



# **SNS COLLEGE OF TECHNOLOGY**

**An Autonomous Institution  
Coimbatore - 35**

Accredited by NBA – AICTE and Accredited by NACC – UGC with ‘A++’ Grade  
Approved by AICTE , New Delhi and Affiliated to Anna University , Chennai.

## **DEPARTMENT OF AGRICULTURAL ENGINEERING**

**19AGE401 – CLIMATE CHANGE AND ADAPTATION**

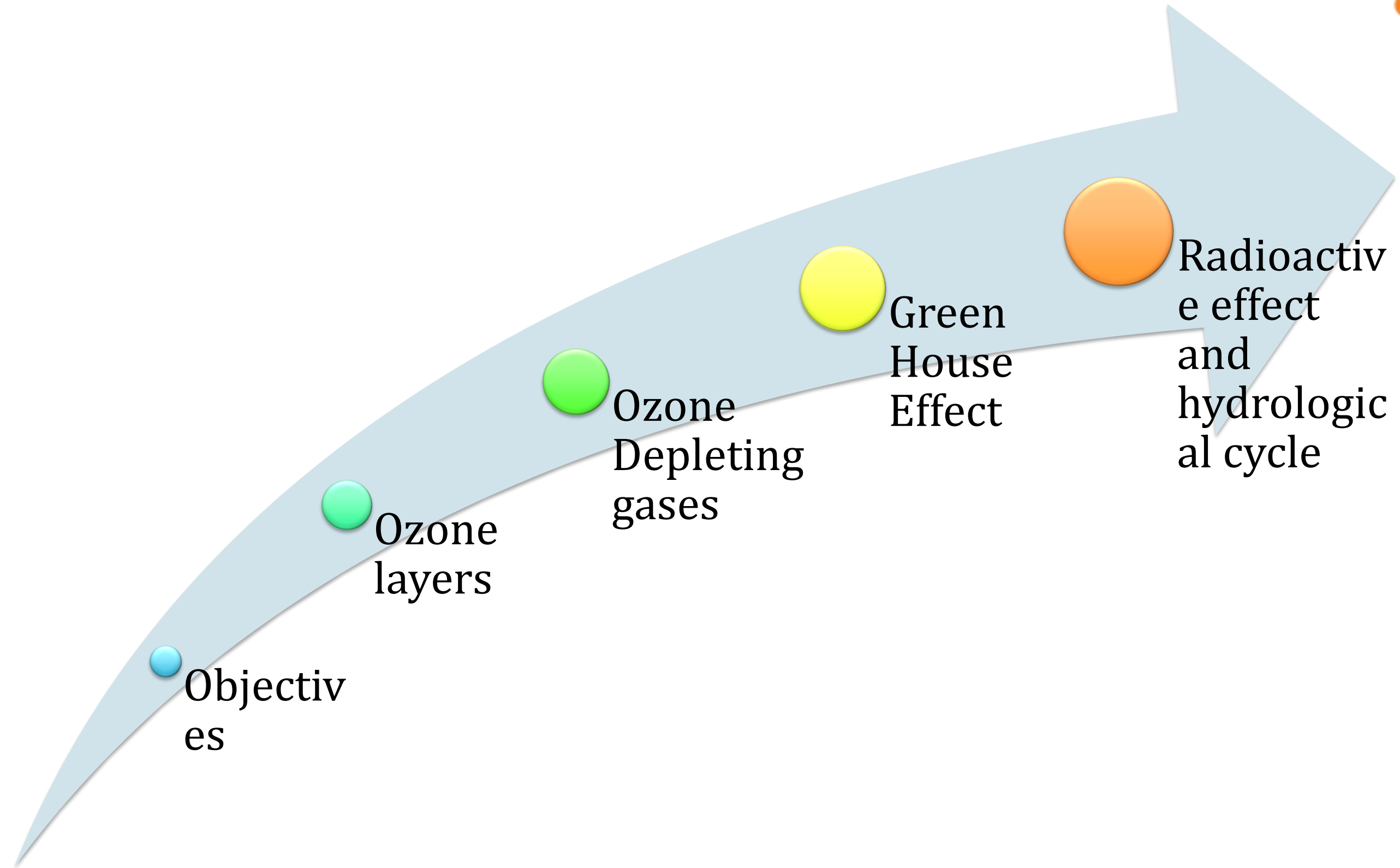
**IV – YEAR VII SEMESTER**

**UNIT 1 – EARTH’S CLIMATE SYSTEM**

**TOPIC 9 – GLOBAL WARMING AND CARBON CYCLE**

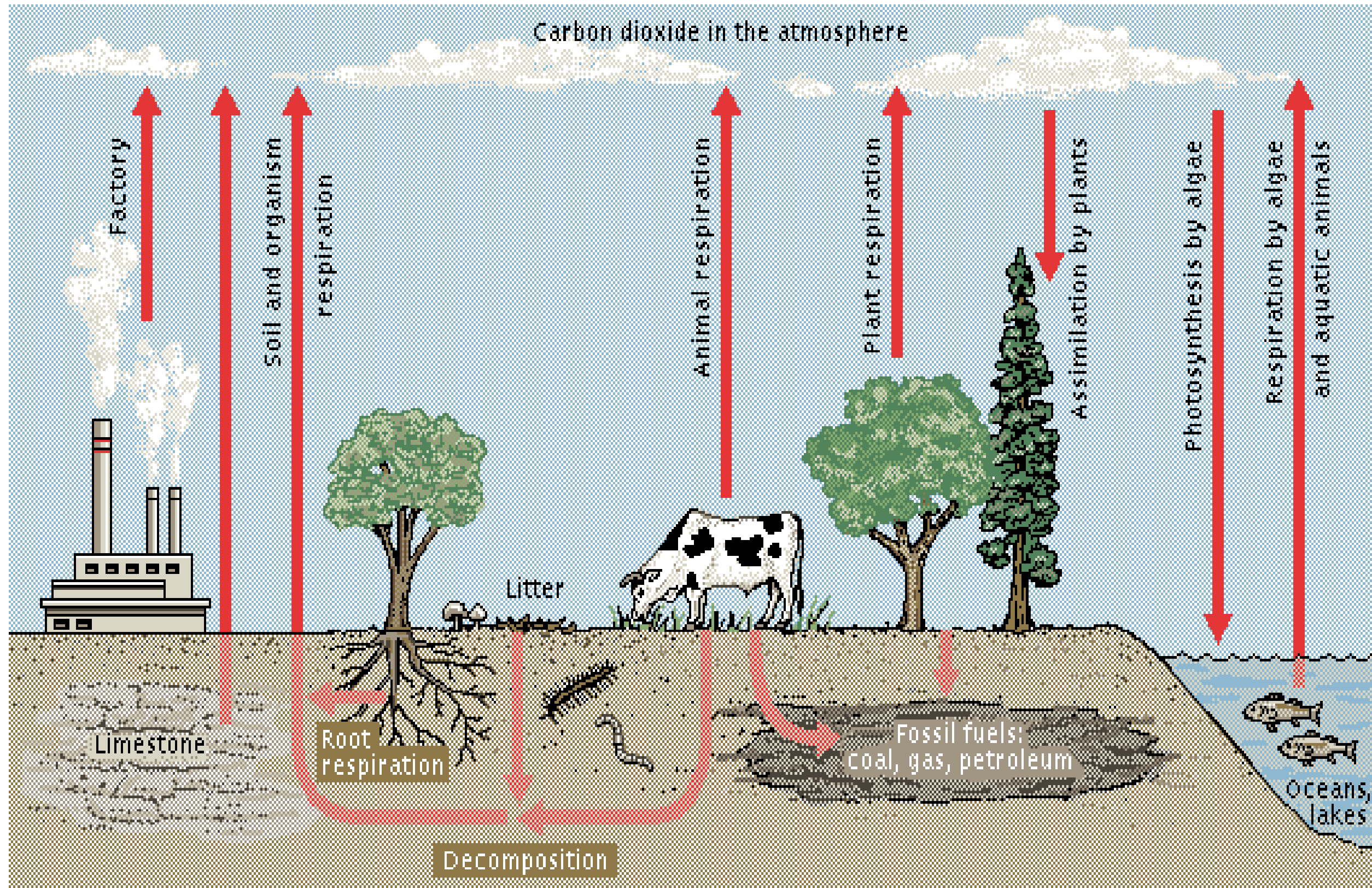


# Last Class Review





# The Carbon Cycle





# Effects of Global Warming

## Negative Effects

### Rising Sea Level

Change of precipitation and local climate conditions; acid rain

### Alteration of forests and crop yields

Expansions of deserts into existing rangelands

### More intense rainstorms

Destabilization of Ocean currents

## Positive Effects

Can stimulate plant growth in places where CO<sub>2</sub> and temperature are the limiting factors (preventing photorespiration which can destroy existing sugars)

Melting Arctic ice may open the Northwest Passage in summer, which would cut 5,000 nautical miles from shipping routes between Europe and Asia





