BAFWAC

Detroit Hamtramck

an General Motors case study

November 2017

Company details

General Motors (GM) is based in Detroit, Michigan and is one of the world's largest automakers, employing over 215,000 people in 396 facilities across six continents. GM offers a comprehensive range of vehicles and services in more than 120 countries around the world. The largest national market for its products is China, followed by the US, Brazil, United Kingdom, Germany, Canada and Italy.

Summary of action

General Motors identified stormwater as a priority issue, as the city of Detroit had implemented a US$2million annual fee for businesses discharging stormwater to the municipal combined sewer system. To address this, General Motors added a retention pond which brought the facility's total capacity to 213 megaliters (enough to hold a 100-year storm event). The result of this has been to cut water-use by 20% through rainwater harvesting and save an additional US$140,000 annually, paying for itself outright within two years.

"This project demonstrates how an engaged team can foster innovative ideas to achieve this priority [sustainability], while increasing shareholder value through business results." – Bill Shaw (GM Manufacturing Manager)

Program rationale

General Motor's Hamtramck Assembly plant identified stormwater disposal as a priority issue after a US$2million annual fee was levied by the city of Detroit for treatment in its combined sewer system. This fee equated to 14% of the plant's entire utility bill.

Program approach

GM decided to add an additional retention pond (there were two already) at the Detroit-Hamtramck site, bringing the overall stormwater capacity of the site to 213 megaliters – the equivalent of a 100-year storm event. The Detroit-Hamtramck site covers almost 1.5km2, and stormwater is channeled into storm drains which lead to the pond. Floating pumps transfer this across the manufacturing facility where it is used as cooling water.

Lessons learned

Given that the US$2million fine equated to 14% of General Motor's Hamtramck plant's annual utility bill, identifying the potential for rainwater conservation at an earlier juncture could have saved substantial funds. Furthermore, the use of water for cooling purposes could be further reduced by investing in more efficient systems, preserving more water for purification and use in more high-value processes (e.g. paint shop operations).

What next?

The remaining high purity water will be pumped to Detroit Renewable Power to produce steam to heat and cool the assembly plant, as well as 145 other Detroit businesses. Water reuse will continue to be an important commitment for GM.

Sources

- http://dham.gm.com/Facilities/public/us/en/dham/environment.detail.html/content/Pages/news/us/en/plant-news/dham/0810-rainwater1.html
- http://www.generalmotors.green/product/public/us/en/GMGreen/home.detail.html/content/Pages/news/us/en/gm_green/2016/0810-rainwater.htm

Results & Benefits

- **20%** reduction in water use for cooling
- **US$14,000 annually** in cost savings
- **US$2million** no longer paid to the city of Detroit for water treatment.
- **USD $75,000** in further cost savings from water purified using carbon filters and reverse osmosis for use in General Motor's paint shop operations
- **15%** The total water reclaimed through this process is enough for approximately 2,200 Detroit families, and supports General Motor's 2020 goal to reduce water intensity by 15% from 2010 baseline levels.

BAFWAC

BAFWAC was jointly launched by CDP, CEO Water Mandate, SUEZ, and World Business Council for Sustainable Development (WBCSD) in December 2015. The initiative commits companies to analyze and report water-and-climate-related risks and impacts, and to implement collaborative response strategies along the value chain.

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