COMPANY	INDUSTRY	ISV
Avangrid Renewables	**Clean Energy**	**VR Vision**

Putting real energy into innovative workforce training

Avangrid Renewables is reimagining training and improving safety for its wind turbine technicians with solutions from VR Vision and Oculus.

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AVANGRID RENEWABLES EXPECTS TO TRAIN NEW TECHNICIANS

65% FASTER

COMPARED TO TRADITIONAL, REAL-WORLD TRAINING

THE COMPANY ESTIMATES THAT IT WILL ULTIMATELY SAVE

HUNDREDS OF THOUSANDS OF DOLLARS

IN TRAVEL AND COSTS ASSOCIATED WITH TRADITIONAL TRAINING

> **If anybody is going to make VR the next big thing in clean energy, it's Facebook."**
>
> Samuel Akey
> Manager, Renewables Training & Training Innovation
>
> **Avangrid Renewables**

How Avangrid Renewables and VR Vision are helping technicians develop mastery in a safe environment with Oculus.

A leading provider of renewable energy in the United States, Avangrid Renewables owns and operates more than 60 wind power facilities in 22 states. But over the past few years, as the company expanded to meet the rising demand for clean energy, training managers found it challenging to provide standardized training programs across diverse platforms and geographies.

Not only are turbines complex machines, but Avangrid Renewables also owns more than 25 different models from 5 different manufacturers—and technicians need to learn how to service them all. Turbines are located in remote, rural areas, so it isn't feasible to send technicians to train on every model. Some maintenance tasks are only performed once or twice a year, making it harder for technicians to build expertise. And even when technicians do train on-site, a lack of internet bandwidth prevents them from streaming training content or connecting live with their supervisors, so they need to use old-fashioned manuals.

Other key issues include risk and access. "Working in a turbine can be challenging," says Samuel Akey, Training and Innovation Manager at Avangrid Renewables. "We want to generate clean energy for our customers, so shutting turbines down for practice and training isn't always an option."

WITH VR, THE COMPANY CAN TRAIN NEW EMPLOYEES ON

25+ WIND TURBINE MODELS

A LOGISTICAL IMPOSSIBILITY IN THE REAL WORLD

Creating virtual training experiences for Oculus Quest headsets

After experiencing 360-degree video in his son's Oculus VR headset, Akey and team spent over a year looking for a technology partner to help Avangrid Renewables reimagine its training program in virtual reality. The team ultimately engaged with VR Vision, a Canadian leader in VR and AR solutions for the energy and automotive industries.

"Avangrid Renewables needed to train people in challenging jobs without creating risk," says David Tucciarone, VR Vision's Custom Development Manager. "We accepted the challenge to bring their vision to life with a great user experience."

VR Vision strongly recommended that Avangrid Renewables use Oculus Quest headsets. "We had worked with another headset brand as part of a previous project, but it didn't offer six degrees of freedom," says Tucciarone. "The second the Oculus Quest headset came out, we scrapped two months' worth of development to move to Oculus."

Samuel Akey agrees. "I preferred Oculus because it's backed and proven by Facebook," he says, "and we wanted to align with a solid company that was investing in VR and leading innovation." He also liked that the Oculus Quest headset is self-contained. "For me to send a plant manager sensors and cables and set up all that tethered equipment—there was no way. It would be an IT nightmare to walk someone through the process remotely. But everything is internal to the Oculus Quest headset—no bandwidth needed except for analytics."

Superpowers of VR

VR delivers unique capabilities that give enterprises a competitive edge.

Top 3 VR superpowers for Avangrid Renewables:

High Stakes, Less Risk

Spatial Memory

Unlimited Re-Do's

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> "
> **We're putting all our eggs in one basket by developing for Oculus Quest headsets, because we want the highest degree of extendibility. Quest just gets better and better."**
>
> David Tucciarone
> Custom Development Manager
> **VR Vision**

Improving training with safe, realistic simulations

Since information about specific turbine technologies is proprietary and can't be taught at technical schools, VR Vision took elements from the different types of technologies and put them into one experience. Now trainees can practice as many times as they want, and they can easily learn how to troubleshoot all the different turbine models.

The training modules offer a close simulation of how turbines run, and they even create the same feeling of being in tall, enclosed spaces that technicians experience when they're inside the giant structures. Akey notes that 75% of the turbine technicians at Avangrid Renewables are 25–35 years old, so they expect highly realistic simulations — and VR Vision delivered.

The modules also clearly convey the consequences of technician errors. "It takes a certain number of steps to shut down a turbine," says Akey. "When those steps aren't completed in the right order, serious injury and/or equipment damage may result." Small mistakes are recorded in the VR experiences, but if a trainee does something that would cause a major problem in real life, that triggers the experience to shut down so the trainee can review procedures and start over.

Looking to the future

The VR Vision team is building new training modules focused on multimeter usage and substation fuse replacement, both of which will integrate with the Avangrid Renewables LMS system for trainee result-tracking and analysis. VR Vision also plans to make greater use of haptics, possibly programming controllers to vibrate like an electrical shock when a trainee makes a mistake.

The Avangrid Renewables team is excited about the potential of VR training. "We believe that by using VR to expose technicians to the challenges of working in tight spaces, we'll bring that reality to them earlier in the process," says Samuel Akey. "We definitely expect to see improved safety performance going forward."