

# SAVE ENERGY FOR A BETTER TOMORROW



## Women & Child Welfare Society Gamhandia New Colony, Cuttack, Odisha, India

*Founded in 1994, the Women & Child Welfare Society (WCWS) is a state level organization that works for the development of needy and marginalized people in the state of Odisha. It acts as a unique resource agency bridging the gap between the government's welfare schemes and disadvantaged section of the society. It is a prized & acclaimed Society rendering holistic awareness campaigns on petroleum product consumption and conservation.*

*India has 1 % of the world's energy resources, but is home for 16 % of world's population. India's oil production is about 30% of its consumption. Thus, it has to import crude oil which is doubled in 4 years by volume and 400 times by value. Keeping in view of the limited availability of fossil fuels (lasting for the next 40 years or so) and causing enormous damage to the environment , the Women & Child Welfare Society has dedicated a lion share of its activity in developing consumer awareness in very sphere of life style in general while that of rural sector in particular.*

*Education and training are important to nurture skills of people in the rural sector. Moderated daily life style and stringent measures to save fuel in modernized rural farming sector adopting various mechanical implements require research and extension work on regional developmental needs as well as on farming sites.*

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## FACTS

1. India has 1 % of the world's energy resources, but is home for 16 % of world's population.
2. India's oil production is about 30% of its consumption.
3. Crude oil imports doubled in 4 years by volume and 400 times by value.
4. LIMITED AVAILABILITY OF FOSSIL FUELS (lasting for the next 40 years or so).
5. **DAMAGE TO THE ENVIRONMENT**

# Ministry of Petroleum & Natural Gas



According to data released by the Ministry of Petroleum and Natural Gas, India imported 121.672 million tons of crude oil for \$67.988 billion in 2007-08, as opposed to 111.502 million tons imported for \$48.389 billion the previous year.

India also imported 22.716 million tons of products such as naphtha, liquefied petroleum gas (LPG) and kerosene for \$15.255 billion. The 2.829 million tons of LPG imports cost \$2.135 billion, while 5.965 million tons of naphtha cost \$4.565 billion.

World 8 years away from being a living hell – IPCC 2007.

- 450 MMT out of 1100 MMT of CO<sub>2</sub> emissions in India from fossil fuels
- India 5th largest emitter of CO<sub>2</sub> in the world after USA (5800MT), China (4732 MT), Russia (1529 MT) & Japan (1215 MT).
- Projected growth rate of petroleum products for India is 2.4% per annum till 2030.
- Cost of demand side management is a fraction as compared to SSM
- DSM reduces CO<sub>2</sub> emissions, Most nations do it.
- Good DSM will ensure that India emerges as an environmentally responsible super power.
- China targeting for 20% reduction by 2011
- Europe(EPE)2007 :20% reduction in energy consumption by 2020.
- Japan - 9.2 times more energy efficient per GDP compared to India.
- India consumes petroleum products worth Rs 4 lakh Crores per annum
- A 2 - 2.5 % conservation would result into a saving of Rs. 8000 - 10000 crores per year !!!

## Ethics & Philosophy:

Energy is Consumed for emotional uplift like consumerism, competition, convenience, comfort, life style, luxury etc.



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Energy & energy conservation is an issue of

