

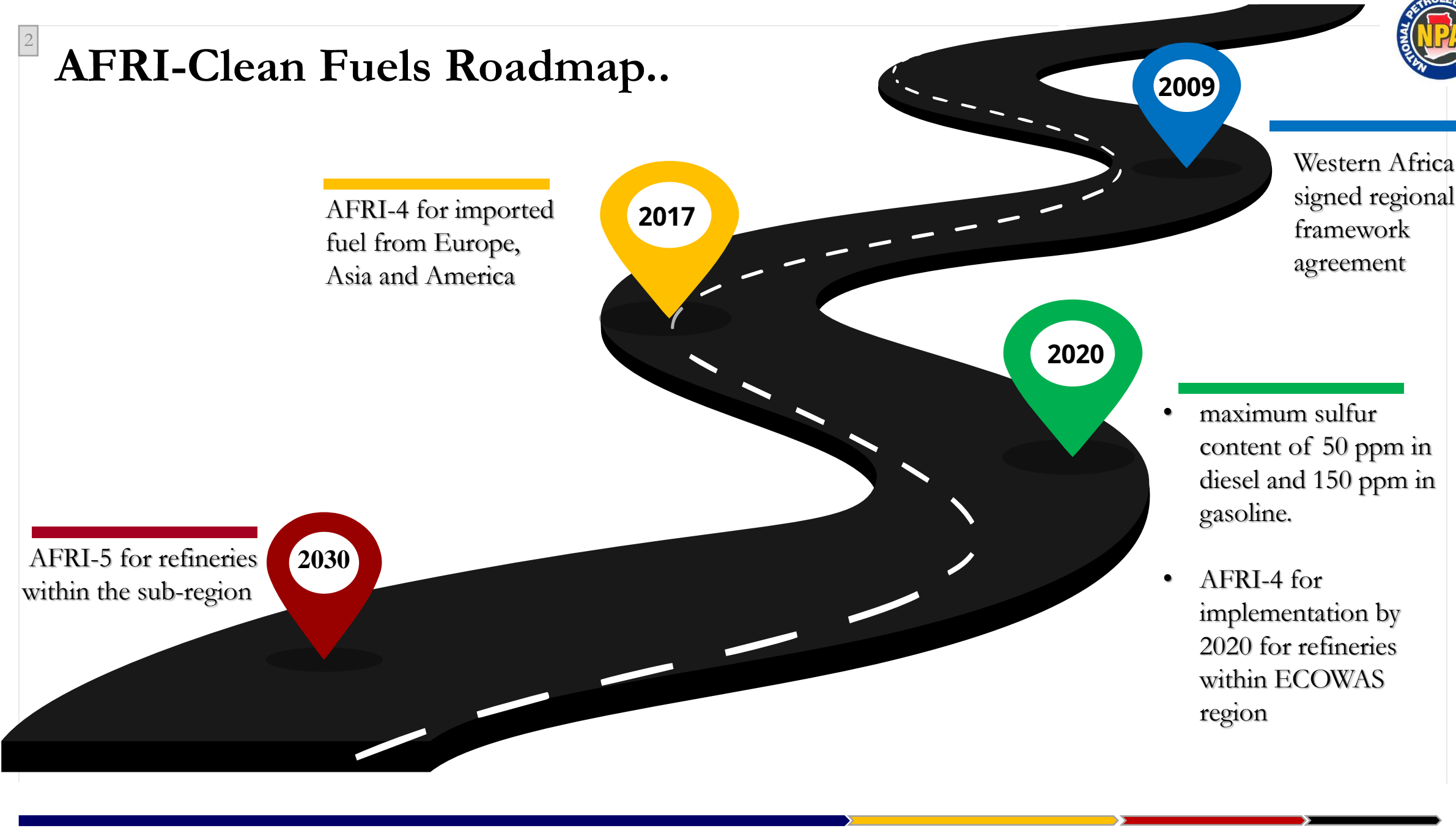
AFRI Clean Fuels Roadmap:

# The Ghana Experience

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# AFRI-Clean Fuels Roadmap..



AFRI-5 for refineries within the sub-region



2030



2017

AFRI-4 for imported fuel from Europe, Asia and America



2020

- maximum sulfur content of 50 ppm in diesel and 150 ppm in gasoline.
- AFRI-4 for implementation by 2020 for refineries within ECOWAS region



2009

Western Africa signed regional framework agreement



# Standards Roadmap



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## 1. Systematic reduction of sulphur levels and other relevant quality parameters

### Diesel

**1990**

- Sulfur-11,000mg/kg Max
- Cetane Index- 40 Min

**2005**

- Sulfur-10,000mg/kg Max

**2009**

- Sulfur- 5, 000 mg/kg Max

**2013**

- Sulfur -3,000mg/kg Max
- Cetane Index – 42 Min

**2017**

- Sulfur- 50ppm Max
- Cetane Index- 46 Min

### Gasoline

**1990**

- Sulfur-1,500mg/kg Max
- RON -83
- Lead- 630mg/L

**2009**

- Sulfur-1,000mg/kg Max
- RON -91
- Lead- 13mg/L

**2017**

- Sulfur- 50 ppm
- RON -91/95
- Lead -5mg/L



# Quality-Averages of Some Important Parameters for Imports



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Product	Key Parameters	Unit	Limit	2022 Averages		
				Q1	Q2	Q3
Premium Motor Spirit	Density	kg/m <sup>3</sup>	720-775	727.9	726.9	725.0
	Sulphur	mg/kg	50	11.3	15.3	18
	Research Octane Number (RON)	-	91	91.6	91.4	91.2
		-	95	95.3	95.2	95.2
	Ethers	(%v/v)	To be reported	6.6	9.9	8.0
	Olefins	(%v/v)	18	15.1	9.9	11.7
	Benzene	(%v/v)	1	0.86	0.89	0.94
Aromatics	(%v/v)	35	22.8	21.0	19.7	
Automotive Gas Oil	Density	kg/m <sup>3</sup>	820-850	826.6	831.3	834.8
	Sulphur	mg/kg	50	10.1	13.2	12.8
	Cetane Index	-	46	52.8	52.6	52.5
	Flash Point	°C	55	64.1	66.1	67.0
	Colour	-	2	L 1.0	0.5	L 1.0



# Implementation Challenges



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## Limited Institutional Capacity

Institutional capacity to implement clean fuel and vehicle standards needs to be strengthened.

## Investments For Refinery Upgrades

Need of investments to upgrade refineries to meet low- and ultralow-sulfur fuels specifications  
Unwillingness of refiners to make investments

## Market Evolution And Pricing Conditions

- Control of retail price of fuels by subsidizing fuel cost – Government Pricing Policy

## Cost to Consumers

Concern of decision makers on cost increase burdens on consumers in implementing of low-sulfur policies.

## Cost of Vehicles

- Incremental costs of vehicles



# Conclusion

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- Introduce fuel specifications in tandem with emission standard limits
- Engage member states to discuss challenges and implementation plan
- Encourage Countries lagging behind in implementation to start from selected cities
- Develop stringent policies to match infrastructure and AFRI roadmap
- Regional collaboration among member states Implementation Institutions



Thank  
you

