



Organization Details:

Organization Name AES Barka Power and Desalination Plant SAOG

Organization Type (Business/NGO/Gov) Business

Website www.aes.com

Location /Address AES Barka SAOG, PO Box 572, Barka, PC 320, Sultanate of Oman,

Award Category

Green Footprint Award

Project Details:

Project Title

Environmental Awareness & Conservation Initiatives

Location of Project
One Line Description of Project

AES Barka Power and Desalination Plant
Multiple initiatives to enhance environmental awareness and protect the environment

Effectiveness

What were your goals?

1. AES Barka has an Environmental Policy & ISO 14001:2004 Certified for its Environmental Management System.
(Please see the attachment# 1 for AES Barka Environmental Policy and attachment#2 for the ISO 14001 Certification).
2. High Performance Emission Monitoring System
3. Reduce Water Consumption and Hazardous chemical usage in deminralization process by 50-60% by reducing the mixed bed regeneration process of Deminralization plant by using less conductivity distillate water for the production of Demin water.
(Please see the attachment# 3 for AES APEX Project Details)
4. Public Environmental Awareness Training.
AES Barka had started conducting Public Environmental Awareness Training in schools to enhance the children awareness towards the environment by following small tips. AES Barka started this program at Barka Women Society School.
(Please see the attachment# 4 for AES Barka presentation for Public Environmental Awareness Training in Arabic and attachment # 5 for the photo of the public environmental awareness training at Barka Women Society in 2008)
5. Organizing Beach Cleaning Activity with the Public involvement.
AES Barka continue to conduct beach cleaning activity during the celebration of WED (World Environmental Day) by involving the society in these activities to inculcate the local community and children the importance of a clean and safe environment.
(Please see the attachment# 6 for AES Barka Beach Cleaning activity with society in 2008 in Newspaper and attachment # 7 for AES Barka celebration of World Environmental Day in 2009 in Arabic Newspaper).
6. Plastic Minimization
 - 6.1 100% reduction in the usage of plastic cups and plates and encourages the usage of Glass/ porcelain cups. In Unavoidable conditions, use only environmental friendly cups and plates.
 - 6.2 100% reduction in the usage of bottled water.
7. Minimize the paper usage and implement papers recycling
 - 7.1 Encourage two side printing

7.2 Electronic Fax sending / receiving to avoid wasting of papers

8. Water Conservation and Management to reduce the water wastage by 25% from the existing level

a. Implantation of projects to recover the water

(Please see the attachment#9 for Water Recovery Project Details)

b. Periodic maintenance of steam traps

c. Arresting of steam or water lines leakages

d. Reduce the water flow from the Sampling Systems when not taking sample

9. Tree plantation

(Please see the attachment# 8 for photo of AES Barka tree plantation by AES People)

10. Replace Hazardous Chemicals with more environmental friendly chemicals i.e. replaced Hydrazine by using Eliminox

How have you measured your success?

1. Continuous monitoring of EMS effectiveness.

2. Closely monitoring to the performance of the Emission Monitoring System

3. Reduce water consumption and hazardous chemical usage in demineralization process by 50% by reducing the Mixed bed regeneration process of Demineralization plant by using less conductivity distillate water for the production of Demin water.

4. Enhance the public awareness to follow good practices in school, in the bus, at home and when the go outside with family.

5. Positive approach from the people who had participated in this activity.

6. Plastic Minimization

a. Visual monitoring to ensure that we are not using plastic cups, plates, and water bottles

b. Verification of Purchase order of stationeries to ensure that we are not purchasing the above items

7. Recycling of Paper

a. Visual Inspection of skips to ensure that paper is not dumped to general skips

b. Periodical delivery note verification

8. Water Conservation and Management and reduce the water wastage by 25% from the existing level

a. Continue to implement projects to recover the water

b. Ensured that the preventive maintenance developed for steam traps are completed as per schedule

c. Minimum 2 time per shift inspection by Area Operations Engineers throughout the plant and confirm no leakage is there.

d. Reduced the water flow from the sampling points by throttling the valves and installed sign boards

Use reduced size faucets and visual Inspection of water taps

9. Tree Plantation

Increase the number of trees planted at/around the site

10. Always looking for alternatives to reduce the risk at site by using more friendly materials.

Innovation & Creativity

How were innovative methods, strategies or ideas applied?

1. To obtain ISO 14001:2004 certifications, the organization have to develop and implement effective Environmental Management System (EMS). The organization should maintain continuous improvement for its system.

2. AES Barka's vision is to be a reliable operator which produces clean, sustainable power and desalinated water to its customer. This vision encompasses a commitment to protect and preserve the environment.

The fuel used at AES Barka is Omani Natural Gas which has a low sulphur content of 5 parts per million or less. The gas turbines installed at the plant are equipped with dry low NOx (DLN) burner technology to control air emissions levels of NOx. AES Barka NOx emissions averaged approximately 30% of the permitted values and continue to be controlled in an effective manner.

3. Reduce Water Consumption and Hazardous chemical usage.

4. Plastic Minimization

4.1 Avoiding Bottled water for drinking

Previously AES Barka was using bottled water for drinking water purposes. During our HSE walk downs we observed that empty bottles are scattered at many places in the plant. AES Barka identified this we are creating an Environmental Hazard by the usage of Bottled water. So the matter came to HSE committee. HSE committee observed that avoiding the pet bottles not only to protecting the environment, but also can spread a message to our visitors. Next process was the finding the alternative drinking water source which is acceptable to all employees. HSE committee decided to place water coolers at various locations in the plant and use the Potable water producing by the company for the drinking purposes. With above efforts we could stop purchase of bottled water fully and there by eliminated environmental hazard posed by 3600 (approximately 3 nos. of 500ml bottles/ person/ day, 60 nos of People consuming 3 bottle x 20 days/ month) pet bottles disposed per month by AES Barka.

