

# ***BS VI Fuel Supply & Quality Up gradation: Industry Perspective***

**Presented at the 9<sup>th</sup> International Conference**

**“Emission Control Technology for Sustainable Growth “**

**9<sup>th</sup>. November 2016, New Delhi**

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# SIAM - Members

 <b>AMW</b> <small>BUILT TO WIN</small> <small>AMW MOTORS LTD.</small>	 <b>ASHOK LEYLAND</b> <small>ASHOK LEYLAND LTD.</small>	 <b>ATUL</b> <small>ATUL AUTO LTD.</small>	 <b>BAJAJ</b> <small>Distinctly Ahead</small> <small>BAJAJ AUTO LTD.</small>	 <small>B M W</small> <small>BMW INDIA PVT. LTD.</small>	 <b>Cummins</b> <small>CUMMIN INDIA LTD.</small>	<b>DAIMLER</b> <small>Daimler India Commercial Vehicles Pvt. Ltd.</small> <small>DAIMLER INDIA COMMERCIAL VEHICLES PVT. LTD.</small>	 <b>FIAT</b> <small>FIAT INDIA AUTOMOBILES PVT. LTD.</small>	 <b>FORCE</b> <small>MOTORS</small> <small>FORCE MOTORS LTD.</small>	 <b>Ford</b> <small>Go Further</small> <small>FORD INDIA PVT. LTD.</small>
 <b>FOTON</b> <small>FOTON MOTORS MANUFACTURING INDIA PVT. LTD.</small>	 <b>CHEVROLET</b> <small>GENERAL MOTORS INDIA PVT. LTD.</small>	 <b>GREAVES</b> <small>SINCE 1859</small> <small>GREAVES COTTON LTD.</small>	 <b>HARLEY-DAVIDSON</b> <small>COMPANY</small> <small>H-O MOTOR COMPANY INDIA PVT. LTD.</small>	 <b>Hero</b> <small>HERO MOTOCORP LTD.</small>	 <b>HINDUSTAN-MOTORS</b> <small>HINDUSTAN MOTORS LIMITED</small>	 <b>HONDA</b> <small>HONDA CARS INDIA LTD.</small>	 <b>HONDA</b> <small>HONDA MOTORCYCLE AND SCOOTER INDIA (P) LTD.</small>	 <b>HYUNDAI</b> <small>HYUNDAI MOTOR INDIA LTD.</small>	 <b>Kawasaki</b> <small>INDIA KAWASAKI MOTORS PRIVATE LTD.</small>
 <b>YAMAHA</b> <small>Revs Your Heart</small> <small>INDIA YAMAHA MOTOR PVT. LTD.</small>	 <b>ISUZU</b> <small>ISUZU MOTORS INDIA PVT. LTD.</small>	 <b>JCBL</b> <small>J C B L LTD.</small>	 <b>KINETIC</b> <small>KINETIC MOTOR COMPANY LTD.</small>	 <b>LML</b> <small>MOTORCYCLES &amp; SCOOTERS</small> <small>Think LML. Think innovation™</small> <small>LML LTD.</small>	 <b>Mahindra</b> <small>Rise.</small> <small>MAHINDRA &amp; MAHINDRA LTD.</small>	 <b>MAHINDRA TWO WHEELERS</b> <small>MAHINDRA TWO WHEELERS LTD.</small>	 <b>MARUTI SUZUKI</b> <small>Way of Life!</small> <small>MARUTI SUZUKI INDIA LTD.</small>	 <b>Mercedes-Benz</b> <small>MERCEDES-BENZ INDIA PVT. LTD.</small>	 <b>NISSAN</b> <small>NISSAN MOTOR INDIA PVT. LTD.</small>
 <b>PIAGGIO</b> <small>VEHICLES PVT. LTD.</small> <small>PIAGGIO VEHICLES PVT. LTD.</small>	 <b>PREMIER</b> <small>PREMIER LTD.</small>	 <b>RENAULT</b> <small>RENAULT INDIA PVT. LTD.</small>	 <b>ROYAL ENFIELD</b> <small>(A UNIT OF EICHER MOTORS LTD.)</small>	 <b>SCANIA</b> <small>SCANIA COMMERCIAL VEHICLES INDIA PVT. LTD.</small>	 <b>Scooters India Limited</b> <small>SCOOTERS INDIA LTD.</small>	 <b>Simpson &amp; Co. Ltd.</b> <small>SIMPSON &amp; CO. LTD.</small>	 <b>ŠKODA</b> <small>SKODA AUTO INDIA PVT. LTD.</small>	 <b>SML ISUZU</b> <small>SML ISUZU LTD.</small>	 <b>SUZUKI</b> <small>SUZUKI MOTORCYCLE INDIA PVT. LTD.</small>
 <b>TATA MOTORS</b> <small>TATA MOTOR LTD.</small>	 <b>TOYOTA</b> <small>Quality Revolution</small> <small>TOYOTA KIRLOSKAR MOTOR PVT. LTD.</small>	 <b>TRIUMPH</b> <small>TRIUMPH MOTORCYCLES (INDIA) PVT. LTD.</small>	 <b>TVS</b> <small>TVS MOTOR COMPANY LTD.</small>	 <b>VE COMMERCIAL VEHICLES</b> <small>VE COMMERCIAL VEHICLES LTD.</small>	 <b>Volkswagen. Das Auto.</b> <small>VOLKSWAGEN INDIA PVT. LTD.</small>	 <b>VOLVO</b> <small>VOLVO BUSES INDIA PVT. LTD.</small>			

