Connecting your business to global opportunities









Enterprise Singapore





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Email to: chihowe.teo@sbf.org.sg





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PROGRAMME LINE UP

3.00 pm Welcome Address

By Singapore Business Federation

3.05pm

The Singapore EV Market

By Mr. Paul Welsford Vice President, Electric Vehicle Association of

Singapore (EVAS)

3.20pm

Participant Poll 1

3.25pm

U-Drive – EV Integrated Solution

By Ms Kathryn Yu

Head of Automotive and Machinery Equipment &

Component, Sector Solutions Group, UOB

3.45pm

Electric Vehicles – Opportunities, Trends and Challenges

By Mr. Kelvin Tay

Managing Director, Future Mobility and Advisor to CEO,

Goldbell Group

4.00pm

Q&A / Panel Discussion

4.20pm

Closing Remarks

4.25pm

End of Webinar

3.40pm

Participant Poll 2









The Singapore EV Market

Mr. Paul Welsford Vice President, Electric Vehicle Association of Singapore (EVAS)

Paul Welsford is the Vice President of the Electric Vehicle Association of Singapore (EVAS). In his second term as Vice President and a founding member of the organisation, Paul works with the President and the rest of the committee to support the acceleration of Electric Vehicle uptake in Singapore. EVAS' role is to promote the use of Electric Vehicles to create a platform for standardisation as well as communication between the different sections of the EV ecosystem and to partner with industry to support ongoing governmental policy.

Paul graduated with a BEng in Product Design and Manufacture from Loughborough University, UK. He has lived in Singapore since 2014 and started to organise EV enthusiast social events in 2016.



The Singapore EV Market

Paul Welsford, Vice President

What is the role of the EV Association of Singapore? Overview of E-Mobility Ecosystem



Founded in 2018 – EVAS is a not-for-profit organisation that comprehensively represent the EV industry, and be the leading advocate for electric mobility.

72

Total Membership **22**

Corporate Members

50

Individuals + Students

What is the role of the EV Association of Singapore? Our 3 main aims as an Association



1. Promote

One stop resource for EV buyers, business owners and fleets. Annual surveys and EV guides



2. Platform

Support standardisation, consolidation and co-organise industry events

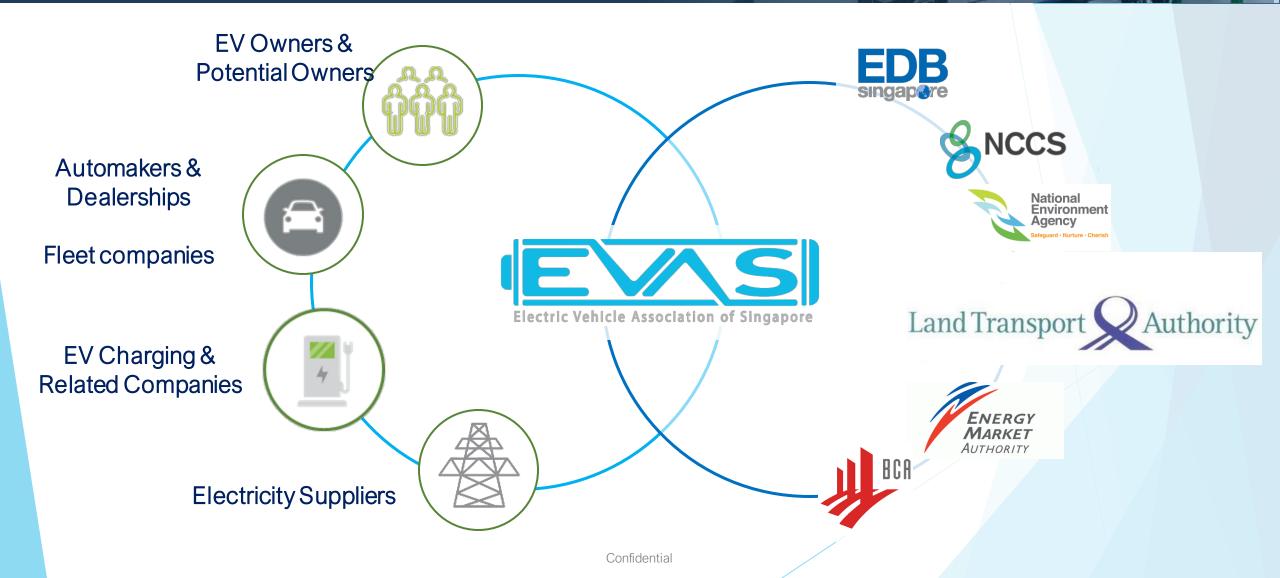


3. Partnership

Provide an industry perspective for government policies

EVAS Engagement

Helping on all sides, from public to private to government



What was Conducted?

