

# *E-mobility in Egypt and the larger context*

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## **The future of E-mobility and Urban Planning in Egypt *EV Developments in the context of Sustainable Cities***

مستقبل التنقل الكهربائي في اطار التخطيط العمراني في مصر

تطورات المركبات الكهربائية في إطار المدن المستدامة

19-20, November, 2019, Semiramis Hotel, Cairo



**2018**



**MAINSTREAMING  
ELECTRIC MOBILITY  
IN EGYPT  
POLICY BRIEF  
2018**



**2019...**



# Electric Vehicles are not only Electric Cars!



## Costs in decline, but future is not about the traditional ownership model

Battery pack price (real 2018 \$/kWh)



Source: BloombergNEF

Li-ion battery pack price over time (volume-weighted average)

**3Rs (Re-use > Reduce > Recycle) in progress**

# Micromobility on the rise

Planners racing to regulate & accommodate

**June 2019:** Germany's new regulation allowing personal light electric vehicles (LEVs) such as e-scooters and segways on public roads (bike lanes wherever available) for anyone over the age of 14.



Dockless shared vehicles: Download app, find vehicle, scan QR code, unlock, ride.











EUREF - Campus

1965 - 1966





Wireless charging through “inductive” charging (equipment embedded under the pavement)



*Catering to walking & cycling =  
Catering to future mobility ?*



Ahmed El-Dorghamy

Along the corridors of the Ministry of Transport and Digital Infrastructure in Germany, the **bicycle** is idolized as a symbol for the future of sustainable mobility and people-centered planning for sustainable cities.

