Nilubon Rangkot 2012: Pipe Network Model Development. Master of Engineering (Water Resources Engineering), Major Field: Water Resources Engineering, Department of Water Resources Engineering. Thesis Advisor: Associate Professor Chaiwat Kayankarnavy, M.Eng. 135 pages.

In general, the consideration in designing water pipe network will be based on suitability in terms of hydraulics. However, the consideration on suitability with regard to hydraulics alone does not mean that the selected size of pipeline is suitable for functional purpose. When considering the economics together with the selection of suitable pipeline to be used as pressurized pipe, electricity will be required in distribution process and the electricity fee is likely to increase in the future. As a result, the electricity fee will affect the investment when calculating throughout the period of the project. In the event that small pipeline is selected, head loss value of the system will be increased and high energy will be required for distribution process but the construction cost will be cheaper. In the event that large pipe is selected, head loss value of the system will be decreased and low energy will be required for distribution process but the construction cost will be higher.

Therefore, this study has used pipeline system analytical method that takes electricity fee, interest rate and maintenance fee into the consideration by determining the suitability of the lowest amount of total investment cost throughout the period of the project when comparing to current costs and then adapted it so that calculation can be made on web application. By doing so, users will be able to easily access analytical system without having to install program on their computers. Comparison of the results showed that electricity fee, Interest rate and type of pipe can affect the size of the pipe. The high electric cost is a large pipe. Meanwhile, the high interest rates using the pipe is smaller.

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