EVAS Activities & Involvement 2019 / 2020







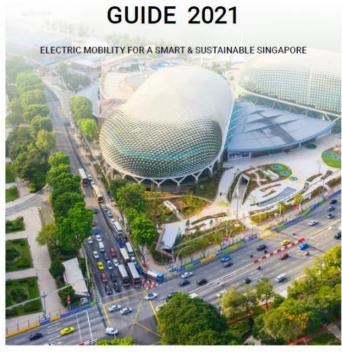




Singapore EV Outlook (April 2021) Singapore EV Guide 2021



SINGAPORE ELECTRIC VEHICLE GUIDE 2021



Electric Mobility for a Smart & Sustainable Singapore

The EV Guide is designed to help prospective EV owners understand about the benefits of electric mobility with the most updated information relevant to Singapore.

Topics covered are:

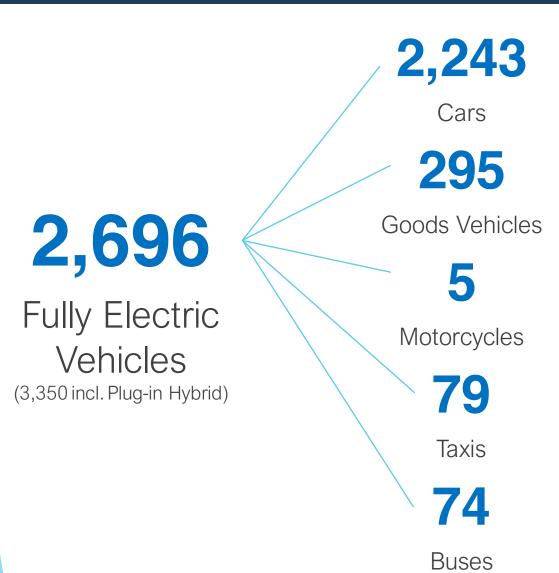
- Basics of EV technology
- Available EV models
- Charging infrastructure
- EV rebates & incentives
- Frequently Asked Questions

THE CURRENT EV MARKET

Where are we now?

How many EVs are there in Singapore?

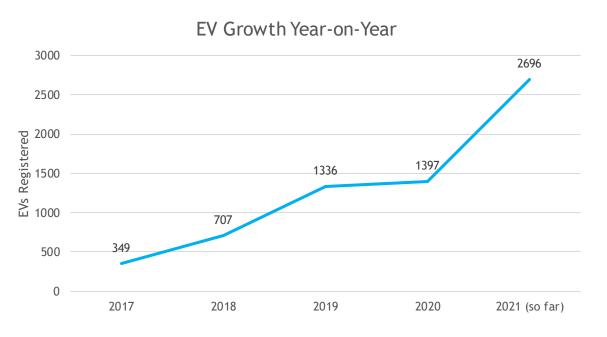
EV Population (as of September 2021)

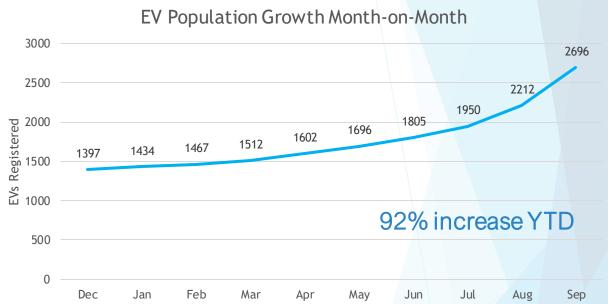


Currently less than 1% of the total vehicle population...

How many EVs are there in Singapore?

EV Population Trend





- Trending towards more than doubling year on year (ignoring COVID)
- September 2021 the biggest jump, with nearly 500 additional EVs registered (12% jump)
- More diesel vehicles deregistered than EV registered

Why are we seeing this acceleration in uptake? The forces at play

1. Government Incentives

- Vehicle Emissions Scheme (VES)
- VES for Commercial Vehicles
- EV Early Adopter Rebate
- Road Tax Improvements

2. Wider Choice

- Over 20 different models and variations available now. Tesla also in the market, often seen as an accelerator
- Cost savings in fuel and maintenance being noticed by many

3. EV Charging Improvements

- Expansion of networks
- Government tenders
- Fuel forecourts adding charge points

Tesla Model 3 (Standard) = \$155,000 (incl. COE)

VS.

