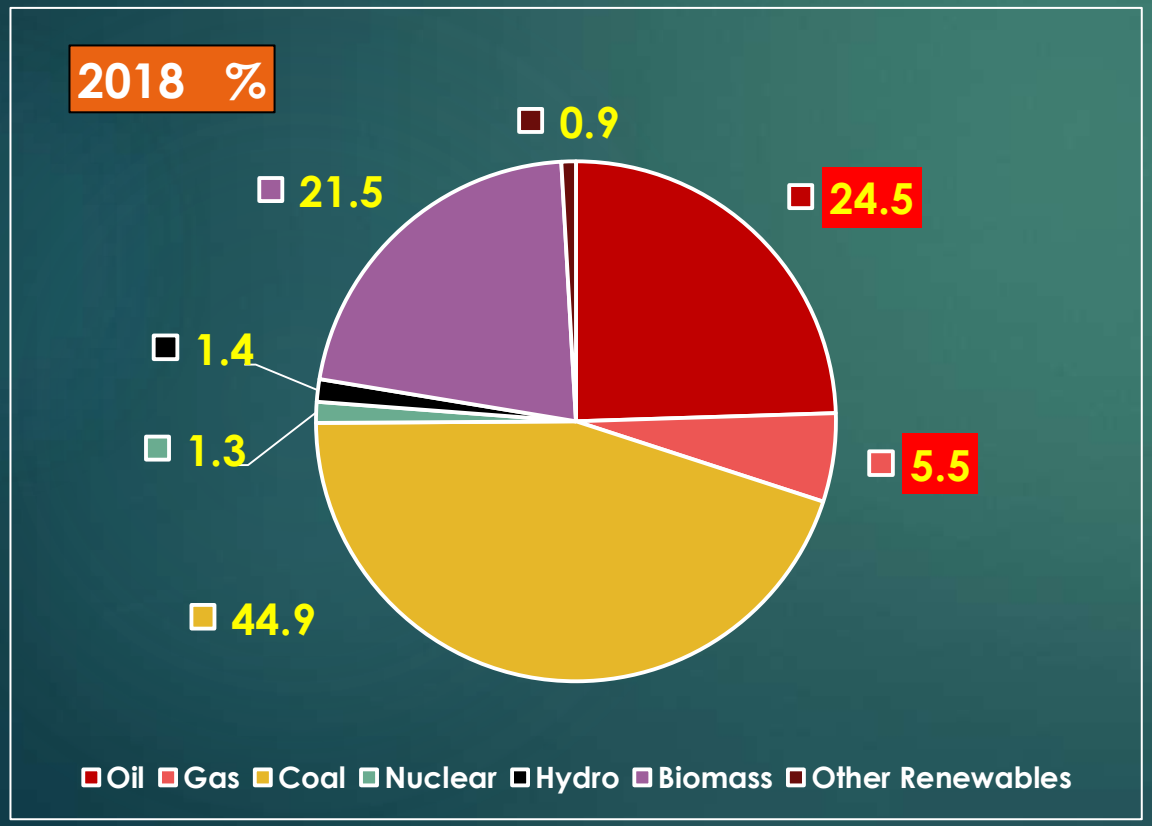
Fossil fuels for engines sustaining clean environment

