GCo Electrical was selected by ICRAR as the lead contractor for the Murchison Widefield Array (MWA) telescope infrastructure, and has a presence on the SKA site every since. The company has been involved in maintenance, upgrades and related infrastructure for the MWA and fellow precursor telescope the Australian SKA Pathfinder (ASKAP). Most recently, GCo worked with ICRAR on SKA pre-construction plans, developing and costing a blueprint to deploy more than 130,000 antennas for the low-frequency part of the SKA.

ICRAR acting director of engineering Tom Booler said GCo made a huge contribution to the $50 million MWA telescope right from the start, impressing early in the competitive bid process.

“They helped us understand what the big drivers of our costs were, and what we needed to do to bring in those costs,” he said.

“Just as importantly, they were completely transparent and willing to talk to us about the risks in our project, such as the possibility of encountering hard rock during trenching, problems with site access or roads closures due to rain. If we hadn’t had their help to understand that risk, the project would have run out of money halfway through the program and there’d be no MWA today.”

GCo chief executive Murray Hadley said constructing the MWA gave his team the opportunity to work on a unique project. “It also introduced us on a meaningful level to a globally significant project in the SKA,” he said. “From our MWA and ASKAP project experience GCo has developed an understanding of the infrastructure, construction and assembly requirements of a specialised construction delivery market sector.”

One of ICRAR’s roles in SKA pre-construction is planning the deployment of the antennas that will make up the low frequency part of the telescope in Western Australia. This colossal job involves the assembly, installation, plugging in and commissioning of more than 130,000 antennas. The scale of the challenge is unprecedented in radio astronomy.

With all their experience, it made sense for ICRAR to engage GCo to help with this planning, and the company compiled a detailed plan for the roll out of the antennas, complete with costs and timings. The resulting document contains everything from the number of truck movements needed to the numbers of people required on site, the time taken to do individual actions, the time to walk between antennas and the parts needed.

The report is highly parameterised so it can be broken down and refreshed as the design and scope of the project changes. It was submitted directly to the SKA Office in Manchester. While ICRAR will not have its hands on the levers of SKA procurement, the work GCo is doing at this early stage gives them the best possible chance at securing a contract for SKA construction.

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Mr Booler said it is important to change the perception that regional companies are somehow less capable. One of the things that impressed him most was GCo’s willingness to challenge GCo and ask for help.

“I’ve talked about the SKA’s importance in early pre-construction. “It introduced us to this potential opportunity to work on a unique telescope, and that’s the Murchison Widefield Array. It’s unprecedented in radio astronomy. Australia. This colossal job involves the assembly, installation, plugging in and commissioning of more than 130,000 antennas. The scale of the challenge is unprecedented in radio astronomy.

“All this work that we’ve invested in pre-construction is going to pay off for GCo.”

Tom Booler ICRAR