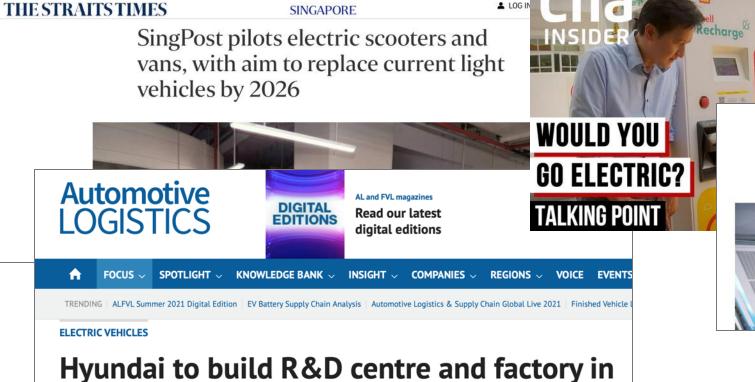
BMW 318i Sedan Sport = \$220,000 (incl. COE)



Plenty of news stories about EVs Increase in visibility

Singapore

By Illya Verpraet | 14 October 2020



SINGAPORE

620 electric vehicle chargers to be installed at public carparks in the next 12 months

FULL EPISODE



55% of Singapore consumers plan to purchase EVs

Environmental concern is the top reason for buying electric vehicles.

EVs are not a silver bullet, but they are part of a greater picture for sustainability How clean are Electric Vehicles?







57g/km

- Based on LTA data which includes a grid-factor for EVs.
- Unlike the ICE, the EV has the possibility to use renewable energy
- Doesn't take into account exploration and distribution of fossil fuel supply chain
- EV battery recycling technology improving batteries will have 2nd lives before being broken down to raw materials and reused again.

THE FUTURE EV MARKET

Where are we going?

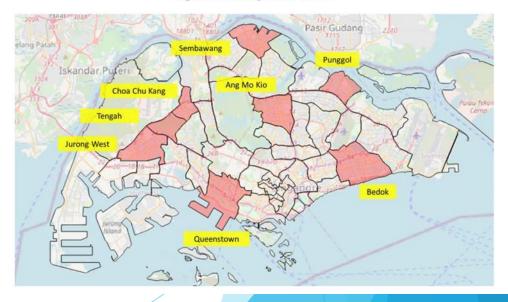
Singapore has goals to reduce it's emissions, EVs are part of that SG Green Plan 2030



Ambitious targets for 2030 to strengthen commitments under the Paris Agreement. EV related targets include:

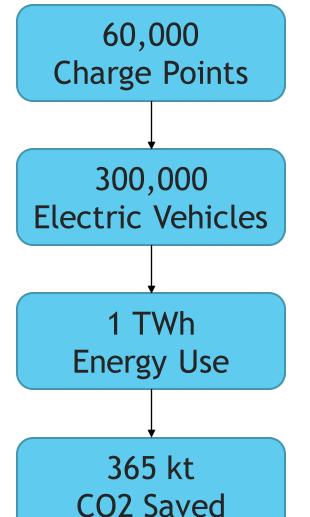
- 1. New registration of diesel cars and taxis to end from 2025
- 2. 8 EV-Ready Towns charge points at all HDB carparks by 2025
- 3. 60,000 charge points (40,000 in public car parks, 20,000 in private premises) by 2030
- 4. All new car and taxi registrations to be of cleaner-energy by 2030 Phase out of Internal Combustion Engine by 2040

Eight EV-Ready HDB Towns



Based on the goals of the SG Green Plan

What could 2030 look like?



If we hit the target of 60,000 charge points this could mean a radically different transport system. Some believe this number will be higher.

