California Science Center

CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.)

Jennifer Broyles; Sonya Isacc; Sapna Padmanabhan

Science Fair Use Only

S0803

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)

A Possible Solution to Air Pollution: Reducing Ground Ozone Level and Carbon Dioxide Emissions

Division

_ Junior (6-8) _X_ Senior (9-12)

Preferred Category (See page 5 for descriptions.)

8 - Environmental Engineering

Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.)

Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.

Currently in our atmosphere there is an excess of carbon dioxide due to many factors such as cars, people, industries, and deforestation. Deforestation is a very important factor that leads to this immense problem. Every year 78 million acres of trees are cut down. With fewer trees to take in carbon dioxide, there is an increasing amount of carbon dioxide in the atmosphere. At ground level, there is also an excess amount of ozone harming the people, plants, and animals that inhabit the area. Fuel cells used in vehicles have the possibility to offset this immense carbon influx. This is because they only emit water and heat, wheras internal combustion vehicles emit many harmful pollutants. Therefore, by converting all vehicles to fuel cell powered vehicles, we will be able to drastically reduce the amount of carbon dioxide and ground level ozone in our atmoshphere. In our project, we are trying to find how many internal combustion cars need to be converted to fuel cell cars for every acre of trees cut down each year. Also, we are trying to find how many internal combustion vehicles need to be converted to fuel cell cars to equilibrate the excess amount of carbon dioxide in the atmosphere worldwide. In addition, we are trying to find the new ground ozone levels in particular cities after converting to fuel cell cars. Through our experiment, we tested the ground ozone levels of five different cities in Califronia using ozone test sticks. Then using an equation that we created, we found that the new ground ozone level for each city would drop drastically. We came to the conclusion that nearly all the internal combustion cars need to be converted to fuel cells to have a significant effect.

Summary Statement (In one sentence, state what your project is about.)

Our project explains how the conversion of internal combustion vehicles to fuel cell vehicles significantly decreases ground ozone and carbon dioxide levels.

Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.

Teacher helped with the planning of our board.