranked third among the 28 largest oil and gas companies – *Disclosing the Facts 2016: Transparency and Risk in Hydraulic Fracturing Operations scorecard*

# REPORTING STANDARDS AND SCORECARDS ▲

The report was prepared using the Global Reporting Initiative (GRI) Sustainability Reporting Standards and is in accordance with the GRI Standards at the core level. We also include indicators from the *Oil and Gas Industry Guidance on Voluntary Sustainability Reporting* and from *Disclosing the Facts 2017: Transparency and Risk in Methane Emissions*.

## GLOBAL REPORTING INITIATIVE CONTENT INDEX

DISC. #	DISCLOSURE TITLE	LOCATION IN REPORT/RESPONSE/OMISSION
<b>GRI 102: GENERAL DISCLOSURES (2016)</b>		
102-1	Name of the organization	p. 9
102-2	Activities, brands, products and services	pp. 9-10 <a href="#">2016 Form 10-K</a> , pp. 1-2
102-3	Location of headquarters	Apache Corporation is headquartered in Houston, Texas
102-4	Location of operations	p. 9 <a href="#">2016 Form 10-K</a> , pp. 2-6
102-5	Ownership and legal form	<a href="#">2016 Form 10-K</a> , p. 1
102-6	Markets served	<a href="#">2016 Form 10-K</a> , pp. 2-6
102-7	Scale of the organization	2016 Annual Report, pp. 1, 8 <a href="#">2016 Form 10-K</a> , p. 11
102-8	Information on employees and other workers	pp. 84, 91, 110 <a href="#">2016 Form 10-K</a> , p. 11
102-9	Supply chain	pp. 84, 110-11
102-10	Significant changes to the organization and its supply chain	p. 9 <a href="#">2016 Form 10-K</a> , p. F-23 As of August 2017, Apache divested of all our Canadian assets.
102-11	Precautionary principle or approach	p. 27
102-12	External initiatives	pp. 30, 62
102-13	Membership of associations	pp. 31, 62, 113-122
102-14	Statement from senior decision-maker	pp. 5-8
102-15	Key impacts, risks and opportunities	pp. 5-8, 12-13, 15-22, 27-28, <a href="#">2016 Form 10-K</a> , pp. 14-23
102-16	Values, principles, standards and norms of behavior	pp. 1, 29 <a href="#">Code of Business Conduct and Ethics</a>
102-17	Mechanisms for advice and concerns about ethics	pp. 28-29 <a href="#">Code of Business Conduct and Ethics</a>
102-18	Governance structure	pp. 25-27 <a href="#">Corporate Governance Principles</a>

DISC. #	DISCLOSURE TITLE	LOCATION IN REPORT/RESPONSE/OMISSION
102-19	Delegating authority	pp. 26-27, 37
102-20	Executive-level responsibility for economic, environmental and social topics	Health, Safety, Security and Environment issues are overseen by the vice president of HSSE.
102-21	Consulting stakeholders on economic, environmental and social topics	pp. 32-34, 12-13
102-22	Composition of the highest governance body and its committees	pp. 26-27 <a href="#">2017 Proxy Statement</a> , pp. 24-27 <a href="#">Corporate Governance Principles</a>
102-23	Chair of the highest governance body	pp. 26-27 <a href="#">2017 Proxy Statement</a> , pp. 5,7 <a href="#">Corporate Governance Principles</a>
102-24	Nominating and selecting the highest governance body	<a href="#">2017 Proxy Statement</a> , p. 26-27 <a href="#">Corporate Governance Principles</a> , p. 2
102-25	Conflicts of interest	<a href="#">2017 Proxy Statement</a> , p. 69 <a href="#">Code of Business Conduct and Ethics</a>
102-26	Role of the highest governance body in setting purpose, values and strategy	pp. 26-27 <a href="#">Corporate Governance Principles</a>
102-27	Collective knowledge of the highest governance body	pp. 26, 32-34 <a href="#">2017 Proxy Statement</a> , p. 8 <a href="#">Corporate Governance Principles</a> , pp. 4, 6
102-28	Evaluating the highest governance body's performance	pp. 26-27 <a href="#">Corporate Governance Principles</a> , p. 4
102-29	Identifying and managing economic, environmental and social impacts	pp. 26-27, 37 <a href="#">2017 Proxy Statement</a> , p. 24
102-30	Effectiveness of risk management processes	pp. 26-27, 37 <a href="#">2017 Proxy Statement</a> , p. 24
102-31	Review of economic, environmental and social topics	p. 27 <a href="#">2017 Proxy Statement</a> , p. 28
102-32	Highest governance body's role in sustainability reporting	The Board of Director's Corporate Governance Committee oversees discussion of the most important sustainability topics covered in this report. The report is reviewed and approved by select members of our executive team, as well as our Internal Audit function (described on pp. 11 and 27-28).
102-33	Communicating critical concerns	pp. 28-29 <a href="#">2017 Proxy Statement</a> , p. 24 <a href="#">Code of Business Conduct and Ethics</a>
102-35	Remuneration policies	<a href="#">2017 Proxy Statement</a> , pp. 30-69
102-36	Process for determining remuneration	<a href="#">2017 Proxy Statement</a> , pp. 30-69
102-37	Stakeholders' involvement in remuneration	<a href="#">2017 Proxy Statement</a> , pp. 30-69
102-40	List of stakeholder groups	pp. 31-34
102-41	Collective bargaining agreements	<a href="#">2017 Proxy Statement</a> , p. 40
102-42	Identifying and selecting stakeholders	pp. 31-34, 102-107
102-43	Approach to stakeholder engagement	pp. 12-13, 32-34, 102-107
102-44	Key topics and concerns raised	pp. 12-13, 25, 32-34, 102-107

