

Membrane Aerated Biofilm Reactors Enable Energy Efficiency and Local Reuse

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www.emefcy.com

We are Emefcy

- An early stage company founded in 2008
 HQ & lab in Caesarea, Israel; Production facility and R&D site nearby.
- C Dedicated to creating new energy efficient technologies for wastewater treatment
- **C** This year growing from 20 towards 40 employees
- C Founders: Eytan Levy (CEO) and Ronen Shechter (CTO) formerly founders of AqWise <u>www.aqwise.com</u>
- *C* Emefcy is now a public company traded as EMC in ASX







Evolution of Aeration Technology





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How It Works





Highlights: How it works



- Low pressure aeration \rightarrow low energy consumption
- IFAS mode \rightarrow simultaneous nitrification & denitrification
- Intermittent mixing at low duty cycle \rightarrow still low energy
- Standardized modules \rightarrow low capex for small plants





Results from a Demonstration plant





Sampling and analysis by a third party as basis for approval to reuse in landscaping irrigation

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Sampling and analysis by a third party as basis for approval to reuse in landscaping irrigation

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Results from a Demonstration plant



Demonstration plants – Caesarea PS





Current small-scale version has potential for upgrade to 200 m3/day Water Scalping (mining)



Once health permits received, recycled water can be used to irrigate this golf course

Demonstration plants – Carmel Coast



Municipal Sewage, 40 m3/day demo plant



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Ha-Yogev WWTP, Israel



Combined sewer and dairy farms | 125 m3/d treatment capacity Retrofit to add nitrogen removal



Life cycle cost comparison





US Virgin Islands – under construction



100 m3/d replacement of an old failed plant





US Virgin Islands – under construction



- C Location: Bordeaux WWTP, St. Thomas, USVI
- *C* Flow Capacity: 100 m3/day
- Client: VIWMA (Virgin Island Waste Management Authority)
- *C* <u>Contracto</u>r: SD&C
- *○* Initial Operation: Dec. 16 (est.)



China: Containerized Demo Plant



- *C* Fully Equipped Packaged WWTP, based on the MABR technology.
- *C Plow Capacity*: 25 50 m3/day
- C Effluent Quality: TSS/BOD/TN 30/20/15 mg/l





Summary



- *O* MABR is already operating and being installed in full scale at several locations around the world
- A small plant based on MABR was shown to produce high quality effluent with low energy consumption and low operator attention
- Cost comparison shows there is a significant benefit in local water reuse, especially using energy efficient processes such as MABR



Thank You





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