



Clean & Efficient Vehicle Policy For Bangladesh

**BY
BUET AUTOMOBILE CLUB**

Our Activities:



Auto-Fest



Competitions



Yearly Magazine



Projects



The BRTA Session



Emission Norms For IC engines



Carbon Monoxide (CO)

Nitrogen Oxides (NO_x)

Sulfur Oxides(SO_x)

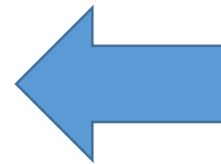
Unburned Hydrocarbons(HC)

Particulate Matters (PM)

The GOAL

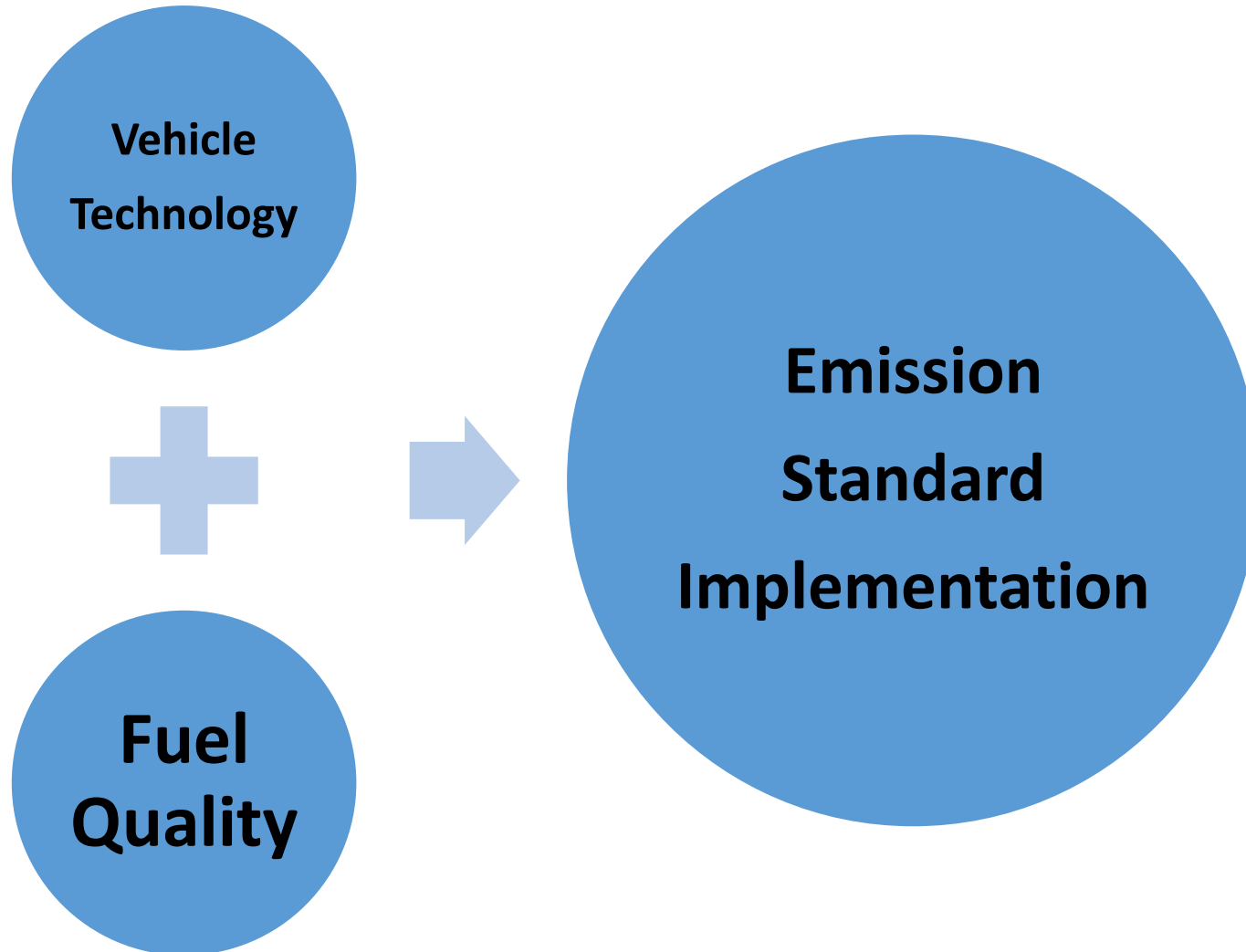
**Control
Pollution**

**Increase
Efficiency**

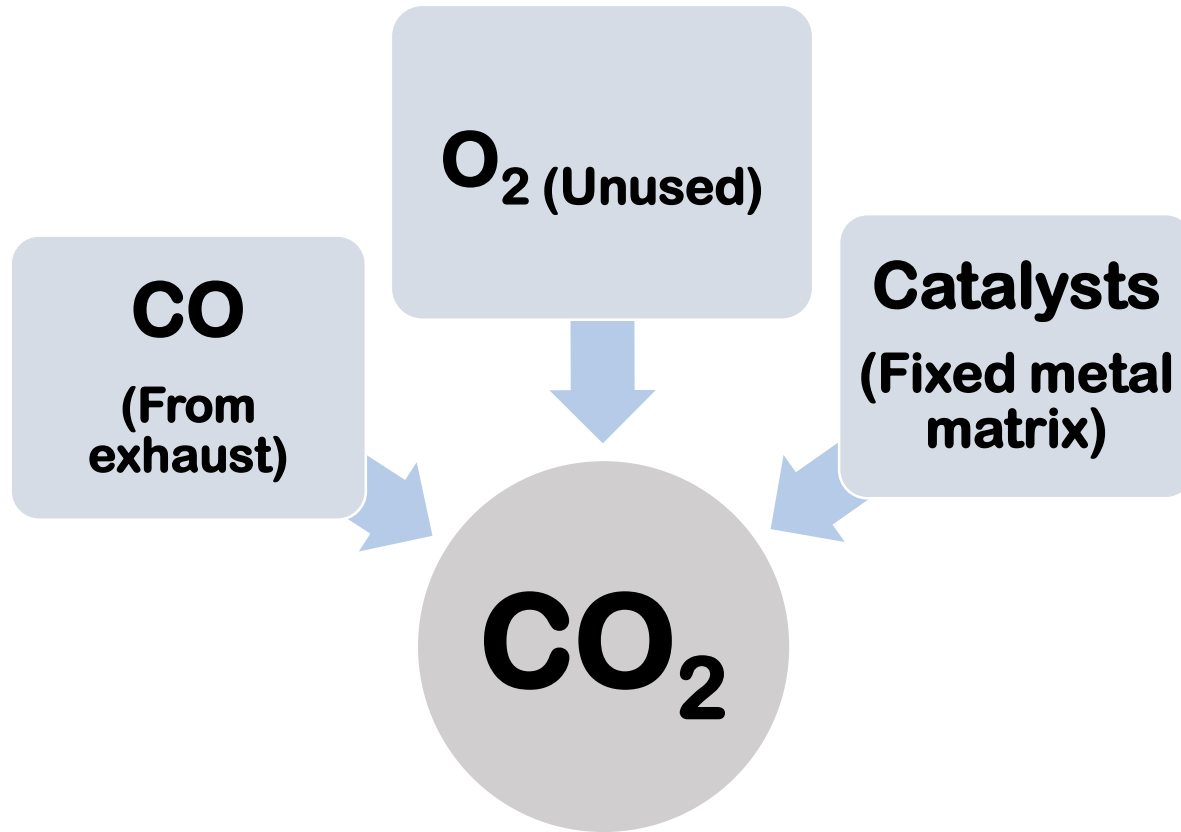


**Source of
Various Pollutants**

A typical vehicle emission control strategy:



The Current Technologies Available To Reduce Emission



&

Catalytic Converter

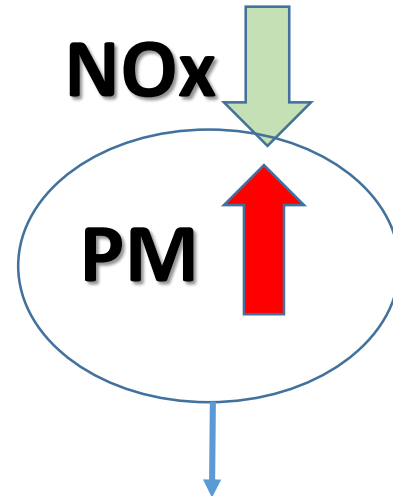
We Already Have It!!