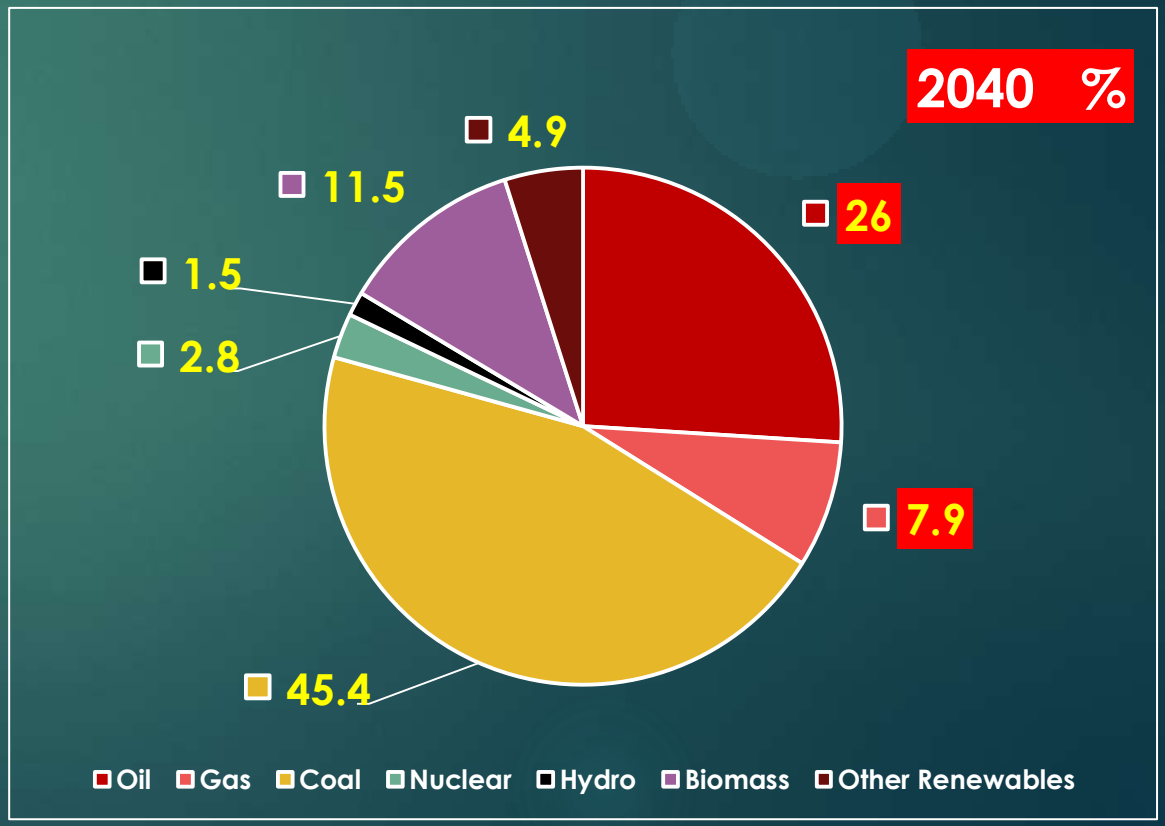
Primary Energy Mix of India – An Outlook

Source : World Oil Outlook 2019

	Mboe / day			Growth %
	2018	2030	2040	
Total Energy Demand	18.8	28.7	37.5	3.2

Share of Energy Sources





Oil Demand Outlook - Road Transportation

Source : World Oil Outlook 2019

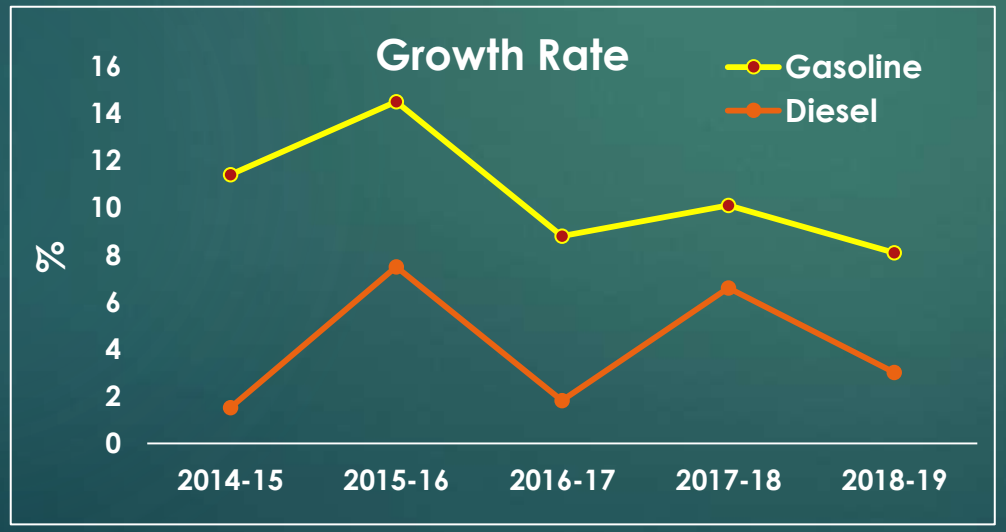
	Mbpd		
	2018	2030	2040
Oil for Road Transport	1.9	3.4	5.1
Total Oil	4.6	7.2	9.8
% for Road Transport	41.3	47.2	52.0
Road Vehicles Outlook , No. in Millions			
Cars	26.6	76.3	150.7
Commercial	15.5	33.7	58.6

Road transport accounted for 90.1 percent of the total emissions from the transport sector, followed by civil aviation (5.6%), railways (3.1%) and domestic water-borne navigation (1.2%).

