



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Enzo V. Genovese	Project Number 38531
Project Title Hydroelectric Powered House: Is Domestic Water Pressure a Viable Source of Renewable Energy?	
Abstract Objectives/Goals This project attempts to create electricity from the main water pipe that connects into a house or a building, transforming water pressure into electricity using a hydroelectric generator. If enough electricity is generated, then you can connect the apparatus to solar panel batteries in order to create free and perpetual energy every time you use water in the house. Methods/Materials Tested the electrical power produced by measuring the wattage with a using a digital multimeter, and the water pressure using a residential water pressure gauge kit. Used a 12V/10W water turbine generator, 1 foot of 1 inch diameter tubing with a faucet connector, and 7 LEDs of 12V to show visually the electricity produced. Results The faucet water flow measured 2 gallons per minute and 40 psi pressure. When the tap water flowed through the generator, 10 Watt hour of electricity were produced, enough to light up continuously seven 12V LEDs. That amounts to 240 Wh for 2,900 gallons per day, or 12 gallons to produce 1 Wh. The same performance was successfully conducted in blowing air from the mouth through the tubing to test the experiment at very low pressure. Conclusions/Discussion 300 billion gallons per day of freshwater are used in the US. That is 25,000 Megawatt of electricity if all buildings were equipped with this device, or 2 days of electricity used by New York City. It would not justify the cost of hydroelectric generators for all the buildings in the US. Incidentally, I created with my prototype an emergency battery-free flashlight and charger for mobile phone powered by mouth airflow.	
Summary Statement Domestic water pressure is not a viable source of renewable energy.	
Help Received I showed that domestic water pressure is not a viable source of renewable energy, I discovered a battery-free source of electricity for emergencies.	