The Sun is the most abundant source of energy in our solar system, and although technology has been developed to harness solar energy, it is not widely implemented on automobiles. This is largely due to the low efficiency of current solar cell technology, which is about 33%. However, the efficiency of solar cells can be increased by concentrating the sunlight hitting a large area onto a smaller cell. A Fresnel lens can be used to concentrate sunlight onto a solar cell on the roof of a car. The rest of the car can be painted in photovoltaic paint, making solar cells much more efficient on automobiles.

Fresnel lenses are a type of lens that can concentrate light, much like a traditional convex lens. What sets them apart from traditional lenses is that they are segmented in concentric circular sections. This allows them to be much thinner than a normal lens while covering a wider area. By placing a Fresnel lens on top of the solar cells, sunlight can be concentrated on a single solar cell, greatly increasing the amount of solar energy converted by the cell. In addition to its energy concentration capabilities, Fresnel lenses, due to their design, require less material to make than standard lenses, are much thinner, and are also relatively less expensive. This makes them ideal for implementation on cars, since they would have a much lower impact on the car's aerodynamics and aesthetic appeal than a thicker, traditional convex lens. Since the average surface area of the roof of a car is about 1.5 meters, nine 0.5 meter diameter Fresnel lens concentrating light onto a solar cell can be implemented. When implemented on a single car, the Fresnel lens and solar cell combinations alone will produce about 405 Watts. The energy from the cells can be routed to the motor, to help power the car when it is moving, or to a battery for storage and later use if the car is idling. However, while the Fresnel lenses cover the roof of the car, the entire body of the car is still unused.

Photovoltaic paint is one of the more recent solar technology developments. This technology is convenient as it can be applied to irregular surfaces, such as curves on the car. Photovoltaic paint has an efficiency of about 11%. Although this is significantly lower than the efficiency of a traditional solar panel, it can be applied to the entire body of a car, whereas a solar panel requires flat surfaces. The sunlight hitting the paint is converted into energy when the light hits a dye-sensitized solar cell, which releases energy into a nanocrystalline titanium dioxide layer that acts as a circuit. The energy can then be rerouted using wires into the motor to help power the car, or to a battery for storage. When applied to the entire car, the photovoltaic paint will output 61.6 Watts of electricity. This amount of electricity is not enough to power the car alone, but it can be used to supplement the car's original power source, whether it is gasoline or electricity.

This combination of Fresnel lenses and photovoltaic paint will have a tremendous impact both nationally and internationally. A car that implements both technologies will get about 467.6 Watts of electricity. In the U.S. alone, there are about 253 million cars on the roads. If Fresnel lenses with solar cells and photovoltaic paint were implemented on every car, it would save about 118 billion Watts of electricity. As a result, it would reduce CO_2 levels by 81.3 million metric tons. These results are for the U.S. alone, however. If other nations adopted this technology, the amount of electricity saved and the corresponding reduction of CO_2 levels would be much higher. The use of Fresnel lenses with solar cells and photovoltaic paint could significantly reduce the amount of greenhouse gases in the atmosphere, reducing the effects of global warming, and cutting costs for fuel sources such as oil, which are rising in cost due to their scarcity and high demand. It will also reduce the amount of air pollution caused by burning fossil fuels. The conjunction of Fresnel lenses with solar cells and

photovoltaic paint will thus revolutionize the current methods of obtaining energy in both the U.S., and in a wider perspective, the world.

Solar energy is an important alternate source of energy. It is renewable, clean and exists almost everywhere on Earth. The combined use of Fresnel lenses and photovoltaic paint will raise the efficiency of electric powered cars and can also be used on gasoline powered cars to power internal components and reduce the amount of gasoline needed. The abundance of cars that run on fossil fuels is one of the main causes of the increasing amounts of greenhouse gases in the atmosphere. Therefore, by lessening the dependence of cars on fossil fuels, and making them partially or fully solar-powered with the use of Fresnel lenses with solar cells, and photovoltaic paint, the impacts of one of the largest contributors of greenhouse gases, will be significantly reduced, and greatly reduce the effects of global warming.