

# Queensland Mining Equipment, Technology and Services 10-Year Roadmap and Action Plan

The Queensland Government is committed to supporting Queensland's world-class energy and resources industry to meet the challenges it faces in what is a highly competitive global environment.

Demands to reduce environmental and community impacts, increase the efficiency and productivity of resource operations and find ways to extract increasingly hard-to-access resources will require innovative and commercially viable solutions.

Queensland's mining equipment, technology and services (METS) sector is a world leader in safety, mine site rehabilitation and remediation processes, knowledge and technology, contract mine servicing and project management. With the right partnerships, our METS sector, the energy and resources industry and research institutions have the opportunity to create the innovative, profitable and environmentally sustainable mines and gas fields of the future.

The *Queensland METS 10-Year Roadmap and Action Plan* outlines the Queensland Government's vision for our METS sector

to become a leader in the development of commercially valuable solutions for the energy and resources industry worldwide by 2027. The strategies and actions build on our strengths to address the challenges the sector faces and provides the groundwork for the sector's next wave of growth.

The Queensland Government is delivering for the METS sector through the Advance Queensland initiative and in partnership with METS Ignited, the national METS Growth Centre.

## Addressing the challenges



# Queensland Mining Equipment, Technology and Services – 10 Year Roadmap and Action Plan summary

<b>Vision</b>	By 2027, through innovation and collaborative partnerships, Queensland’s globally competitive METS sector will lead the development of commercially valuable solutions for the energy and resources industry worldwide.
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<b>Strengths</b>	World-class education and training facilities, and a highly skilled workforce	Internationally recognised research institutions focused on energy and resources	Natural clusters of expertise	Highly regarded METS companies with readily transferable products, skills and service offerings	Proximity to domestic and Asian supply chains	Export opportunities for METS companies driven by Australia’s reputation for high standards for environmental protection and operational safety
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<b>Challenges</b>	Business capability gaps, particularly in data management, business systems, export skills and knowledge of international markets	Cost of doing business in Australia compared to overseas competitors	Limited collaboration between the METS sector, energy and resources industry and researchers	Access to investment capital	Links to technology drivers such as data analytics and software, automation and robotics
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<b>Strategy 1</b> Increase innovation and commercialisation	<b>Strategy 2</b> Increase collaborative business opportunities	<b>Strategy 3</b> Develop sector capabilities	<b>Strategy 4</b> Promote sector capabilities
<ul style="list-style-type: none"> <li>Establish an accelerator pathway for Queensland METS companies seeking to commercialise new products or processes (with METS Ignited and other partners).</li> <li>Investigate development of a suite of facilities in Queensland for METS companies to test new products, processes or services through a stocktake of existing and potential test facilities (with METS Ignited).</li> <li>Pilot a Mackay Open Innovation Community of METS companies, Bowen Basin mining companies and researchers focused on addressing the specific challenges of Bowen Basin miners (with METS Ignited and local partners).</li> </ul>	<ul style="list-style-type: none"> <li>Create an energy and resources technology networking series. These facilitated events will be held in different regions across Queensland and focus on sharing information about new technology for the energy and resources sector.</li> <li>Develop and promote clusters of expertise in safety, operational productivity, mineral processing, environmental protection, social performance and contract mining.</li> <li>Create opportunities for METS companies to identify and supply energy efficient solutions to the resource industry by working with the Coalition for Energy Efficient Comminution (with METS Ignited).</li> </ul>	<ul style="list-style-type: none"> <li>Support the establishment of a centre focused on developing management capabilities and business models (with METS Ignited).</li> <li>Deliver a pilot export and investment readiness training program to address identified business capability gaps (through TIQ) and review opportunities for further training with TIQ.</li> <li>Create a Concierge Service to assist Queensland METS companies identify the most appropriate local, state and federal government programs to support their business.</li> <li>Develop baseline information on the size of Queensland’s METS sector, the capabilities of individual METS companies and the extent to which METS firms collaborate (with METS Ignited).</li> </ul>	<ul style="list-style-type: none"> <li>Promote Queensland’s METS sector in domestic and international markets by:                             <ul style="list-style-type: none"> <li>promoting the sector at national and international trade shows</li> <li>sharing information about Queensland’s METS sector</li> <li>utilising social media channels to encourage peer to peer learning within the sector</li> <li>creating marketing material, case studies and videos to highlight the successes of Queensland’s high performing METS companies.</li> </ul> </li> <li>Facilitate international trade opportunities for Queensland’s METS sector (with TIQ and Austrade).</li> <li>Develop an online portal to promote the specific capabilities of individual Queensland METS companies to potential customers.</li> </ul>

