

# AIR QUALITY PROJECT DISCUSSION SESSION

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# PROJECT AIM

Baseline Air  
Quality Report

Legislation  
Change

Long Term  
Solutions

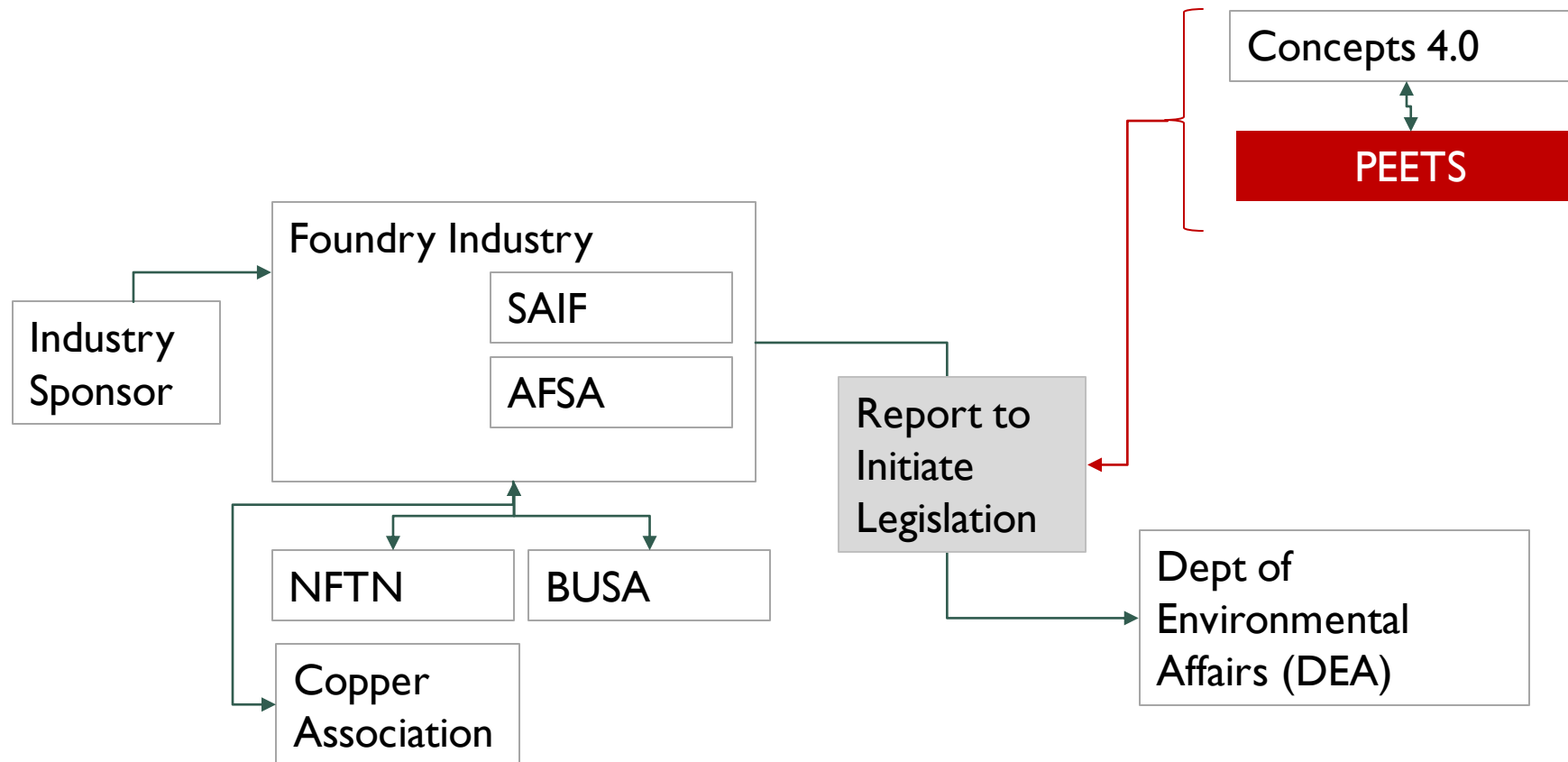
- Foundry Data base : To categorise the foundry industry + technical Info
- To investigate the different melting technologies per sub-sector and clarify the potential type of emissions.
- To collate existing emission results per sub-sector, per technology and perform a comparison of the actual results against the requirements, in order to calculate the impact
- To compare the threshold calculations based on Design Capacity vs the Output of a foundry
- To highlight the cost impact of stack installations and ongoing monitoring
- To compare the emission measurement results with and without a stack
- To make recommendations

