While electric vehicles have been designed and are constantly being improved in an effort to reduce CO_2 emissions from petroleum vehicles, electric cars still require coal plants and use natural resources which emits CO_2 in the process. Due to this, the concept of harnessing sunlight and directly converting it to usable fuel for cars, or solar energy, is being looked into more and more today. Solar powered vehicles are being created and used, but issues exist with it. A major issue with solar energy is the requirement of large regions of land to generate significant power and installing solar panels are expensive to install. Furthermore, if the solar panels are installed far away from the location of use, transportation of it through long distances only increases expense and pollution. This is what SolCharge is meant to combat. SolCharge is a solar power based charging system made up of a network of charging grids. When installed on highways, cars driving over them can harness captured solar energy. The major goals of SolCharge are: to reduce costs of current similar technology of capturing solar energy for car fuel by increasing efficiency, and to reduce CO_2 emissions from automobiles and factories.

Prior to the explanation of how our goals would be met by SolCharge, a description and scientific explanation of it: SolCharge is a solar power based wireless charging system that is made up of a network of charging grids. These charging grids would consist of metal induction panels placed under the roads. The electricity that the system uses comes from solar farms placed by the roads. To harness this energy, electric cars would use built in induction panels located underneath the chassis. The SolCharge works like a wireless charger for your car. In the road, there are a series of densely packed coils of wire. In the car, the coils are also there, facing the opposite direction. When the car passes over the charging grids on the road, an electric current runs through the coils, generating an electromagnetic current that transfers to the car. The solar PV farms on the side(s) store the energy they absorb in a battery by the road. The charging grid has a magnetic sensor in the coils, allowing it to detect when there is a car above it so that it knows when to send the charge to the car above. These charging grids would span about a half mile and be spaced every 2 miles. At a typical highway speed limit of 60 miles per hour, an electric car would pass over the charging grid for approximately 22 seconds.

The first goal of reducing costs of current similar technology by increasing efficiency would be fulfilled by allowing for customization of the solar panel amount in SolCharge. While contemporary technologies constantly emit energy, which reduces efficiency, SolCharge not only allows for more or fewer panels for busier or less busy roads, but it also only emits energy when a car passes over, allowing the car to get more energy from it. Finally, SolCharge is more efficient in that the solar panels go on the side of the road, allowing more room for the coils and having larger solar farms. One can even control how spaced apart the panels are, allowing for cost efficiency based on average traffic levels.

The second goal of reducing CO_2 emissions from automobiles and factories is directly correlated to the increase in solar energy from SolCharge that replaces the fuel source for vehicles and thus less natural resources are burnt and less CO_2 is emitted. While it is argued that electric and hybrid vehicles are cleaner than gasoline vehicles, it is not the cleaniest available as electricity still requires coal plants to burn fossil fuels and emit CO_2. That is where SolCharge comes in as it efficiently uses all natural solar energy to power vehicles and

reduce CO_2 emissions. The reason this is such an important goal is that emissions by automobiles account for over 70 percent of the world's air pollution and play a major role in the problem of global warming. Therefore, by reducing harmful car emissions and innovating to create reliance on clean renewable energy resources, we can mitigate the effects of CO_2.

SolCharge is a truly innovative solution. It encompasses the latest and most efficient solar technologies with never before thought of underground charging systems. Due to these, it is not only the most cost efficient vehicle solar panel technology, but it is also the most efficient which reduces pollution from CO_2 emissions. Electric and hybrid cars do battle the problems of pollution, but they are not one hundred percent clean whereas solar energy is. Therefore, we believe that SolCharge has the potential to truly make a difference on our planet.