DISC. #	DISCLOSURE TITLE	LOCATION IN REPORT/RESPONSE/OMISSION
102-45	Entities included in the consolidated financial statements	<a href="#">2016 Form 10-K</a> , pp. 1-6
102-46	Defining report content and topic boundaries	pp. 12-13 We determined the content for this report based on the issues we understand to be most important to our company and our stakeholders. We conducted an analysis of our most important issues following the Global Reporting Initiative's materiality guidance as laid out in GRI Standard 101: Foundation, 2016. We also followed GRI's principles for stakeholder inclusiveness, understanding sustainability context and completeness. We determined the boundary for each of our material topics based on where the impact occurs, either through the direct actions of our own organization or indirectly through a business partner.
102-47	List of material topics	pp. 12-13
102-48	Restatements of information	Information about any restatements is provided in the footnotes to the relevant data.
102-49	Changes in reporting	None
102-50	Reporting period	Data provided in the report covers the period from January 1 to December 31, 2016. Some additional information on important sustainability-related activities that occurred in 2017 before publication of this report is also included.
102-51	Date of most recent report	October 2016
102-52	Reporting cycle	Annual
102-53	Contact point for questions regarding the report	Rajesh Sharma, Corporate Secretary, Apache Corporation, 2000 Post Oak Blvd., Suite 100, Houston, TX 77056-4400
102-54	Claims of reporting in accordance with the GRI Standards	This report has been prepared in accordance with the GRI Standards: Core option.
102-55	GRI content index	This index
102-56	External assurance	p. 11 Some financial data included in our annual Form 10-K has been externally assured, as noted in the 10-K.
<b>GRI 201: ECONOMIC PERFORMANCE (2016)</b>		
103-2	The management approach and its components	2016 Annual Report, pp. 2-3 <a href="#">2016 Form 10-K</a> , pp. 27-31 All management approach disclosures – identified in this index with the Disclosure numbers 103-1, 103-2, and 103-3 – are from GRI Standards 103: Management Approach (2016).
103-3	Evaluation of the management approach	pp. 26-28 2016 Annual Report, pp. 2-3 <a href="#">2016 Form 10K</a> , pp. 27-31
201-1	Direct economic value generated and distributed	pp. 110-111 <a href="#">2016 Form 10-K</a> , pp. F-50, F-51
201-2	Financial implications and other risks and opportunities due to climate change	pp. 17-18
201-3	Defined benefit plan obligations and other retirement plans	<a href="#">2016 Form 10-K</a> , pp. F-40-44
<b>GRI 203: INDIRECT ECONOMIC IMPACTS (2016)</b>		