# Overview of Industry: Volume Market Segments

**Passenger Vehicles (2,789,678)**

**Leading Players**

- Maruti Suzuki (47%)
- Hyundai Motor (17%)
- Mahindra & Mahindra (8%)
- Honda Cars (7%)
- Tata Motors (5%)

**Domestic Sales – FY16**

**Commercial Vehicles (685,704)**

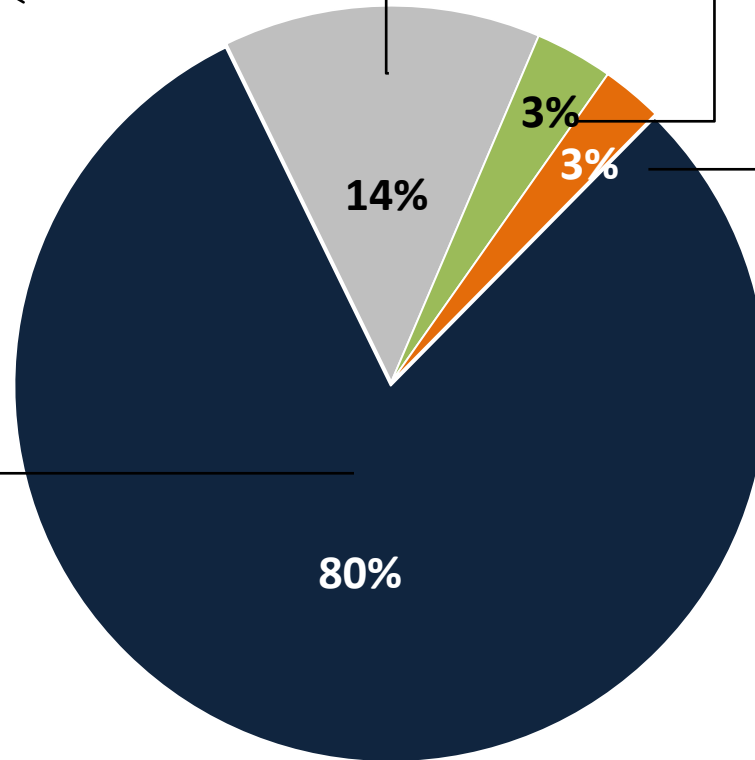
**Leading Players**

- Tata Motors (44%)
- Mahindra & Mahindra (24%)
- Ashok Leyland (19%)
- Volvo Eicher CVs (6%)
- Force Motors (3%)

**Two Wheelers (16,455,911)**

**Leading Players**

- Hero MotoCorp (39%)
- Honda MSI (26%)
- TVS Motor (13%)
- Bajaj Auto (12%)
- India Yamaha (4%)



