Oman Strategy of Bio-waste Management and Implementation of Biogas Plants

World Biogas eFestival
Business Development Department
Oman Environmental Services Holding Company (be’ah)
18th of May 2020
“To Conserve the Environment of our Beautiful Oman for our Future Generations”
be’ah aims to construct and implement a long term municipal solid waste diversion strategy to achieve a diversion rate of 60% by 2025 and 80% by 2030.
Bioraste assessment and a case study from Barka Landfill
What is the challenge?!

Accumulation of biowaste in landfills & using compacting process to reduce volume and increase space in the landfills leads to...

- Gas emission and Greenhouse gases accumulation / Global warming / pollution & diseases
- Leachate production / creating another problem
- Each engineered landfill cost be‘ah About 8 million OMR
- ORGANIC WASTE ADDS AN EXTRA COST FOR...

WHY DO NOT START DIVERTING BIOWASTE FROM THE LANDFILLS AND ADDING VALUE INSTEAD OF ADDING COST!!!

Applying Gas flare and Gas recovery system for preventing emissions

Applying leachate system for Leachate extracting and treatment
What is the nature of the organic waste received at the landfill?
Biowaste categories received at Barka landfill

Around 2000 tons/day of MSW received at Barka landfill
Including 600 tons/day received are Bio-waste

(30% of total waste)
Organic waste distribution overview

Food waste

**540** Thousands ton

in 2016

around 54 Million OMR

In 2016

**~ $140** Million

In 2016

be’ah case study for waste generation in Oman, 2017**

be’ah case study for waste generation in Oman, 2013**
Strategy for diverting bio-waste and Implementation Biogas Plants
be’ah’s strategy for diverting bio-waste: Biogas Plants

To implement 10 Biogas plants in 10 potential locations around Oman

Stage 1
Divert about 900 ton/day Biowaste
With capacity production of 10 MW Electricity

Stage 2
Expand to 2000 ton/day Biowaste
With capacity production of 20 MW Electricity
Phase 1: Centralized or Decentralized Biogas plants

Decentralized Biogas Plants

- Oman Agriculture association - OAA
- Medium scale 50 – 90 tons/day
  - Al Batinah North

OR

Centralized Biogas Plant

- Barka landfill
  - Large scale 150 - 250 tons/day
- Sultan Qaboos University
  - Large scale 150 - 200 tons/day
- Barka landfill
  - Large scale 300 - 500 tons/day
  - 5 - 7 MWel
Project status and way forward

Project Status

• Bio-waste assessment of available feedstock was conducted and finalized in 2018.
• Feasibility study was completed in 2019.
• Feasibility results were discussed and presented to project stakeholders (2019-2020)

Way forward

• Confirmation of offtake of process outputs and discussion with key authorities to secure feedstock from generators at sources (2020)
• Float a tender for the and construction, development and operations of biogas plants - 2021
• Engage key stakeholders from various sectors that contribute to the success of the project (i.e. key generators and other related authorities for output utilization such as Power and digestate off-take by the agriculture sector.
“To Conserve the Environment of our Beautiful Oman for our Future Generations”

Thank you

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