**Attitude**

**Values**

**Beliefs**

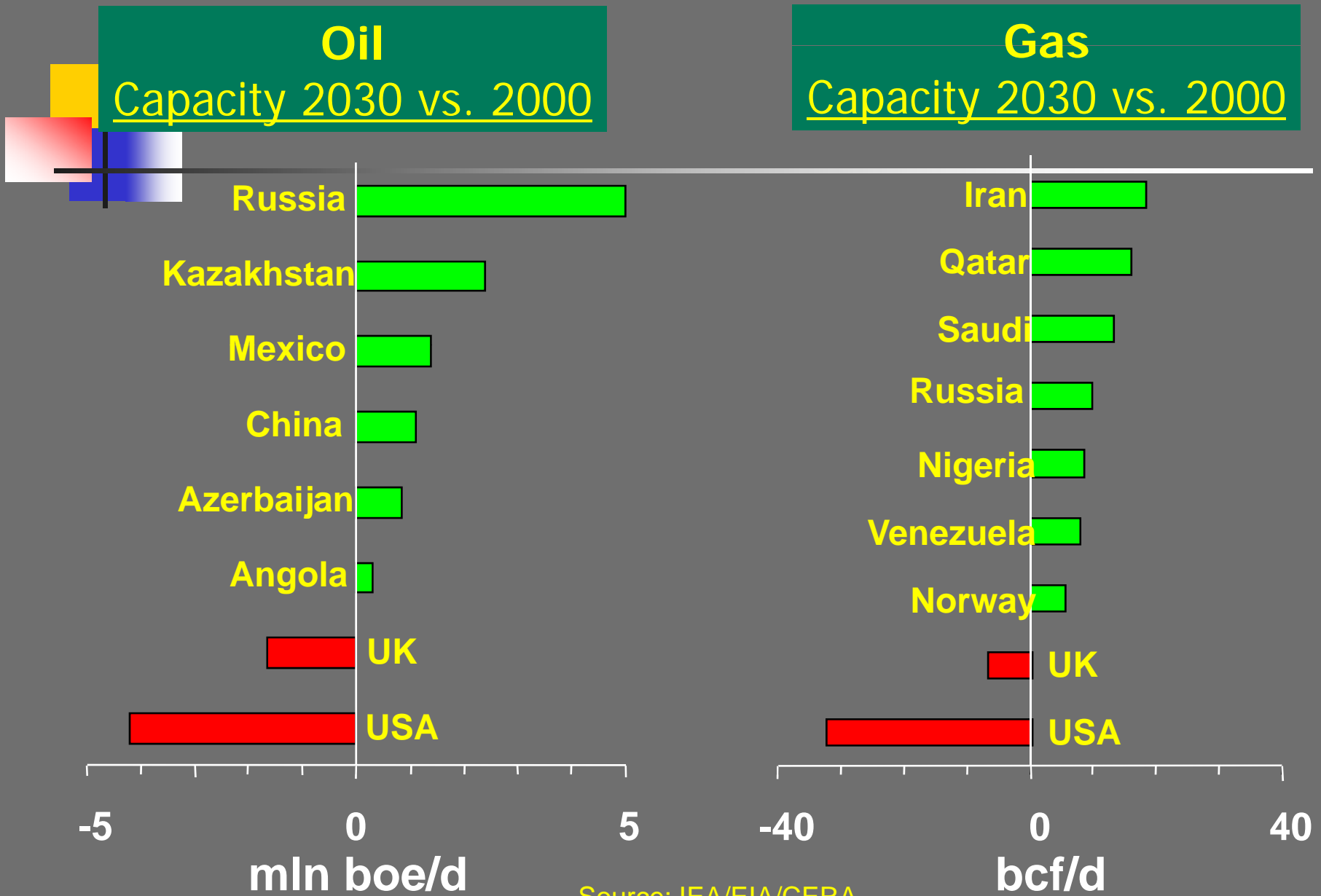
**Practices**

## Primary Energy Demand (10<sup>15</sup> btu)

	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>
• Petroleum	185	204	224	245
• Natural Gas	108	122	139	156
• Coal	108	117	127	140
• Nuclear	30	31	32	30
• Other	39	43	47	50