**Three Wheelers (538,092)**

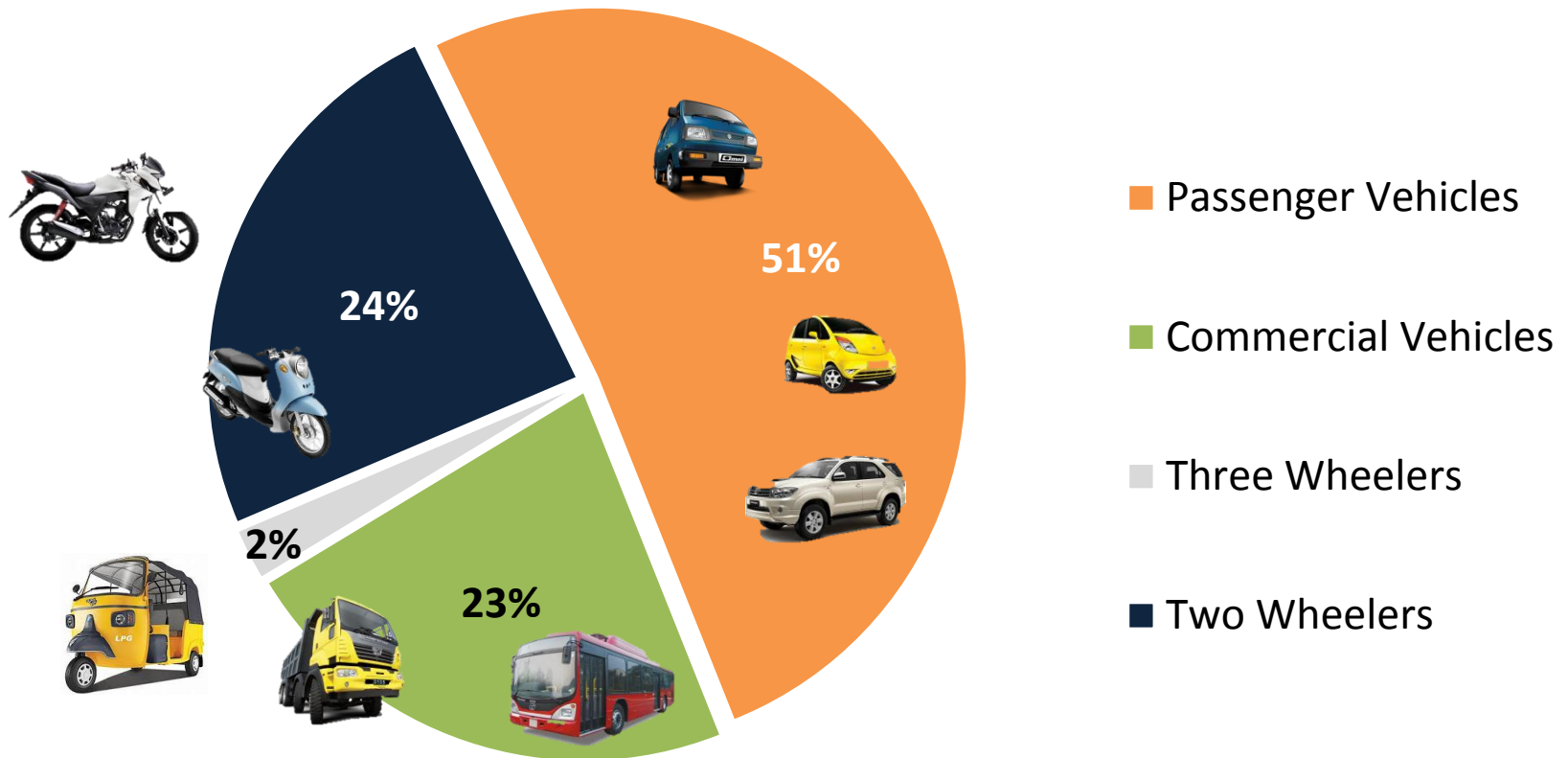
**Leading Players**

- Bajaj Auto (47%)
- Piaggio Vehicles (30%)
- Mahindra & Mahindra (10%)
- Atul Auto (8%)
- TVS Motor (3%)

