

Smarter blurs the boundaries

BAKER HUGHES CUSTOMER STORY

Baker Hughes provides industrial and technology services to energy, oil and gas companies. Its innovative technologies and services are helping to take energy forward—making it safer, cleaner and more efficient for people and the planet. Operating in 120 countries, Baker Hughes employs more than 67,000 people.

As one of the world's leading energy technology companies, Baker Hughes boasts a long history of innovation. Its global network of R&D centers harnesses emerging technologies to develop new products and services that are transforming and redefining the future of energy.

Seeing that virtual reality (VR) and augmented reality (AR) technologies could bring significant benefits to the oil and gas industry, Baker Hughes set its considerable R&D resources into motion.

The result? An innovative, device-agnostic extended-reality software platform, called Phantom View, that combines elements of VR and AR tech to merge the physical and digital worlds.

“ The energy industry produces huge volumes of rich data that is ultimately under-exploited. Phantom View was born from a desire to provide intuitive high-fidelity visualizations of this digital content within the context of the physical environment. Phantom View presents real and virtual objects together to create an immersive 3D mixed-reality environment. ”

Jeff Potts
Cyber-Physical Systems Leader

Houston
Texas

100+ Years
Industry
experience since
1907

**Smarter
technology
for all**

Lenovo

HOW **LENOVO** **HEADSETS** CHANGED THE GAME

Energy technology company Baker Hughes deploys Phantom View, its game-changing enhanced reality software platform, using Lenovo ThinkReality A6 headsets to support remote operations management, training, collaboration, site walkthroughs and more.

Potts continues: “We see Phantom View as an enabler for all kinds of exciting use cases, such as virtual collaboration and troubleshooting, enhanced employee training, smarter asset management, and remote facility and geological reviews. The possibilities are practically endless.”

To ensure the highest quality and resolution, the Phantom View software renders digital images on powerful workstations or server platforms, and then streams high-fidelity video to connected head-mounted displays in real time. Given its emphasis on creating the most immersive experience possible for users, Baker Hughes looks to providers like Lenovo for headsets that can maximize both optical quality and wearability.

“What sets the Lenovo ThinkReality A6 apart from other AR/VR headsets on the market is its superior ergonomics and optics,” recalls Potts. “It’s a very lightweight, comfortable device yet it still offers full 1080p resolution for each eye. The image quality is consistently excellent at different levels of brightness, making it suitable to wear in many different environments—from the office to the shop floor, and even outside.

“What’s more, the controls are highly intuitive. We have found the Bluetooth controller to be very handy, particularly when people are experiencing extended reality for the first time. The voice and gesture controls are great for more advanced users.”

Another key deciding factor for Baker Hughes was the fact that the Lenovo ThinkReality A6 is built on the Android platform. The operating system and user interface are therefore both simple to use and easy to customize. Crucially, the entire ThinkReality ecosystem is open and cloud-agnostic, giving Baker Hughes—and ultimately, its clients—the flexibility to deploy Phantom View either on-prem or across multiple public cloud services.

Baker Hughes worked closely with Lenovo, and other partners, to test and deploy Phantom View on ThinkReality A6 headsets for several internal proof-of-concept (POC) projects.

“We’re being our own guinea pigs,” jokes Potts. “Testing how the Phantom View platform and the Lenovo headsets work together, troubleshooting issues, fixing bugs and so on. Phantom View is now nearing release as a commercial offering, and the results of our POCs have been extremely encouraging.

