

We need your help. Our group wants to demonstrate a technology that can convert any diesel or gasoline engine to a zero-carbon and "Green" engine, that can use solar, wind, or hydro power.

The Institute of Electrical and Electronics Engineers' (IEEE) Empowering a Billion Lives 2023 will help us raise the initial \$1,500 through crowdfunding in the next couple of weeks. Please go to this link and contribute:

<https://give.ieeefoundation.org/team/470195>

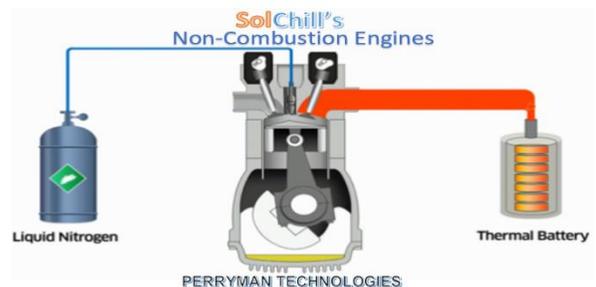
We are also working with other organizations to raise another \$247,000 for this demonstration. Our technology can empower the billions who depend on internal combustion engines to go green without going broke.

We are collaborating with the **University of Costa Rica, School of Science & Technology**. This is one of the largest universities in Central and South America with over 43,000 students and has the most respected technical faculty in the region. The demonstration will introduce this sustainable and affordable solution for power generation to the world.

US\$250,000, will allow us to show that the internal combustion engine can be retrofitted to be carbon-free. After the IEE EBL competition:

<https://empowerabillionlives.org/compete/>, and the evaluation from working with the university, we can repeat this demonstration for a hospital or to meet essential services in Africa (where rolling blackouts are devastating the economy) and in other areas of the planet where this technology can solve the problem of intermittent electrical power. We will install a generator that runs without burning any fuel and will provide electrical power for the University during the daytime,

when electricity costs over five times more than it does at night and on weekends. This is accomplished by installing our patented thermal storage battery system which will be charged when the rates are lowest. The energy stored in our battery system provides the heat for the engine. The system uses a modified off the shelf 4-cycle 25kW generator. 3kW are used to power a liquid nitrogen/oxygen generator. The LN2 is used as the drive fluid in the diesel engine. Some LN2 and the liquid oxygen will be used by the Science Department. Additionally, LN2 containment normally evaporates a small amount of very cold gas which we will use to pre-chill the evaporator units of the University's auditorium's/student center's air conditioning unit. This will reduce the power requirement of the air conditioning system; in addition, the engine's waste heat will provide energy for the hot water system. Our plan is to duplicate the demonstration of this technology with other applications and in other countries.



Why is this demonstration important:

- First and foremost, it demonstrates how a diesel engine can work more efficiently when using heat than when burning gasoline, diesel, or any combustible fuel, and it shows that this modification can be done by a trained mechanic with a conversion kit furnished by our group. This will open the door not only to electrical generation but to transportation, including trucks, farm tractors, construction equipment, trains, boats, ships, and eventually anything that uses a reciprocal internal combustion engine. This technology will give the disadvantaged populations of the planet a path to more easily change into green economies by upgrading instead of replacing their generators and vehicles.
- Second, it will provide a truly deep CHP storage system that can operate for a week on a single charging. With the combination of heat, power, and cooling there will be over 95% overall efficiency and 60% savings on the university's energy bills.
- Third, it will solve the problems of load leveling and integrating various intermittent alternative energy for power producers and utilities at a sustainable cost for storage.
- Fourth, it will demonstrate a solution to mitigate situations like those in energy poor areas of the planet. Today throughout Africa, there is a plague of blackouts caused by insufficient power which are devastating industries. Millions of dollars are being spent to power generators using diesel and gasoline, causing losses of employment. Costa Rica's recent 5% increase in poverty was, in part, caused by the inability to afford energy.

Background: 6-years ago our patented Non-Combustion Brayton Cycle Engine technology was introduced. We were selected from contestants around the planet by a panel of experts to participate in the final phase of the 2023 IEEE EBL contest. This is SolChill's Perryman Technologies, second experience with IEEE EBL; our previous experience was as a finalist in 2019 with a village level solution. <https://empowerabillionlives.org/finalists/>. We have selected Costa Rica not only because of this excellent University, but also since the UN has designated it the "Living Eden Template for a Carbon Free World": <https://www.unep.org/news-and-stories/story/costa-rica-living-eden-designing-template-cleaner-carbon-free-world>. We feel Costa Rica is the idea launch pad to our solution to turn the world's reciprocal internal combustion engines into non-combustion "Green Machines". **However, this solution that will reduce the impact of intermittent and disrupted power supplies and eliminate costs associated with fossil fuels, needs to be shared in Africa, the rest of the Americas and even Asia after this initial IEEE EBL field test/demonstration. Join us in making this possible.**