Note: FY means 12 month ending March

# Value-Based Share of Segments

Domestic Sales Estimated Value – FY16

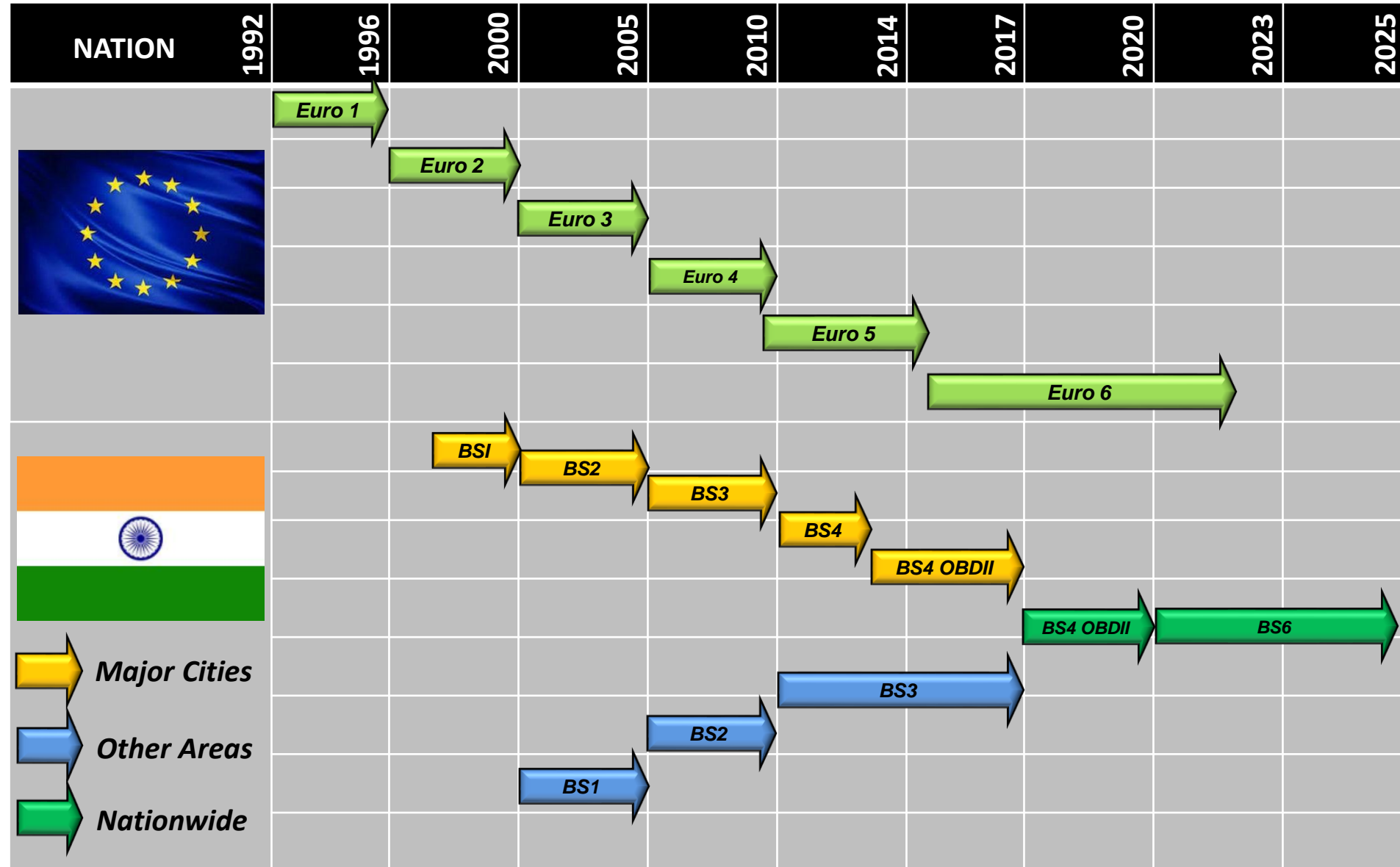


Source: SIAM Data

Note: FY means 12 month ending March.