Database

Case Studies

Comments / Suggestions

# STAKE HOLDERS

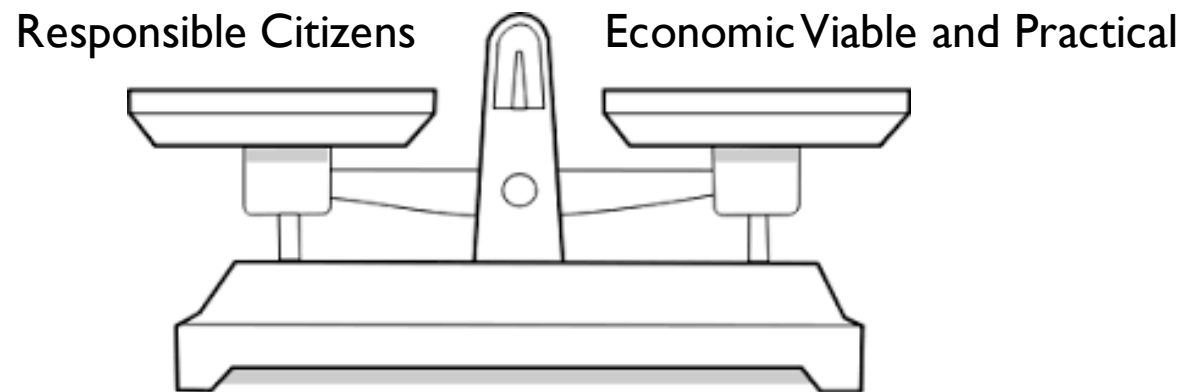


# STUDY SCOPE

Section	Description	Scope of Study	
		In	Outside
4.3	Primary Aluminium Production		x
4.4	Secondary Aluminium Production	x	
4.6	Basic Oxygen Furnace Steel Making		x
4.7	Electric Arc and Steel Making (Primary and Secondary)	x	
4.8	Blast Furnace operation		x
4.9	Ferro-Alloy Production		x
4.10	Foundries(production and casting of Iron and its alloys)	x	
4.13	Lead Smelting		x
4.14	Production and Processing of Zinc, Nickel and Cadmium	x	
4.19	Production and Processing of bronze and Brass and casting copper	x	

# WORKSHOP AIM

- Create Awareness
- Industry Input



# HISTORY OF ENVIRONMENTAL ACTS AND AEL APPLICATION

**APPA**  
Atmospheric  
Pollution  
Prevention Act  
(Act No. 45 of  
1965)

**OSCHACT**  
Occupational  
Health and  
Safety Act,  
1993

**NEMA**  
National  
Environmental  
Management, 1998  
(Act No. 107 of  
1998)

**NEMAQA**  
National  
Environmental  
Management:Air  
Quality Act, 2004  
(Act No. 39 of 2004)

Section 21 : Listed  
Activities

1 April 2010

Prior to 2012: Conversion from  
APPA to AEL through application  
to the Air Quality Officer at local  
Authority

> 2012 : Application to  
the Air Quality Officer at  
local Authority

If an Application was made, but no  
licence issued, to be followed up

1965 - Repealed on 31  
March 2010

Deadline for application 31 March 2014

Existing Plants: Operating  
without an AEL

New Plants, New Processes  
or change in Atmospheric  
Emission Licence  
Conditions

