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Brief Insights on the Global Bus Market



8 Transformational Shifts in Passenger Mobility



Multi-modality

Transit Buses, Urban Rail, and Taxis



Shared Mobility

Intent to Check Expense and Beat Traffic



Mobility Integration

Smartphone Enabled Seamless Commuting



Dedicated Road Lanes

Preference for Shared Mobility Models



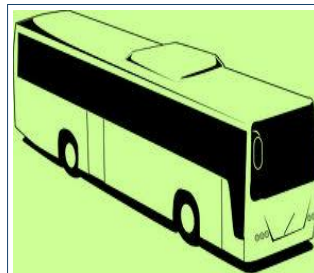
Last Mile Connectivity

Route Flexibility in Public Transit Services



Leveraging Big Data

Fleet Readiness and Meet Peak Hour Demand



Electric Mobility

Transit Buses to Pioneer Zero Emission Drive



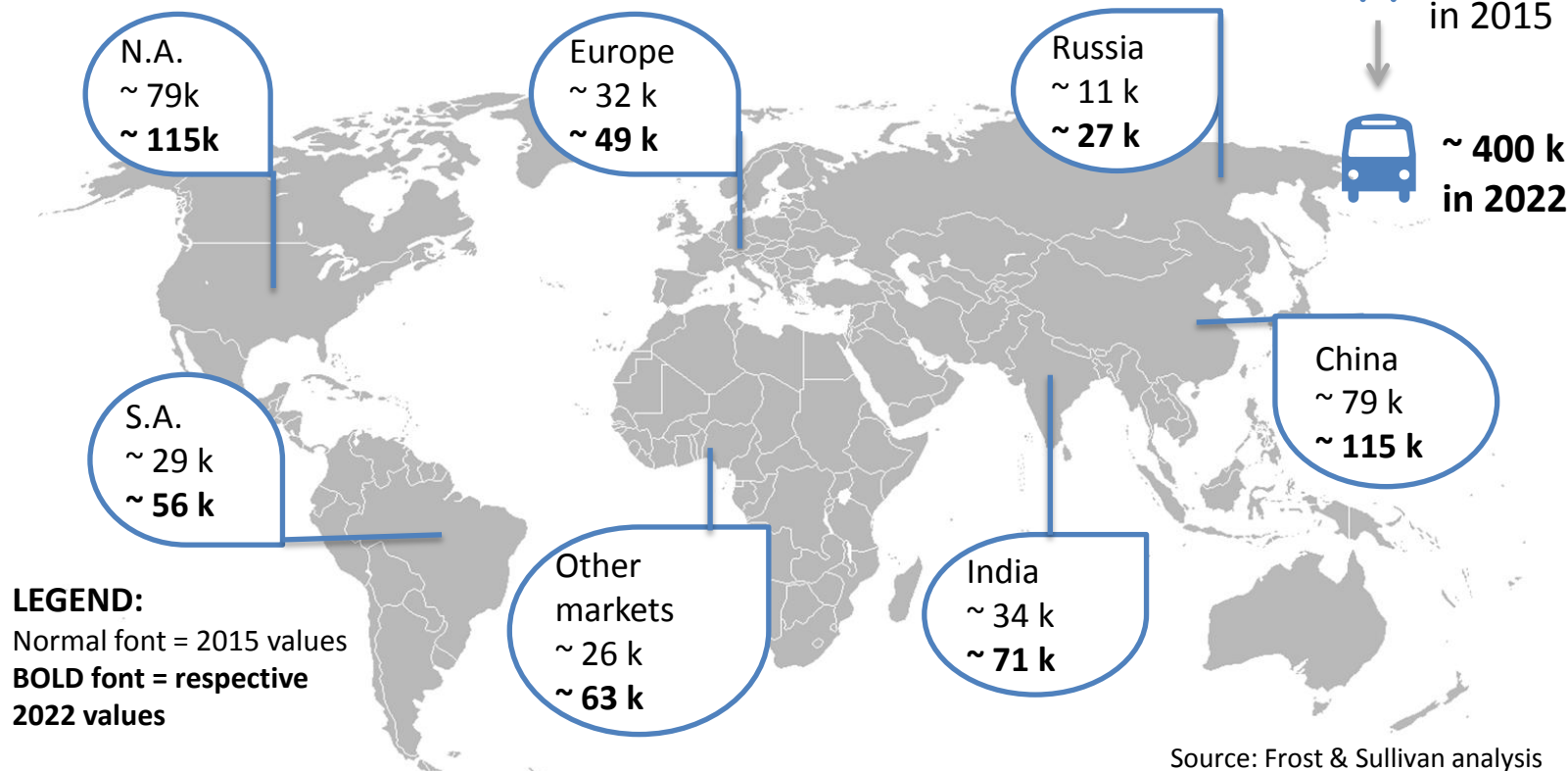
Battery & Charging Tech

OEMs entering new markets and partnerships



Global HD Bus Market – CAGR of 8.6%

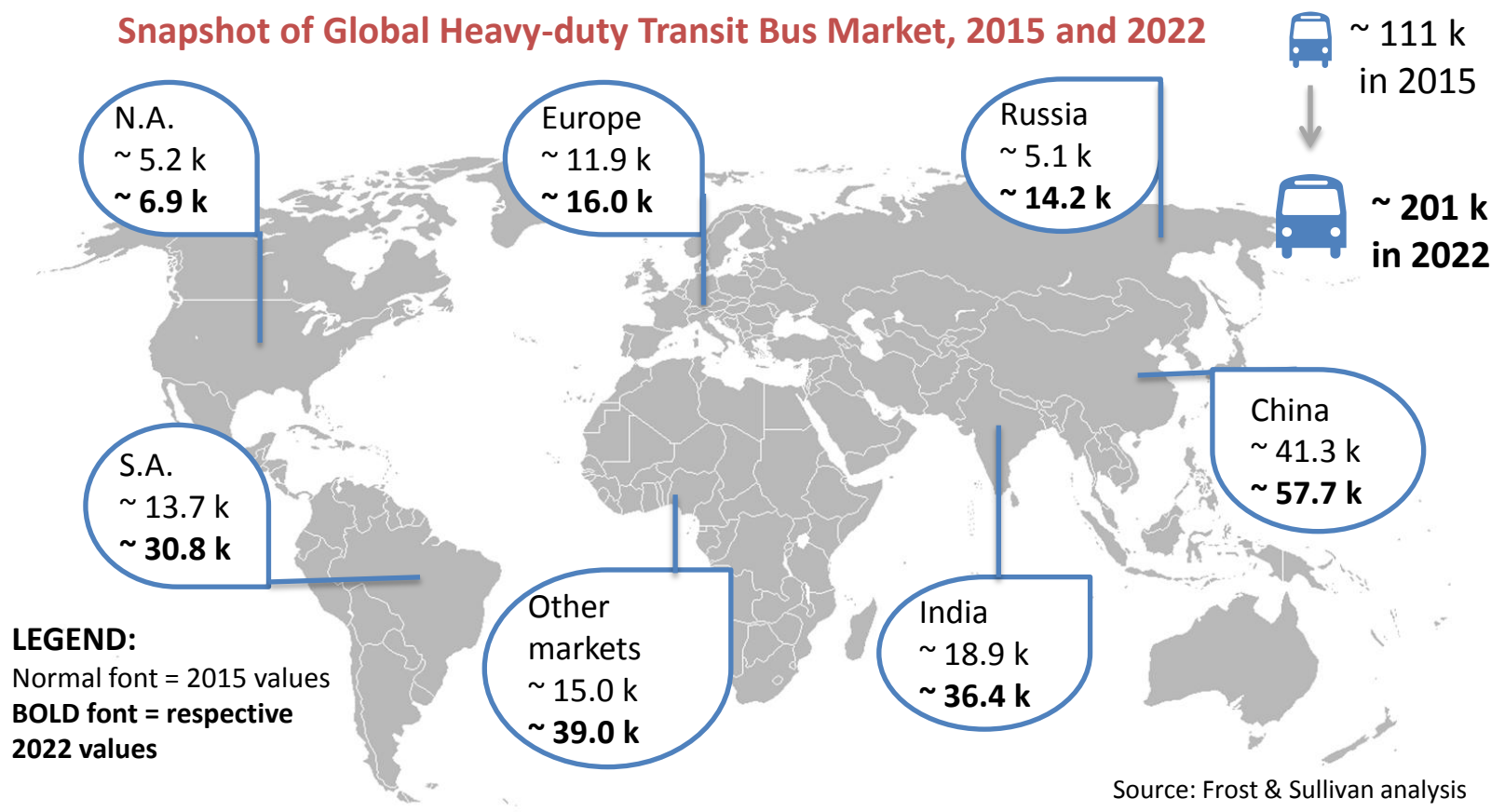
Snapshot of Global Heavy-duty Bus Market, 2015 and 2022



