

# **Clean Auto Fuels :**

# **Policy Initiatives**

**Presentation by**

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# Energy – The Engine for Economic Growth

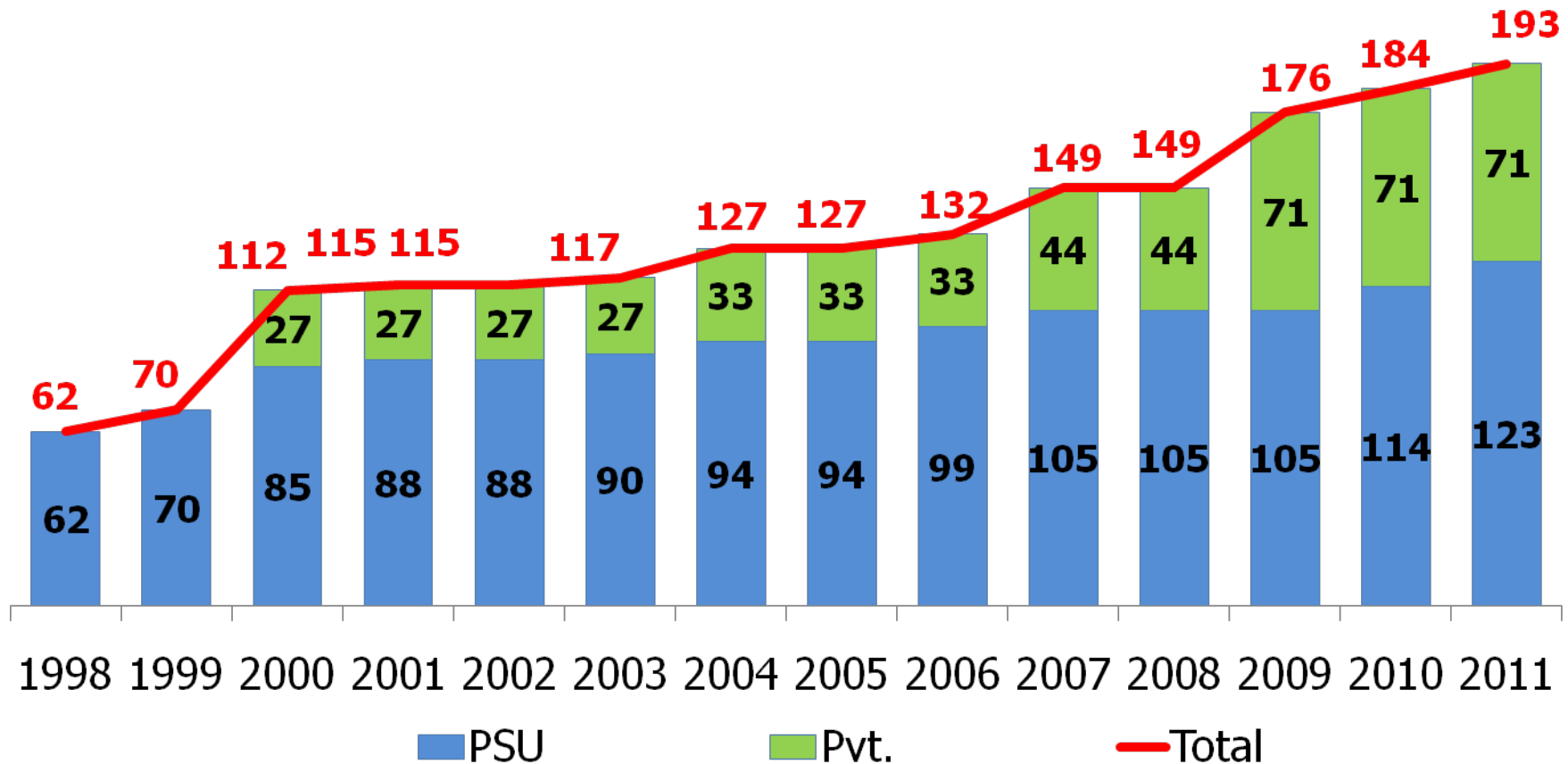
- With about 17% of the total world population, we consume only about 4.2% of the world's total energy.
- The per capita consumption of primary energy in India in 2009 was 400 Kg of oil equivalent as compared to 7033 Kg in US and world average of 1629 Kg.
- With sustained economic growth and benefits of the economic progress percolating to larger sections of the society, consumption of petroleum products increasing impressively.
- Growth in 2010-11 - Petrol : 11.9%, Diesel : 6.4%, LPG : 8.8%
- This makes the task of supplying safe, clean and convenient energy challenging.