The Current Technologies Available To Reduce Emission

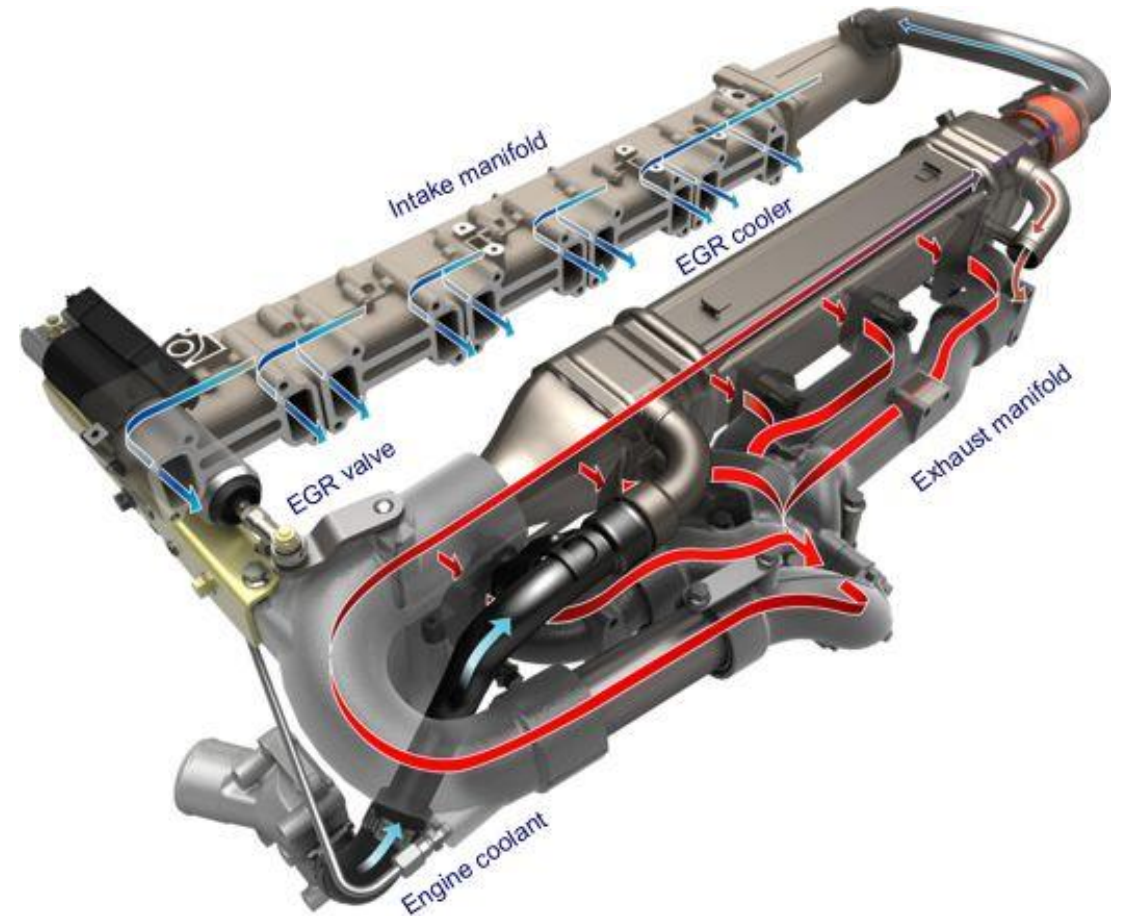
- For **EURO IV** fuel

Exhaust Temperature

Most feasible for Bangladesh

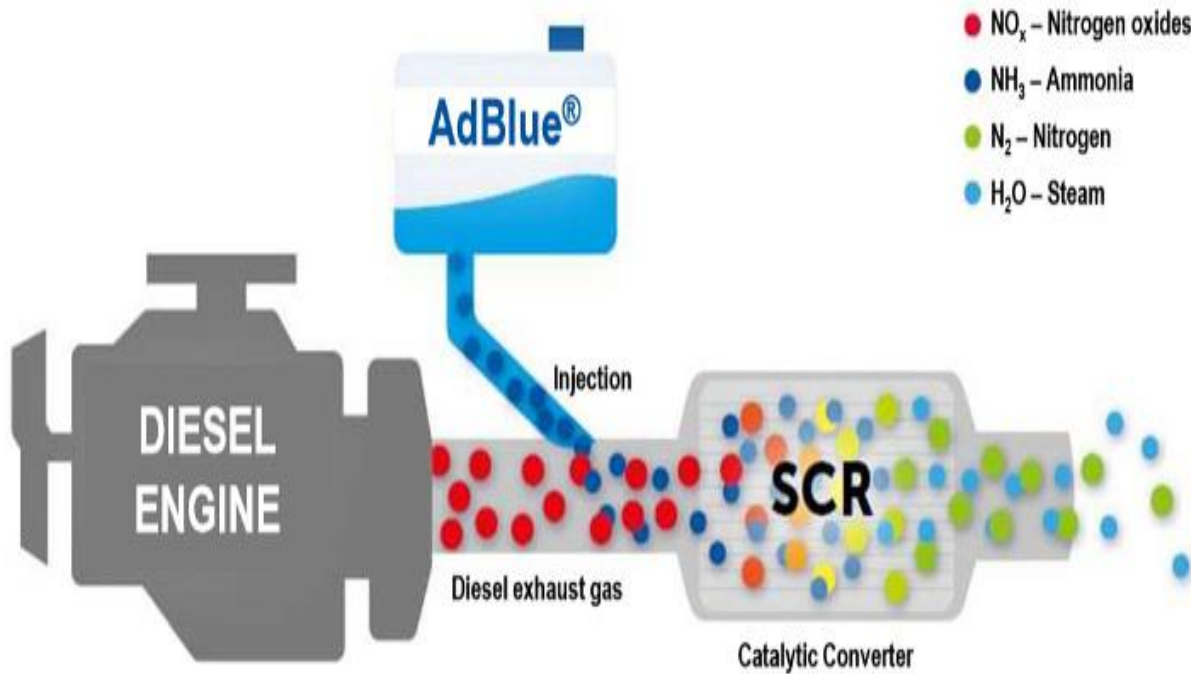


Diesel Particulate Filter (DPF)