Source: Energy Information Administration, U.S. Department of Energy

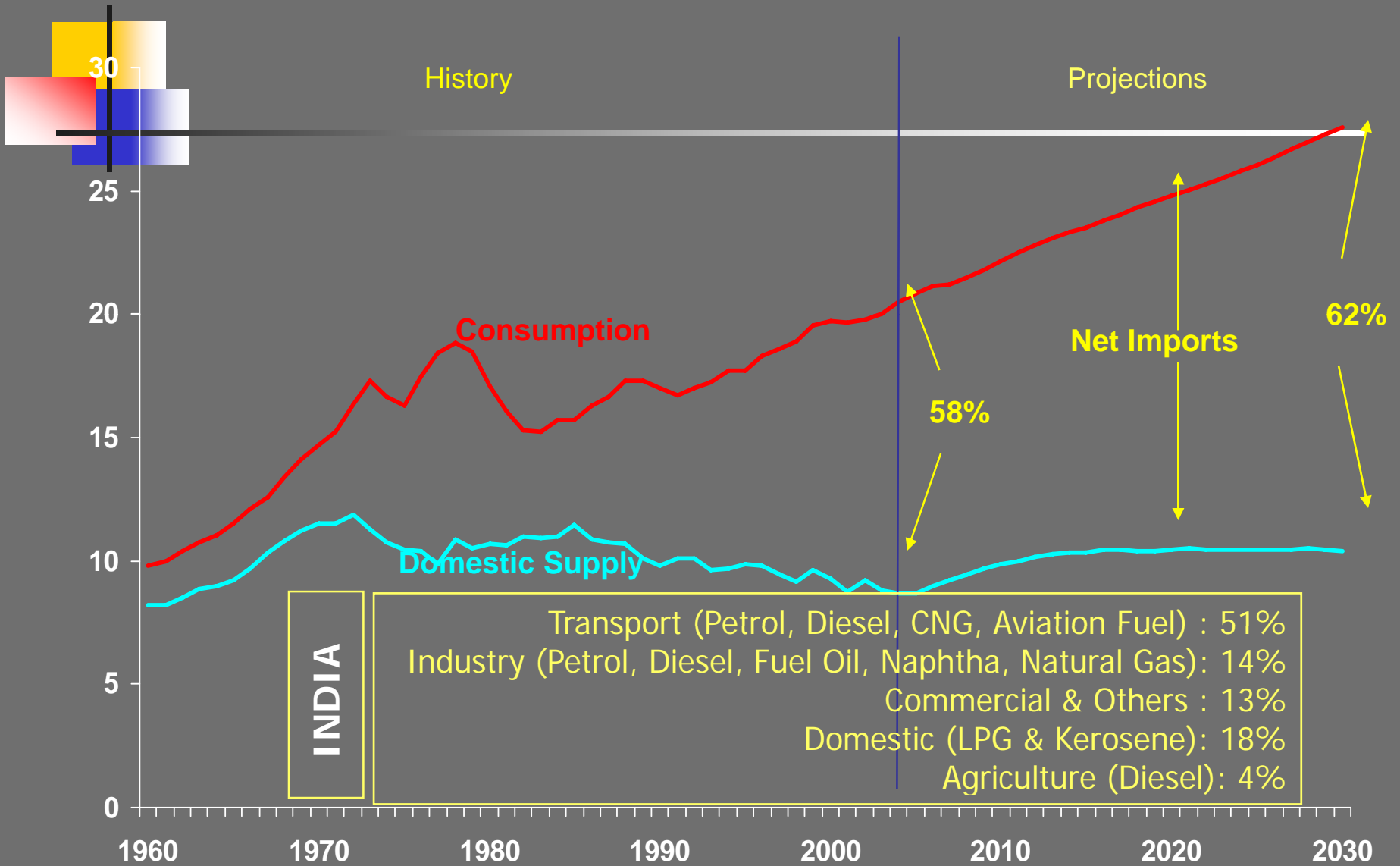
# Countries with Growth Potential



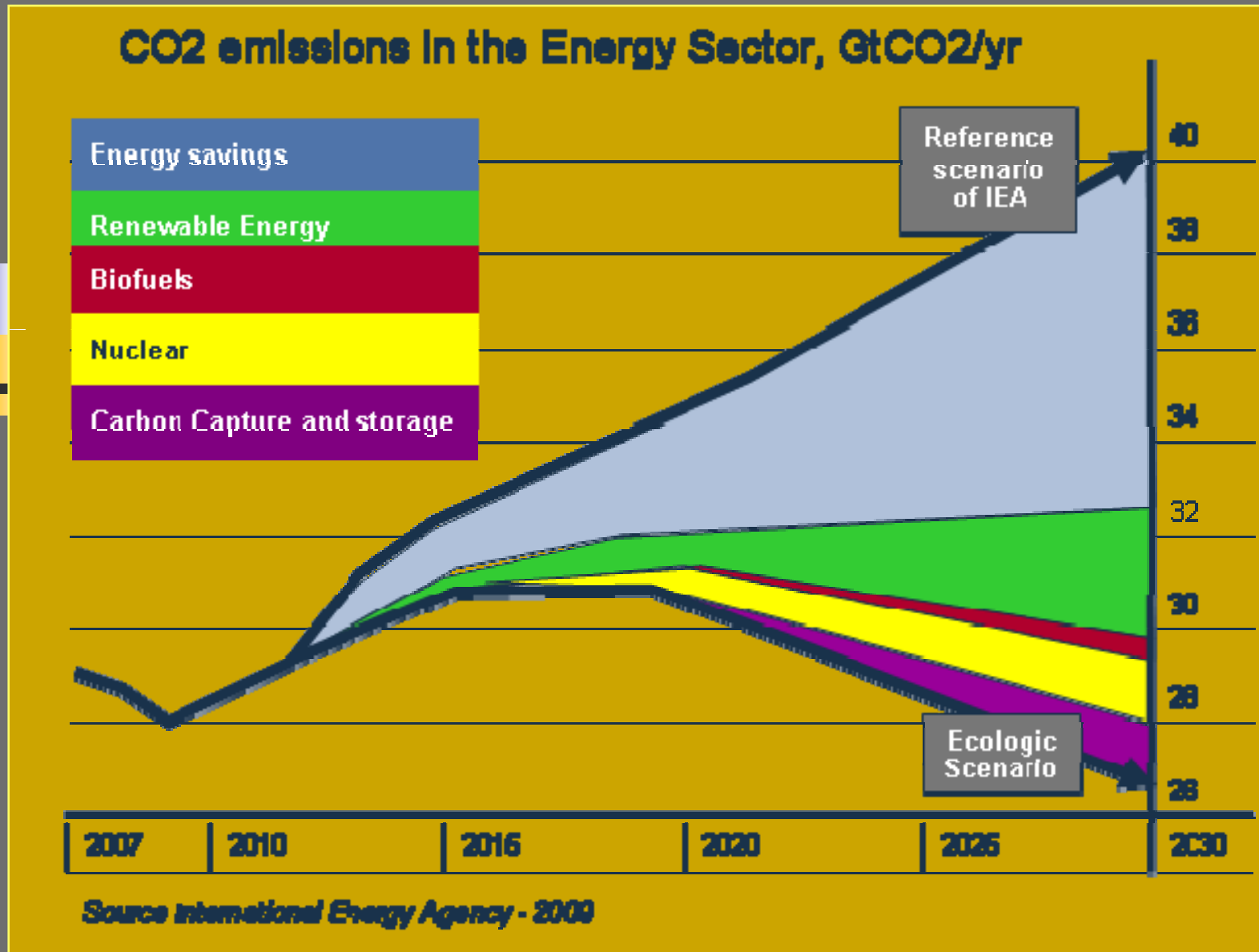
Source: IEA/EIA/CERA



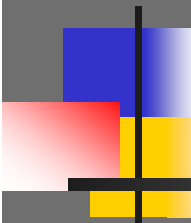
# U.S. Petroleum Supply, Consumption, and Net Imports, 1960-2030 (million barrels per day)



The weight of Energy savings compared to other technologies:



## Need of Campaign on Conservation of Fossil Fuel & its effect on Climate Change



India spends maximum of its foreign earnings on importing crude oil for meeting its growing energy demand. On the other hand, Global warming is the looming concern today. CO<sub>2</sub> is the largest contributor to the phenomenon of global warming and petroleum products are the largest source of CO<sub>2</sub> emission into the environment. CO<sub>2</sub> cannot be stopped being emitted from burning of petroleum products, but it certainly can be reduced to a great extent by way of efficient utilization of these products and that is where the role of PCRA critically comes into fore.

## CONSERVATION ...WHAT IT MEANS....?

- In short, CONSERVATION means using optimum energy for carrying out a specific work without affecting the quality of work.
- ENERGY CONSERVATION is an objective to which every citizen can contribute whether it is a household, factory, agriculture, transport or a shop.
- Since the energy consumption per capita in our country is very low, only small efforts by many will make a real impact, rather than big efforts by a few.

## TIPS ON FUEL CONSERVATION IN TRANSPORT SECTOR ....

**Switch off your engine beyond 15 seconds at traffic red lights**

- Drive your car at 45 KMPH and save petrol up to 15%
- **At 80 KMPH, you burn 30% more petrol**
- Correct tyre pressure can save up to 10% petrol
- **Maximize use of 5th gear to get better mileage**
- Check engine tuning - it saves 6% fuel consumption
- **Clean your air filter regularly**
- **Avoid frequent Brakes & Don't ride on clutches**
- Don't wait for your car engine to warm up. Drive in low gear till the engine warms up and save fuel
- **Share your car for car pool.**
- Judicious use of car Air Conditioner can result in considerable fuel saving. You burn 20% more fuel when AC is in use
- **Use recommended grade of engine oil.**
- **Use vehicles with improved fuel economy & efficiency**