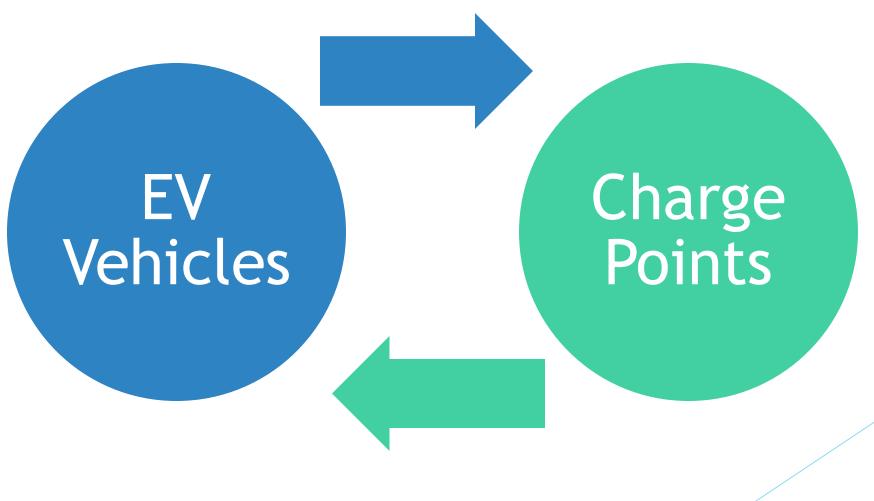
EV:EV Charger ratio of 5:1 is considered a likely minimum. Similar numbers seen in Europe.

For an average 16,000km yearly driving with an efficiency of 0.2 kWh / km

Savings of 76g/km of CO2 compared to the same number of ICE vehicles being on the road instead

How likely is this to happen?

The Feedback Loop Has Started



How likely is this to happen?

The First Steps



Fleets

Already seeing movement in Logistics and Taxi fleets. These vehicles do the most mileage and therefore can benefit from the OPEX savings EVs provide. Waste collection services also getting pressure to adopt EVs as part of contracts.



Charging Roll-out

Government tenders will spur deployment in the places where charging will be needed the most for the public – at HDB residences.

Overnight charging will account for a large proportion of energy supplied to EVs. ECCG will help boost at Condos.



New Business Models

New companies and partnerships being formed to provide bundled offerings giving customers greater options and availability of vehicles and charge points. The shift towards "as-a-service" offerings means drivers and property owners can forgo upfront costs whilst gaining the benefits.

What are the main hurdles to reach these goals?

Challenges (and Opportunities)



There is still a lot of myths being perpetuated. Often once given the experience of being with an EV most concerns disappear



Affordability

EVs still demand a premium, even if they are starting to reach price parity with some equivalent ICE.

These cases are usually the high end vehicles



In Singapore not all building have spare capacity in switch rooms to facilitate the needed EV charging stations. Upgrades to switch rooms and substations likely needed



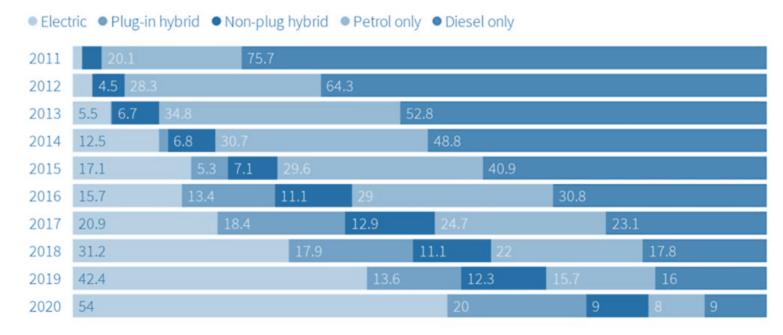
Along with lower cost EV options, the scale of manufacturing will need to increase through the whole supply chain to meet demand.

Norway has been a leader in EV adoption over the past few years. Norway: A sign of Singapore's Future?

years.

Norway new car sales

Years 2011-2020 in percentage of market per car type



Source: Norwegian Road Federation (OFV)

In 5 years Norway went from registering 15% of new vehicles as EV to over 50%.

Strong governmental incentives for vehicles and support for infrastructure upgrades.

Singapore is ramping up when EV manufacturing costs are improving. Battery costs expected to reduce so that cost-parity with ICE will occur around 2025, without incentives.

In 2021 so far, EVs on average account for 60% of Norway's vehicle sales. ICE only 10%.

In August EVs accounted for 72% of EV sales.

Our Regional Partnerships

Regional Associations

Collaborating with a number of other EV associations in ASEAN.

- Malaysia
- Thailand
- Philippines

Associations in other countries being formed in the coming years.