Exhaust Gas Recirculation (EGR) System

The Current Technologies Available To Reduce Emission



An alternative to EGR system

- Used instead of EGR system in EURO IV vehicles

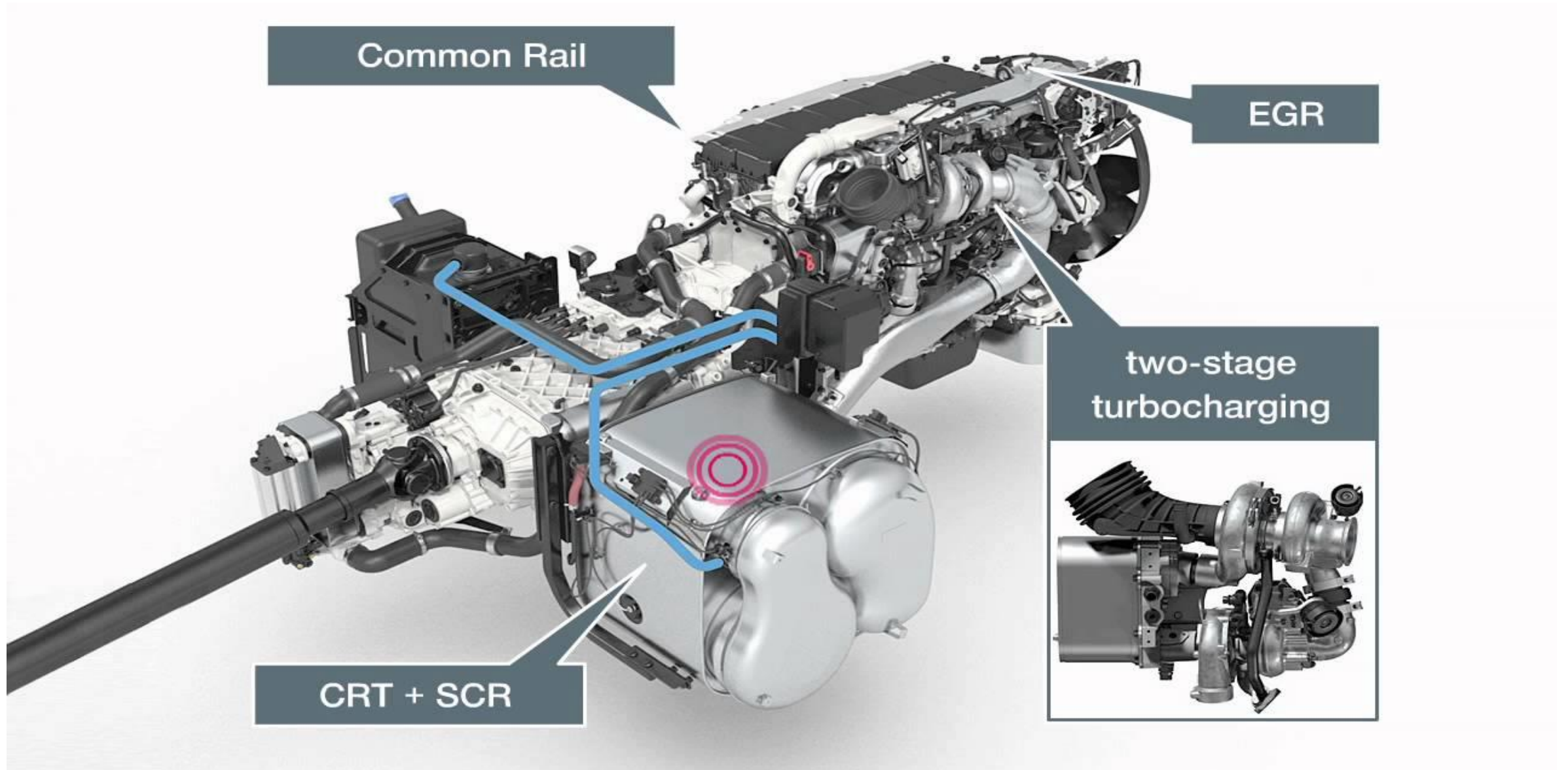
NO_x ↑

PM ↓

Ad-Blue

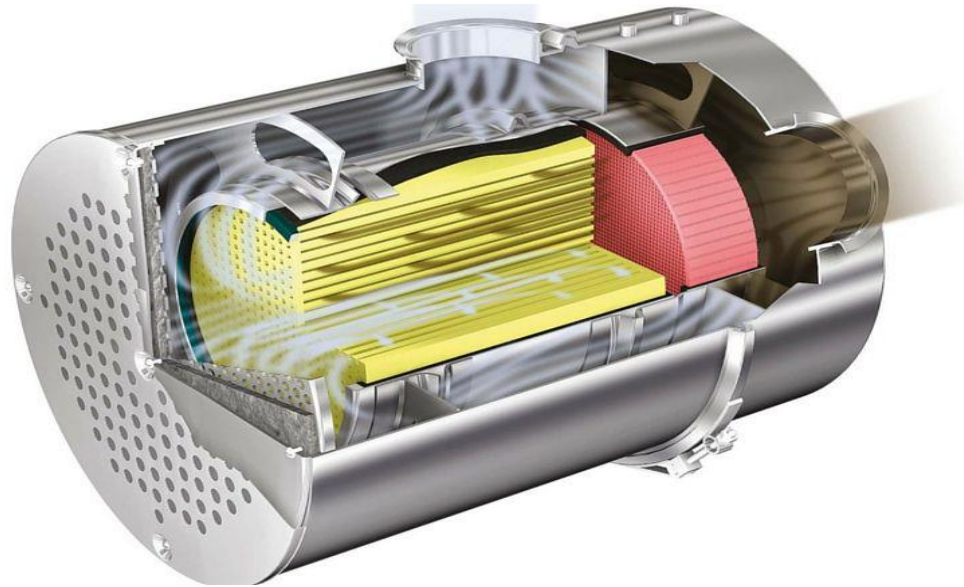
Selective Catalytic Reduction (SCR) System





