

North West Treatment Hub

Keeping our waterways clean

June 2024

About carbonisation

Sydney Water is committed to improving environmental and sustainability outcomes, including continued reuse of biosolids.

What is carbonisation?

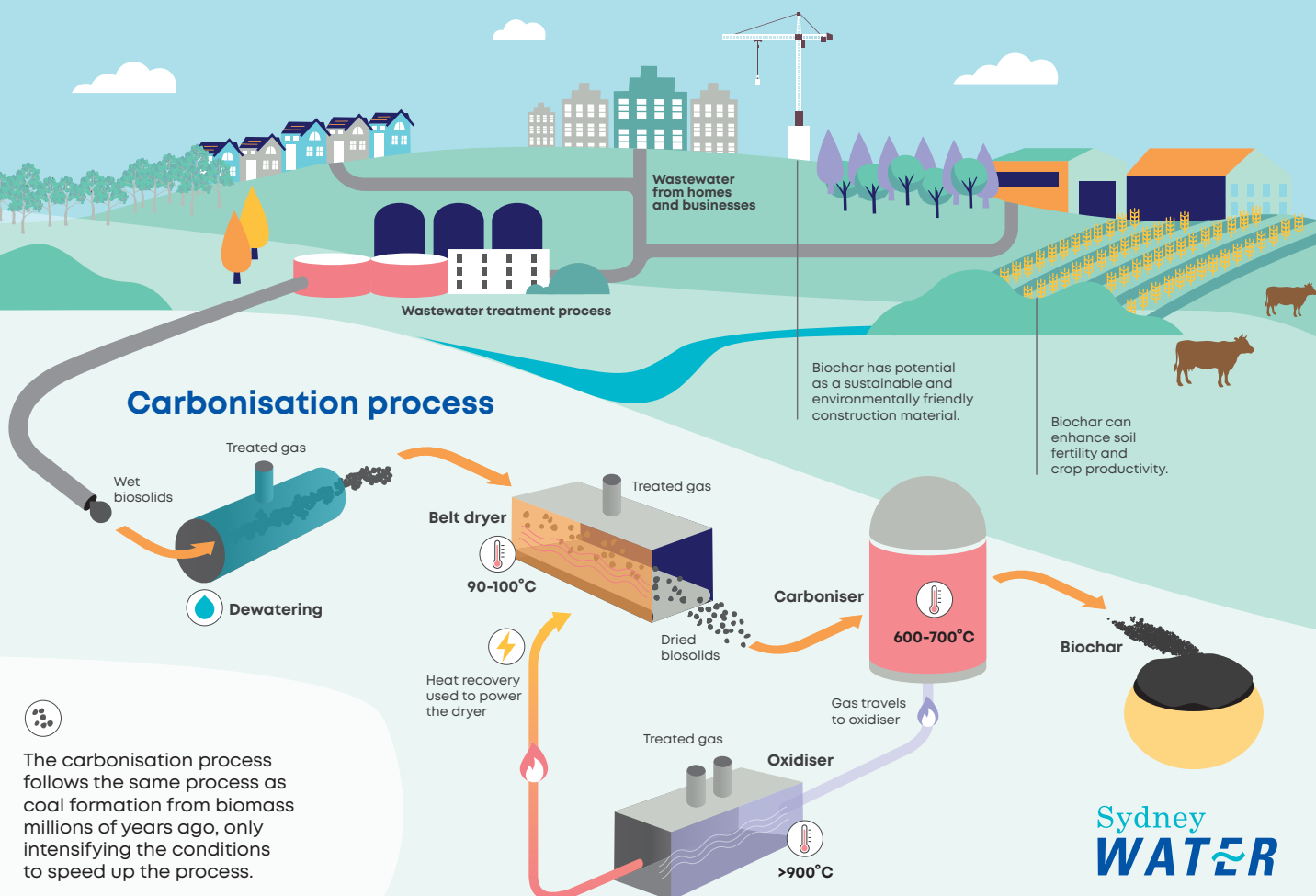
Carbonisation is a proven technology which has been used in many countries around the world – including here in Australia, in Queensland.

Carbonisation is the process of drying biosolids beyond the existing dewatering process and then heating them to extremely high temperatures.

By doing this in a controlled process, we can remove contaminants and produce a valuable product called biochar. The gases produced during this process are further treated and cleaned to destroy pollutants and remove odour before they are released.

Did you know?

In the agriculture, horticulture and cropping industries, biochar can be added to soil to enhance fertility and crop productivity.



The carbonisation process follows the same process as coal formation from biomass millions of years ago, only intensifying the conditions to speed up the process.



What are the benefits of producing biochar?

Currently, biosolids are digested using technology that breaks down wastewater solids to provide biological stabilisation. This carbonisation technology further treats those biosolids to produce a charcoal-like product, called biochar. Because biochar is a drier and much more stable product, it can be reused in a number of ways, avoiding it being diverted to landfill. The potential applications of biochar are wide ranging and continue to grow as technology advances.

Sustainability

By creating biochar through the carbonisation process, we can produce a more sustainable solids byproduct. The process uses less energy than other thermochemical treatment processes.

Currently, biosolids are still mostly water and contain about 20 per cent total solids. The carbonisation process reduces the volume of biosolids that need to be transported out of Sydney Water's Riverstone Water Resource Recovery Facility (WRRF).

Will there be odour or impacts to air quality?

The emissions from the carbonisation process have been assessed in the project's Review of Environmental Factors Addendum by a third party air quality specialist. The assessment found that the emissions from the carbonisation process are predicted to be within the limits set out in the NSW Environmental Protection Authority's (EPA's) Clean Air Regulation.

We will work with the EPA to update our Environmental Protection Licence which will include strict requirements for the operation of the carbonisation equipment. We will regularly monitor air quality to ensure we are meeting these requirements. Odour modelling has shown no expected impacts from the carbonisation technology.

Did you know?

In the context of biochar production, carbonisation is considered climate friendly. This is because it can capture and store carbon from biosolids for a long period of time, helping us to reduce emissions.

Find out more

E NorthWestTreatmentHub@sydneywater.com.au

P 1800 560 682

W www.sydneywatertalk.com.au/north-west-treatment-hub



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