Thank you

SINGAPORE BUSINESS







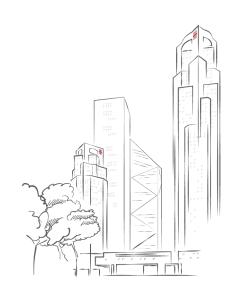


U-Drive – EV Integrated Solution

Ms Kathryn Yu Head of Automotive and Machinery Equipment & Component, Sector Solutions Group, UOB

With over 15 years of finance experience focusing on transportation in the China market, Kathryn Yu joined UOB in 2019 to lead the Automotive and Machinery Equipment Component sector for the region under Sector Solutions Group. In this role, she drives business initiatives and develops banking solutions to meet the needs of the corporate clients within the automotive and heavy equipment sectors.







U-Drive – EV Integrated Solution

Sector Solutions Group, Group Wholesale Banking

SBF Webinar

Client logo – delete if not needed

Nov 2021

Singapore timeframes for Policy implementation are fixed, with commercial vehicle segment most impacted



2025

No more new registration of diesel cars and taxis

2040

All vehicles run on cleaner energy; **complete phaseout** of ICE vehicles





3 Key Timeframes



All new cars and taxis to be cleaner-energy models

Assumption:

With 10-year COEs, ICE cars should technically stop sales by 2031 to adhere to 2040 timeframe. **This means a 10-year horizon to 2031 for everything to fall into place**

Taxis, public buses and commercial vehicles offer the biggest potential for electrification, according to a study commissioned by LTA

Based on these targets, opportunity to electrify today's commercial fleet is huge.







New Commercial Vehicle Emissions Scheme

wef 1st April 2021

Designed to persuade owners of light commercial vehicles making up **68.9%** of all goods vehicles - to switch to cleaner fuels.

Taxis used to be largely diesel;

now, only 41.5% of 15,678 cabs here were diesel-powered

95.8% of 140,783 goods vehicles and 99.4% of 18,912 buses run on diesel = mere **96** electrically-powered LGVs currently



Singapore EV infrastructure Regulations accelerating nationwide deployment of EV Charging Points





2030 Target

- The Government targets to deploy 60,000 electric vehicle (EV) charging points across Singapore by 2030 (current: ~1,900)
 - Comprises 40,000 in public carparks and 20,000 in private premises.
- Measures are being implemented to accelerate deployment
 - Over near term, charging points will be installed in various public carparks island-wide where suitable and where there is spare electrical capacity.
- An industry consultation was launched by LTA in Apr 2021 on the private sector's participation on public charger deployment.

2

Town-Centric Approach by HDB

- By 2025, all Housing Development Board (HDB) carparks in eight towns will be fitted with EV charging points
 - Ang Mo Kio, Bedok, Choa Chu Kang, Jurong West, Punggol, Queenstown, Sembawang and Tengah.
- LTA will also plan EV charging point deployment in other HDB towns and strive to progressively make all towns EV-Ready by the 2030s.
- All new HDB carparks will cater sufficient electrical capacity to support EV slow charging for 15% of their car parking lots and install a minimum number of chargers in these lots.

3

Pilot Tender by URA and LTA

- The first pilot tender was launched in Nov 2020 for charging points issued by the Urban Redevelopment Authority (URA) and LTA
 - Tender covers >600 charging points at over 200 public carparks
 - Tender was closed in Mar 2020 with 19 bidders
- Tender prices are based on concession fee per kWh energy and range from 3 cents to 80 cents. The bidder will have to maintain these points for 12 years, starting as early as Aug 2020



EV Common Charger Grant by LTA

- For existing non-landed private residences, LTA will introduce the EV Common Charger Grant (ECCG) to kickstart the expansion of shared charging infrastructure in these developments
- The ECCG will co-fund the installation of 2,000 chargers in nonlanded private residences between Jul 2021 and Dec 2023, subject to a cap. The grant will be administered by LTA. More details will be released in 2Q21