Use of EGR and SCR systems simultaneously

Diesel Particulate Filter (DPF)



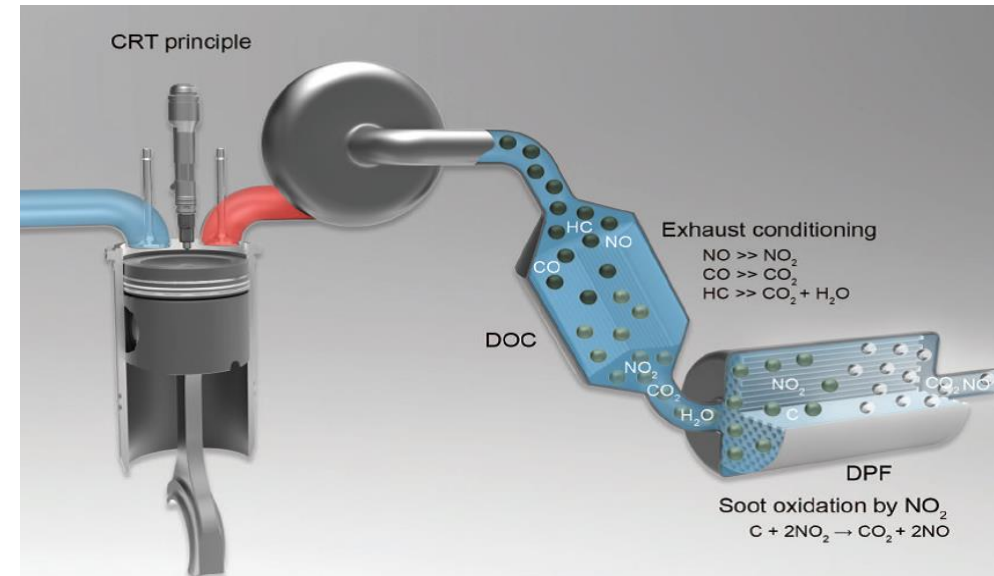
- Capture PM and burn them periodically

The controlled burning process



Regeneration

Continuously Regenerating Technology (CRT)



- Optional attachment with DPF
- Situated before catalytic converter and SCR system

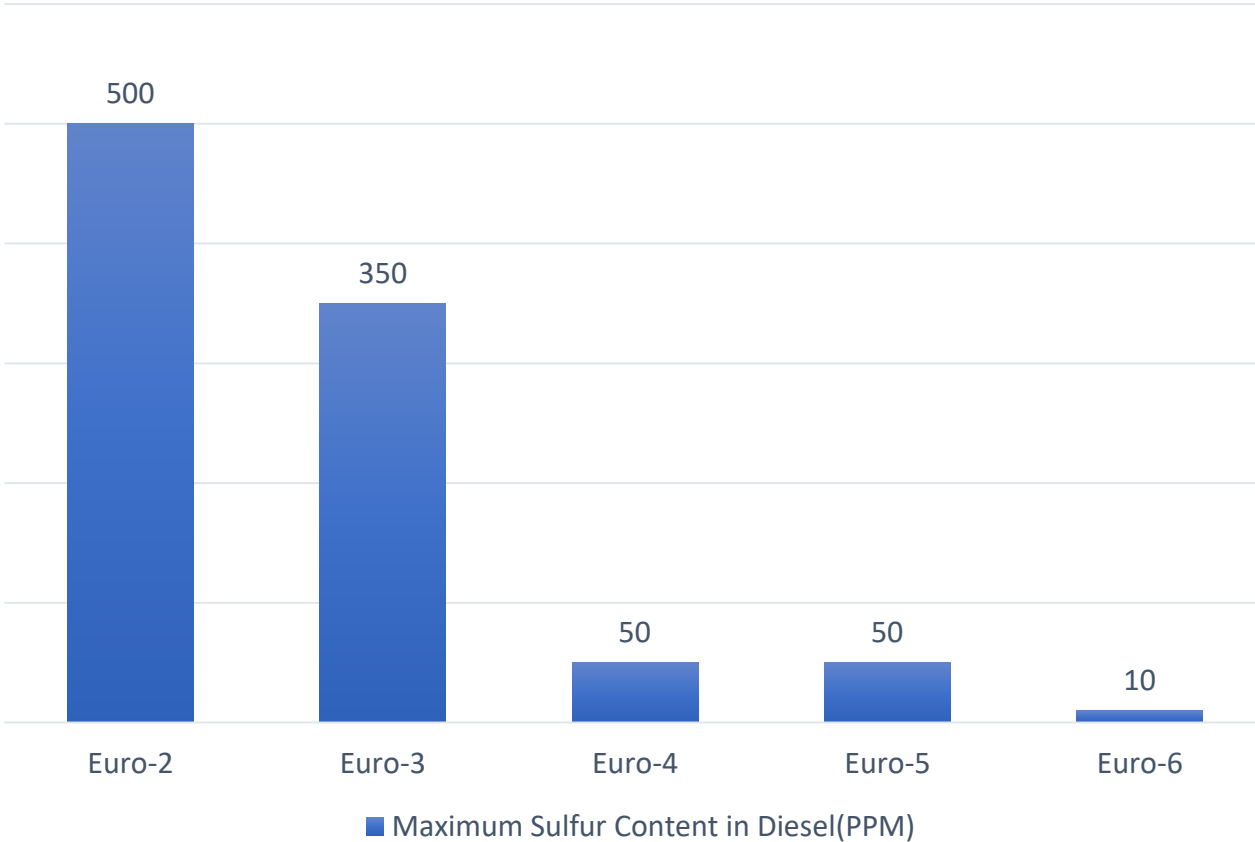
What's Our Problem??