AEL Licence Renewals

Change in Ownership

# AEL APPLICATION

Existing Plants: Operating without an AEL

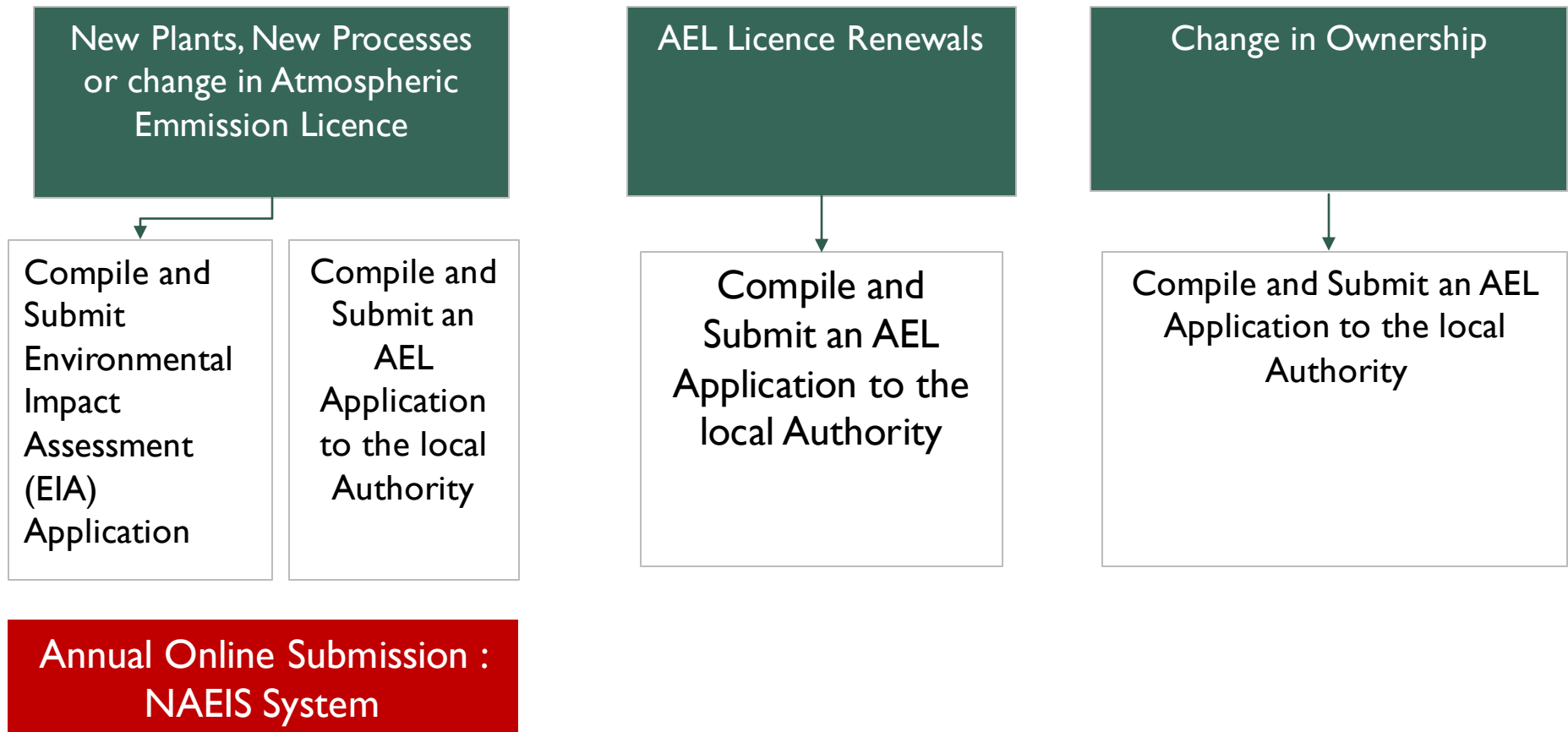
**S24G Application: Environmental Authorisation**  
Application to rectify the unlawful commencement or continuation of a listed activity in terms of **S24G** of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended

Timing: 18 - 24 months  
Application at Provincial Level  
Fine: Max of R5 Million  
Fines varies between R20K - R150K. Negotiable to a certain extent

**S22A Application: AEL**  
APPLICATION TO RECTIFY THE UNLAWFUL COMMENCEMENT OR CONTINUATION OF LISTED ACTIVITIES IN TERMS OF SECTION **22A** READ WITH THE SECTION 21 OF THE NATIONAL ENVIRONMENT MANAGEMENT: AIR QUALITY ACT, 2004 (ACT NO. 39 OF 2004).

