



**PROJECT NAME:** *Reducing boiler maintenance costs and deferring capital expenditure through improved technology*

**PROJECT NUMBER:** 2016/020

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**CHIEF INVESTIGATORS:**  
*Floren Plaza and Nazmul Alam*

# COATING BOILER TUBES TO REDUCE COSTS

**B**oiler tube wear and corrosion is a major cost for the Australian sugarcane industry due to inefficient operation, stops, repairs and replacement investment.

However, research is underway to understand if there are options available to help protect critical components associated within boilers, extend their lifespan and thus help milling companies defer capital expenditure, potentially saving costs and time.

This research is funded by SRA and is being delivered by the CSIRO in Melbourne and Queensland University of Technology (QUT) and is investigating the potential for applying protective 'hard facing' coatings on boiler convection tubes and air heater tubes.

Dr Floren Plaza (QUT) is leading the project with Dr Nazmul Alam (CSIRO), who is an expert in hard facing processes

using a range of materials and processes. Dr Anthony Mann (QUT), an expert in boiler measurements and modelling to reduce erosion and corrosion, is also involved.

Dr Plaza said that in the initial years of the project, which started in 2016, they have looked at commercially-available coating options, including materials that could be sprayed or painted on to the surface of the boiler tubes, as well as existing tube materials and protection options from around the world which have shown promise in boiler applications.

He said they had experimented with a range of coatings and materials that looked promising in a laboratory environment and referenced the results to the performance of bare tubes and existing protection options.

"Experience over the last 40 years has shown that the lab is a good indicator of

what erosion happens in the boiler tubes, however corrosion is more difficult to predict in the lab. So we now need to put the materials to the test in the real world," he said.

Therefore, the next step is that these prospects for protecting boiler tubes will be tested starting this season at two mills, namely Isis and Mulgrave.

Dr Plaza said there were several options under consideration, and they were also carefully considering the practical adoption of this technology, including factors such as cost and ability to apply the material. Comparison to existing technologies, such as tube shields for erosion, was an important consideration. ■

*(Above) Convection bank tube sections ready for shipping to Mulgrave Mill pre-season, some with a coating, some without for performance reference.*