# DISRUPTING THE CAR

Alternatives to car ownership by trip length

## Micromobility

0-5 miles



### BIKES & SCOOTERS



**60%** of trips in the US

## Medium distance

5-15 miles



### RIDE HAILING



**25%** of trips in the US

## Long distance

15+ miles



### CAR SHARING



**15%** of trips in the US

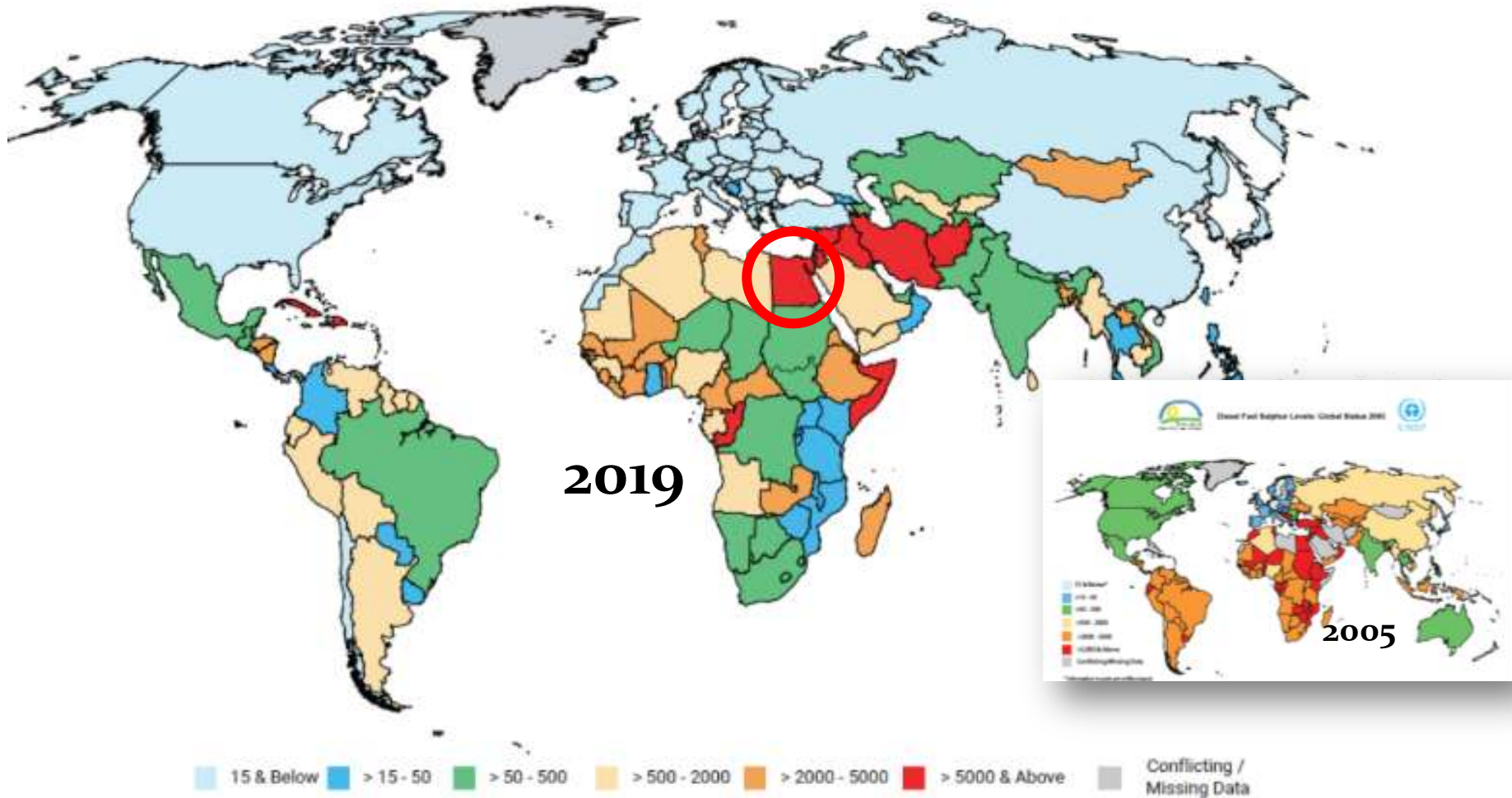


# Status in Egypt

# Air pollution priority: Diesel quality



## Diesel Fuel Sulphur Levels: Global Status February 2019



\* Information is in parts per million (ppm)  
For additional details and comments per country, visit [www.unep.org/transport/](http://www.unep.org/transport/)



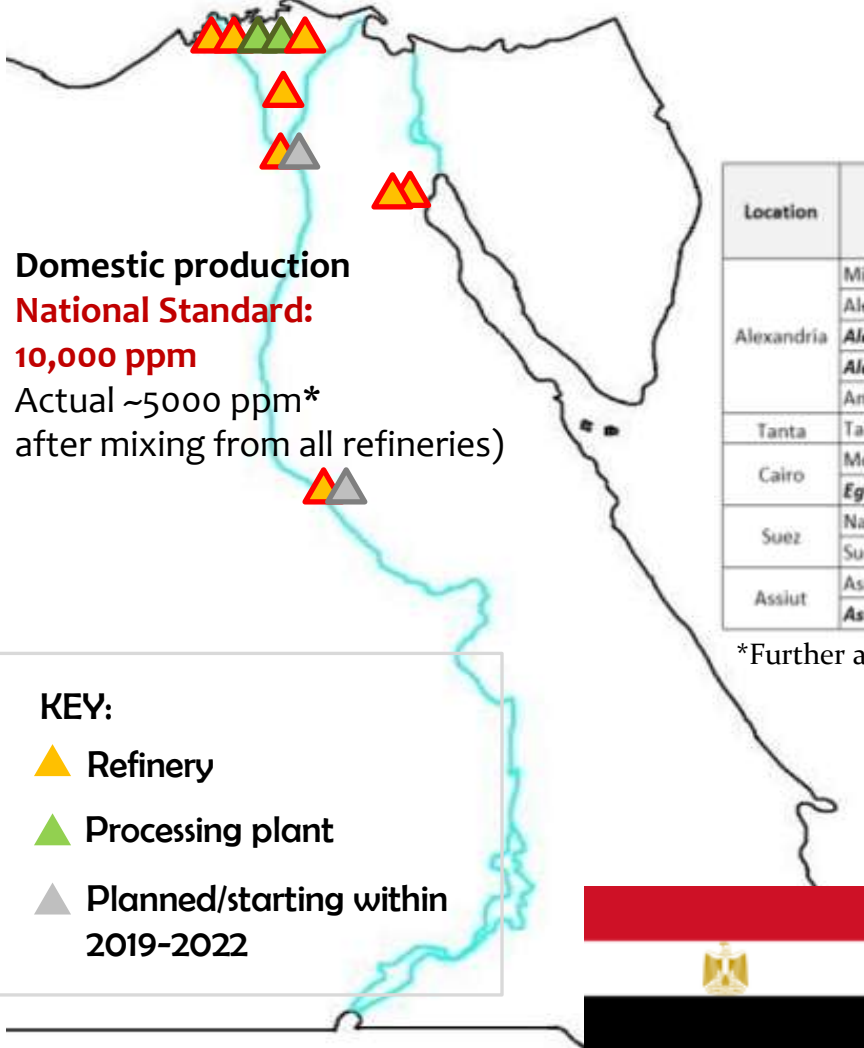
# SITUATION ANALYSIS: Existing + planned projects up to 2030