Fossil Fuels for Auto Engines in India

Source : PPAC Data

	2014-15	2015-16	2016-17	2017-18	2018-19
Gasoline :					
Consumption , MMT	19.1	21.8	23.8	26.2	28.3
Growth , %	11.4	14.5	8.87	10.1	8.1
Diesel :					
Consumption, MMT	19.1	21.8	23.8	26.2	28.3
Growth, %	11.4	14.5	8.87	10.1	8.1

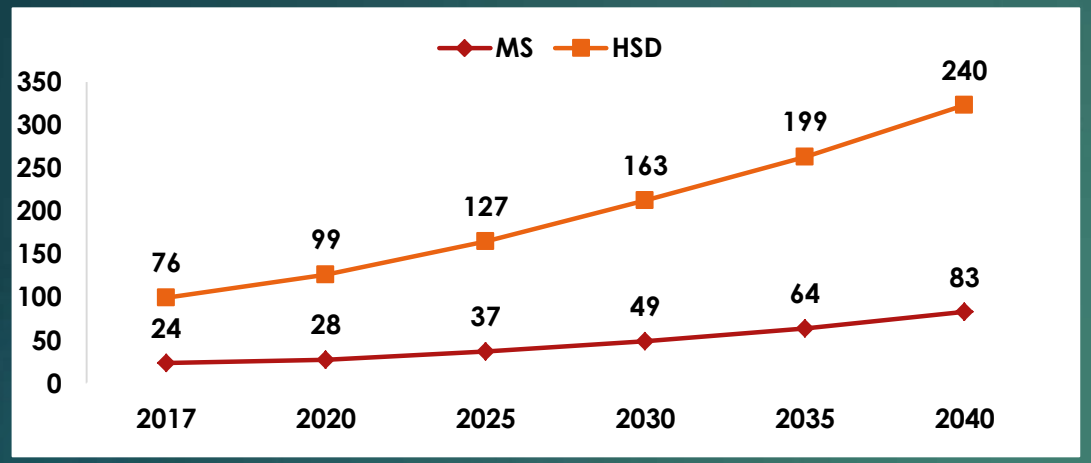


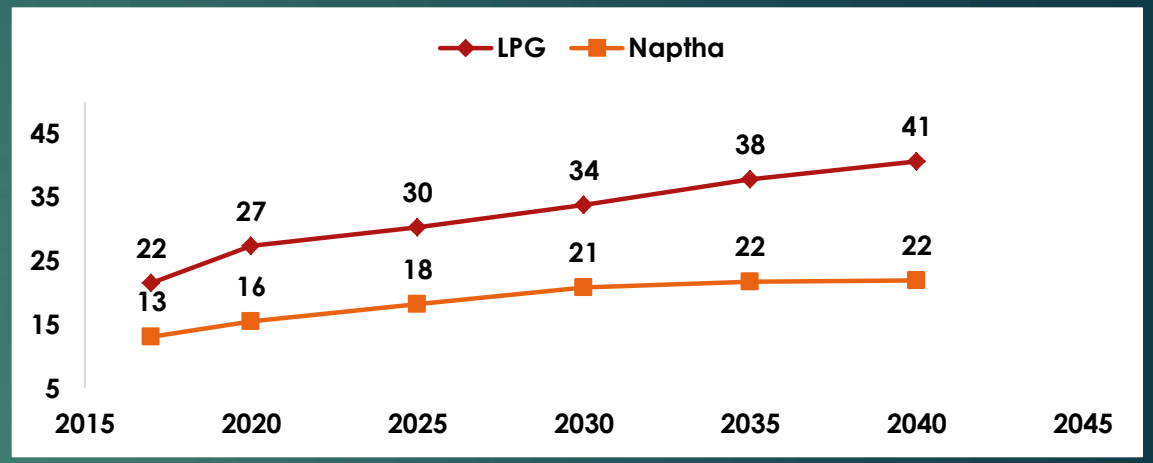
For Transport , in India :