Drive between 45-55 Km/H

Good Braking Habits



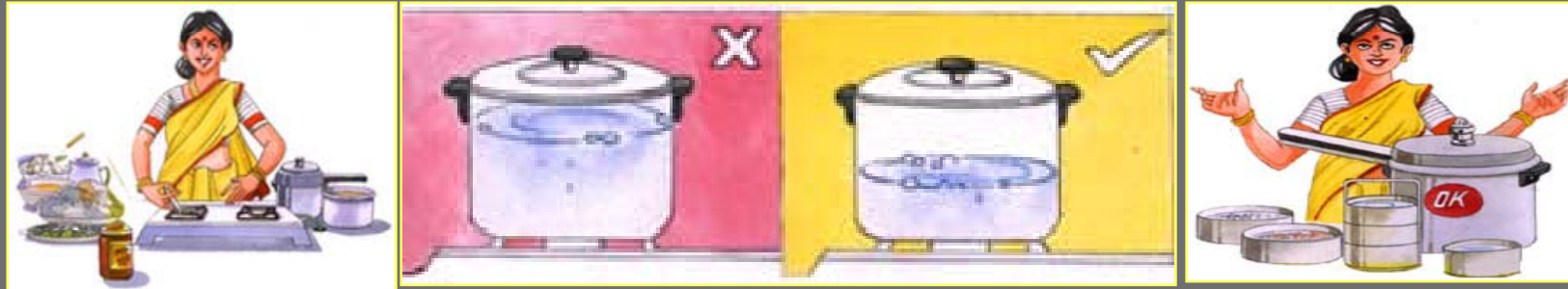
Keep your Foot off the Clutch

Use the Recommended grade of oil  
Check tyre pressure  
Reduce unnecessary loads



Share Your car-for car pools  
Plan Your Trips & Plan your route  
Drive in correct gear

## TIPS ON FUEL CONSERVATION IN DOMESTIC SECTOR



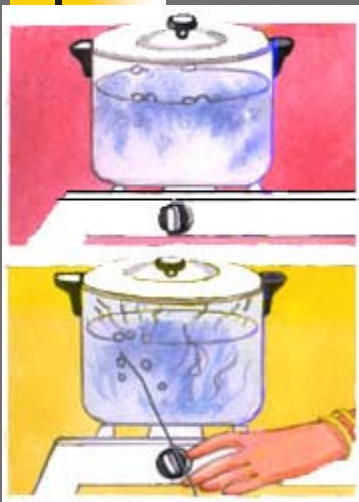
- A few minutes of planning ensures fuel saving.
- Pressure cooking saves fuel.
- Use optimum quantity of water in cooking.
- Reduce the flame when boiling starts.
- Soak before cooking.
- Shallow, wide vessels save fuel.
- Put the lid to prevent heat losses and save fuel.
- A small & clean burner helps save LPG.
- Let frozen food reach room temp. before cooking.
- Use Nutan Deep Kerosene Lamp that saves 50% kerosene

## TIPS ON FUEL CONSERVATION IN DOMESTIC SECTOR



A few minutes of planning ensures a big fuel saving  
Small burners save fuel

Pressure cooking saves fuel  
Put the lid while cooking  
Use cleaned vessels & burner



Reduce the flame when boiling starts  
Use optimum quantity of water  
Soak raw materials before cooking  
Shallow, wide vessels save fuel



## TIPS FOR FUEL CONSERVATION IN AGRICULTURE SECTOR



For Irrigation Pump set, use ISI mark to save 10% diesel.

- Bigger diameter rigid PVC Pipeline saves considerable diesel
- Avoid bends in Pipeline arrangement in Pump Irrigation
- Know your Tractor and stop diesel leakage
- Turn your engine off when you stop your Tractor
- Drive your Tractor in correct gear ..... always
- Does your Tractor smoke? It means it wastes diesel
- Dirt – your engine's worst enemy... clean engine regularly
- Match hauling capacity with load
- Plan your field run

## TIPS FOR FUEL CONSERVATION IN AGRICULTURE SECTOR



- Maintain your tractor well
- Stop diesel leaks
- Turn your engine off, when you stop
- Always drive in correct gear
- Dirt is the worst enemy
- Maintain right tyre pressure
- Check engine for smoky exhaust

# EFFECT OF FOSSIL FUELS

## The Greenhouse Effect



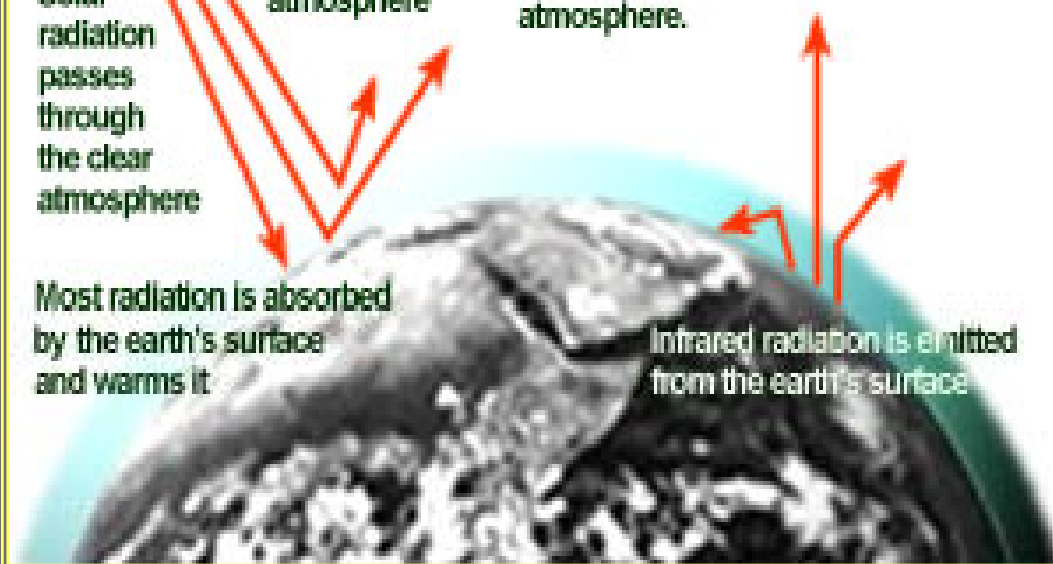
Some solar radiation is reflected by the earth and the atmosphere