Imports ~10ppm (Egyptian standard specification for diesel fuel import, can be up to 1000 ppm)

Weighted average of *both* imports & domestic production today:

**~2,600ppm at the pump station**

By 2030: **~1900ppm, i.e. still 100 times more than Euro-V standards.**



Location	Name of Refinery / Processing plant (by 2022*)	Configuratin/type	Sulfur content announced (ppm)
Alexandria	Middle East Oil Refinery (MIDOR)	Deep conversion	10 ppm
	Alexandria Petroleum Company (APC)	Deep conversion	Not disclosed
	Alexandria Minerals and Oils Company (AMOC)	[Conversion processes]	Not disclosed
	Alex National Refining and Petrochem. Company (ANRPC)	[Conversion processes]	(no diesel production)
	Amreya Petroleum Refining Company (APRC)	Conversion	Not disclosed
Tanta	Tanta - Cairo Oil Refining Company (CORC)	Topping	Not disclosed
Cairo	Mostorod - Cairo Oil Refining Company (CDRC)	Hydroskimming	Not disclosed
	Egyptian Refining Company (ERC)	[Deep conversion processes]	10 ppm
Suez	Nasr Petroleum Company (NPC)	Topping	Not disclosed
	Suez Oil Processing Company (SOPC)	Conversion	Not disclosed
Assiut	Assiut Oil Refining Company (ASORC)	Topping	Not disclosed
	Assiut National Oil Production Company (ANOPC)	[Deep conversion processes]	10 ppm

\*Further analysis of prospective projects up to 2030 conducted as *what-if* scenarios.

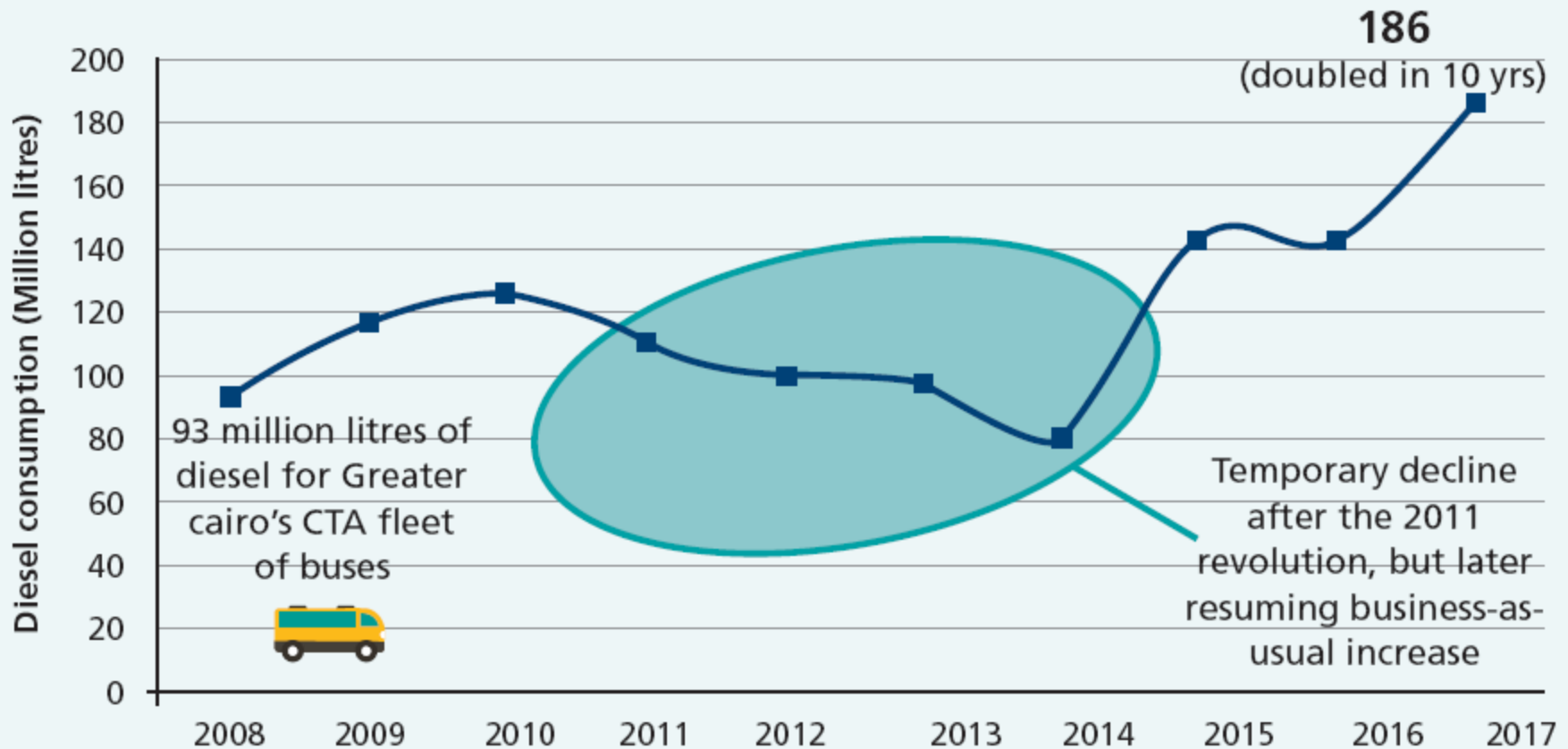
**Government Direction:** 2030 Strategy of self-sufficiency by 2030