HD Buses includes - Transit Buses, Coaches, Shuttle Buses, and School Buses more than 9m in length and more than 8T GVWR

Global HD Transit Bus Market – CAGR of 8.4%

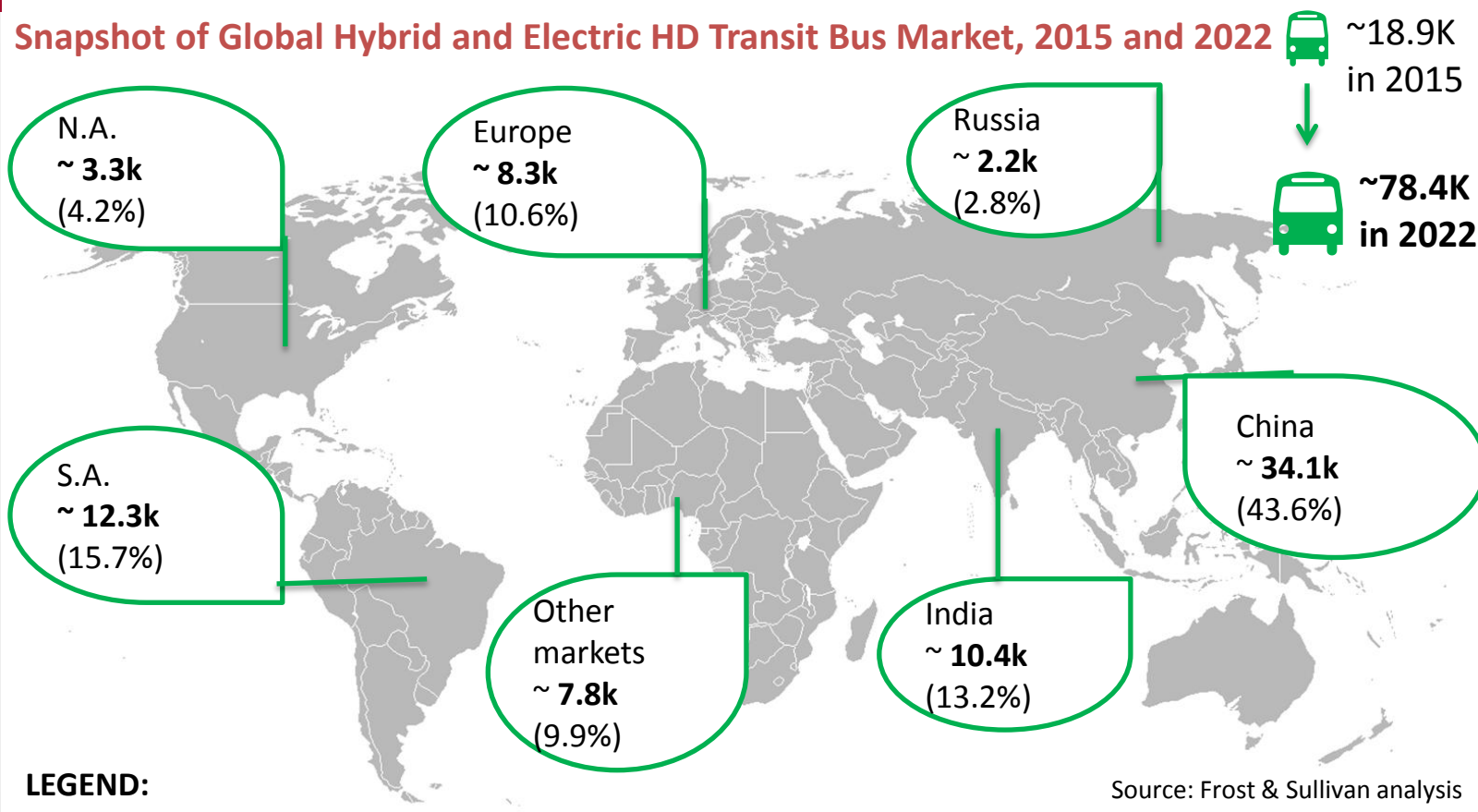
Snapshot of Global Heavy-duty Transit Bus Market, 2015 and 2022



Transit Buses includes – City/Urban Buses more than 9m in length and more than 8T GVWR

