

Bachelor thesis work

For the Dutch Caribbean Island St. Eustatius we are looking for a bachelor student who want to do his bachelor thesis or otherwise performing to answer the following questions:

For St. Eustatius water supply is of eminent importance and as the island is striving to become 100% sustainable for energy and water production they are looking for a water supply system of about 200 m³/day.

SolteQ Energy has developed FreshWaterMill, a hydraulic windmill that efficiently converts wind energy into high pressure. This high pressure is used to drive a reverse osmosis desalination installation. Excess energy, that the reverse osmosis cannot use, is converted into electricity. So there is no grid connection necessary, but the system can, if applicable, connected to the grid system.

The Energy and Water Company Stuco likes to receive a feasibility report of installing the FreshWaterMill in order for them to have an overall grasp of what such a project would mean.

The questions to be answered are:

1. Seawater intake system; type, costs, manner of passage/through private property from sea to RO plant building
2. Location and building for the RO system
3. Final product conductivity to be less than 250 microSiemens/uS
4. Final product PH to be 7.5
5. Product water transfer pumps and buffer tank at location
6. Evaluation of transfer of final product water to storage tank (new transport line, pressures)
7. Pump station to transport water from buffer tank to storage tank
8. Hurricane force withstand capability of the wind turbine
9. Evaluation of the zoning plan with respect to having a wind turbine in this location; evaluation of disturbance to neighbouring private properties
10. How does the operation of this 2nd RO plant and location impact the overall operations at STUCO

A visit to St. Eustatius will be part of the study.

STUCO will give support where possible.

Some of the questions have to be answered in mutual consultation with SolteQ Energy.

The tutor for this thesis study will be dr.ir Bas Heijman, Associate Professor, Delft University, Civil Engineering and Geosciences, Water Management.

Student interested in this thesis work can contact:

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