High Sulphur Content In Fuel



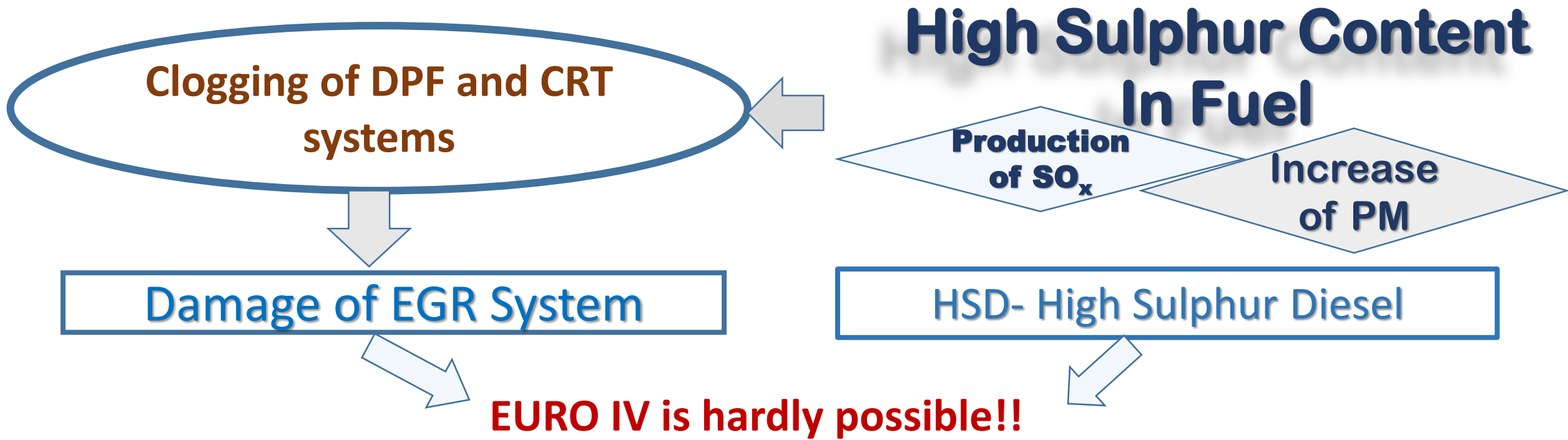
Reduction Of Sulphur Content With Cleaner Emission Norms