Timing: 6 months  
Fine: R 200K + R200K for each year after 2013  
Additional Fine if in Highveld priority Area: R 1m

# AEL APPLICATION





# FOUNDRY STATISTICS

Province	No of Foundries
Eastern Cape	9
Free State	6
Gauteng	125
Kwazulu Natal	28
Limpopo	1
Mpumalanga	2
North West	3
Northern Cape	3
Western Cape	16
<b>Total</b>	<b>193</b>

Province	Total No of Foundries	Not Applied	Licence	In Progress
Gauteng	125	81	26	17
Cape Province	28	15	11	2
Other Provinces	40	28	8	5
<b>Total</b>	<b>193</b>	<b>124</b>	<b>45</b>	<b>24</b>

Foundry Sizes	No of Foundries
L	10
M	22
S	13
XS	148
<b>Total</b>	<b>193</b>

## DISCUSSION TOPIC I

- Discussion : Why did Foundries not apply, and what now?
- Challenges with Applications

# POTENTIAL ACT AMMENDMENTS

## (3) Subcategory 4.3: Primary aluminium production

<b>Description:</b>		Primary aluminium production.	
<b>Application:</b>		All installations.	
Substance or mixture of substances		Plant status	mg/Nm <sup>3</sup> under normal conditions of 273 Kelvin and 101.3 kPa.
Common name	Chemical symbol		
Particulate matter	N/A	New	50
		Existing	100
Sulphur dioxide	SO <sub>2</sub>	Soderberg New	No new plant will be authorised
		Soderberg Existing	500
		AP Tech New	50
		AP Tech Existing	100
Total volatile organic compounds	N/A	New	40
		Existing	40

Per Technology

## (1) Subcategory 4.1: Drying

<b>Description:</b>		Drying of mineral solids including ore.	
<b>Application:</b>		Facilities with a production capacity of more than 100 tons/month product.	
Substance or mixture of substances		Plant status	mg/Nm <sup>3</sup> under normal conditions of 273 Kelvin and 101.3 kPa.
Common name	Chemical symbol		
Particulate matter	N/A	New	50
		Existing	100
Sulphur dioxide	SO <sub>2</sub>	New	1000
		Existing	1000
Oxides of nitrogen	NO <sub>x</sub> expressed as NO <sub>2</sub>	New	500
		Existing	1200

Minimum Output

## (2) Subcategory 4.2: Combustion installations

<b>Description:</b>		Combustion installations not used for primarily for steam drying).	
<b>Application:</b>		All combustion installations (except test or experimental).	
Substance or mixture of substances		Plant status	mg/Nm <sup>3</sup> under
Common name	Chemical symbol		
Particulate matter	N/A	New	
		Existing	
Sulphur dioxide	SO <sub>2</sub>	New	
		Existing	
Oxides of nitrogen	NO <sub>x</sub> expressed as NO <sub>2</sub>	New	
		Existing	

- (a) The following special arrangement shall apply –
- (i) Reference oxygen content appropriate to fuel type to l

Special Conditions

Sub Cat	Description	Application	Substance or Mixture of Substance		mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>
			Common Name	Chemical Symbol	New Installations	Existing Installations
4.4	Secondary Aluminium Production	All installations	Particulate Matter	N/A	30	100
			Total Fluorides measured as Hydrogen Fluoride	F as HF	1	5
			Total Volatile organic Compounds	N/A	40	40
			Ammonia	NH <sub>3</sub>	30	100
4.10	Production and casting of Iron and its alloys	All installations	Particulate Matter	N/A	30	100
			Sulphur dioxide	SO <sub>2</sub>	400	400
			Oxides of Nitrogen	Nox expressed as NO <sub>2</sub>	400	1200
4.14	Production and processing of Zinc, Nickel and Cadmium	All installations	Particulate Matter	N/A	50	100
			Sulphur dioxide	SO <sub>2</sub>	500	500
			Oxides of Nitrogen	Nox expressed as NO <sub>2</sub>	500	500
			Mercury	Hg	0.2	1
			Dioxins	PCDD/PCDF	0,1 ngTEQ	No standard proposed
4.19	Production and casting of Bronze and brass and casting copper	All installations producing more than 10 tons per day of product in aggregate	Particulate Matter	N/A	50	100
			Sulphur dioxide	SO <sub>2</sub>	500	500
			Oxides of Nitrogen	Nox expressed as NO <sub>2</sub>	1000	1200

