Hydroelectric power plant system

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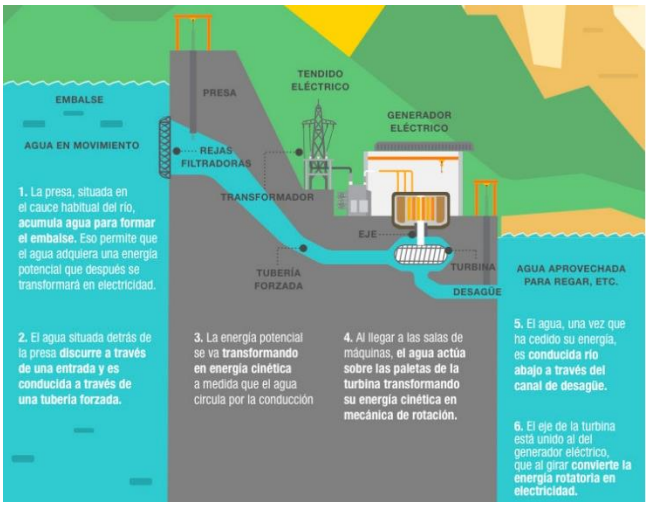

This is the basic model of a basic hydroelectric power plant, I chose a real life example because I live in the area. It consists of the main body of water and an exhaust located below to convert potential energy into kinetics to convert it into energy for domestic use in this case. ***Embalse de Mediano,*** I think this makes a Good critical system to work on because several stuff that could go wrong can be avoided and it was fun implementing the logic of something that I see everyday from my home.

Different paths

My main attributes are: **Water level, State of the filter, Aperture of the intake valve and the energy produced.**

Water level: Crucial for the development of the process, I use the amount of water in the reservoir without letting it get to 0 of water since it is necessary for wildlife and trees but there is a limit as well in case of floods. The challenge was to keep the water always between those parameters.

Filter: In this case, I initialise the filter to be clogged or clear, if it is clogged I will clear it and make way for the water, but of course, there cannot be the production of energy without the water getting through its course.

Intake valve: It is automatically open or closed at different percentages with a mathematical value taking into account the energy that I want and the water level.

Energy desired: This is the input from the user and depending on that the system behaves differently, it is bounded by the limitation of the hardware, in this case, the only turbine of the system.

How does it work?

The program will print the relevant data to the user so he/she can decide what action to take to meet his/her requirements, usually what amount of energy he/she wants to produce.

When all required conditions are met the valve opens or closes at a specific percentage letting water through to make energy, but if the water level is too low the user will be prompted with a message recommending what to do to store the necessary water. Or if the filter is obstructed the program activates the necessary action to clear the way for water.

It is made so the system's status stays always between the necessary ranges and it is safe for the environment as well.

After every interaction, there is feedback for the user, because it prints the status so the user is not lost while using it and makes sure everything is safe. Even though the action could not occur just in case there is a counter that sums up when an interaction occurs so you can keep track.