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# Wait or Mitigate?

Presented by:  
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Inventor

ASIA  
CLEAN  
ENERGY  
FORUM

2022

INNOVATIVE AND INTEGRATED SOLUTIONS FOR A LOW-CARBON AND RESILIENT FUTURE

14-17 June 2022 | [www.asiacleanenergyforum.org](http://www.asiacleanenergyforum.org)



# Our Home - Earth



# Let's Look at Air Pollution

The US EPA:

"...*smoke* is a sign that unburned and partially burned hydro-carbons are being emitted to the atmosphere."

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=9101GK2Y.TXT>

WHO's COP24 SPECIAL REPORT:

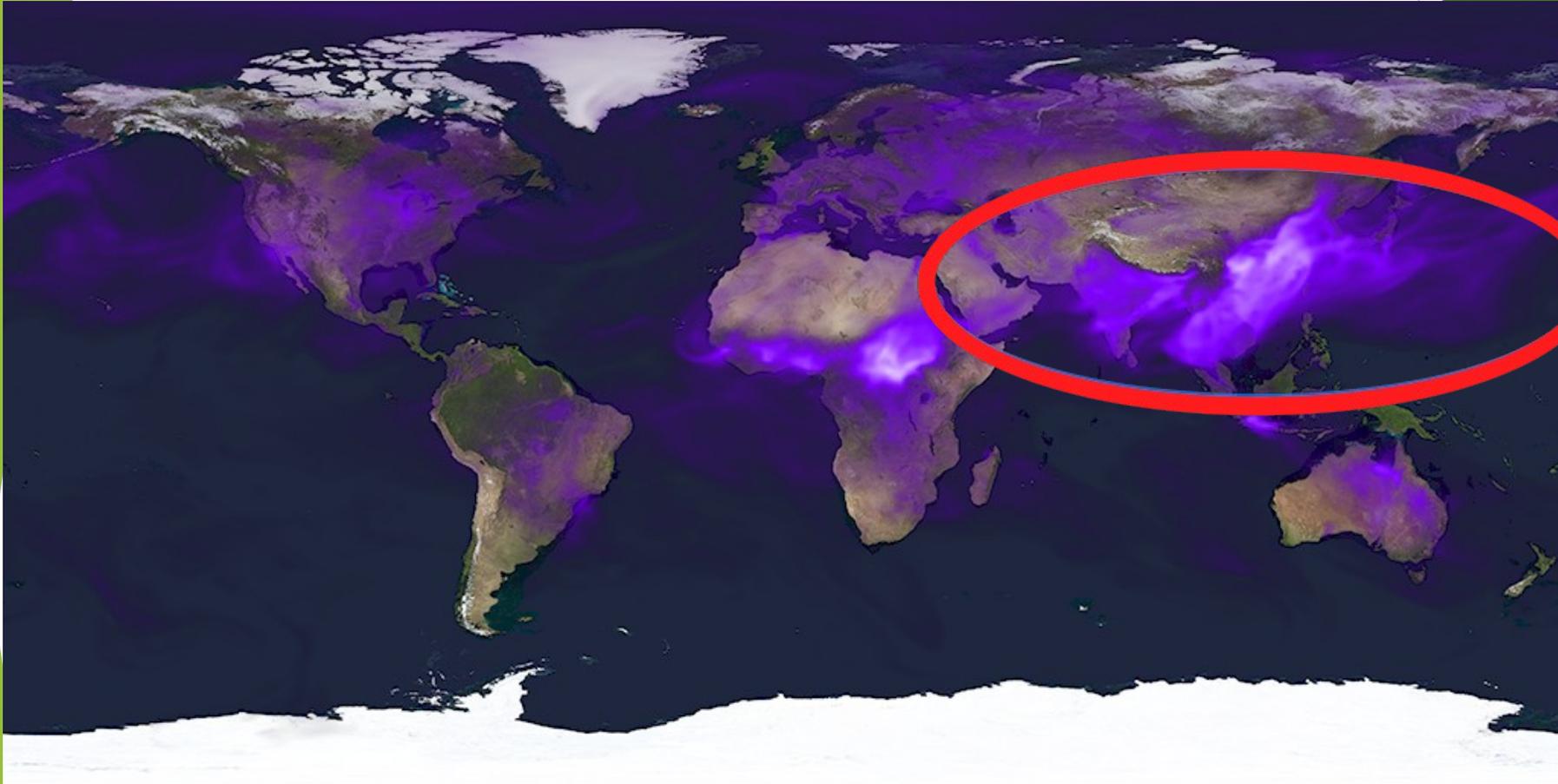
"*Black carbon*, produced by inefficient combustion in sources such as cookstoves and diesel engines, is the second greatest contributor to global warming after CO<sub>2</sub>."