In Bangladesh Current Level of Sulphur Content In Diesel

500PPM

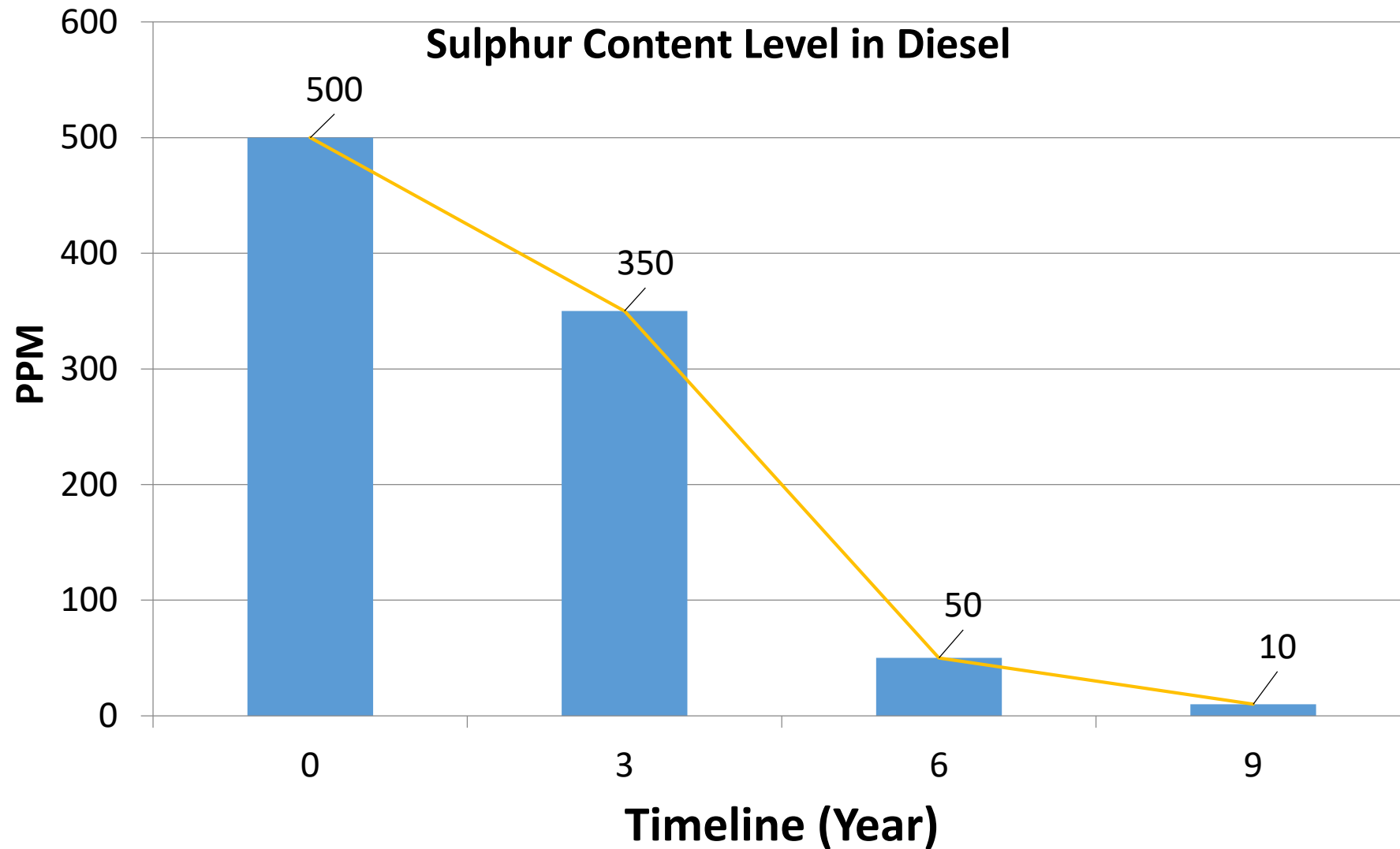




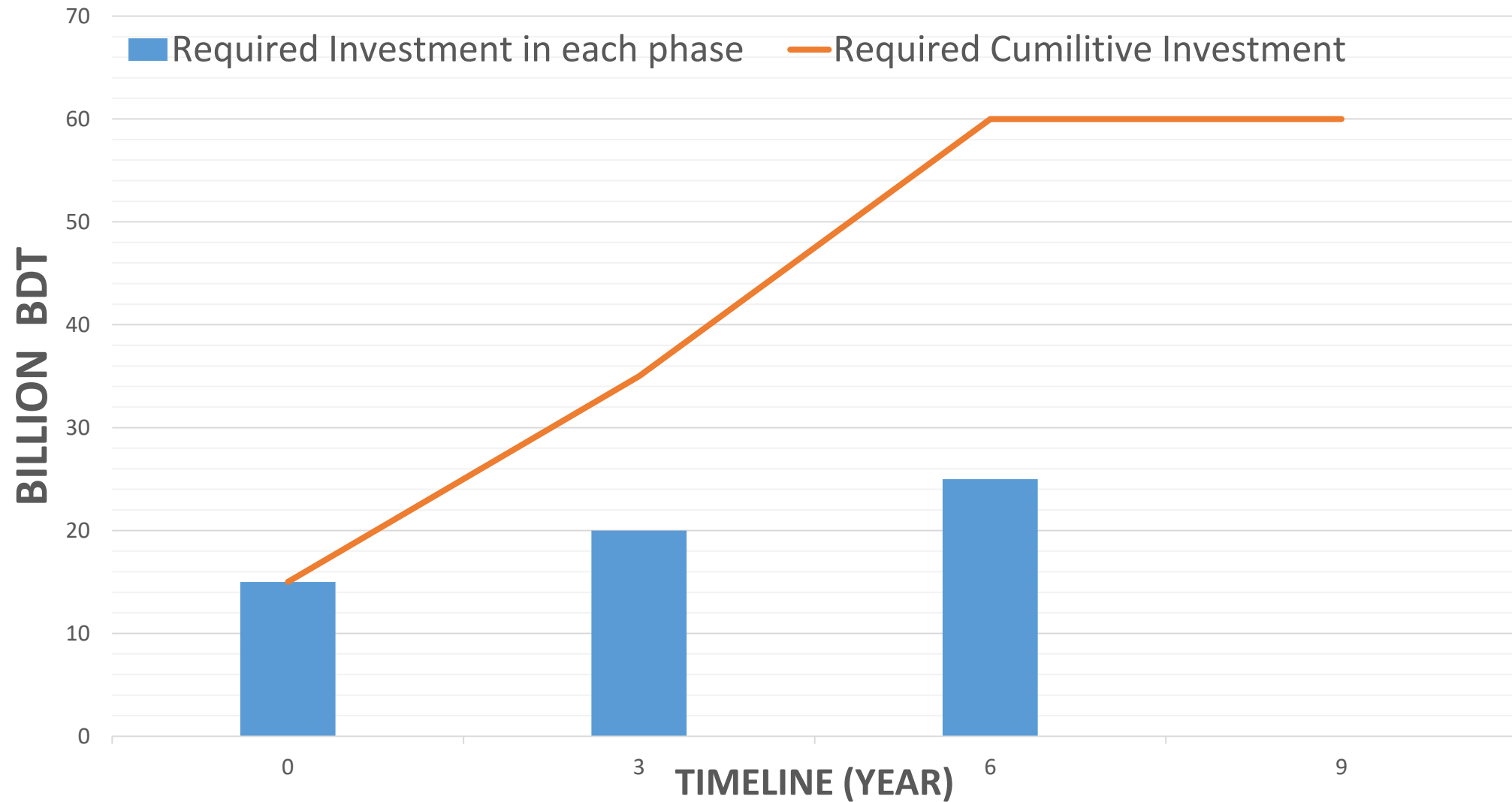
We need "Hydro-treating unit" in the refinery plant