The Green Push – From 1 in 7 to 1 in 3

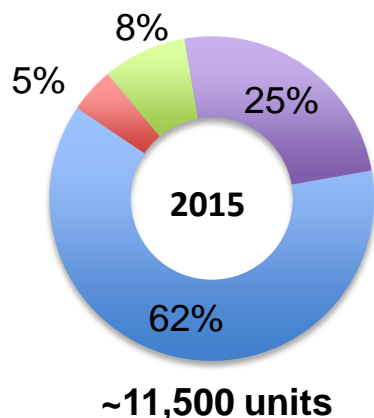
Snapshot of Global Hybrid and Electric HD Transit Bus Market, 2015 and 2022



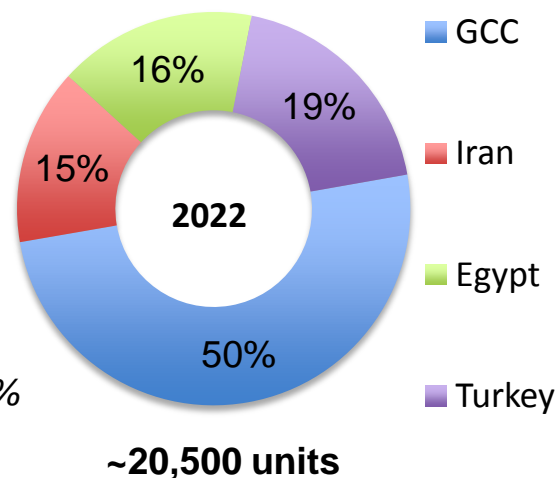
% denotes the respective region's forecast share of new energy buses in total global HD transit bus sales in 2022.

Middle East Region Poised for Strong Growth

- Turkey expected to grow at ~4.4% CAGR, reaching ~4000 units by 2022
- Iran expected to grow at ~27% CAGR; reach ~3000 units by 2022



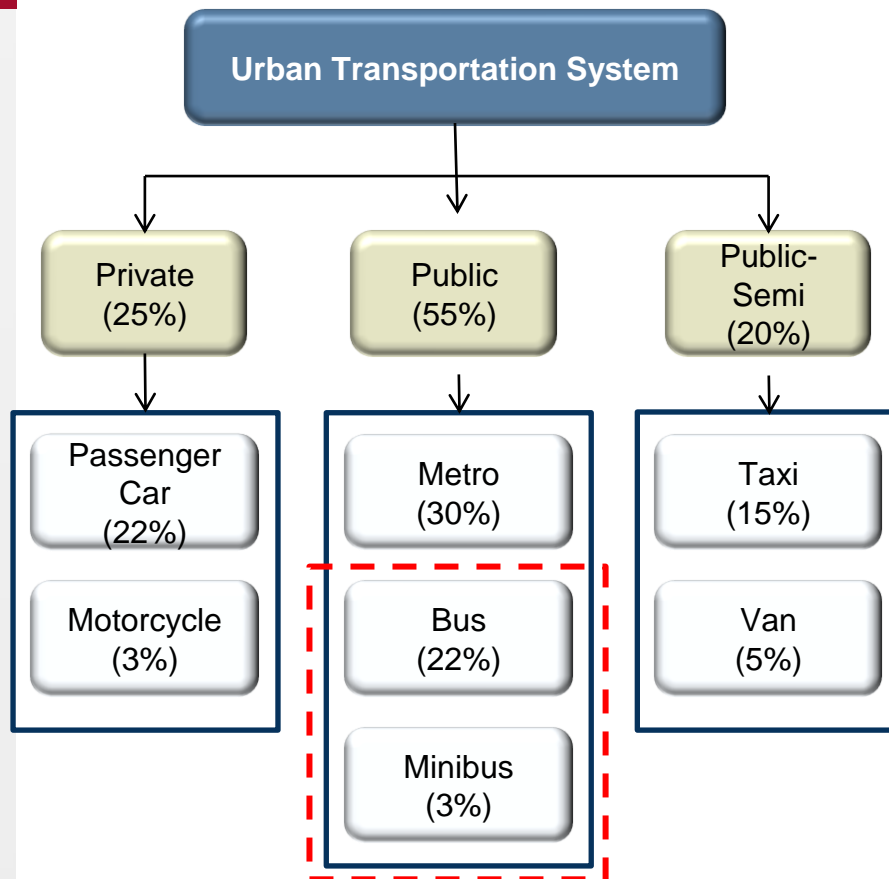
CAGR 8.7%



- GCC, Middle East, Turkey, Iran expected to adopt hybrid & electric vehicles at a higher rate –
 - a. to showcase itself as attractive destination
 - b. gain expertise in advanced technologies



Case Study: Urban Transport in Tehran (1/2)



- Iranian economy expected to grow annually at a rate of 4% - 6% from 2016 to up until 2022
- Will be reflected in the commercial vehicle industry through high growth rates, return to the stable growth levels by 2020
- Emission regulation upgrades in 2017 and 2020 will spurt on demand in 2016 and 2019
- Iran's public bus fleet needs 17,000 new vehicles
- Tehran's bus fleet currently has 6,500 vehicles, 40% of which needs to be replaced.