DISC. #	DISCLOSURE TITLE	LOCATION IN REPORT/RESPONSE/OMISSION
103-1	Management approach	pp. 12-13, 45-46, 110-122 Issue boundary - inside and outside the organization
103-2	The management approach and its components	pp. 28-29, 37, 110-122
103-3	Evaluation of the management approach	pp. 26-28, 110-122
203-1	Infrastructure investments and services supported	pp. 101-107, 110-122
203-2	Significant indirect economic impacts	pp. 21-22, 45-46, 110-111
<b>GRI 204: PROCUREMENT PRACTICES (2016)</b>		
103-1	Management approach	pp. 12-13, 45-46, 110-111 Issue boundary - inside and outside the organization
103-2	The management approach and its components	pp. 28, 37, 110-111
103-3	Evaluation of the management approach	pp. 26-28, 110-111
204-1	Proportion of spending on local suppliers	pp. 110-111
<b>GRI 205: ANTI-CORRUPTION (2016)</b>		
103-2	The management approach and its components	pp. 28-29 <a href="#">Code of Business Conduct and Ethics</a>
103-3	Evaluation of the management approach	pp. 26-29
205-2	Communication and training about anti-corruption policies and procedures	pp. 28-29 <a href="#">Code of Business Conduct and Ethics</a>
<b>GRI 302: ENERGY (2016)</b>		
103-1	Management approach	pp. 12-13, 62-66 Issue boundary - inside and outside the organization
103-2	The management approach and its components	pp. 28, 37, 63-64
103-3	Evaluation of the management approach	pp. 26-28, 62-66
302-1	Energy consumption within the organization	pp. 63-64, 125
302-4	Reduction of energy consumption	pp. 63-64
<b>GRI 303: WATER (2016)</b>		
103-1	Management approach	pp. 12-13, 54-58 Issue boundary - inside and outside the organization
103-2	The management approach and its components	pp. 28, 37, 54-58
103-3	Evaluation of the management approach	pp. 26-28, 54-58
303-1	Water withdrawal by source	pp. 54-58, 125
303-3	Water recycled and reused	pp. 55-57, 125
<b>GRI 304: BIODIVERSITY (2016)</b>		
103-2	The management approach and its components	pp. 28, 37, 75-78
103-3	Evaluation of the management approach	pp. 26-28, 75-78
304-2	Significant impacts of activities, products and services on biodiversity	pp. 48, 75-78
304-3	Habitats protected or restored	pp. 48, 75-78
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	pp. 48, 75-78

DISC. #	DISCLOSURE TITLE	LOCATION IN REPORT/RESPONSE/OMISSION
<b>GRI 305: EMISSIONS (2016)</b>		
103-1	Management approach	pp. 12-13, 62-67 Issue boundary - inside and outside the organization
103-2	The management approach and its components	pp. 28, 37, 62-67
103-3	Evaluation of the management approach	pp. 26-28, 62-67
305-1	Direct (Scope 1) GHG emissions	pp. 62-67, 125
305-4	GHG emissions intensity	pp. 62-67, 125
305-5	Reduction of GHG emissions	pp. 62-67, 125
<b>GRI 306: EFFLUENTS AND WASTE (2016)</b>		
103-1	Management approach	pp. 12-13, 54-59, 86-87 Issue boundary - inside and outside the organization
103-2	The management approach and its components	pp. 28, 37, 54-59, 68-72, 86-87
103-3	Evaluation of the management approach	pp. 26-28, 54-59, 86-87
306-2	Waste by type and disposal method	pp. 68-70, 125
306-3	Significant spills	pp. 71, 125
<b>GRI 307: ENVIRONMENTAL COMPLIANCE</b>		
103-1	Management approach	pp. 12-13, 28, 37, 53-78 Issue boundary - inside the organization
103-2	The management approach and its components	pp. 28, 37, 53-78
103-3	Evaluation of the management approach	pp. 26-28, 53-78
307-1	Noncompliance with environmental laws and regulations	We report all material legal matters and fines in our annual Form 10-K. <a href="#">2016 Form 10-K</a> , pp. F-36-38
<b>GRI 403: OCCUPATIONAL HEALTH AND SAFETY</b>		
103-1	Management approach	pp. 12-13, 37, 81-85 Issue boundary - inside and outside the organization
103-2	The management approach and its components	pp. 28, 27, 81-85
103-3	Evaluation of the management approach	pp. 26-28, 81-85
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	pp. 85, 123
<b>GRI 411: RIGHTS OF INDIGENOUS PEOPLES</b>		
103-2	The management approach and its components	pp. 30, 108-109 <a href="#">Statement on Indigenous Peoples</a>
103-3	Evaluation of the management approach	pp. 26-28, 108-109
<b>GRI 412: HUMAN RIGHTS ASSESSMENT</b>		
103-2	The management approach and its components	Governance - External Checklists pp. 30, 108-109 <a href="#">Statement on Indigenous Peoples</a> <a href="#">Human Rights Principles</a>
103-3	Evaluation of the management approach	pp. 26-28, 108-109
<b>GRI 413: LOCAL COMMUNITIES</b>		
103-1	Management approach	pp. 12-13, 101-107, 110-122 Issue boundary - inside and outside the organization