4.2 Avoiding Plastic Cups

Another source of Plastic material which we identified in the plant and could be avoidable was plastic used for preparation of Tea. In addition to this we found that consumption of plastic cups increased after placing water coolers at various locations in the plant to stop the usage of bottled water and there plastic waste.

HSE committee discussed and came out with alternative solution to encourage the usage of ceramic cups and glass tumblers by providing ceramic cups to all individuals and Glass tumblers kept in all drinking water locations in the offices.

5. Minimize the paper usage and implement paper recycling

Previously AES Barka was dumping papers to general waste and was sending land filling. HSE committee decided to collect the waste paper and send for recycling instead of dumping in general waste bins. For this we came out with the following actions:-

- § Encourage two side printing
- § Electronic Fax sending / receiving to avoid wasting of papers
- § Placed Special boxes in all offices for collecting the waste paper
- § Made agreement with paper recycling company in Muscat to collect the paper from us

6. Water Conservation and Management and reduce the water wastage by 25% from the existing level

a. Implementation of water recovery projects (See attachment #9)

b. Periodic maintenance of steam traps

It happens sometimes that some of the steam traps of the LP steam header of the plant are not working and the traps by-pass valves or steam line drain valves are kept open in order to drain the condensate from the system, which causes loss of condensate water to the drain. In order to avoid loss of condensate from the system all the non-functional LP steam traps are to be identified and actions taken to repair the traps on priority basis and taken in service and close the trap by-pass valves.

c. Arresting of steam or water lines leakages

If any leakage of water or steam lines of the plant is detected then steps should be taken to get the leakage arrested on priority basis in order to avoid the steam or water losses.

d. Reduce the water flow from the Sampling Systems when not taking sample

All on line and manual sampling points of water and steam are another area where lot of water will be lost to waste if their flow rates are kept more than required. These sample points flow should be monitored in every shift and adjusted as per the requirement in order to avoid

wastage of water.

Impact

How has the project/initiative/work motivated others to contribute to a greener Oman

The above initiatives provided following benefits to the organization

- 1. Reduced the water usage in the Demineralization mixed by 60% there by reducing the energy consumption and CO2 emission**
- 2. Reduced Hazardous chemical usage in Demineralization by 60% (Health & Safety impact)**
- 3. Reduced internal Energy consumption (Commercial Impact)**
- 4. Improve the internal employee awareness on environmental protection**
- 5. Improve the public environmental awareness towards the environment and to implement good practices.**

Originality and Leadership

How has the nominee demonstrated vision, foresight and persistence?

AES Barka is committed to conserving the environment while continuing to meet our goals of supplying clean and reliable Power & Water to the people of Oman. We embrace Environmental protection as one of core value to conserve the environment we live in and to always strive to improve ourselves continuously in conserving our natural resources. We strongly believe that excellence in management of Environment is an essential element within our overall business.

The above mentioned initiative for protecting the Environment by Re-using, Recycling, Reduction/ Optimization of energy consumption, Mitigating environmentally hazardous Material usage and taking part in environmental conservation programs shows the commitment is not limited to words but it is being converting to action for conservation of the environment where we are living.

We as an organization are really concerned about the increasing usage of plastic which is going to pose multiple hazards to the earth. Equally important is to conserve the natural resources by optimizing its consumption to ensure that future generations are also able enjoy the beauty of this earth.

AES Barka is consistently trying to improve its various efforts with the objective of conserving the environment. In addition to the above initiatives,

- 1. We developed a green belt in our facility.**
- 2. Ensuring that all oil/ chemical usage or storage is not causing soil or ground water contamination by providing storage areas with non permeable platform with secondary containment. Where ever non-permeable platforms are available, we are using spill pallets to ensure that any spillage is not causing soil contamination**
- 3. Additional indoor green plants are maintaining in the offices**
- 4. Celebrating the environmental day for spreading the awareness**
- 5. Involving the society in different environmental activities to lift up their awareness.**

Continuity & Sustainability

How sustainable is the initiative carried out?

All the programs which we have initiated are ongoing. None of them are one time projects.

Explain how it will be effective in the long term

All the initiative which we implemented will have positive impact environment in the following ways

- 1. Reduced internal energy consumption (Usage of water and Power) will help to reduce the Power and steam generation. Ultimately it will help to reduce the natural gas consumption and reduce the emissions.**

So the project is helping to conserve the natural resources and reduce the environmental pollution

2. Wastage of water or steam by leakage or from the steam traps, sampling points, water taps will force process to generate more water and steam. This is indirectly increasing demand of fuel increasing the emission. So the reduction water wastage will help us to reduce the fuel consumption and there by conservation of natural gas and reduced environmental pollution by emission

3. We forecast one of the major threats going to face by the next generation will be the health and environmental hazards of Plastic. In recent times, the issue of climate change compounded with concerns for safety of the environment has made the use of plastic questionable. Several countries across the world have banned the use of plastic bags and pet bottles. In this context, AES Barka wish to give its smaller contribution by reducing the plastic usage to the best possible minimum level. Reduction in plastic usage is indirectly reducing the natural reserve of petroleum consumption as plastic production required petroleum products

4. Increasing the green belt, and plantation of more trees will help in reduction CO₂ level in the atmosphere because as all of us knows that trees lock up CO₂ into solid form and increase the oxygen supply.