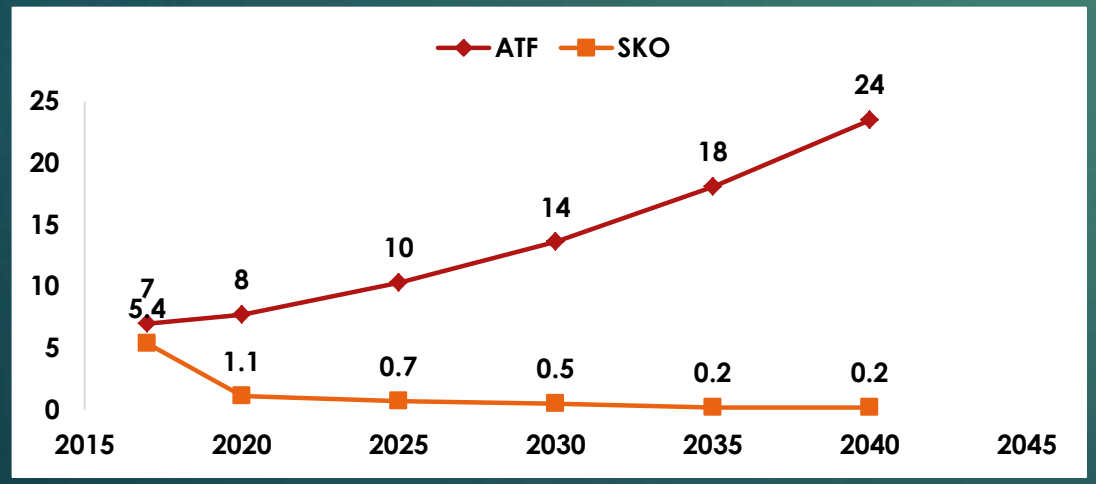
- 99 % plus of gasoline consumed
- 80 % plus of diesel consumed

Demand for petroleum products to remain robust over 2017 – 2040

All figures in MMTPA







- ATF is expected to have highest growth rate ~ 6.5%, followed by MS (~6%)
- HSD growth rate is expected to be around 5%, however with its already large volume base, it translates to an even larger number of 240 MMTPA in 2040
- LPG demand grows at 2% while Naptha demand also rises steadily due to strong petrochemical demand
- Total demand of oil in 2040 is expected to grow from 183 mtoe in 2015 to 510 mtoe in 2040

Source- Report of working group of MoP&NG on enhancing refinery capacity by 2040, Jan 2018

Fossil Fuels for Auto Engines in India

CNG

As on 1st April 2019 – 3.347 million CNG vehicles in India
- serviced by 1732 stations in 11 states (Gujarat 32 % , NCR 28% Maharashtra 18%)

In 2018-19 : 3.076 million MT (11.07 MMSCMD) CNG Consumed – 44 % of CGD gas ; 7.5 % total NG consumed in India

LPG

2017-18 About 0.36 MMT (1.5 % of LPG) consumed by transport . Remains almost constant

May decline with more spread of CNG in near future

No. of Auto LPG Sales Point (16-09-2019)	
North	140
East / North East	62 / 04
West	332
South	597
Total	1135

LNG

A viable option for heavy duty long distance movement vehicles independent of pipeline infrastructure.

According to a FIPI study, if India adopt China's LNG vehicles growth trajectory, there will be around 0.8 million LNG vehicles on road by 2035; with more than 14 MMTPA of additional LNG demand by 2035

Current Status of CNG Roll Out

- CGD companies are investing more than 125,000 crores ($18 Billion) in setting up of city gas distribution network which will help in expansion of network to 10,000 + CNG stations,

- After successful completion of 10th CGD Bidding Round, 70% of the country's population, covering 53% of the country's area would have access to CGD network.

Bio-Fuels – Current Status

Million Litres

Ethanol Blending	2015	2016	2017	2018	2019
Gasoline Consumption	29651	33265	35956	39015	41596
Ethanol Blending	685	1110	675	1600	2400
% Ethanol in blend	2.3	3.3	1.9	4.1	5.8

Biodiesel Blending					
Diesel Consumption	52239	55179	57025	61247	62284
Biodiesel Blending	41	48	72	83	85
% Bio-diesel in Blend	0.08	0.09	0.13	0.14	0.14