Solar radiation passes through the clear atmosphere

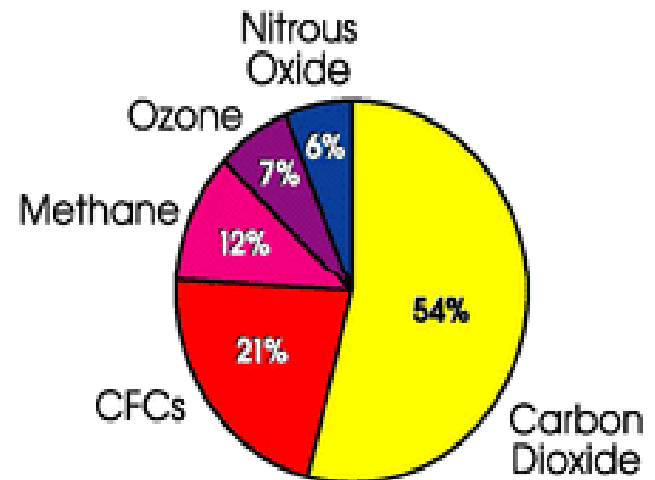
Most radiation is absorbed by the earth's surface and warms it

Some of the infrared radiation passes through the atmosphere, and some is absorbed and re-emitted in all directions by greenhouse gas molecules. The effect of this is to warm the earth's surface and the lower atmosphere.