**Challenge:** By 2030, high-sulfur diesel will *still* be in the mix, poisoning vehicle emission-control devices (>100 times higher than Euro-5 target).

The needs of Environmental & health authorities:  
**Nation-wide Euro-5 standard, starting with Greater Cairo**

\*Sources: UN Environment/PCFV Global Status and CEDARE survey and analysis

# Cairo Transport Authority (CTA) fleet



# EV status in Egypt

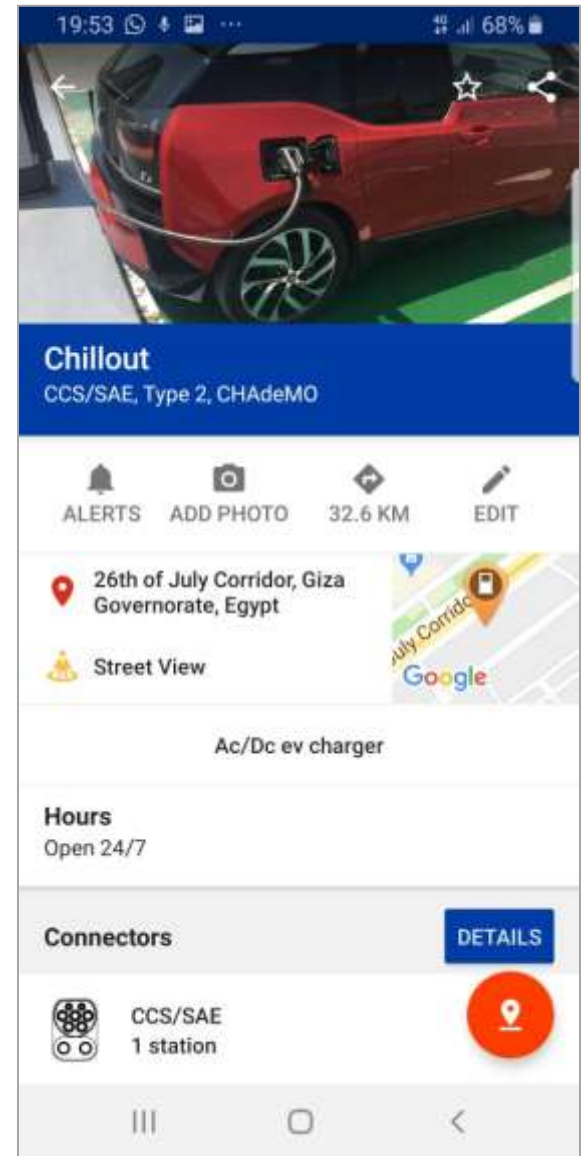
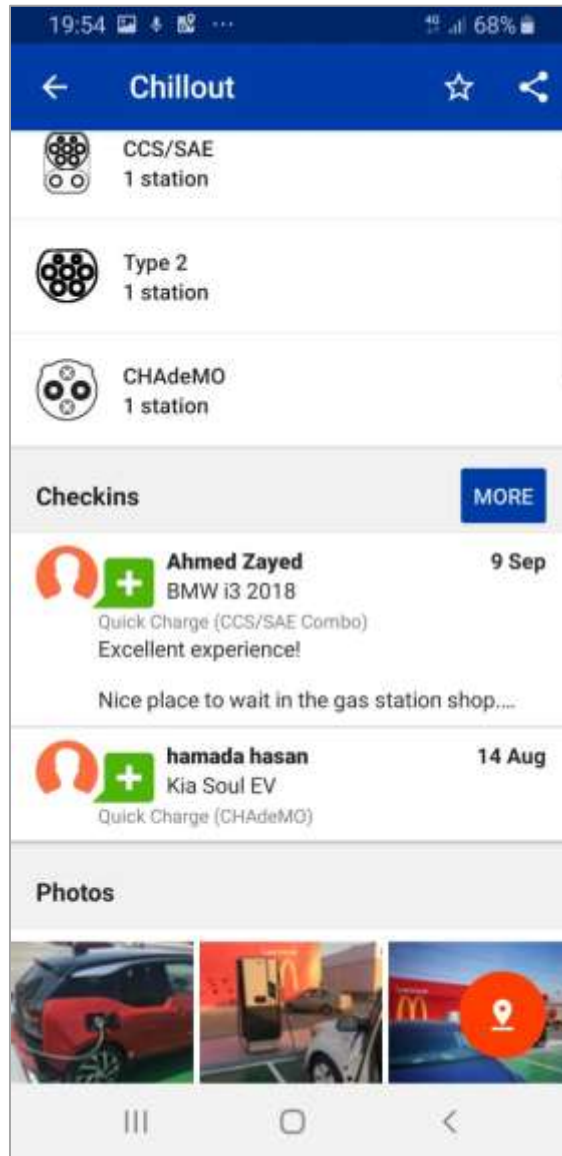
- Strong political will to enhance **local production** + strong grassroots interest
- **Compressed Natural Gas (CNG)** vehicles seen by the gov. as the quick-win alternative for diesel at the moment, but **EVs next**.