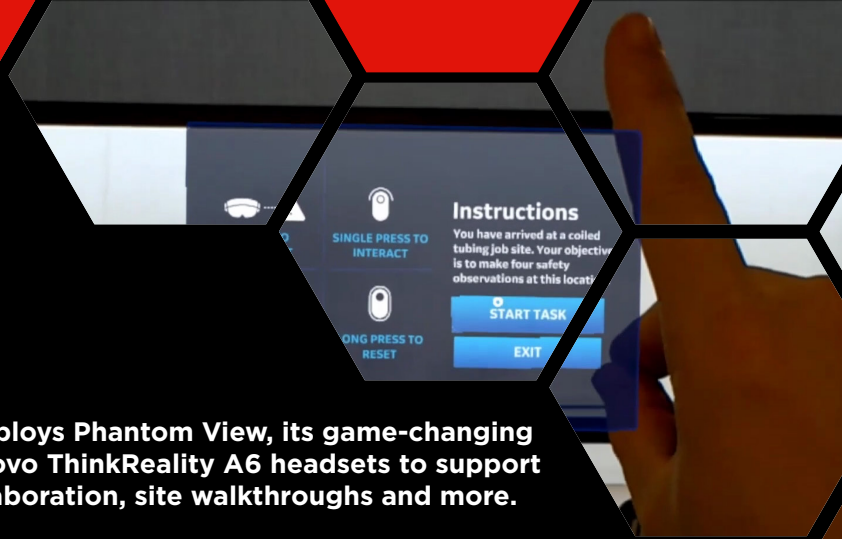
“The support and encouragement we’ve received from Lenovo has been fantastic. The Lenovo team has been very engaged, offered lots of advice and stayed in close contact with us—an all-round great partner. Lenovo ThinkReality A6 is a strong match for Phantom View, and certainly a headset that we would recommend to external clients when we bring the software to market in the future.”

One example of an internal POC featuring Phantom View and Lenovo ThinkReality A6 technology covered enhanced-reality-based employee health and safety training. Phantom View streams full-scale 3D models of drill sites, accurately reconstructed from real sites and with realistic physics, to the Lenovo headsets. This AR simulation evaluates employees’ ability to assess health and safety risks on site—before they actually visit.

Potts comments: “By replacing paper-based evaluations with an interactive enhanced-reality simulation, we have successfully gamified the learning experience, making the training much more engaging and memorable. The simulation also provides useful feedback on how users learn and what they find difficult or confusing, because we can see where they are looking within the virtual world. Users were impressed with the Phantom View software, but also with the ease of use, optics and comfort of the Lenovo headsets.”

The Phantom View software platform has the potential to support remote operations management, group training, facility inspections, geological reviews and more.

“We believe that enhanced reality solutions like Phantom View have a vital role to play in the future of the oil and gas industry,” says Potts.



He continues: “Managing operations and training employees remotely and virtually will enhance collaboration, minimize risk, improve safety and reduce costs. Imagine being able to have experts virtually walk through a proposed site without needing to spend time and money on travel. Or being able to walk around and peer into a highly detailed 3D model of the subsurface.”

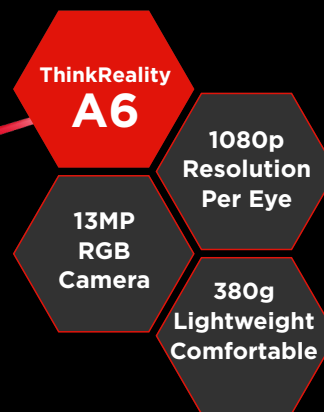
Baker Hughes also recognizes that many use cases are applicable to other industries, and the potential scope for Phantom View is huge. The gradual shift to remote working and training in recent years has been accelerated by the COVID-19 pandemic, with organizations in all industries having to adapt to lockdowns, travel restrictions and social distancing measures. Baker Hughes is facilitating the future of remote working and collaboration.

As an example, Phantom View is currently being tested for a number of medical visualization use cases. For example, doctors could leverage Phantom View to visualize CT scans and MRI data superimposed on the patient using AR headsets, helping to improve diagnoses and surgical procedures. Other potential POCs are in the pipeline for industries including architecture, real estate, engineering and renewable energy.

Potts concludes: “Demand for AR technology has never been higher, and we have had a lot of inquiries from interested parties in recent months. Although we’re only just at the start of our journey with Phantom View, having Lenovo onboard as a partner gives us an enormous boost. Lenovo’s premium AR headsets, technical expertise, support, and global scale and reach will help us to achieve our vision of democratizing access to AR.”

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Jeff Potts, Cyber-Physical Systems Leader



Specifications:

SOC: Qualcomm® Snapdragon™ 845 Processor

Vision Processing Unit: Intel® Movidius™

Core Box OS: Android Oreo™

Optics Type: Binocular

Optics Tech: Lumus Waveguide

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