This requires investment from government

Hypothetical Timeline Goal for Reducing Sulphur Content Level in Diesel



Hypothetical Investment Requirement For 3 step Sulphur Content Reduction Plan



Jumping up to EURO IV from EURO III:

EGR vs SCR

In case of EGR System:

- Less electronic control interference
- Less skill of drivers and mechanics required
- Easy to maintain
- No requirement of “Ad-Blue”
- Less efficient
- Frequent engine-oil change is needed

In case of SCR System:

- More electronic control interference and use of sensors
- More skill of drivers and mechanics required
- High maintenance
- Requirement of “Ad-Blue”
- More efficient
- No need for frequent engine-oil change

Policy Suggestions For Emission Norm Goal:

- ✓ Adopting EURO emission standard as a base for Bangladesh Emission Norms
- ✓ Setting a short and practical deadline
- ✓ Introducing Low Sulphur Diesel (LSD) in market by upgrading Refinery Plants
- ✓ Availing LSD, regarding vehicle technologies should be introduced
- ✓ Registration of lower-emission norm vehicles should be banned

Policy Suggestions For Emission Norm Goal:

- ✓ During the time lapse between EURO III TO EURO IV, trainings and facilitations should be done for SCR technology
- ✓ Ad Blue production plants should be established with Urea, locally found.
- ✓ Just like India, EURO V stage can be skipped

The Next GOAL



Hybrids and EVs

Already enjoying Taxation Benefit

Still Not Getting License

Our Proposals:

- Power generation and Gridline improvement
- Electric bus for public transportation
- Battery manufacturing
- Battery recycling
- Improvement of auto-rickshaws (tri-cycles)

Long Term Plan

Industrial policy

Electric Bus For Efficient Public Transport System

- **Zero pollution**
- **Very quiet.**
- **Less maintenance requirement.**
- **Energy efficient** in start-stop situations of congested roads.



Next Target

Revision In Taxation Policy

Vehicles
According to origin

CKD (Completely Knocked Down)

CBU (Completely Built Unit)

Reconditioned
(Poor emission)

Brand New

Policies We Suggest:

- Taxation advantage for brand new CKD vehicles
- Facilities for establishing vehicle assembly plant
- Emission dependent road tax policy
- Increase taxation for reconditioned vehicles

Finally



Possibilities of Alternative Fuel

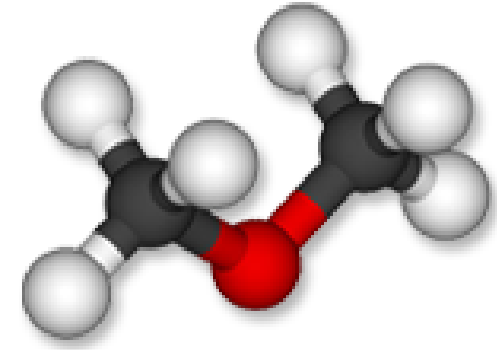
Mainly CNG is common now
Clean and eco-friendly

Problems with CNG:

- Lack of proper engine technologies.
- Degrades engine condition.
- Significant drop in power.
- Not suitable for Compression Ignition(CI) engines.
- Limited reserve.

DME As An Alternative Fuel For Bangladesh

- Can be produced from a variety of bio-based materials
- High well to wheel efficiency
- Clean combustion
- Excellent diesel cycle fuel



THANK YOU!