Biofuels Blending Targets

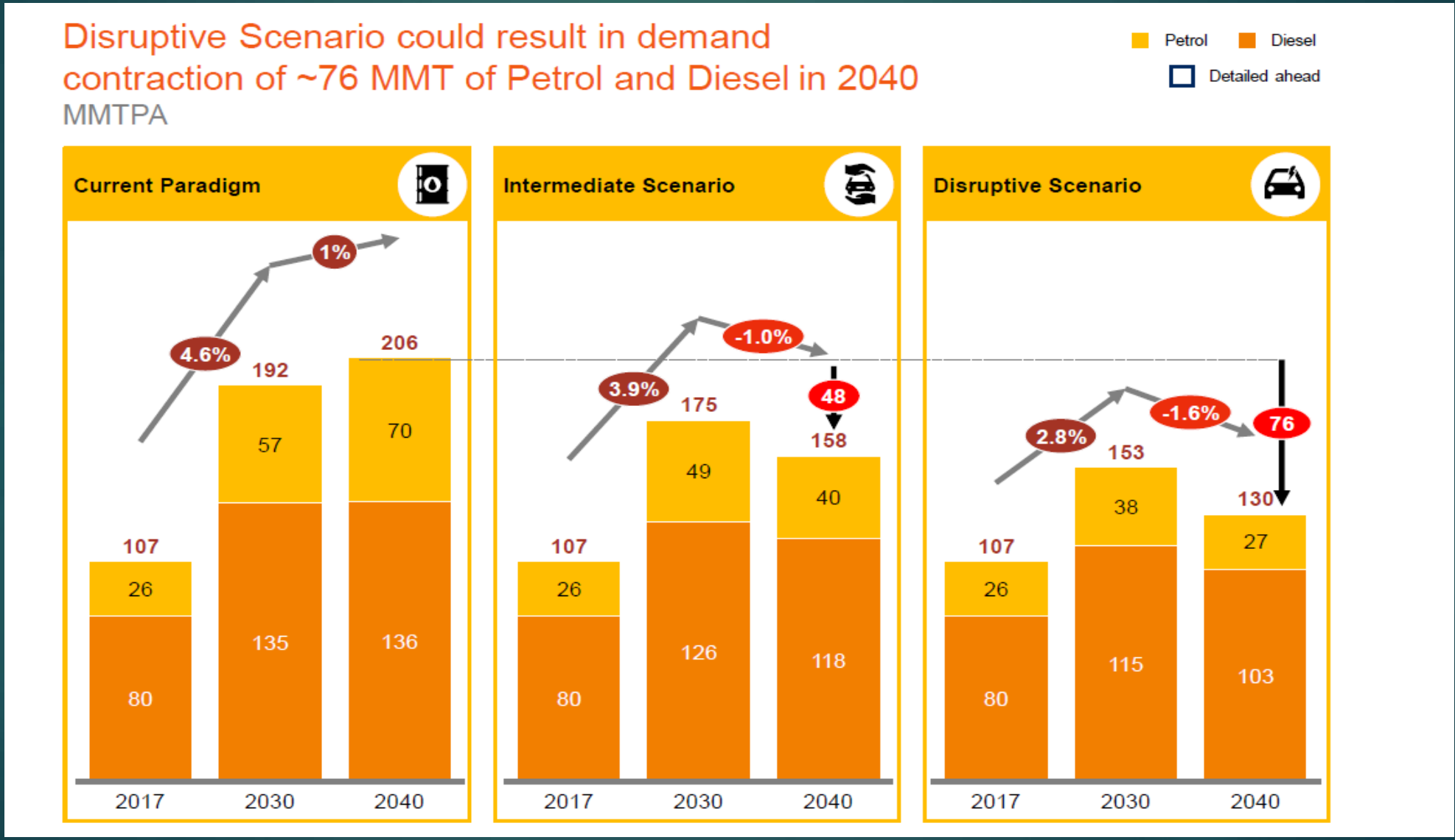
Ethanol Blending

- Target: India has set an ambitious target of 10 per cent ethanol blending by 2022 for the entire country, excluding J&K, North Eastern States and island territories. The new target further mandates for 20 per cent biofuel blending by 2030
- Present Status: During the present year, December 2018 – November 2019, India is well on track to achieve its highest ever blending per centage of 7.2 per cent. To achieve the 10 per cent blending target by 2022, 3300 million litres of ethanol will be required. In 2018 – 19, sugar mills in India have already contracted for supply of 2370 million litres

Biodiesel Blending

- Target: In 2018, Government of India has set a biodiesel blending target of 5 per cent by 2030. The new target replaces the previous target set in National Biofuels Policy - 2009 for a 20 per cent biodiesel blending by 2017.