- Incorporation in plans in the **new administrative capital**.
- Full **custom duty exemption** for electric **cars**
- **Allowed import of used** electric cars (up to 3 yrs).
- Institutional capacity in **vehicle replacement schemes** (yet challenged by limited funding).
- **Alexandria** Passenger Transport Authority (APTA) – **15 buses** + charging stations.
- Various local players, exploring **cleaner fleets**, introducing limited numbers of **electric cars** and **charging stations**, current & future plans in **electric two & three wheelers**, some initiating local production.



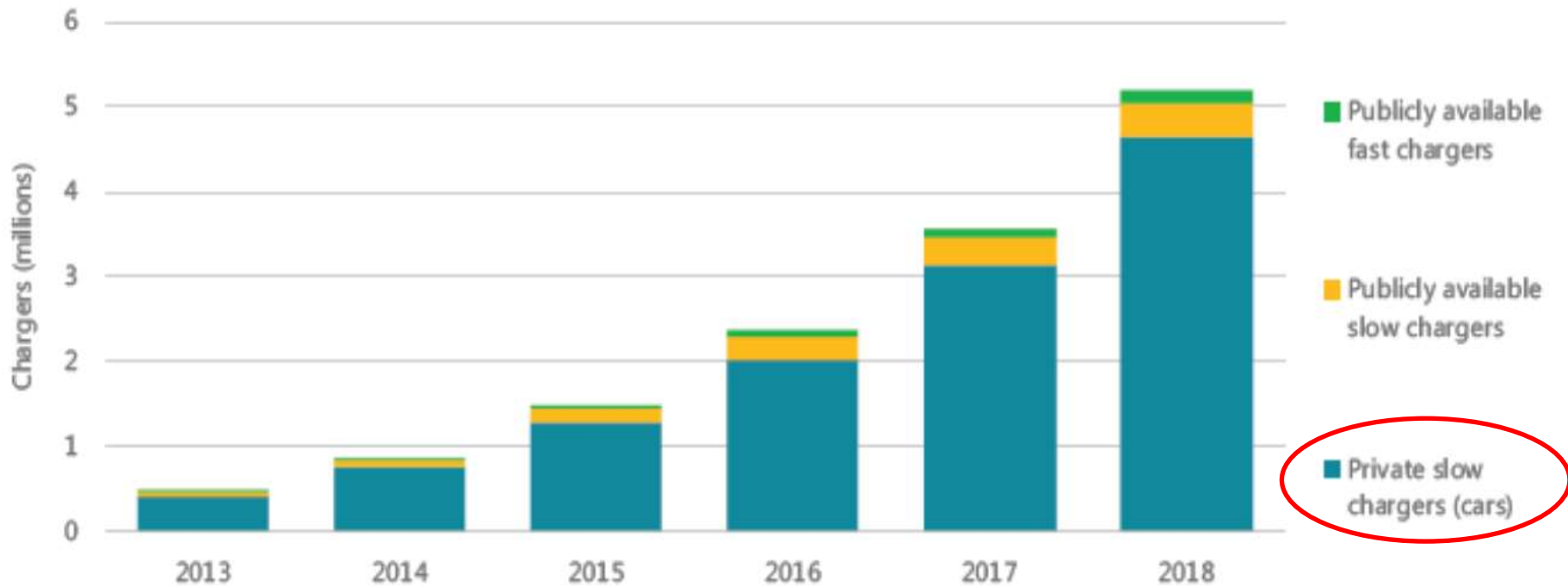
## EV status in Egypt (...cont)

