

# **COVID-19:**

## **The potential impact on MS NECD & CLRTAP compliance**

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& Chris Dore

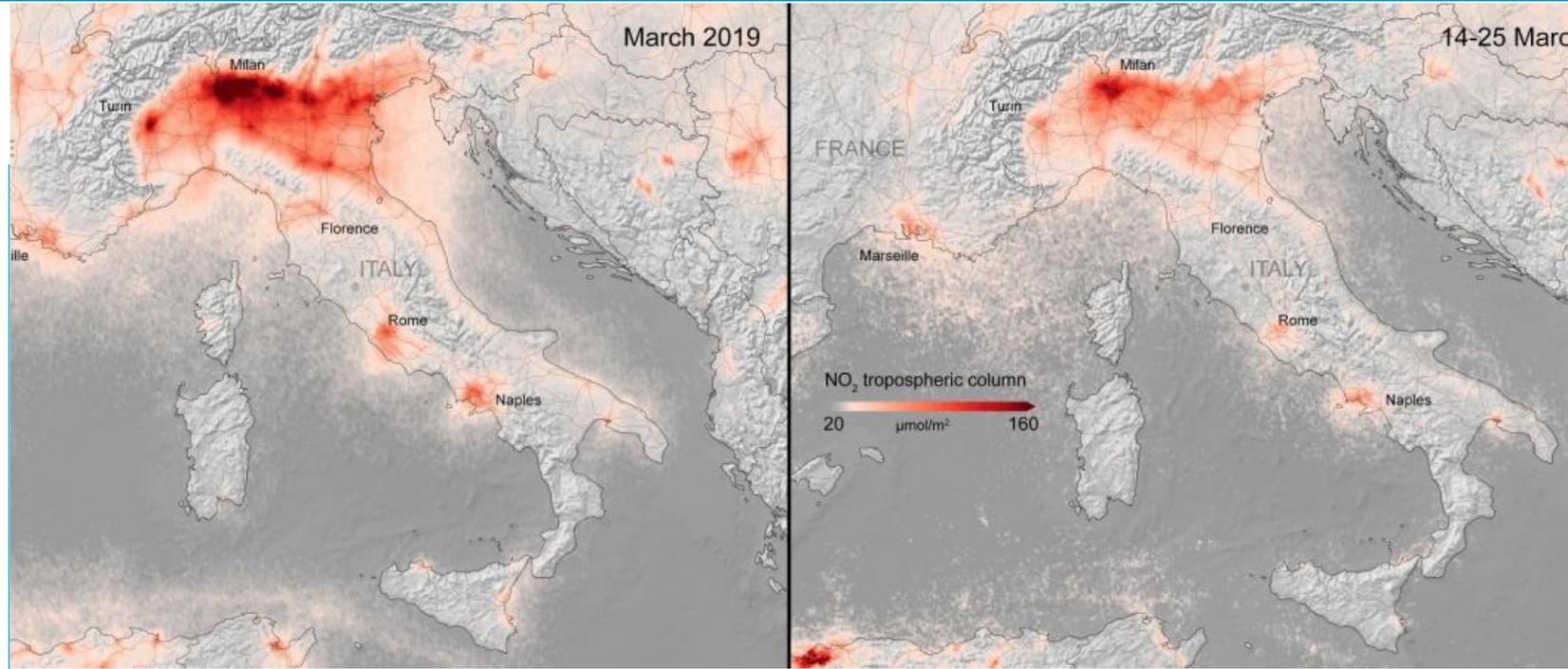
# What are the short and long term impacts on emissions?

*“The current crisis is a unique learning experiment...but [the suspension of enforcement of environmental rules] makes me worry that pollution will just ramp up when the worst is over”*

**Dr. Daniel Westervelt**

Climate and Air Pollution Researcher  
Lamont-Doherty Earth Observatory

Source: [Nature](#) article



- This is not official analysis...
- ... and some “speculation” is needed to arrive at some results.

# Emissions from lockdown and beyond

What changes in activity data can we expect in 2020? And over the next 10yrs?

How is this likely to impact the emissions of each pollutant?

What implications is this likely to have for compliance/non-compliance with the NECD?

