



NEWS RELEASE:

ACWA Services partners with Ostara to offer Phosphorus Recovery Revenue Stream for UK Water Companies

(Skipton, England and VANCOUVER, British Columbia, Jan. 11, 2016) – ACWA Services, part of ACWA Group, a leading international water and wastewater solutions provider, announced today it will offer an advanced nutrient recovery solution to UK water companies and AD operators, following a technology licensing agreement with global nutrient management solutions provider, Ostara Nutrient Recovery Technologies Inc., based in Vancouver, Canada.

Ostara's Pearl® process recovers phosphorus and nitrogen from wastewater streams at municipal and industrial wastewater treatment plants and transforms them into a high-value, eco-friendly fertiliser, marketed as Crystal Green®. By recovering potentially polluting nutrients from treatment facility's wastewater streams and converting them to continuous release fertiliser, Ostara's technology helps facilities enhance their operational efficiency and protect precious waterways.

"Ostara's phosphorus recovery technology is an excellent fit with our existing wastewater treatment solutions as it complements our AMTREAT® ammonia removal process used by leading wastewater treatment companies in the UK," said Peter Brewer, UK General Manager for ACWA.

Brewer added, "The ability to recover phosphorus: an essential and fast depleting natural resource required for increased global food production, while creating an additional revenue stream for our water industry customers, is particularly attractive. The annual savings in chemical dosing alone for some wastewater treatment plants could be in the hundreds of thousands of pounds."

Phosphorus forms as struvite in high strength wastewater streams and sludge liquors commonly associated with thermal hydrolysis and AD infrastructure and is currently controlled in UK wastewater treatment facilities with expensive chemical dosing. This only temporarily relieves struvite problems and also generates solid waste requiring disposal. Left unchecked, this rock-like compound will rapidly scale pipes, tanks and equipment, leading to costly maintenance and plant downtime. Meeting environmental compliance is also becoming more difficult as phosphorus consents are tightened.

Phillip Abrary, president and CEO of Ostara said, "We are very pleased to partner with ACWA Services to complement their AMTREAT® recovery process with a cost-effective and innovative water treatment technology for phosphorus recovery, which will serve to enhance operational efficiencies, and progress environmental stewardship of UK wastewater treatment facilities."

With the focus on recovery rather than removal, the Ostara Pearl® process uses controlled chemical precipitation within a fluidized bed reactor to extract the phosphorus from nutrient-rich feed streams, which is formed as struvite crystals to produce a continuous release fertiliser. The size of the pellets is

precisely controlled by varying key parameters in the reactor until they reach the desired size, at which point they can be extracted, dried and sold as fertiliser.

The process recovers up to 85 per cent of the phosphorus, enabling facilities to save on annual chemical costs, reducing maintenance costs and reducing the production of biosolids whilst creating a valuable new revenue stream. Ostara's Pearl® process can be further enhanced by the installation of Ostara's WASSTRIP® process which; releases even more phosphorus for processing, all but eradicating digester struvite; reduces biosolids production by up to 25 per cent; and, lowers the phosphorus to nitrogen ratio to create balanced biosolids that are more suitable for land application.

Under the agreement ACWA will act as a UK delivery partner with responsibility for the design, installation and commissioning of all M&E equipment and associated civils where required, with key components supplied under licence by Ostara. The solution extends ACWA's range of water industry solutions and can be implemented as an independent process or to complement the company's ammonia removal technology AMTREAT® now in use across many sites in the UK.

Ostara will manage the sale and marketing of the Crystal Green® fertiliser produced by the process.

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About Ostara & Crystal Green:

Ostara helps protect precious water resources by changing the way cities around the world manage nutrients in wastewater streams. The company's Pearl® technology recovers phosphorus and nitrogen at municipal and industrial wastewater treatment plants and transforms them into a high-value, eco-friendly fertiliser, Crystal Green®. The process greatly reduces nutrient management costs and helps plants meet increasingly stringent discharge limits while improving operating reliability. Crystal Green is the first continuous release granular fertiliser to provide Root-Activated™ phosphorus, nitrogen and magnesium (5-28-0-10Mg), and is marketed through a global network of blenders and distributors to growers in the turf, horticultural and agriculture sectors. Its unique Root-Activated™ mode of action improves crop yields, enhances turf performance and significantly reduces the risk of leaching and runoff, thus protecting local waterways from nutrient pollution. Ostara operates multiple facilities throughout North America and Europe and will open the world's largest nutrient recovery facility in partnership with the City of Chicago in Spring 2016. The company is the recipient of numerous awards including a World Economic Forum 2011 Technology Pioneer, the Global Cleantech 100 and Deloitte's Technology Green 15. For more information, visit www.ostara.com and www.crystalgreen.com.

About ACWA Services:

ACWA Group is a leading provider of innovative, sustainable process solutions for the air, water and wastewater sectors around the globe, providing design, build, operate and maintain capabilities. The company's water and waste water expertise comprehensively covers the filtration spectrum from conventional strainers and filtration systems to the most advanced reverse osmosis and ion exchange technologies.

Solutions include some of the world's most prestigious and challenging projects including the 64,000 m³/day Palm Jumeirah desalination development in Dubai and the flagship 76,000 m³/day Al Ansab MBR plant in Oman, as well as high profile projects for international clients including Kellogg's, Coca-

Cola Enterprises, Centre Parks and many major UK and International water service companies and government bodies. The company is also very active in the current AMP programme in the UK. For more information visit: www.acwa.co.uk

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