- Significant roll out in progress.
- Strategy and standards yet to be developed for both EVs and charging infrastructure; e.g. **car licensing** challenges, but in progress.
- Substantial engagement from **development banks** offering various forms of potential support.
- Environmental authorities interested in the larger “**mix** of solutions”, i.e. **integration with other elements of sustainable cities**.





# Reality check: Most charging is home-charging / slow-chargers



Source: IEA, 2019

Global installation of electric LDV chargers, 2013-2018 indicating the vast majority being private slow chargers.

E-bike sharing system in El-Gouna, Egypt, later replicated in other resorts in the North Coast





**Tech-enhanced ride-hailing fleet of 20 E-tuktuks in El-Gouna, with battery-swapping recharging:  
A demo of system-level solutions for electrification & tech-enabled management of tuktuks.**




  
**El Gouna Solar Tuktuk**  
For the first time in Egypt and the Middle East  
100% Electric      Zero Emissions  
ELECTRA

  
ELECTRA

  
**#SeeNoPollution**

  
**#HearNoPollution**

  
**#BreatheNoPollution**



**Discussion:** A pedestrian street in Egypt, upgraded and conserved by Egypt's leading advocates of sustainable urban planning and heritage conservation (El-Shawarby Street, Downtown Cairo)



# E-BIKES AND E-SCOOTERS: DRIVERS OF CLIMATE ACTION

Electric bikes and scooters are more than a convenient first-last mile solution in cities. They also reduce emissions while catalyzing a broader shift toward sustainable transport.



**Choosing an e-bike or e-scooter instead of a car translates to measurable emissions reductions:**

A 5% increase in trips made by bicycle and electric micromobility instead of cars globally would reduce CO<sub>2</sub> emissions by 7%—the equivalent of taking more than **134 million cars off the road** by 2030.



BUS

**QUIET STREETS**  
E-bikes and e-scooters are quieter than cars and motorcycles, making streets and public spaces more pleasant for pedestrians and cyclists.

**CONVENIENT ALTERNATIVES**  
E-bikes are competitive with cars on travel time, especially for trips up to 10km.

**SAFE STREETS**  
As the number of e-bike and e-scooter riders, cyclists, and pedestrians increases, streets become safer for all users.

**EQUITABLE ACCESS**  
E-bikes and e-scooters are attractive to—and increasingly used by—women, older adults, and other groups who have not felt comfortable on traditional bicycles.

**E-bikes and e-scooters fill gaps in the transport network, making a combination of cycling, walking, and public transit the easy choice over cars for more trips:**

In Portland, Oregon, **6% of e-scooter users reported getting rid of a car** due to the availability of micromobility options.

## What cities can do:

### LEGALIZE

Make low-speed e-bikes and scooters legal in cities. Regulate them as bicycles, not motor vehicles, so license and insurance are not required to ride.

### STANDARDIZE

Clearly define and enforce speed maximums for e-bikes and e-scooters to distinguish where they can safely share cycle lanes with pedal bicycles.

### DESIGN

Ensure cycle lanes are protected and form a complete network, safely accommodating low-speed e-bike and e-scooter riders in addition to pedal cyclists.