<https://www.who.int/globalchange/publications/COP24-report-health-climate-change/en/>

"WHO reports that in 2012 around 7 million people died - one in eight of total global deaths – *as a result of air pollution exposure.*"

<https://www.who.int/news/item/25-03-2014-7-million-premature-deaths-annually-linked-to-air-pollution>

# Black Carbon in the World



Source: <http://svs.gsfc.nasa.gov>

# Solutions for the Transport Sector

## Ban oil?

**This would also ban most of the world's:**

**Clothing, shoes, carpets, vinyl flooring, towels, bed sheets, cell phones, tablets, laptops, computers, dishes, electric vehicles, costume jewelry, toys, furniture, etc.**

**Since they are all made with – *plastic***

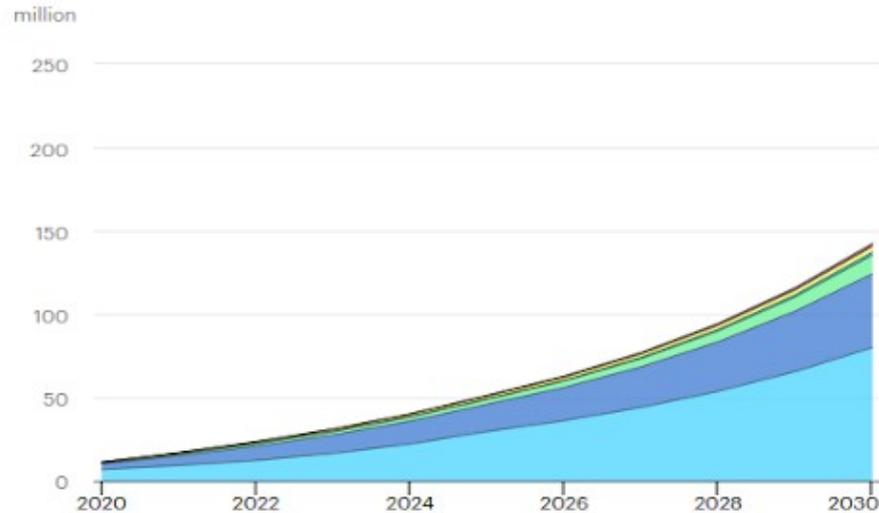
**Which comes from oil**

# Solutions for the Transport Sector

## Electric vehicles by 2030?

Global EV stock by mode in the Stated Policies Scenario, 2020-2030

Open ↗



IEA. All Rights Reserved

● PLDVs - BEV ● PLDVs - PHEV ● LCVs - BEV ● LCVs - PHEV ● Buses - BEV  
● Buses - PHEV ● Trucks - BEV ● Trucks - PHEV

**150 million =**  
**01.33% of the**  
**world's vehicles**  
**according to the**  
**IEA's best 2020**  
**prediction.**

**Or, a reduction**  
**of 0.07% of**  
**the world's CO2**  
**emissions.**

# Maybe a 'Bridge Solution'?

→→→ **WHICH CAN BRIDGE** →→→



© Can Stock Photo



**TODAY**

**TOMORROW**

# 'Bridge Solutions' Do Exist



AERO-NOX achieved the emissions reduction shown in Table 2 at the above stated conditions.

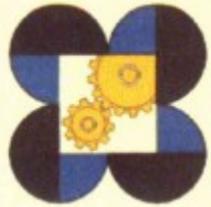
Table 2. Verified emissions reduction for AERO-NOX

Critical Parameters	Diesel-fueled vehicle (Isuzu Crosswind 2003)			Gasoline-fueled vehicle (Nissan Sentra Sedan 2000)		
	Without AERO-NOX	With AERO-NOX	Emissions reduction, %	Without AERO-NOX	With AERO-NOX	Emissions reduction, %
CO, ppm	239	141	41	-	-	-
SO <sub>2</sub> , ppm	0	0	-	0	181	-
NOx, ppm	135	71	48	322	167	48
Temperature, °C	56.2	59.5		43.1	46	