Infrared radiation is emitted from the earth's surface



## Greenhouse Gases

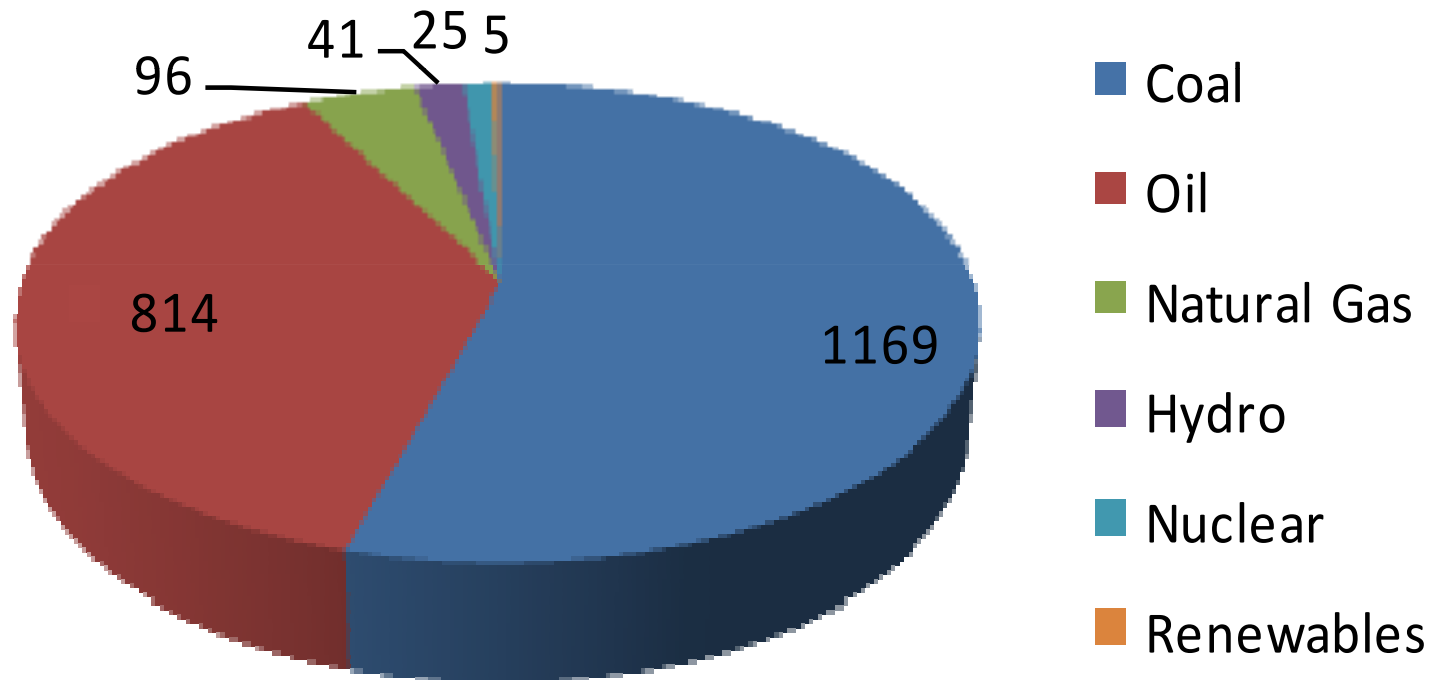


- Climate change and global warming: major threat to the Oil & Gas industries.
- The Oil & Gas sector will be a significant part of an evolving solution to the CO<sub>2</sub> challenge and certainly drive the ushering of a cleaner hydro carbon age in future.
- Companies have already started pursuing strategies to position themselves in the cleaner, more sustainable and low carbon growth trajectory by conscious reorganization of their product portfolio and restructuring of their multi-location operations.
- Adoption of the right strategy for mitigating long term climate change risks can provide distinct competitive advantage.
- Companies seeking to develop their strategies should first analyze their 'value-at-stake' or 'value-at-risk' under a variety of scenarios from current and emerging policies to reduce carbon emissions.

## Cost effective unit efficiency potential for 4 products in India

Product	Base Case (kWh/year)	Efficiency Case (kWh/year)	Percentage Improvement
Refrigerator			
Direct-cool	381	208	45%
Room air conditioner			
Window	1191	1056	11%
Motors			
Agricultural – 5 HP	992*	875*	12%
Industrial – 15 HP	4079*	3264*	20%
Industrial – 20 HP	5562*	3387*	39%
Distribution transformer			
63 kVA	1834	797	57%
100 kVA	2619	1068	59%

TERI's estimate of India's Energy Consumption in  
2031 BAU  
(Figures in mtoe)





The background of the slide is a photograph of several oil pumpjacks (jack-o'-lanterns) silhouetted against a bright sunset sky. The sun is low on the horizon, creating a strong orange and yellow glow. The pumpjacks are dark against the lighter sky. The overall scene is industrial and atmospheric.

