



**BlueScope Steel (AIS) Pty Ltd**  
**Port Kembla Steelworks Renewables and Emissions Reduction Study**  
**LESSONS LEARNT REPORT 1**

**Project Details**

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*The views expressed herein are not necessarily the views of the Australian Government, and the Australian Government does not accept responsibility for any information or advice contained herein.*

**EXECUTIVE SUMMARY**

At the end of the first quarter of the project, one significant lesson has been identified: there is no supply chain for the bulk supply of biochar in Australia.

**KEY LEARNINGS**

**Lesson learnt No.1: Limited supply of biochar for pilot and plant trials**

**Category:** Supply

**Objective:** Biochar from renewable sources has the potential to replace some of the coal used within an integrated steelworks and thus reduce Green House Gases (GHG) emissions. With the support of ARENA, BlueScope is looking to conduct trials to assess the risks of the pneumatic conveyance of biochar, mixed with pulverised coal, for injection into the blast furnace. Pilot trials are to be conducted at the Bulk Materials Engineering Australia's test facility at the University of Wollongong. Following the pilot testing, plant trials are to be conducted at the Port Kembla Steelworks (PSKW), where different

ratios of biochar will be mixed with pulverised coal, pneumatically conveyed to No.5 Blast Furnace, and injected through the tuyeres. This lesson is about the supply of biochar for the trials.

**Detail:** To proceed with the project, BlueScope needed to secure a reasonable quantity of low ash, low volatile matter biochar to conduct the trials. One thousand tonnes of this quality biochar was believed to be sufficient for this purpose.

Following extensive market research within Australia it was identified that there is a very limited capacity to produce quantities more than fifty tonnes of biochar suitable for use within an integrated steelworks facility such as PKSW. As part of the research into the biochar market, several potential overseas suppliers were identified. However, significant, additional due diligence would be required to ensure that the biochar complied with environmental and social standards, with a related level of risk.

Due to the limited supply availability of biochar and its cost, further consideration was given to the minimum amount of biochar that would be necessary to successfully complete the trials. A minimum of six hundred tonnes of biochar was set for the trials to proceed. There is provision to potentially increase the purchased biochar up to a total of twelve hundred tonnes providing the total purchase cost falls within the project budget.

To date, BlueScope has been able to secure the minimum six hundred tonnes of biochar from two Australian suppliers, with the potential for limited additional supply before the plant trials commence in late 2022.

At this stage, given that the six hundred tonnes sourced will be sufficient to conduct the trials, it will not be necessary to further investigate additional supply from outside of Australia. However, if further trials of biochar were progressed, alternative sources of biochar would need to be explored.



**Photo – Onsite storage of Biochar at the Port Kembla Steelworks**

**Conclusion:** To complete the trials, BlueScope has procured 600 tonnes and is looking to maximise the amount of biochar sourced before the trials progress. If the trials are successful, further trials would require significantly more biochar. This would require additional consideration of the investigations to date that have identified that there is no established supply chain for the bulk supply of biochar in Australia.