# Future Emissions Roadmap of India

## Emissions Norms and Fuel Specifications: EU & India



# BS VI Emission Norms - 2020

- BS VI in 2020
  - All Models (Four Wheelers) – Euro 6
  - Two Wheelers – Euro 5
  - Three Wheelers – India Unique
- New Admin / Procedures
  - 4Ws Up to 3.5 tons – 50% models – COP from Dealer / Warehouse
  - In-Service Compliance of 16,00,00 km
  - PEMS based Real Driving Emission (Data Collection already underway)
  - OBD introduced also for 2&3 Wheelers

# FE Regulation for Passenger Cars

- Government notified FE regulations for passenger cars as follows:
  - **Phase 1** : 2017-18 to 2021-22, manufacturers to meet 129.8 g/km CO<sub>2</sub> at industry weight of 1037kg
  - **Phase 2** : 2022-23 onwards, manufacturers to meet 113 g/km CO<sub>2</sub> at industry weight of 1145kg
- Weight monitoring to be done from 1<sup>st</sup> January 2016 to 31<sup>st</sup> December 2016
  - If industry weight average is less than 1145kg for the said year, this value for industry average to be used for Phase 2 starting 2022

**FE Regulation for HCV under discussion : 2018**



## Fuel Specs Discussion - Gasoline

Fuel Specs	BSIV Regular Gasoline	BSVI Regular Gasoline	Remarks
Distillation			
a) Recovery upto 70° C (E70), % Vol	10-45	10-55 (summer) 10-58 (Winter)	Impact of E10
b) Recovery upto 100° C (E100)	40-70	40-70	
c) Recovery upto 100° C (E100)	75 min	75 min	
RON	91 Min	91 Min	SIAM had asked for RON95
RVP @ 38° C, kPa, max	60	67	Impact of E10
VLI			
a. Summer, max	750	1050	Impact of E10
b. Other months, max	950	1100	Impact of E10
Oxygen Content, %mass	2.7	3.7	Impact of E10
Ethanol, % Volume	5	10	

- Corrections have been done in BSIV fuel to cover E10 Blending. Blending happens at Depot level
- RON: SIAM had asked for RON95. Although Fuel Industry has refused to provide the same at 2020, SIAM is pursuing to provide a roadmap for supply of high octane fuel