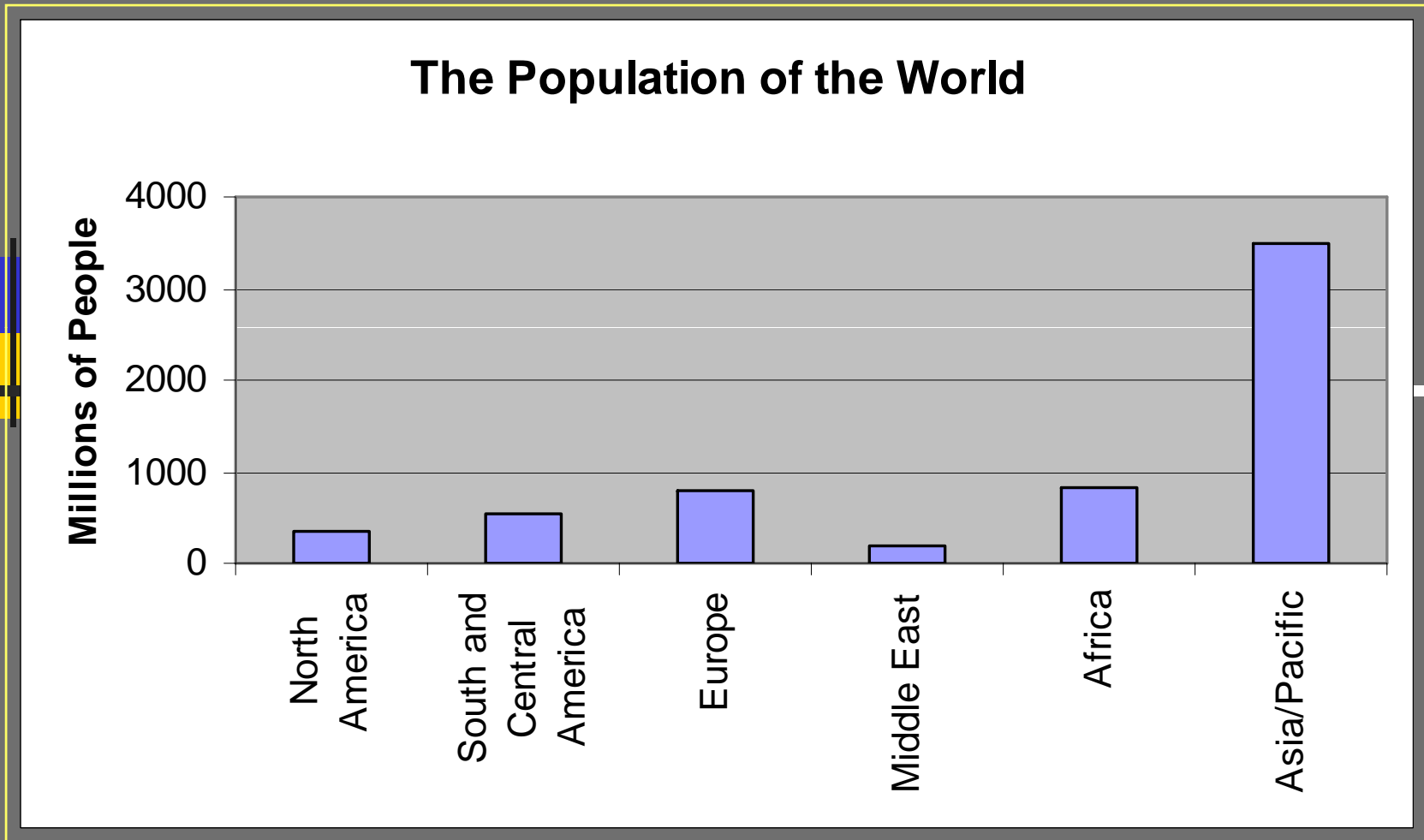
## *Output of Oil*

India's proven reserves of oil stood at 5.6 billion barrels in 2006.

The country's oil output is projected to increase from the figure of 793 thousand b/d in 2006 up to 2010, and then decline to about 520 thousand b/d in 2030.

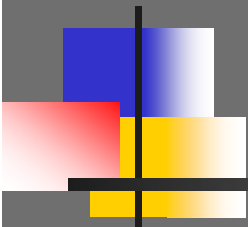
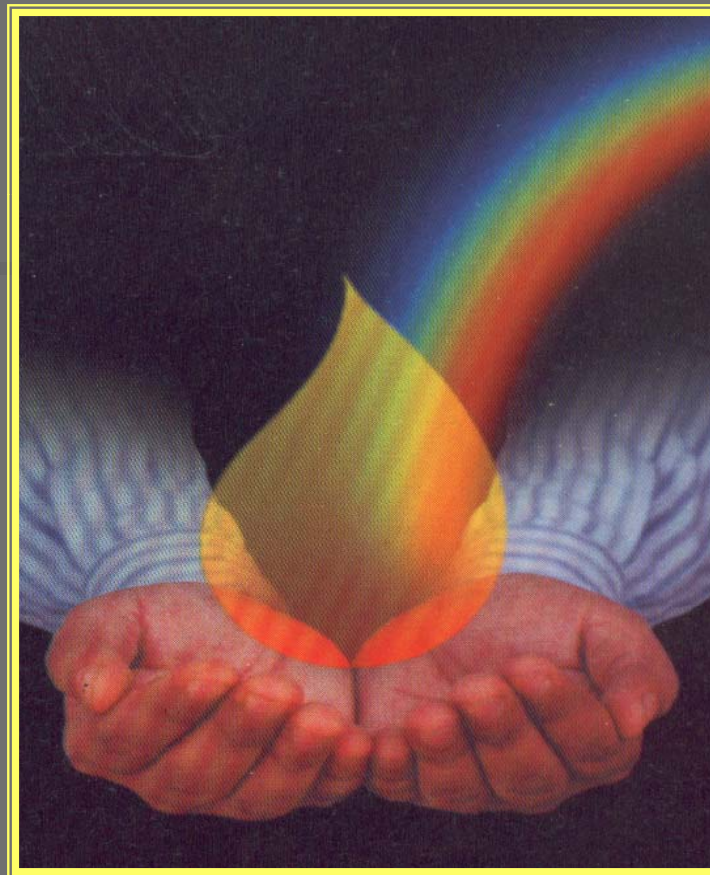
The country has an installed refining capacity of 2992 thousand b/d.

Constraints in keeping pace with ever increasing population at a catastrophic & exploding rate ..... *Demand supply deficits*





**Conservation is an inborn INSTINCT.  
This instinct has to awakened and to be practiced  
in day to day use, until it becomes a HABIT**



Thank You!

