

Water Management

Water is an important resource for business, industry, and human activities. However, the risks and impacts of water usage problems have intensified in Thailand, e.g., water shortages and water quality problems. Therefore, water management is important for using water in the most beneficial and sustainable manner without affecting the environment.

The company, as a business in the energy industry, uses water resources in its major production processes, including steam production for crude oil refining and cooling, etc., recognizes the importance of water resources as well as risks and the impacts from the use of water from water sources in the company's activities and production processes, including discharge of wastewater that may affect the environment and society outside, including the company. Therefore, the company conducts organization-level risk analysis on water in terms of quality and quantity, regulatory changes and pricing structure, and conflicts with stakeholders in the use of water resources (stakeholder conflict), and the company also conducts analysis of water stress of the Chao Phraya River in the refinery area and Sam Lae raw water pumping station in Pathum Thani Province, which is the source of raw water where the company obtains tap water from the Metropolitan Waterworks Authority to use in the production process. The company uses the World Resources Institute's Aqueduct Water Risk Atlas and The Global Facility for Disaster Reduction and Recovery (GFDRR) ThinkHazard tools to optimize water management for water stressed areas.

It was found that the refinery area and the area of the Sam Lae raw water pumping station were not water-stressed.

The company has a continuous water-use risk management process with the Water Footprint of Product process for 6 types of products to reduce the use of tap water in production. The company also monitors droughts, floods and changes in water levels in the Chao Phraya River and manages the refinery's water by using the 3Rs principle (Reduce, Reuse & Recycle) to reduce use of tap water in production. Results of water management are compiled and presented for improvement through working groups at all levels from the operational level to the management level. Additional details on this topic can be found under "Bangchak and Sustainability". Accordingly, the company heeds the opinions of all stakeholders, especially the communities around refineries and government agencies that give importance to such issues through various channels, including listening to opinions during community activities and meeting with relevant government agencies. For more information, see Treatment of Stakeholders.

The company's additional projects to reduce use of tap water in 2022 were as follows:

- New cooling tower installation project for Plant No. 2.
- Project to reduce the use of steam stripping at distillation units (extension).

Goals in 2022



Use water efficiently to control the intake of new water in the production process to not exceeding 0.055 cubic meters per barrel equivalent of production unit



Reduction of cumulative water consumption by 30 percent, equivalent to the base year of 2015.

Strategy



Use the 3Rs (Reduce, Reuse & Recycle) principle to increase water efficiency by reducing water consumption, reusing water, and improving the wastewater treatment system for reuse.



Manage water with modern tools/ technology.

2022 Performance

The company used tap water from the Metropolitan Waterworks Authority by up to 1.76 million cubic meters and partially used groundwater according to the management plan, which was one of the measures to reduce tap water consumption during the drought crisis, and maintained the condition of water wells to 0.44 million cubic meters. In 2022, the company received water from various sources by a total of 2.38 million cubic meters, if including water separated from crude oil, and 2.34 million cubic meters if not including water extracted from crude oil, or a total of 0.052 cubic meters per barrel of oil equivalent. The water was discharged to natural water sources (surface water) in the amount of 0.896 million cubic meters. When considering the amount of water used for the production process, the amount was 1.485 million cubic meters or 0.03 cubic meters per barrel compared to production capacity.

No.	Work Plans for 2022	Performance
Water Reduction		
1	Improve the quality of tap water with a micron-level filter system (micro-filtration system) and reverse osmosis system in conjunction with a reverse osmosis unit to increase the water quality along with an electric deionization system (electro de-ionization system) to improve the quality of raw water before entering the demineralization system at the power plant.	Reduced water consumption by 0.12 million cubic meters/year*. (Representing 0.05% of the total demand for tap water, excluding water from crude oil, and 2,799 cubic meters per million barrels of oil equivalent).
Water Reuse		
2	Good quality condensate water from the production process is used instead of water for boilers.	Reduced water consumption by 0.64 million cubic meters/year. (Representing 0.27% of total demand for tap water, excluding water from crude oil, and representing 14,317 cubic meters per million barrels of oil equivalent).
3	Use stripped water from the sour water stripping unit and the wastewater from the stripping steam system of the 3 rd distillation unit instead of tap water in the crude oil desalting unit (desalter).	Reduced water consumption by 0.13 million cubic meters/year. (Representing 0.06% of total demand for tap water, excluding water from crude oil, and representing 2,896 cubic meters per million barrels of oil equivalent).
Water Recycle		
4	Take condensate water contaminated from the 4 th distillation unit (Plant 4) to improve the quality for use in the boiler feed water system.	Reduced water consumption by 0.47 million cubic meters/year (Representing 0.20% of total water demand, excluding water from crude oil, and representing 10,528 cubic meters per million barrels of oil equivalent)
5	Take the treated water from the wastewater treatment unit for further quality improvements with a micron level filter system (micro-filtration system) and reverse osmosis system for use in the cooling process.	Reduced water consumption by 0.20 million cubic meters/year. (Representing 0.09% of total demand for tap water, excluding water from crude oil, and representing 4,560 cubic meters per million barrels of oil equivalent).

Success Indicators