# Baseline Assumption

Country	Downtime (working days)
Austria	30
Belgium	25
Croatia	29
Czech Republic	28
Finland	33
France	33
Germany	29
Hungary	22
Italy	33
Netherlands	25
Poland	31
Portugal	34
Romania	31
Slovakia	24
Slovenia	27
Spain	33
Sweden	15
United Kingdom	36
<b>TOTAL (EU + UK)</b>	<b>29</b>

- Lockdown measures to ease over the course of May → **20% of 2020 in reduced activity conditions** (where relevant)
- Difficult to generalise ‘exit strategies’
- No accounting for potential future lockdown periods

Correct as of 4<sup>th</sup> May 2020, note ‘working days’  
Source: [ACEA](#)



# Electricity Generation

Lockdown indicators	Longer-term changes
Drop in <b>electricity demand</b> (-17% GB, -16% FR, -12% DE, -15% IT, -17% ES)	Slow recovery for fossil fuel industry or accelerated decline?
Drop in <b>carbon intensity</b> and increasing use of <b>renewables</b> (-c.25%+ in DE, FR, ES)	Electricity demand may stay low
<b>Coal and oil</b> industrial/power activity likely to have dropped (if like China)	

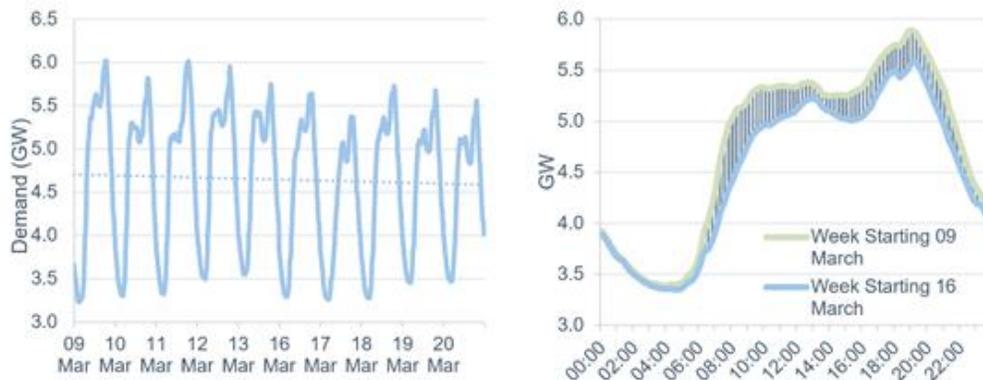
Potential impact on 2020 activity data:

**-5%**

Potential longer-term trend of impact on activity data:



Figures 1 & 2: SEM Demand (left) and average demand profiles (right) for working days 9-20 March



Source: Cornwall Insight Ireland



# Industrial

## Lockdown indicators

40% loss in **GVA** in industry, 40% in manufacturing (ECB staff estimate)

**Supply chain disruption** in automobile, chemical, electronics & aircraft industries

**Automobile industry** one of the worst hit (export expectation for German auto industry down by 42.7%)

## Longer-term changes

Roll-back of environmental regulation?

4 percentage point reduction in GDP growth forecasts for Eurozone

Potential impact on 2020 activity data:

**-8%**

Potential longer-term trend of impact on activity data:



# Residential and Commercial

Lockdown indicators	Longer-term changes
ECMWF estimate 20% <b>increase</b> in residential 'activity' during lockdown	Working from home seen as likely to persist, in near-term at least
<b>Struggling retail</b> sector (outlook for UK retail down by a quarter)	Slow recovery of retail services
Large proportions of population <b>staying at home</b>	Public spending likely to be lower?

Potential impact on 2020 activity data:

**+2%**

Potential longer-term trend of impact on activity data:



# Road transport

Lockdown changes	Longer-term changes
ECMWF estimate 60% <b>decrease</b> in road traffic during lockdown	Increased use of <b>personal vehicles</b> due to public health concerns?
Rapid drop in <b>vehicle use</b> (at 35-45% of normal levels in the UK)	Likely immediate rebound in vehicle use and congestion (see China)
Decrease in <b>congestion</b> in urban centres (35% decrease in NYC)	

Potential impact on 2020 activity data:

**-15%**

Potential longer-term trend of impact on activity data:



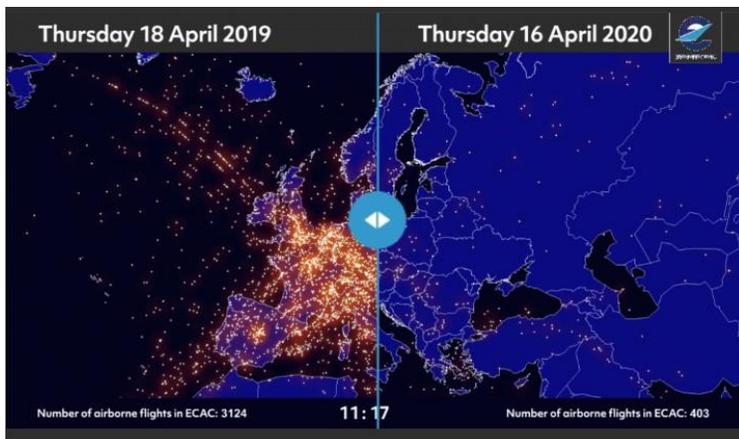
# Other transport/machinery

Lockdown changes	Longer-term changes
40% loss in GVA in <b>construction</b> (ECB staff estimate)	Slow recovery of surviving airlines, tighter border controls
<b>Airline inactivity and collapse</b> (87% reduction in flights across Europe, over 1 million 'deficit' in expected flights)	Estimated 20-30% decrease in <b>tourism</b> across 2020; a sustained shift?
<b>Rail operators</b> on a restricted service across Europe (use down by 95% in UK)	Decreased use of <b>public transport</b> for public health reasons (by 20%?)

Potential impact on 2020 activity data:

**-20%**

Potential longer-term trend of impact on activity data:



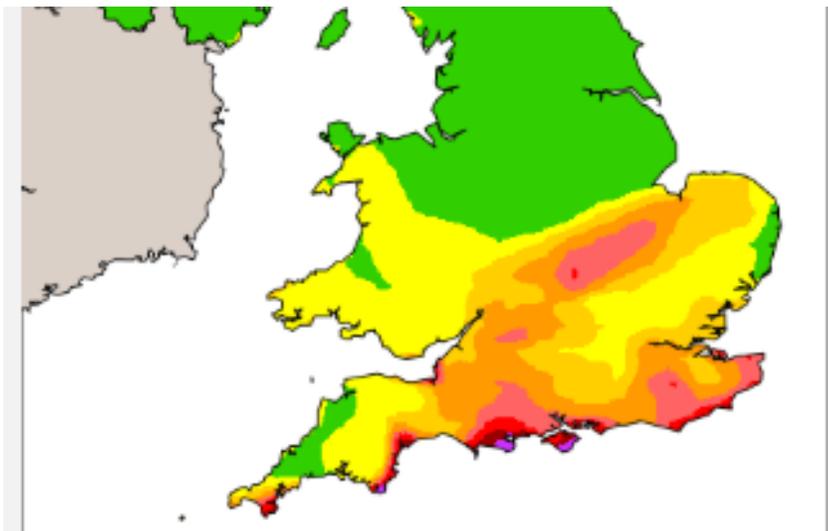
# Agriculture

Lockdown changes	Longer-term changes
Little evidence (yet) of major disturbance to annual growth/slaughter cycles	Changes in crop types/livestock management as food demand changes?
ECMWF estimate <b>no change</b> in agricultural activity during lockdown	
Peak in PM in UK (mid-April) attributed in part to “agricultural ammonia”	

Potential impact on 2020 activity data:

**None?**

Potential longer-term trend of impact on activity data:



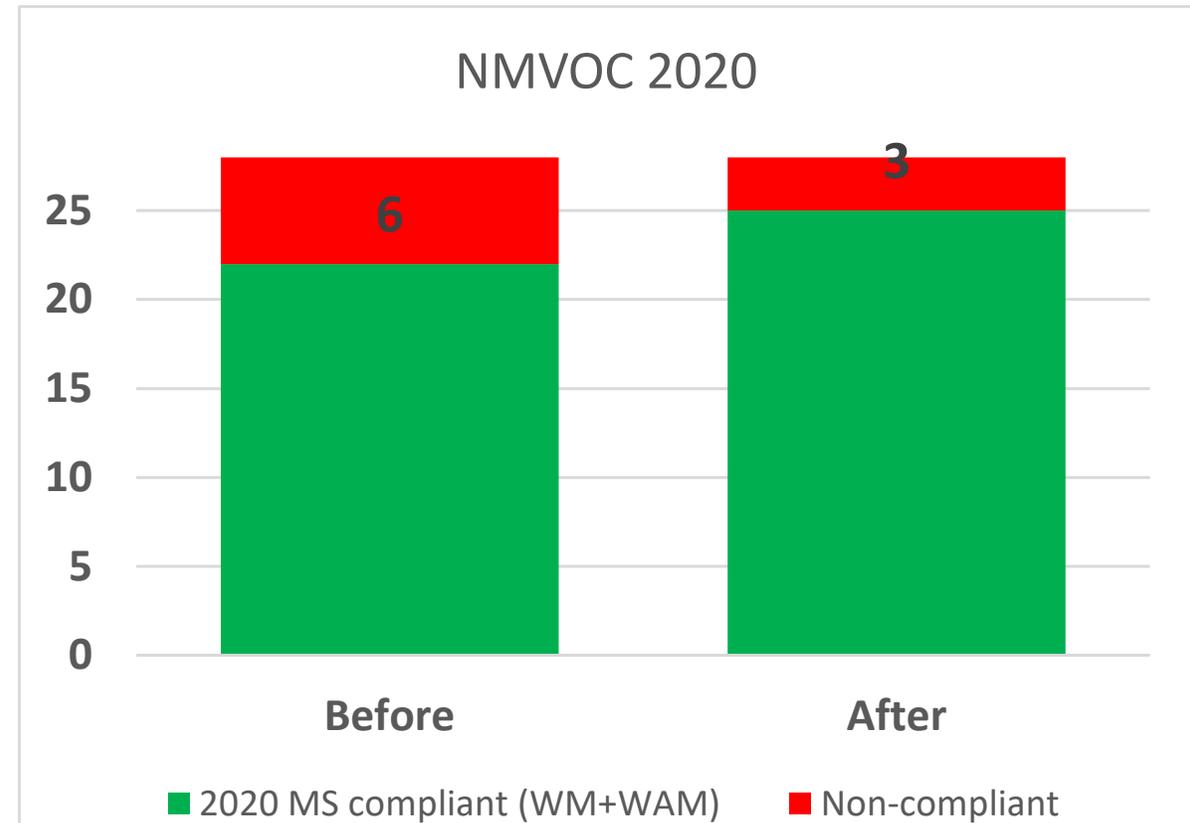
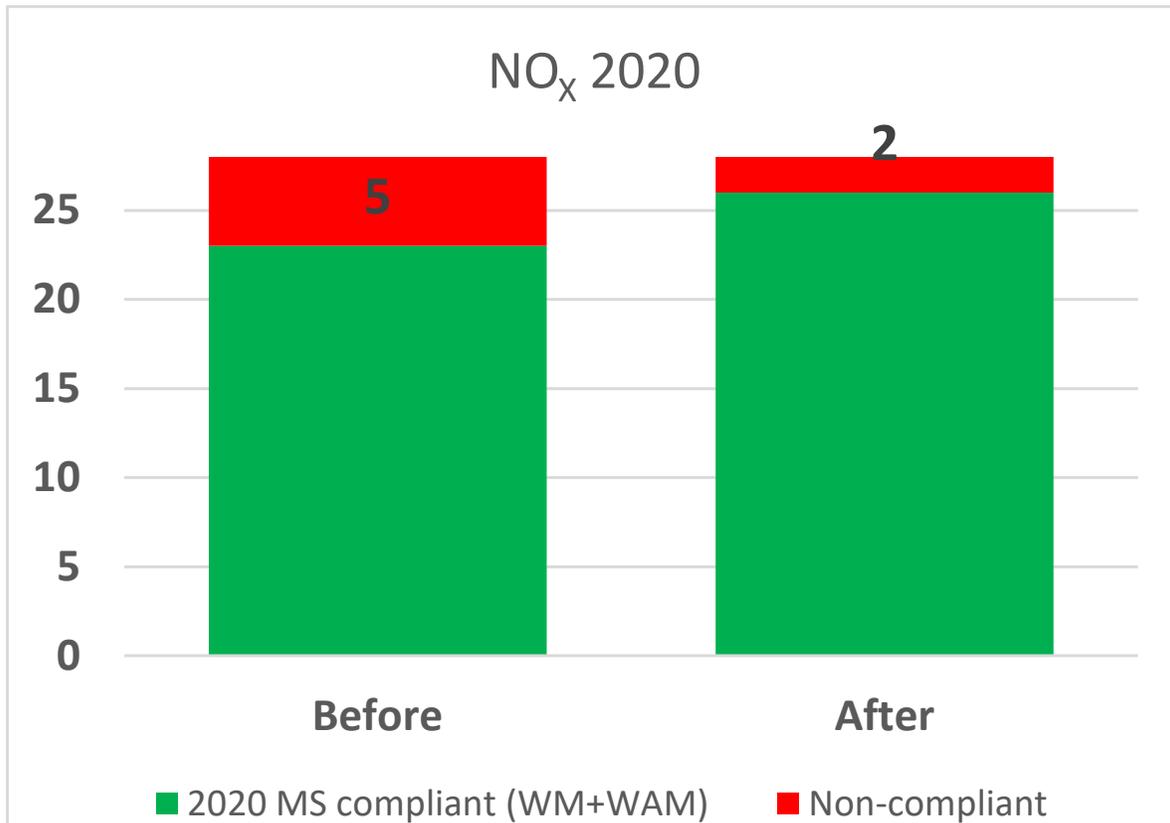
# Summary