# Fuel Specs Discussion - Diesel

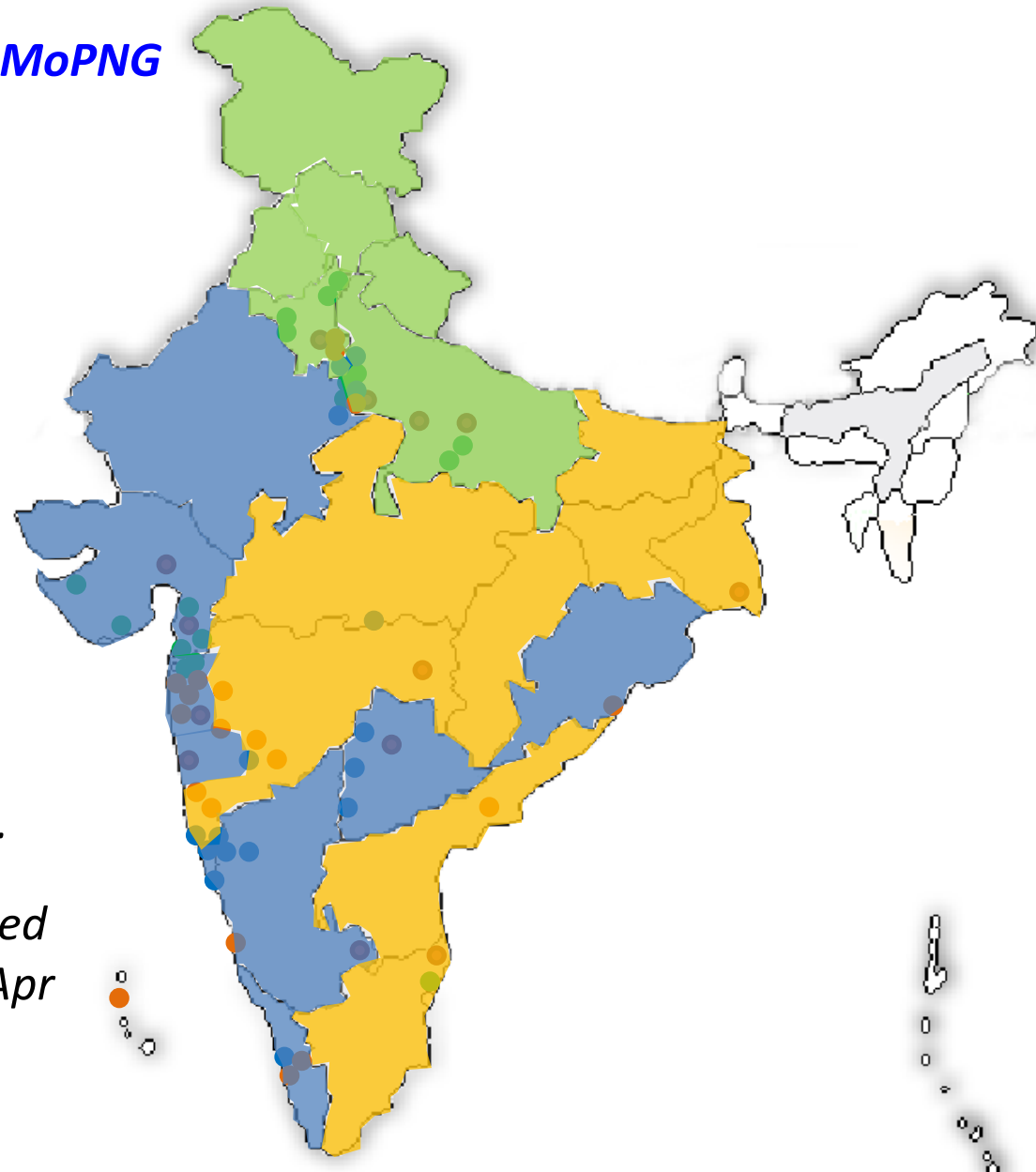
Fuel Specs	Euro VI Diesel	BSVI Diesel	Remarks
Cetane Number	51	51	
95% (V/V recovered at (° C)	360	360	Japanese Spec is 370
Sulphur mg/kg	10.0	10.0	
Density	820 - 845	845	SIAM feels min limit needed
Flash Point (° C)	55	35	Demand of SIAM to upgrade not accepted
CFPP (° C)	+5 to -20 (6 grades)	+6 & +18	SIAM wants to upgrade
FAME Content max. (%v/v)	7	7	
Oxidation Stability g/m3 max. h (racimeter test) min	25 20	25	SIAM recommends to include this
Poly Cyclic Aromatics Hydrocarbon (% m/m)	8	8	

- Relaxation of Cetane number for north east to be 48 till 01.04.2023
- Fuel Quality auditing is being demanded to meet In Use Emission Regulations
- FAME specification to meet IS: 15607:2015 equivalent to EN: 14214:2012

# BSIV Fuel Spread in India

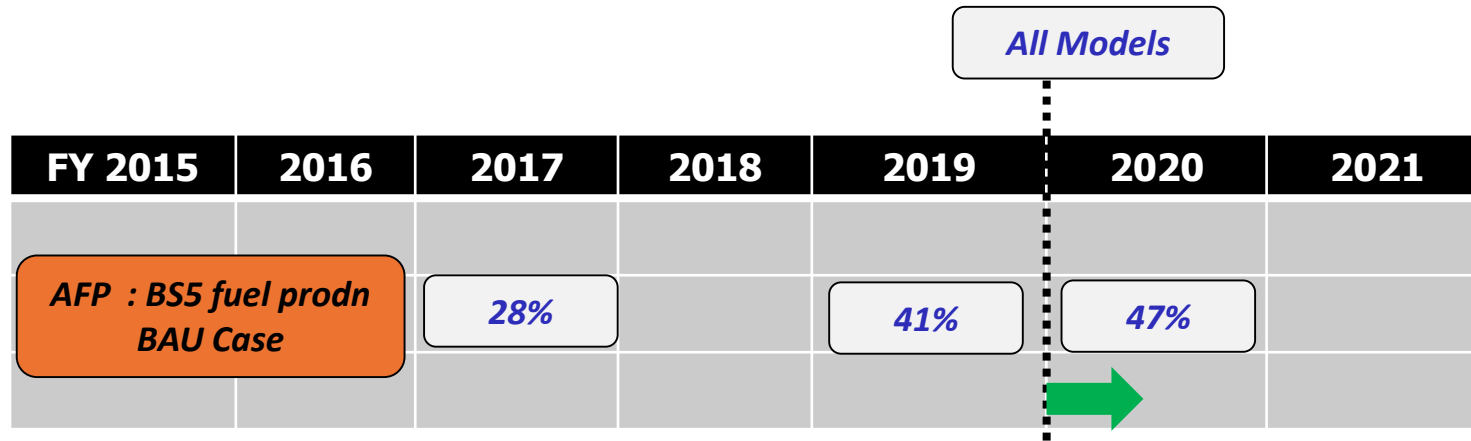
## BSIV Fuel Availability Plan as per MoPNG

