# Drones drive improvements in efficiency

UNMANNED aerial vehicles (UAVs) are the next step towards delivering a safer, more efficient way of working on oil and gas projects according to aerospace engineering company Nova Systems chief executive Jim Whalley.

Mr Whalley presented the case for increased investment in UAV, or drone, technology during a talk at the Australian Petroleum Production and Exploration Association (APPEA)'s annual conference, held in Brisbane in June.

Using this technology in the field on oil and gas projects greatly reduces the chances of workers venturing into unsafe conditions, allowing companies to be more efficient about the maintenance aspect of their LNG projects, he said.

"There will be no need to drive millions of kilometres in the field, as this expensive and dangerous activity will be replaced by smart sensors including UAV vision and satellite imagery tasked in real-time from air-conditioned control centres," he said, adding that monitoring and asset management would increasingly be carried out using advances in technology.

Mr Whalley also placed the investment in and use of drones in the context of the long historical association between the aerospace



An unmanned aerial vehicle takes flight. *Image courtesy Nova Systems.*

and oil and gas industries, encouraging conference delegates to pursue collaborations with companies in the aerospace sector in the use of both the analysis of big data and the new innovations in airborne remotely commanded technology.

"Technology, logistics support process and maintenance philosophy from the aerospace industry, can be applied to drive improvements in reliability and efficiency", he said.

# Caution around use of drones

BY **SARAH BYRNE**

DRONES used to assist with mapping, exploration and surveying is a great asset to the oil and gas industry, however Department 13 chief executive Jonathan Hunter said drones will continue to grow in popularity as a tool to be used against energy infrastructure.

Speaking with *Oil & Gas Australia*, Mr Hunter stressed the importance of the industry taking steps to mitigate this threat through planning and awareness as well as counter drone platforms.

In response to this threat, Department 13 has been working on an open system called Mesmer that can integrate with a variety of sensors to detect, identify, track, and mitigate commercial drones.

Department 13 will launch the first version of the product in December this year.

"We are in the Australian market and working directly with a variety of users who are examining this challenge and developing both their strategic and tactical plans."

"I would say that both commercial and government customers have requirements and

obligations to deploy counter drones solutions in this calendar year," Mr Hunter said.

"Increasingly we have been seeing militants, insurgents and criminals using drones to look for weaknesses in oil and gas project security, to plan attacks on oil infrastructure, to coordinate attacks on oil infrastructure, as well as look for areas where they can steal or divert oil and gas."

Department 13 says its Mesmer technology is a critical response to threats around the world.

"In Nigeria Boko Haram intercepts oil shipments, steals from oil facilities, and has in the past taken over oilfields and facilities to divert oil to sell on the black market," the company said.

While attacks on oil and gas infrastructure are not a new concern, Department 13 said the use of drones by criminals is a problem for government and companies trying to protect attacks on infrastructure.

Department 13's Mesmer system allows operators to create complex geographic/spatial boundaries around an area that needs to be protected, such as a refinery or large pipeline.

"If a drone enters that boundary, the system can automatically detect the drone, decide if it's a threat, and act based on rules provided

on setup such as land the drone, redirect the drone, or fly the drone to a designated safe area to allow responders to deal with it."

Alternatively, the system can be operated manually or in a user defined mixed modes where certain tasks are automated and others require operator intervention, the company explained.

Mesmer can be helpful to those trying to protect energy facilities in that it can also be used to create virtual no fly zones were drones flying into the area are either forced to leave, pushed back from a geo-fence, or forced to hover away from a facility, Department 13 said.

In addition, Mesmer can be combined to other mitigation systems or effectors to provide layered and comprehensive countermeasures to drone threats, according to the company.

"We set out to build a system that could easily integrated into current customers defence or protection systems such as CCTV networks, sensor networks, and the like all at a price point that even budget restricted organisations could handle," Mr Hunter said.

Department 13, an Australian Securities Exchange-listed company, is in a partnership with security solutions company EPE located in Brisbane, and is looking to deepen its presence within the Australian market.