DISC. #	DISCLOSURE TITLE	LOCATION IN REPORT/RESPONSE/OMISSION
103-2	The management approach and its components	pp. 28, 32-34, 37, 101-107, 110-122
103-3	Evaluation of the management approach	pp. 26-28, 32-34, 101-107, 110-122
413-1	Operations with local community engagement, impact assessments and development programs	pp. 32-34, 101-107, 110-122
413-2	Operations with significant actual and potential negative impacts on local communities	pp. 41-50, 101-107, 110-111,
<b>GRI 415: PUBLIC POLICY</b>		
103-1	Management approach	pp. 12-13, 30-31 Issue boundary - inside and outside the organization
103-2	The management approach and its components	pp. 28, 37, 30-31 <a href="#">Policy on Political Contributions and Lobbying</a>
103-3	Evaluation of the management approach	pp. 26-28, 30-31
415-1	Political contributions	pp. 30-31 <a href="#">2016 Political Contributions</a>

CONTENT INDEX FOR IPIECA OIL AND GAS INDUSTRY GUIDANCE ON VOLUNTARY SUSTAINABILITY REPORTING, 3RD EDITION [REVISED 2016]

DISC. #	DISCLOSURE TITLE	LOCATION IN REPORT/RESPONSE
<b>ENVIRONMENTAL ISSUES</b>		
IPIECA E1	GHG Emissions	pp. 66, 125
IPIECA E5	Biodiversity and ecosystem services	pp. 75-78
IPIECA E6	Fresh water	pp. 54-59, 125
IPIECA E9	Spills to the environment	pp. 71, 125
<b>HEALTH AND SAFETY ISSUES</b>		
IPIECA HS1	Workforce participation	pp. 81-83
IPIECA HS3	Occupational injury and illness	pp. 82, 85, 125
<b>SOCIAL AND ECONOMIC ISSUES</b>		
IPIECA SE1	Local community impacts and engagement	pp. 32-25, 101-107, 110-122
IPIECA SE2	Indigenous peoples	<a href="#">Statement on Indigenous Peoples</a> <a href="#">Human Rights Principles</a>
IPIECA SE4	Social investment	pp. 112-123
IPIECA SE5	Local content practices	pp. 21-22, 110-111
IPIECA SE6	Local hiring practices	pp. 21-22, 110-111
IPIECA SE8	Human rights due diligence	pp. 108-109 <a href="#">Human Rights Principles</a>
IPIECA SE11	Preventing corruption	pp. 28-29 <a href="#">Code of Business Conduct and Ethics</a>
IPIECA SE14	Public policy and lobbying	pp. 28, 30-31 <a href="#">Policy on Political Contributions and Lobbying</a>
IPIECA SE16	Workforce engagement	p. 96
IPIECA SE17	Workforce training and development	pp. 94-95, 81-83

<b>IPIECA SE18</b>	Nonretaliation and grievances	pp. 28-29 <a href="#">Code of Business Conduct and Ethics</a>
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CONTENT INDEX FOR *DISCLOSING THE FACTS 2017: TRANSPARENCY AND RISK IN METHANE EMISSIONS*

<b>DISC. #</b>	<b>DISCLOSURE TITLE</b>	<b>LOCATION IN REPORT/RESPONSE</b>
<b>DTF-1</b>	Describe the leak detection and repair program, including the facilities and assets covered by the program	pp. 62-63
<b>DTF-2</b>	Specific leak detection methods	pp. 62-63
<b>DTF-3</b>	Frequency of leak detection	pp. 62-63
<b>DTF-4</b>	Leak repair procedures and timing	pp. 62-63
<b>DTF-5</b>	Engineering and maintenance practices to prevent or minimize leaks	pp. 62-64
<b>DTF-6</b>	Leak detection training	pp. 62-63, 81-82
<b>DTF-7</b>	Quantitative methane emissions targets	pp. 16, 62-63, 66
<b>DTF-8</b>	Companywide methane venting practices	pp. 63-65
<b>DTF-9</b>	Companywide methane flaring practices	pp. 63-65
<b>DTF-10</b>	Methane emissions intensity	pp. 66
<b>DTF-11</b>	Methane emissions measuring and reporting methodology	pp. 66
<b>DTF-12</b>	Use of low-emission controllers	pp. 63-64
<b>DTF-13</b>	Multi-stakeholder collaborations to reduce methane emissions	pp. 62-63
<b>DTF-14</b>	Incentivizing methane emission reductions through compensation	pp. 37, 63-64



## **FORWARD-LOOKING STATEMENTS AND RISK**

This report includes “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements other than statements of historical facts, including information about sustainability goals and targets and planned social, safety and environmental policies, programs and initiatives, are forward-looking statements. Although we believe that the expectations reflected in such forward-looking statements are reasonable, we can give no assurance that such expectations will prove to have been correct. Important factors that could cause actual results to differ materially from our expectations are included in the company’s annual and quarterly reports filed with the Securities and Exchange Commission.



2000 POST OAK BOULEVARD  
SUITE 100  
HOUSTON, TEXAS 77056-4400  
[WWW.APACHECORP.COM](http://WWW.APACHECORP.COM)