### MANAGE

Enforce rules for bikeshare and scootershare operators to ensure that sidewalks are clear, and shared bicycles and scooters are well-maintained.

### MONITOR

Collect and analyze data on trip length, frequency of use, and destinations to better quantify personal e-mobility use, and scale and improve shared systems.

# Prospects for first *Low-emission Zone* in the Middle East and Africa?

Global trends and inspiration...

- Diesel vehicle bans and restrictions in big cities (e.g. C40 announcements)
- Trending Low-Emission Zone enforcement (e.g. London, Berlin, Rotterdam, Stockholm, India, etc)



Low emission (environmental) zones combine car restriction measures with pollution mitigation and are implemented at various scales around the world such as in London (left) and in Berlin (right).



*Thank you...*

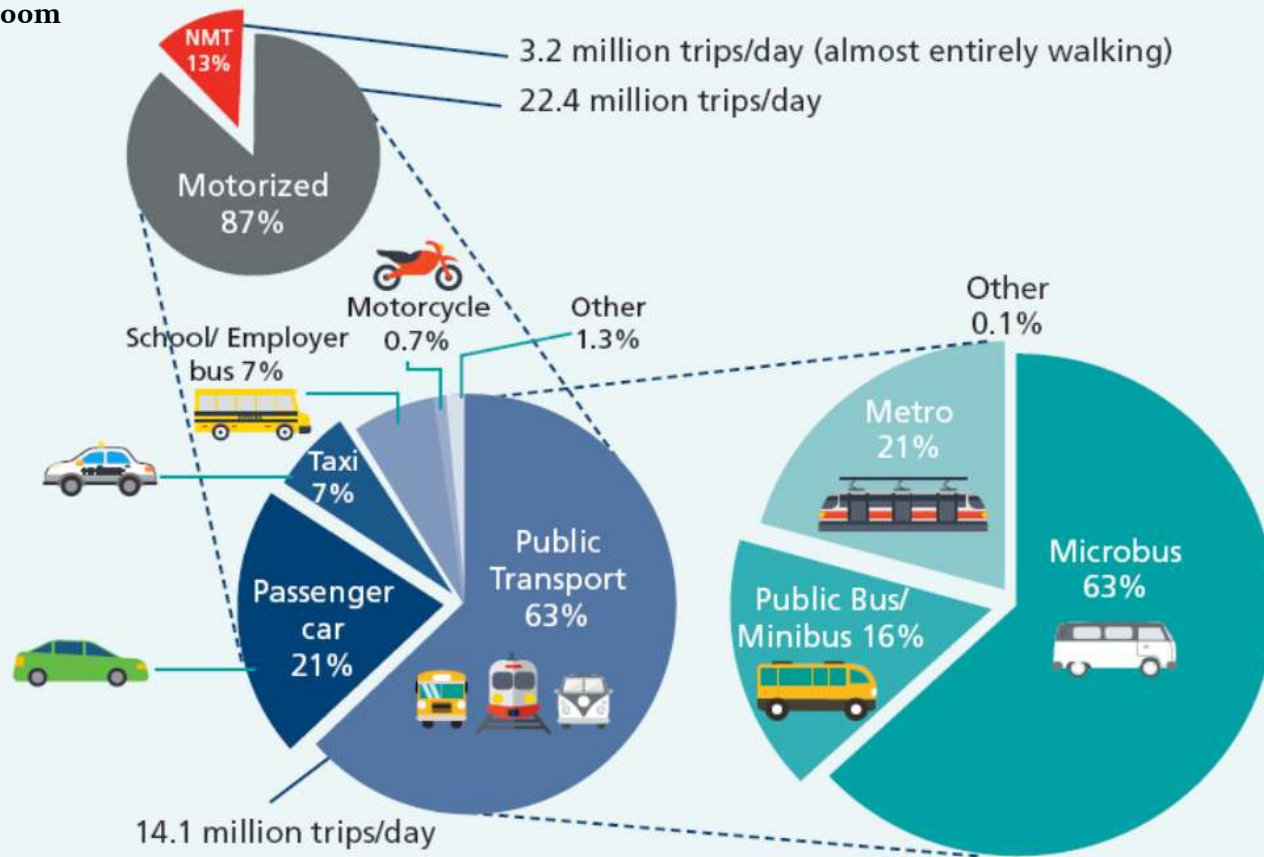


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# Back up slides

## Modal split in the capital

Trip > 500m



Modal split of trips in Greater Cairo (primary mode, >500m) but missing the secondary modes and the shorter trips, and missing tuktuks.