## RESULTS – FERROUS

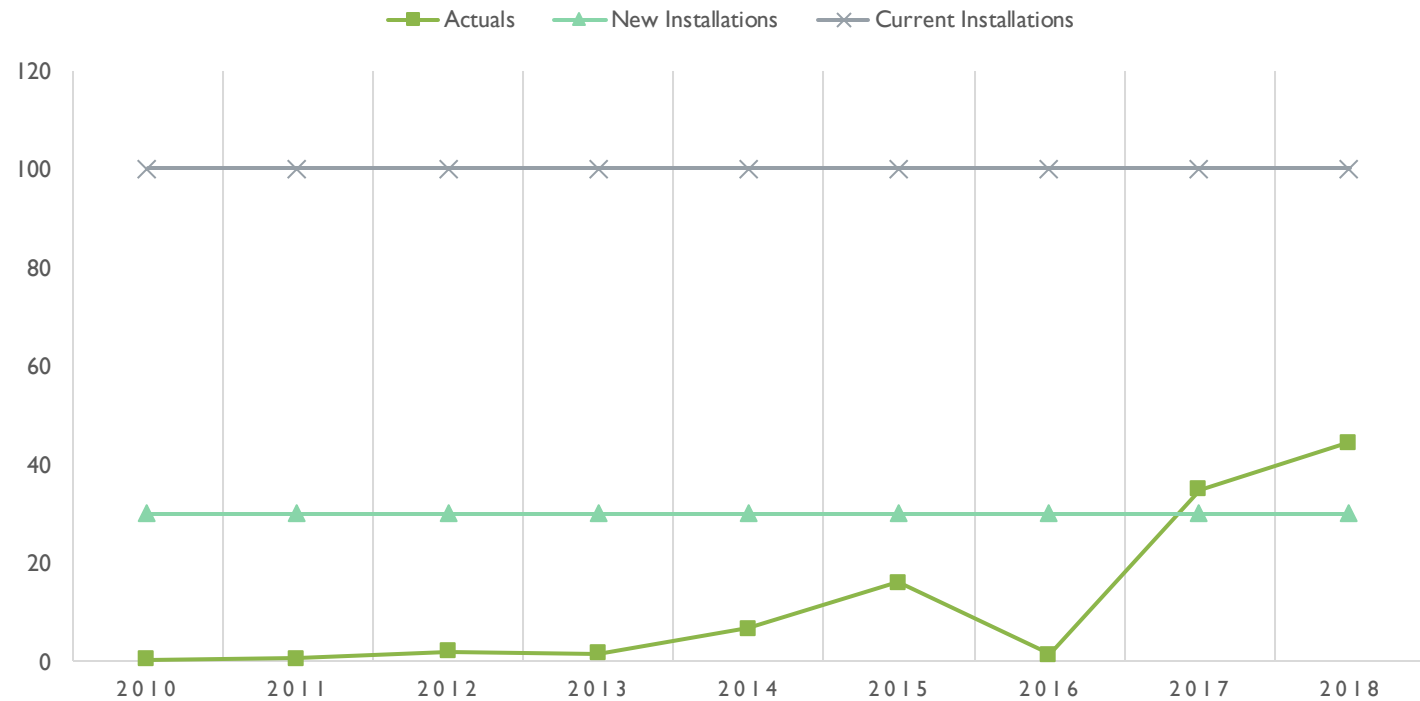
			Result Range mg/Nm <sup>3</sup>	New Installatio ns mg/Nm <sup>3</sup>	Current Installation s mg/Nm <sup>3</sup>
	Item	Symbol			
4.10	Particulate Matter	N/A	0.25 - 46.2	30	100
	Sulphur dioxide	SO <sub>2</sub>	0 - 63.7	400	400
	Oxides of Nitrogen	Nox expressed as NO <sub>2</sub>	0 - 6.08	400	1200

# RESULTS – NON FERROUS

Item	Symbol	Result Range mg/Nm <sup>3</sup>	New Installati ons mg/Nm <sup>3</sup>	Current Installati ons mg/Nm <sup>3</sup>
Particulate Matter	N/A	2.54 - 3.1	30	100
Total Fluorides measured as Hydrogen Fluoride	F as HF	0.02 - 0.05	1	5
Total Volatile organic Compounds	N/A	0.15 - 0.22	40	40
Ammonia	NH <sub>3</sub>	0.001 - 003	30	100