# The Indian Refining Sector

- From 62 MMT in 1998, the country's refining capacity has grown to 193 MMT today.
- 64% of the country's refining capacity in the Public sector and 36% in private sector.
- Presently there are 21 refineries, out of which 18 are in Public Sector and 3 in Private Sector.
- With grassroots refineries coming up at Bathinda and Paradip and other capacity expansions projects, the country's refining capacity is projected to be around 238 MMT by 2012.

# Growth in Refining Capacity

## Refining Capacity (MMT)



**Share of PSU refineries will increase to 66% in 2012 with commissioning of Bathinda and Paradip refineries**

# Present Refining Capacity (MMTPA)

<b>IOC</b>		<b>BPC</b>	
Koyali	13.7	Mumbai	12.0
Panipat	15.0	Kochi	9.5
Mathura	8.0	Numaligarh	3.0
Barauni	6.0	Bina	6.0
Haldia	7.5	<b>BPC Total</b>	<b>30.5</b>
Guwahati	1.0	<b>ONGC / MRPL</b>	
Digboi	0.65	Tatipaka	0.07
Bongaigaon	2.35	Mangalore	11.82
Chennai	10.5	<b>ONGC Total</b>	<b>11.89</b>
Narimanam	1.0	<b>Total-Public Sector (64%)</b>	<b>122.89</b>
<b>IOC Total</b>	<b>65.7</b>	RIL-Jamnagar	60.0
<b>HPCL</b>		Essar Oil	10.5
HPC-Mumbai	6.5	<b>Total-Private Sector (36%)</b>	<b>70.5</b>
HPC-Visakh	8.3		
<b>HPC Total</b>	<b>14.8</b>		

**Total Refining Capacity of the Country is 193.39 MMTPA**

# Augmentation of Refining Capacity (MMTPA)

<b>Expansion</b>		
<b>Company</b>	<b>Refinery</b>	<b>Capacity (MMTPA)</b>
CPCL	Chennai	0.60
HPC	Mumbai	1.40
	Visakh	1.70
MRPL	Mangalore	3.18
ONGC	Tatipaka	0.07
Essar Oil	Vadinar	7.50
<b>Total (Expansion)</b>		<b>14.45</b>

<b>New Refineries</b>		
<b>Company</b>	<b>Refinery</b>	<b>Capacity (MMTPA)</b>
IOC	Paradip	15.00
HPC	Bhatinda	9.00
Nagarjuna Oil Corp. Ltd.	Kudalore	6.00
<b>Total (New Refineries)</b>		<b>30.00</b>

**Projected Refining Capacity at the end of XI Plan – 238 MMTPA**

# Auto Fuel Policy

- Govt. of India had constituted a Committee of Experts on Sept. 13, 2001 under the chairmanship of Dr. R.A. Mashelkar, DG, CSIR to recommend an Auto Fuel Policy for the country.
- The Committee recommended the following road map:
  - BS-III standard auto fuels for 13 identified major cities & BS-II auto fuels for rest of the country w.e.f. 1.4.2005.
  - BS-IV standard auto fuels for 13 identified major cities & BS-III auto fuels for rest of the country w.e.f. 1.4.2010.
- In line with the above schedule, BS-IV auto fuels were introduced in all identified cities from 1.4.2010.
- In view of the logistic constraints in moving of products in huge quantity to far-flung areas, introduction of BS-III Fuels was staggered between Apr-Sept 2010.