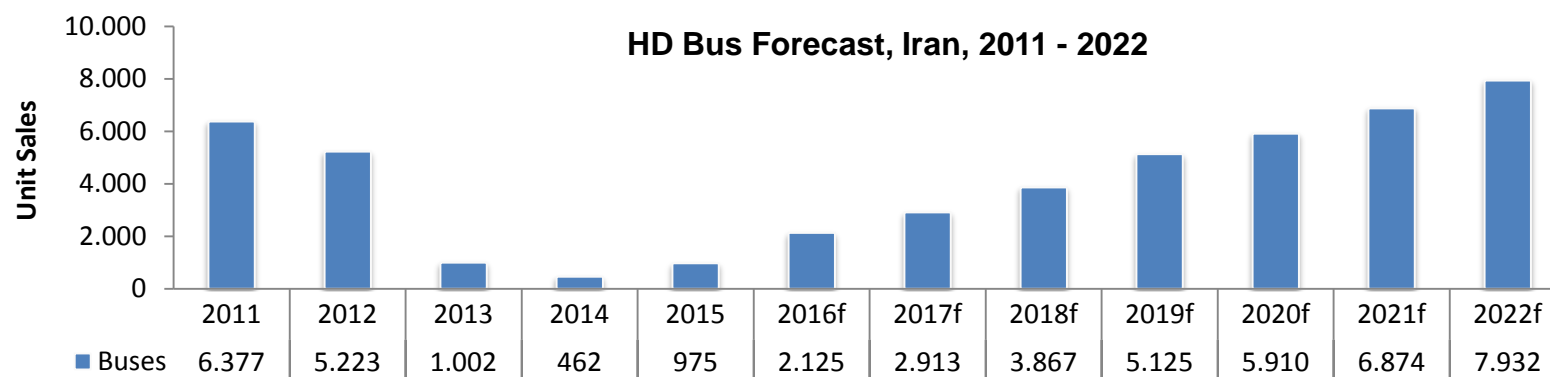


Case Study: Urban Transport in Tehran (2/2)

Bus Systems	BRT	Regional Bus	Local Bus
Speed	High	Medium	Low
Capacity	High	High	Medium
Fare Collection	Off Vehicle	Off Vehicle	In Vehicle
Operators	Public	Private	Private & Public

- The BRT system in Tehran has 8 corridors covering 130 km with daily passenger demand of 2 million.

- Tehran's public bus fleet transports 4.5 million passengers daily with close to half of it commuting through the BRT system.



Key Predictions

- Middle East, South Asia, Africa emerge as key growth regions for transit bus market for the period up to 2022. With 29% of total share, China will remain as the biggest market in 2022.
- Alternate energy powertrains, both hybrid/ electric and natural gas expected to gain market adoption. Russian OEMs' expertise with natural gas powertrains will play a major role in technology uptake, especially in the Eastern European markets.
- Significant opportunities exist for Turkish bus manufacturers to grow market presence in Middle East, Africa, Eastern Europe markets. OEMs in these markets will increasingly face competition from Turkish, Indian, Chinese manufacturers.
- Iran and Egypt expected to emerge as hubs in Middle East. That said, Iran's policies expected to adequately safeguard domestic players from the surge in foreign competition.



Future of collective mobility – Scenario 2035?



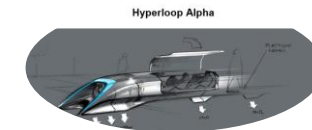
truly Carbon neutral



Connected



Customized



“Walking is the only form of transportation in which a man proceeds erect - like a man - on his own legs, under his own power. There is immense satisfaction in that.”

Edward Abbey, Postcards from Ed: Dispatches and Salvos from an American Iconoclast



Thank you for your attention

F R O S T & S U L L I V A N

Ananth Srinivasan

Consultant, Mobility

Direct: +49 69 770 3334

Email: ananth.srinivasan@frost.com

Frankfurt Office