TIMELINES	REGIONS	LEGEND
Till Mar 2012	13 Cities	●
Till Mar 2013	+17 Cities	●
Till Mar 2014	+15 Cities	●
Till Mar 2015	+18 Cities	●
Till Apr 2015	North India	■
Till Apr 2016	South/West	■
Till Apr 2017	Pan India	■



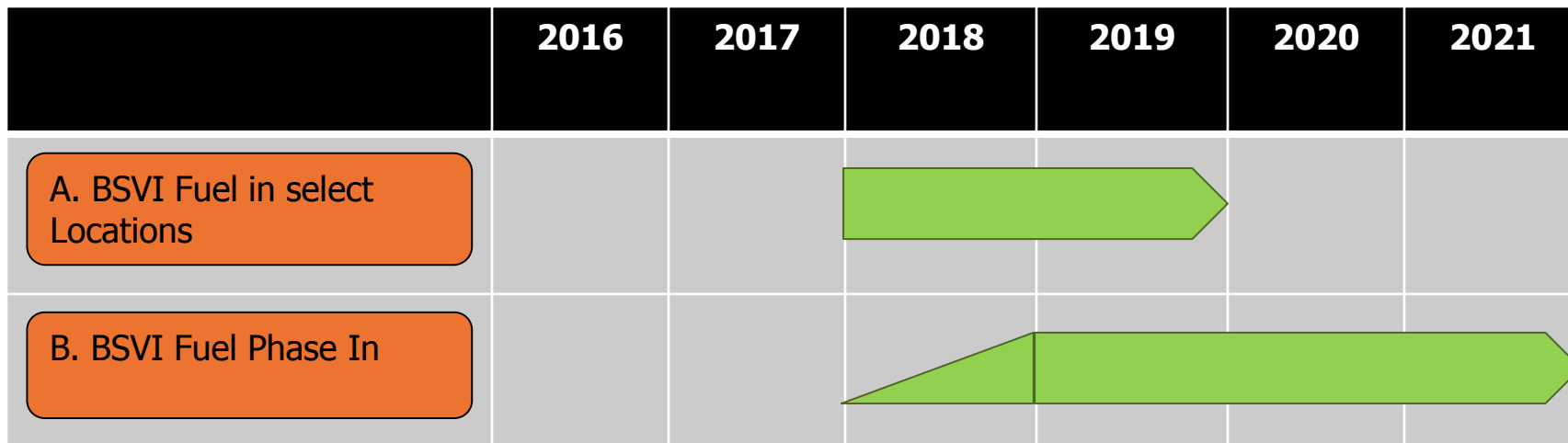
- Roadmap as per AFP 2025 report.
- MoPNG has not shared the detailed implementation plan from 2016 Apr
- Fuel phase in expected to cover most areas by April 2017 only.

## BSVI Fuel Availability Plan as per MoPNG



- **Fuel Availability has to be ensured for meeting the proposals.**
- **MoPNG has committed April 2020 as end of fuel phase in. Phase in may start a few months before deadline and not much earlier**

# BSVI – SIAM Requirements



A. Fuel will be required at least 2 Years in Advance in Select Retail Stations in some key cities which will be used for Fleet Validation. *[Petrofed has agreed In-principle, SIAM is collecting information on cities from members]*

B. Fuel will be required at least 1 Year in Advance in All Retail Stations in All cities. It may be noted that there is no Phase in of Vehicles provided in regulation. *[Petrofed has NOT agreed]*

Thank You