# Fuel Quality Specifications

Product	Quality	Specifications	Equivalent
Petrol	BS-II	Sulphur – 0.05%, Benzene – 3%	Euro II
	BS-III	Sulphur–0.015%, Benzene – 1%	Euro III
	BS-IV	Sulphur–0.005%, Benzene – 1%	Euro IV
Diesel	BS-II	Sulphur – 0.05%, Cetane Number - min. 48	Euro II
	BS-III	Sulphur–0.035%, Cetane Number - min. 51	Euro III
	BS-IV	Sulphur–0.005%, Cetane Number - min. 51	Euro IV



# Fuel Quality Improvement

- In line with our Auto Fuel Policy, we phased out lead from gasoline in a record time as compared to even several developed countries.
  - All State capitals and major towns by Dec 1998; and
  - Rest of the country by March 2000.
- In 2005, we introduced Euro-II equivalent grades of auto fuels all over the country, with certain major cities being supplied Euro-III fuels.
- Indian oil industry made further remarkable progress by introducing Euro-IV grade auto fuels in major cities and Euro-III grade auto fuels in the rest of the country during 2010.
- Oil Industry invested over Rs.32,000 crore in upgrading facilities for production of Euro-III/IV auto fuels.
- Introduction of Euro III/IV fuels has helped in significant reduction in sulphur and benzene contents in the fuels.

# Fuel Quality Improvement

- Today, about 17% of the total Diesel and 27% of total Petrol consumption in the country is of BS-IV grades.
- NCR which is one of the 13 cities where BS-IV auto fuels are being supplied actually comprises of four constituent sub-regions:
  - Haryana Sub-Region comprising of nine districts, viz., Faridabad, Gurgaon, Mewat, Rohtak, Sonapat, Rewari, Jhajjhar, Panipat and Palwal;
  - Uttar Pradesh Sub-Region comprising of five districts, viz., Meerut, Ghaziabad, Gautam Budha Nagar, Bulandshahr, and Baghpat;
  - Rajasthan Sub-Region comprising of Alwar district; &
  - The NCT of Delhi.

**Therefore, BS-IV auto Fuels are actually being supplied in about 30 cities and not merely 13 cities as is commonly perceived**

# Fuel Quality Improvement

- To further extend the benefit of clean auto fuels, the Ministry of Petroleum & Natural Gas has set upon itself a target of introducing BS-IV Petrol and Diesel in 50 more cities by 2015.
- The cities are being identified in terms of their pollution levels, vehicle population and logistic arrangements.
- Extending BS-IV fuels may need further investments by the oil industry in upgrading facilities for supplying higher quantity of BS-IV fuels.
- To begin with, BS-IV auto fuels is proposed to be introduced in 7 more cities during the current financial year.

**Extension of BS-IV Petrol and Diesel to more cities will help in reducing vehicular pollution levels**

## Fuel Quality improvement not the only way to reduce pollution

- To reduce pollution levels, more important and immediate requirement is the improvement in vehicle engine technology to reduce emission levels and deliver higher fuel efficiency.
- Vehicle maintenance and good driving patterns, better road conditions, traffic management etc. are other important measures.
- Phasing out of old vehicles is another important requirement as the pollution level from such vehicles are high in spite of their using improved quality fuels.
- Vehicular emission is not the only major contributor to overall pollution. Contribution of road-side dust, pollution during construction, domestic combustion, pollution from DG sets and bio mass burning to emissions is also significantly high.

## Fuel Quality improvement not the only way to reduce pollution

- For the switchover from BS-II to BS-III/ IV, the oil industry has made capital investments of more than Rs. 32,000 crore to upgrade their facilities.
- For this mammoth effort to reap the desired results, it is imperative that policy prescriptions related to other sectors are also adequately enforced.
- Mere improvement of fuel quality, with a time lag in implementation of sound vehicle inspection and maintenance, vehicle retro-fitment and retirement, garage certification, traffic management, etc, will fail to achieve the desired result.

***Thank You***

**धन्यवाद**

- Additional cities where BS-IV Petrol and Diesel are proposed to be introduced in 2011-12:

<b>Name of the City</b>	<b>Proposed Date of introduction of BS-IV Petrol and Diesel</b>
<b>Puducherry City</b>	01.01.2012
<b>Mathura</b>	01.01.2012
<b>Vapi</b>	01.02.2012
<b>Jamnagar</b>	01.02.2012
<b>Ankaleshwar</b>	01.03.2012
<b>Hissar</b>	16.03.2012
<b>Bharatpur</b>	16.03.2012