# RESULTS – FERROUS FOUNDRIES

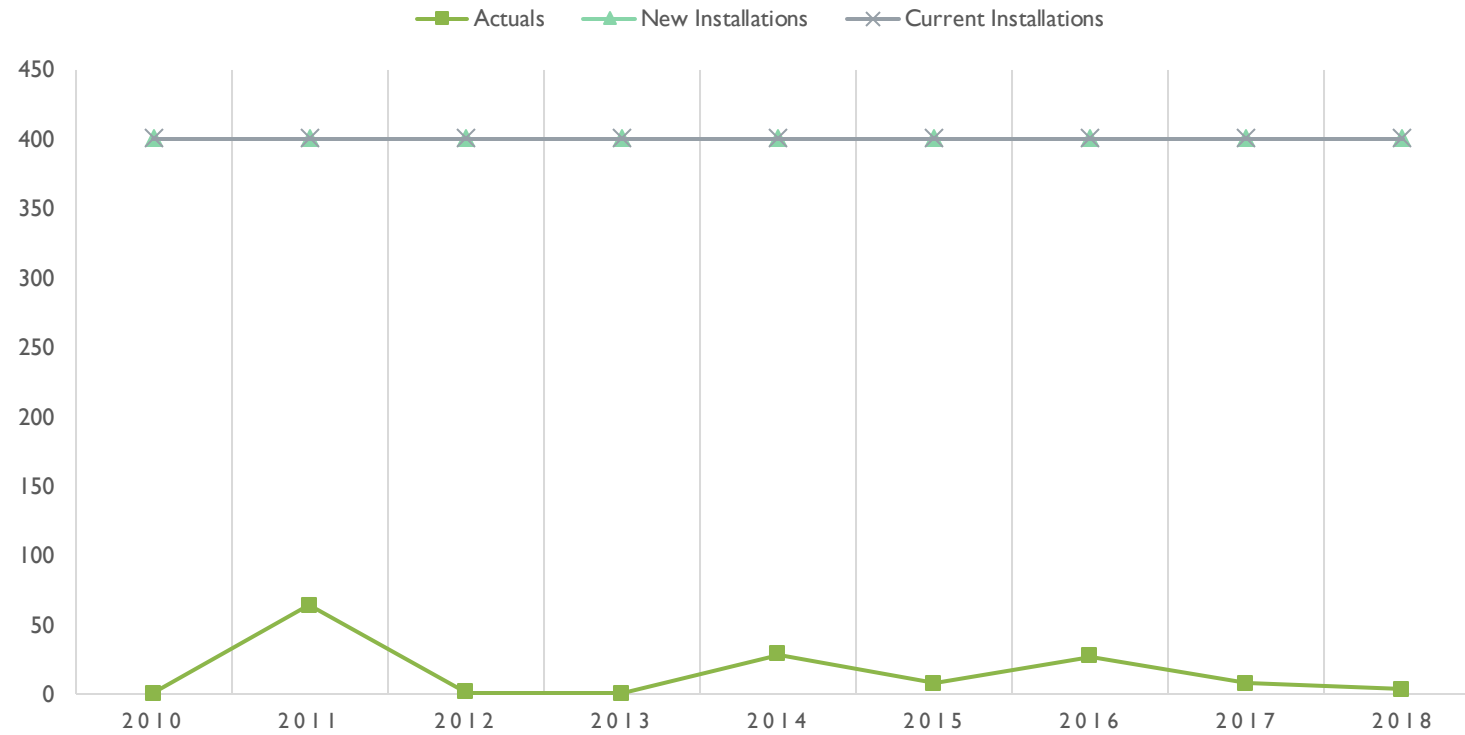
## PARTICULATE MATTER - FERROUS FOUNDRY



In Smaller Foundries, below  
46mg/Nm<sup>3</sup>  
Instances where above 100  
Dependent on Scrap Metal

