

ORGANICA ENABLES WATER REUSE WITH COST-EFFECTIVE TREATMENT NEAR POINT OF USE

CHALLENGE

As global urbanization accelerates, water supplies and related infrastructure are under greater pressure to meet growing demands. With resource limitations becoming increasingly apparent, water reclamation is being practiced more frequently. Reclaimed water is highly treated wastewater suitable for irrigation, cooling, toilet-flushing, industrial processes and other non-potable purposes to extend water supplies. Reclaimed water is now recognized as the most effective way to sustain our long-term water supplies.

In the US, a utility in New Jersey was considering a 0.76 MLD (200,000 gpd) reuse solution to address local water supply issues. Use of reclaimed water would reduce withdrawal of potable water from the already over-burdened aquifer. Further, sales of recycled water could also provide the utility additional revenue, expected to reach almost US\$1 million annually.

While evaluating options to produce high-quality water suitable for reuse, the utility sought alternatives suitable for integration into the neighborhood, in close proximity to the reclaimed water destination. This was important in allowing the utility to avoid extensive reclaimed water piping network and pumping costs.

OPTIONS

First, the utility considered the commonly utilized membrane bioreactor (MBR) system. However, notable challenges faced with MBR included the: (1) large “psychological footprint”, referring to the unappealing aesthetics and odour concerns stemming from the facility, and (2) large physical footprint of the buffer zone around the facility to combat the aforementioned issues. MBR systems are also expensive, consume large amounts of energy, and are difficult to operate, making water reclamation more challenging. As a result, the utility faced costs of US\$4.2 million to build and install an MBR facility, in addition to annual operational costs of US\$190,000.





It was essential to eliminate the buffer zone and associated large physical footprint of a new facility in order to gain the support of the nearby communities, industries, and public facilities who would be future users of the reclaimed water. Organica addresses both of these challenges by eliminating the “psychological footprint” and offering a small physical footprint that reduces infrastructure costs by enabling onsite wastewater treatment and recycling.

	MBR	Organica
CAPEX	US\$4,200,000	US\$4,000,000
OPEX/year	US\$190,000	US\$90,000
Footprint (including buffer zone)	73,000 m ² (786,000 ft ²) ¹	300 m² (3,200 ft²)
NPV	US\$6,100,000	US\$4,900,000



ORGANICA ADVANTAGES

In contrast to the proposed MBR solution, the Organica solution offers numerous advantages:

-  **Lower capital expenditures**
-  **Reduced operational costs**
-  **Suitable for siting near the reuse application**
-  **Small physical footprint**

THE ORGANICA SOLUTION

Reduced Capital and Operational Expenditures

Organica provided clear financial advantages over the initially considered membrane process, saving the utility 4% in upfront capital investment and 52% annually on operational costs. This was achieved through Organica's ability to offer significant reductions in energy consumption and sludge production. Moreover, the periodic replacement of membranes in the MBR system (which have a life shorter than the civil components of the plant) contribute to additional operating costs. Combined, these factors translate to total operational cost savings of over US\$100,000 annually.

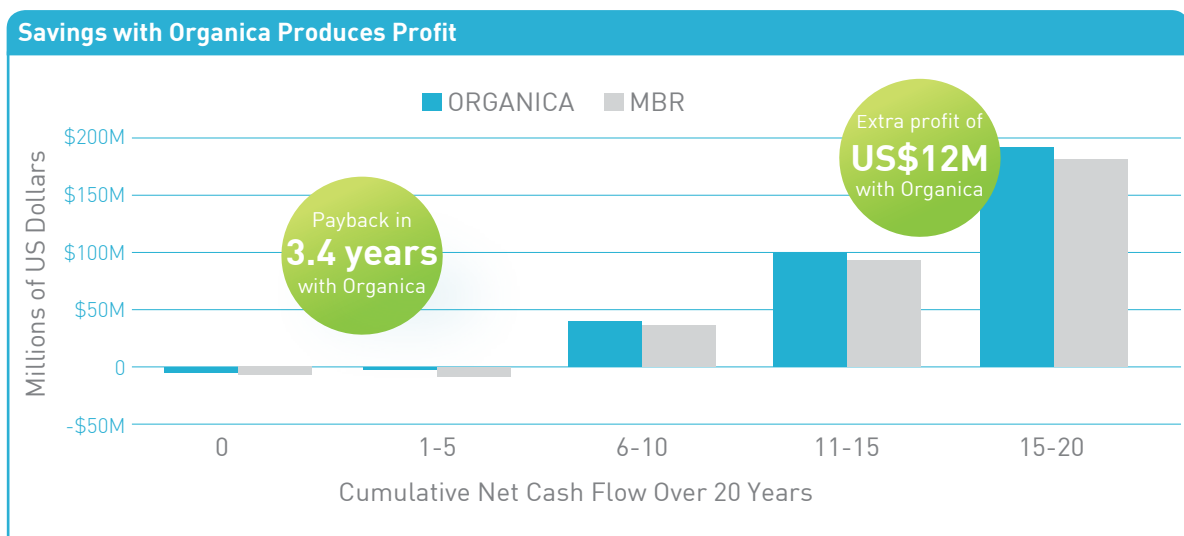
Onsite Treatment and Reuse Application

With the appearance of a botanical garden, the Organica facility easily integrates into the community, benefitting the utility in many ways. First, onsite treatment allows reuse

without costly distribution piping and pumping costs. With a visually appealing and odour-free facility, "psychological footprint" concerns are eliminated. In combination, these traits reduce the impact on the sewer network, reuse water distribution network, and pumping costs, without impacting the community or diminishing land value. In this case, proactive planning along with implementation of innovative solutions made sustainable water management possible.

Maximized Land Value by Eliminating Buffer Zone

Since the Organica solution minimises the "psychological footprint" of wastewater treatment, the buffer zone of 250m that had been required of the MBR alternative to combat poor aesthetics and odour issues could be removed. Eliminating the buffer zone reduced the total physical footprint (including buffer zone) by over 40 times.



Assumptions: OPEX for both Organica and the alternative wastewater treatment option are assumed to increase at an annual rate of 3%. Water rates and the annual flow is increased at 7% and 1% per annum, respectively. NPV is calculated over a 20-year time frame using a 10% discount rate.

Disclaimer: Financial estimates used are based on a proposal for a greenfield project in New Jersey, US. Images are sample displays. This case study is created for informational purposes only, and should not be considered as a quote or offer of any kind. Financial data, OPEX, CAPEX, actual footprint, components (including but not limited to water reuse functionality), etc. may vary per project depending on the actual requirements.



Interested? GET IN TOUCH WITH US TODAY!
Visit our websites: www.OrganicaWater.com and CentralStation.OrganicaWater.com
or contact us via email: Info@OrganicaWater.com