(Low cost, lower emissions while waiting for new tech)

# Our 'Bridge Solution' Before & After Standard Opacity Testing



Republic of the Philippines  
Department of Science and Technology  
**INDUSTRIAL TECHNOLOGY DEVELOPMENT INSTITUTE**  
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<http://www.itdi.dost.gov.ph>



Management  
System  
ISO 9001:2015  
[www.tuv.com](http://www.tuv.com)  
ID 9108635715



<i>Kia K2700 (diesel-fueled)</i>	Without	With	% change
Opacity or light absorption coefficient (k), m <sup>-1</sup>	1.16	0.28	(75.862)

# Our 'Bridge Solution'

**~0.15~** in a standard diesel opacity test

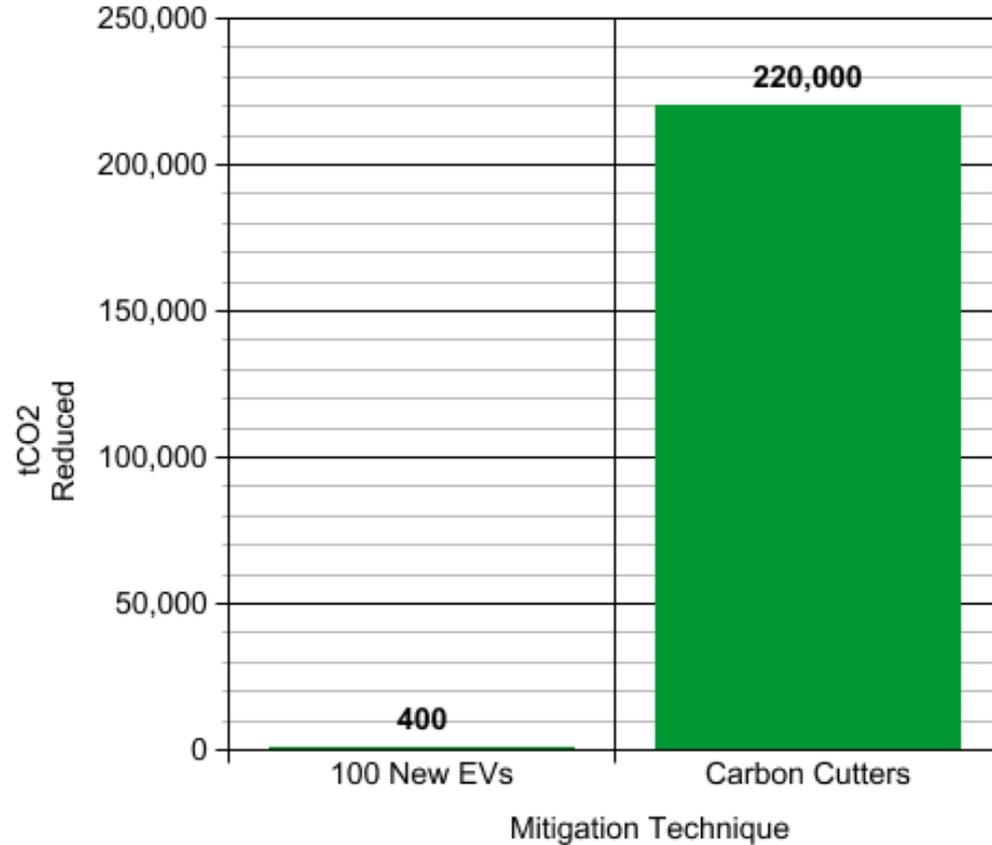
**Vehicle: Unmodified turbo diesel SUV**



**Philippine country average == 2.00**

# Our 'Bridge Solution'

tCO2 Reduction / USD5M



**For your  
USD50M,  
EVs or\_?**

# The World has a Choice...

**Sit tight and wait for technology that cannot be 100% implemented by 2050 while we let the current levels of pollution continue, ever so slowly reduced.**

**~ Or ~**

**Use the resources we have now ~efficiently~ with 'bridge solutions' while also working on cleaner technologies for the future and reduce pollution greatly within a decade.**

- Easily reach your NDCs
- Effects 5 SDGs \*
- Gov't & Univ-verified
- Fast to implement



**Reduces emissions TODAY**

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\* 3, 5, 8, 11 & 13