Sector	Estimated impact: 2020 AD	Long term impact on AD?
Electricity generation	-5%	Slight decrease?
Industrial	-8%	Slight decrease?
Residential & Commercial	+2%	Slight increase?
Road Transport	-15%	Slight increase?
Other Transport	-20%	Decrease?
Agriculture	No change?	Slight increase?



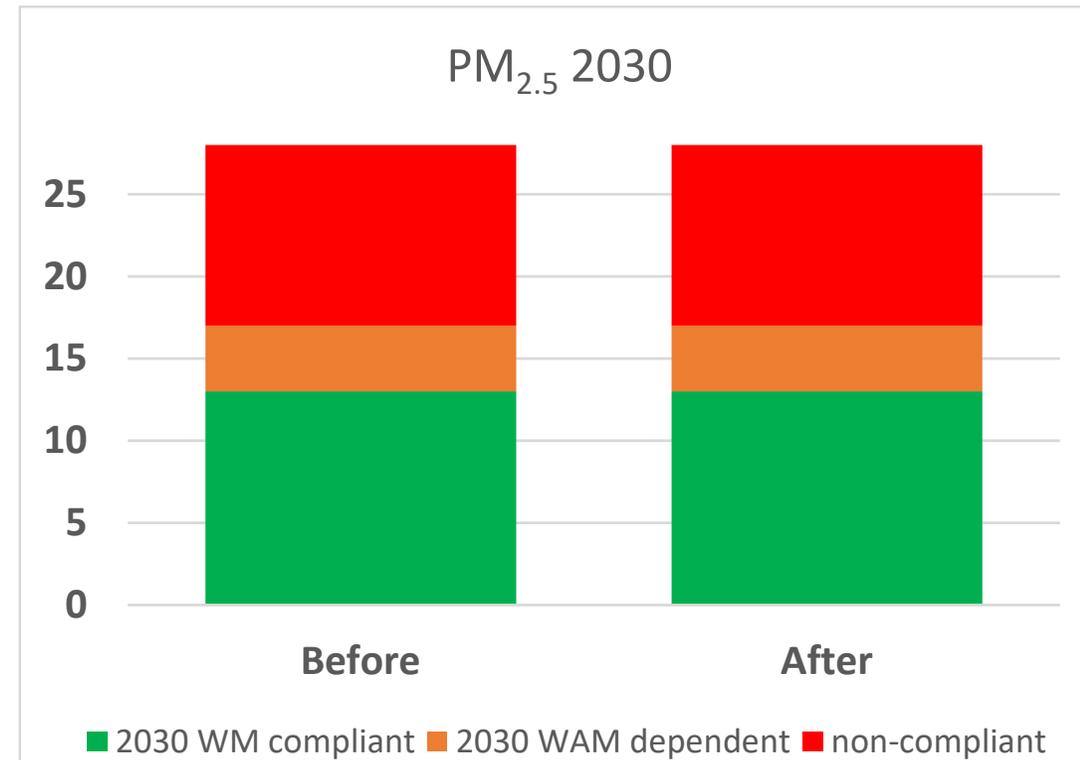
# Potential implications for compliance in 2020

- Assuming the estimated impacts discussed:
  - Projected 2020 non-compliances for SO<sub>x</sub> (1), NH<sub>3</sub> (10) and PM<sub>2.5</sub> (4) are unchanged
  - However, fewer cases of non-compliance for NO<sub>x</sub> and NMVOC:



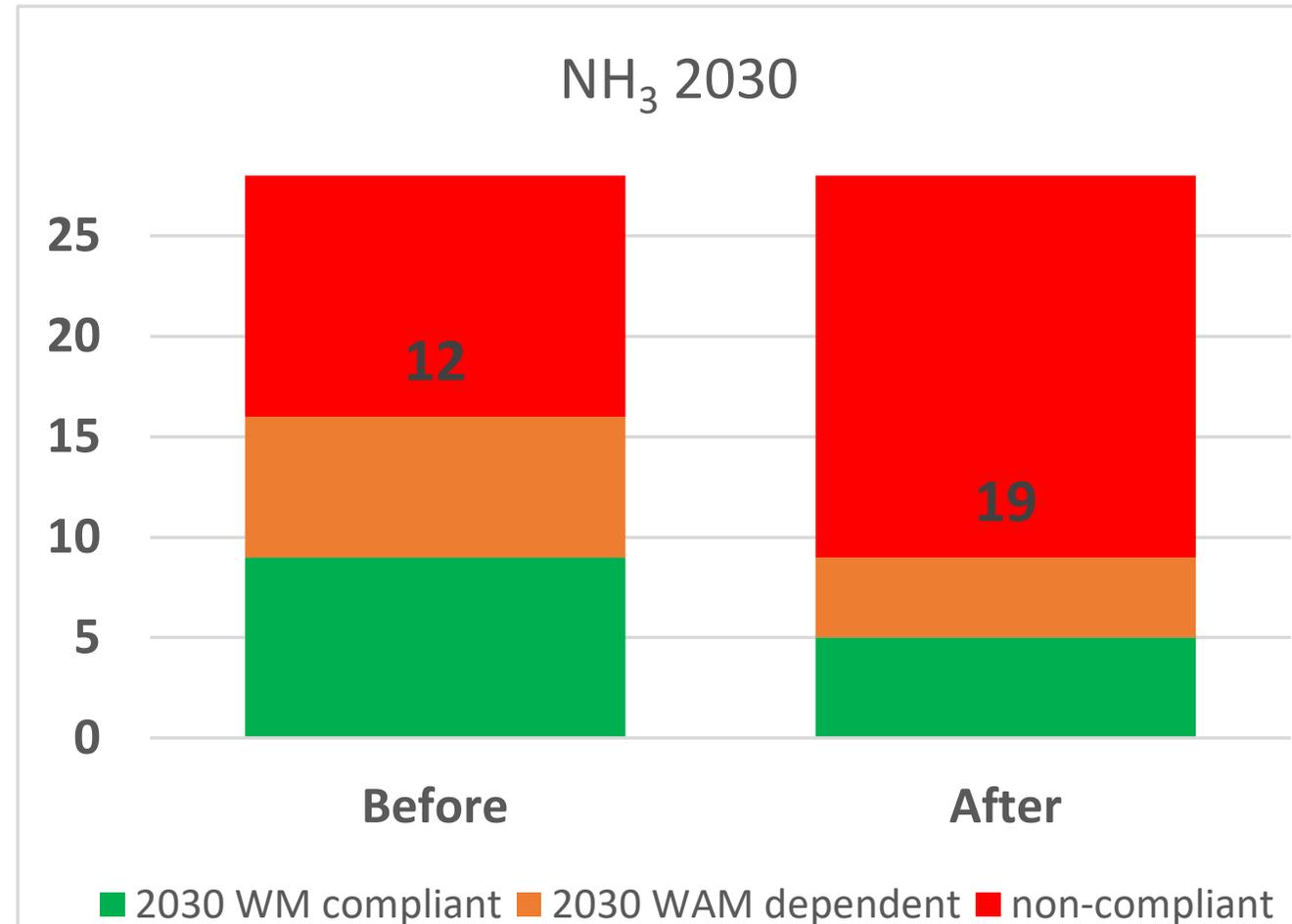
# Potential implications for compliance in 2030 (1)

- Difficult to determine, as it depends on:
  - Rate of recovery from lockdown
  - Whether governments continue to implement WAM during economic hardship
  - ... and it is generally more difficult to forecast 10 years ahead
- No change for:
  - NO<sub>x</sub> – 4 relying on WAM, but further 6 non-compliant
  - SO<sub>2</sub> – 8 relying on WAM, but further 10 non-compliant
  - NMVOC – 4 relying on WAM, but further 10 non-compliant
  - PM<sub>2.5</sub> - 4 relying on WAM, but further 11 non-compliant



# Potential implications for compliance in 2030 (2)

- However, for NH<sub>3</sub>...
  - 12 predicted non-compliances increases to 19 predicted non-compliances
- Some non-compliances may be addressed after reporting of updated projections
- But it will be interesting to see how MS respond across the coming years.



# Crucial consideration: why type of recovery can we expect?

1. Return to BAU?
2. Gradual recovery?
3. Partial recovery?
4. Seasonal disruption as the new norm?

*Beyond the short term, in which sectors can we expect profound change in activity data due to the long-term effects of COVID-19?*