# RESULTS – FERROUS FOUNDRIES

## SOX- FERROUS FOUNDRY

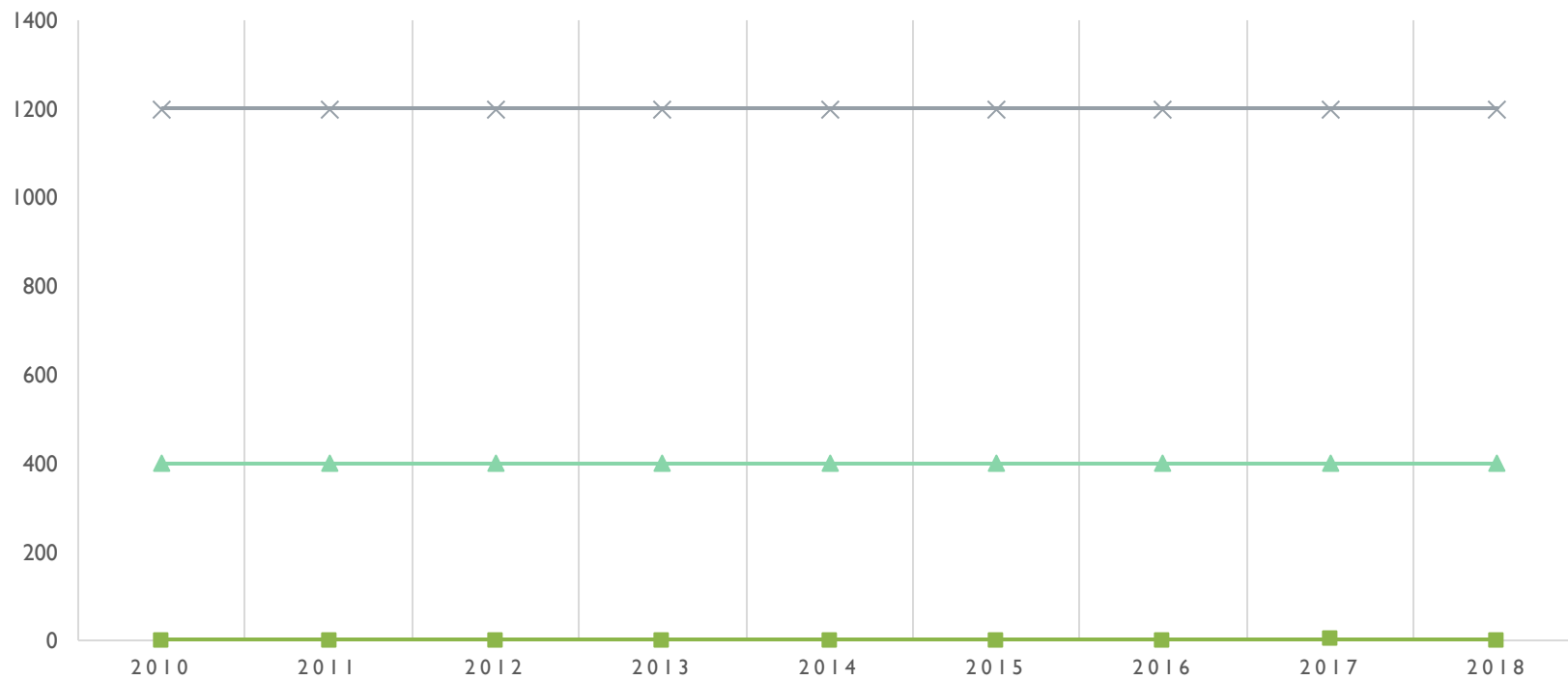




# RESULTS – FERROUS FOUNDRIES

## NOX- FERROUS FOUNDRY

—■— Actuals    —▲— New Installations    —×— Current Installations



## DISCUSSION 2

- Suggestions for Emission Measurements per Melting Technology
  - Particulate Matter
  - Sox
  - Nox
- Suggestions for minimum output /Capacity of Foundry
- Suggestions for Special Exemptions
- Other Approaches / Comments

## NEXT STEPS

- Finalisation of Database
- Foundry Visits with DEA
- Finalisation of Report

# INFORMATION REQUIRED



- Confirmation of your foundry data + supporting documents ( Licence or Application)
- Special Case studies :
  - Examples of Application problems
  - Emmission Results
  - Example of with a stack, without a stack
- Cost of Installations
- Cost of Ongoing Monitoring



THANK YOU