Source: CREATS, 2002 data; model-based updates by MoT in 2014







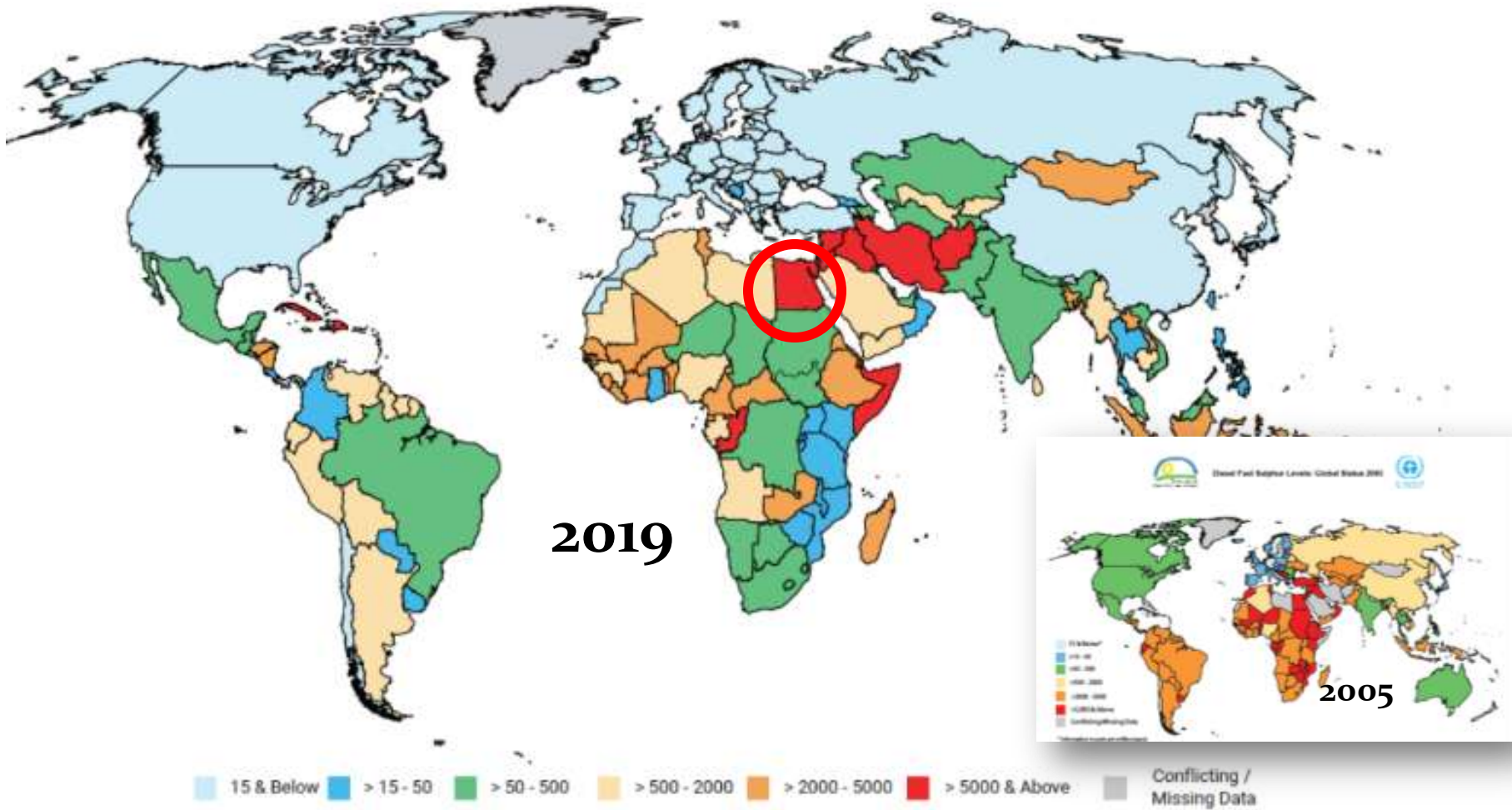


ELECTRIC VEHICLE CHARGING STATION



ELECTRIC VEHICLE CHARGING STATION





\* Information is in parts per million (ppm)  
For additional details and comments per country, visit [www.unep.org/transport/](http://www.unep.org/transport/)