# What Can be Done: Alternatives

## Renewable Energy Sources



DTE solar array in Southfield, MI

Solar Energies



Wind Power

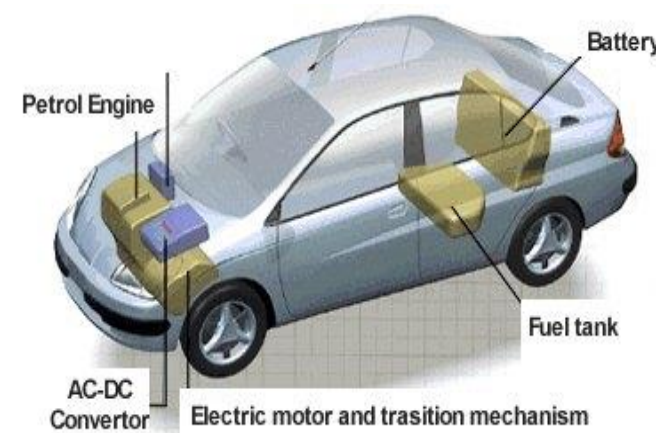


Biomass



Geothermal

## Changes In Vehicle Systems



Hybrid



Fuel Cell



Battery-Electric



# Kyoto Protocol

- Framework
  - stabilize greenhouse gas emissions to prevent anthropogenic interference with the climate system
  - emission targets for industrialized countries between 2008-2012 are collectively about 5% lower than 1990 emissions
    - US target is 7% reduction
    - developing countries do not have quantified targets
  - six gases
    - $\text{CO}_2$ ,  $\text{CH}_4$ ,  $\text{N}_2\text{O}$ , HFCs, PFCs,  $\text{SF}_6$

*"We must limit global temperature rise to 2 degrees. We are far from there, and even that is enough to cause dire consequences. If we continue along the current path, we are close to a 6 degree increase".*

*- UN Secretary-General Ban Ki-moon*

*Remarks at the Council on Foreign Relations (February 2013)*



# Reference Videos





**See You at Next Class!!!!**