EV – impact on Auto Fuels

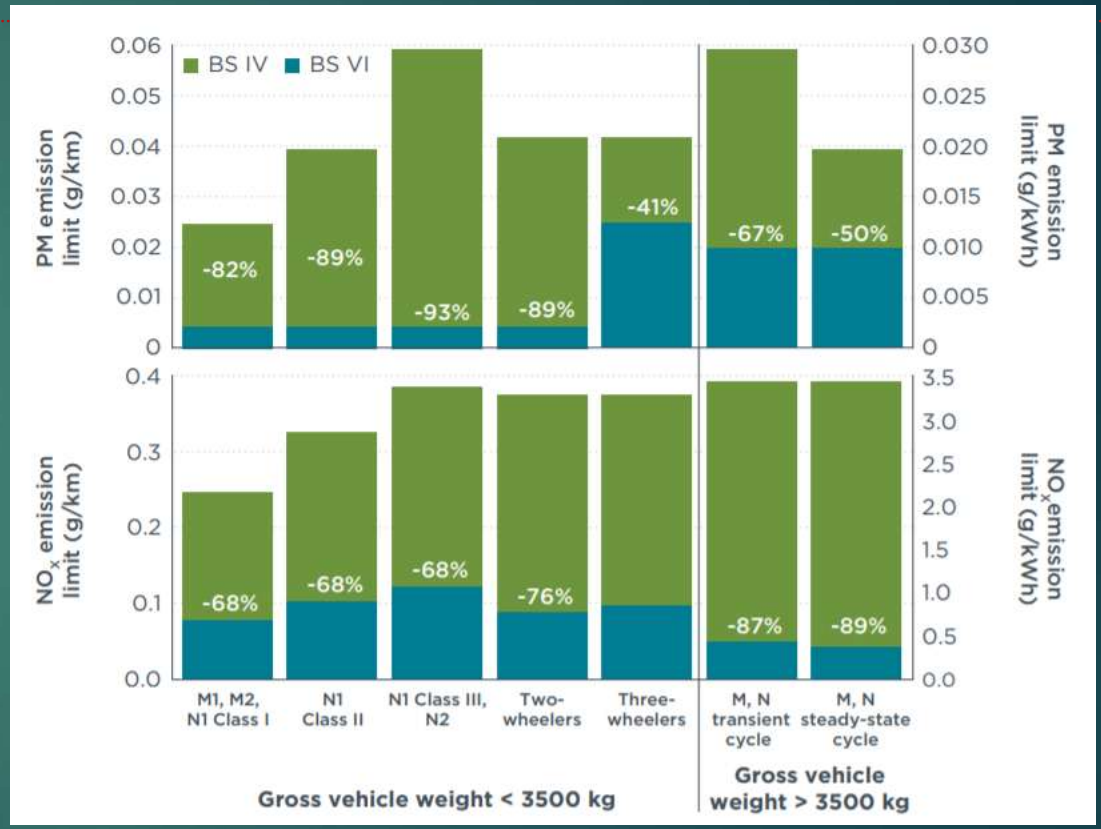


Indian Refineries to roll out of BS VI fuels

- Refiners have spent a large sum of money while moving from BS 0 to BS IV
- As per information available from CHT- capital expenditure on refinery projects related to BS VI fuels is about Rs. 32,000 cr. INR
- Refineries to complete BS VI upgradation projects by end of 2019, while production is expected to start in Q4 2019-20
- Market seeding will start in Q4 and fuels will be made available as on 1st April 2020 across the nation
- BS VI grade fuel is already available in NCR.

Moving to BS VI Vehicle Emission Norms and fuel quality

- As per TERI study of 2018, the contribution of vehicles exhaust emissions is 28% in terms of PM2.5 (Based on 2017 – 18 data when BS IV norms were prevalent)
- Moving from BS IV to BS VI, the particulate emissions will come down in the range of 41% - 93% for different class of vehicles
- For NOx emissions, the reduction while moving from BS IV to BS VI will range from 68% - 98%
- It can be concluded that the emissions from BS VI vehicles will have insignificant impact on the air quality



Source- ICCT

THANK YOU