## Case study: NLT Australia

Caboolture-based NLT Australia has set the standard for operating wi-fi in underground coal mines by developing the world's first intrinsically safe wireless access point (where energy levels are low enough to avoid causing ignition of methane gas).

NLT Australia is a subsidiary of Northern Light Technologies, a Toronto, Canada-based global leader in mining cap lamps and tracking and communications systems, with a particular niche in underground coal mines. NLT Australia has a further focus on wi-fi communication systems for deployment in remote and difficult locations.

NLT Australia has developed from a sales and support operation for its parent company into a world-class research and development, engineering, manufacturing and service operation with 23 employees and growing.

It was NLT's founder, Tim Haight who pushed the Australian subsidiary toward developing wi-fi communications for underground coal mines. 'People told me I was crazy... [but] we ended up designing the product to enable us to successfully deploy it in this hazardous environment.'

'In an intrinsically safe environment you have to design the product so that even if there's a catastrophic failure it

won't create a spark to ignite methane gas, yet you still need a good output of power to enable the power to reach long distances.'

As well as being a source of innovation and know-how, NLT Australia's Caboolture facility manufactures most of the communications technology for NLT distributors worldwide.

NLT's products provide personnel and asset tracking; voice over wi-fi; real-time vehicle monitoring and traffic management; two-way text messaging; environmental monitoring; operational video conferencing for consultation with remote experts; and on-demand, remote control of machinery.

NLT plans to expand its technology to tunnels, refineries, process plants, factories and other industrial environments. 'Our software and hardware products are awesome,' says Haight, 'so we're poised to do some really amazing things.'



## Case study: Mine Energy Solutions (MES)

With the world moving away from liquid fuels like diesel, Crestmead-based Mine Energy Solutions (MES) has created HDCNG™, an 'end-to-end' fuel solution that compresses, transports and delivers natural gas to mine sites and converts vehicles to dual fuel operation.

For the mining industry, HDCNG™ can deliver fuel cost savings of up to 30 per cent, reduce carbon dioxide emissions by up to 20 per cent and reduce diesel particulate levels by more than 80 per cent. HDCNG™ could also significantly reduce heavy transport of diesel on Queensland roads which could improve road safety and potentially reduce future road maintenance and upgrade costs.

MES is a joint venture between IntelliGas, a Queensland-based gas technology company, and Sime Darby, a large Malaysia-based multinational corporation with employees across 23 countries. Sime Darby is also one of the largest Caterpillar dealers in the world and employs 3500 Queenslanders at its wholly owned subsidiary, Hastings Deering.

The company worked closely with the mining industry to develop its dual fuel system to meet the needs of mine trucks. A HDCNG™ prototype was launched in May 2015 at a mine site training facility in Morayfield. After further research and development, in late 2016 a truck at the New Acland coal mine on the Darling Downs was fitted with a dual fuel mix of 85 per cent gas and operated under real mine conditions with a load of more than 200 tonnes of coal.

Graham Box, Business Development Manager at MES, reports that this truck exceeded all expectations with no reported loss in power, speed or performance. Having proved itself as a viable fuel alternative for heavy-duty trucks and other high-horsepower applications in mining operations, HDCNG™ is now in the early stages of commercialisation.

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