Key players in Singapore EV value chain





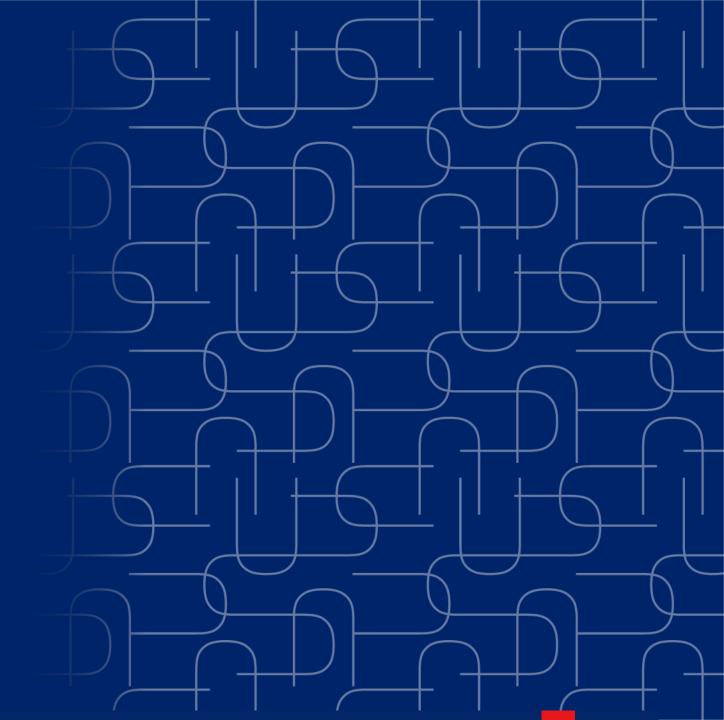








U-Drive Solution



UOB Launches **U-Drive** in Sep 2021



Green loans

UOB launches green financing solution for EVs in Singapore

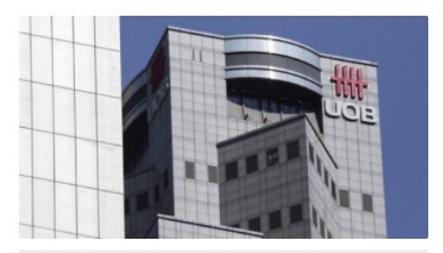
Felicia Tan Published on Thu, Sep 18, 2021 / 10:47 AM GMT+8













Follow us on Facebook and join our Telegram channel for the latest updates.

UOB has launched U-Drive, an integrated green financing solution for electric vehicles (EVs) in Singapore.

The drive is part of UOB's suite of sustainable financing solutions under the UOB Smart City Sustainable Finance framework.

The solution is designed to meet the financial needs of all EV ecosystem players - from automotive brand owners, car dealers, charging point operators to end-users.

It provides a wide range of green banking facilities that include trade financing and dealer stock financing.

We understand your business pain-points



EV purchase price higher than ICE despite lower running costs



- **Costs of EV charging**
 - Including costs of charging infrastructure set up
 - Availability of public chargers
 - AC vs DC charging
- **Concerns over Battery**
 - **Battery durability**
 - Battery capacity for longer range
 - Length of battery warranty
 - Costs of battery replacement



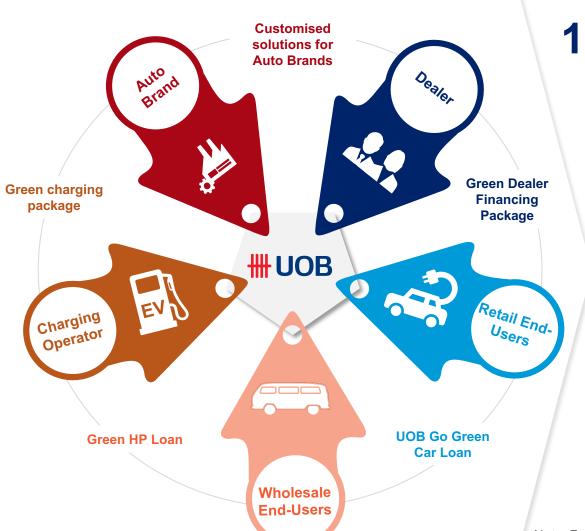
What U-Drive focuses on

1	2	3	4
End-to-end solution offering to smoothen your electrification journey	Increase market adoption of Electric Vehicles	Buyers get incentive to shift to greener vehicle	Financing for your EV initiatives can be Green

U-Drive – Supporting your electrification journey



We have solutions for every need along your electric vehicle ecosystem



Customised solutions

U-Drive offers bundled and flexible financing to smoothen your electrification journey and support new business models such as BaaS and leasing of EVs



Financing your dealers

We have a comprehensive suite of green banking facilities to support your dealers to go-to-market quicker and drive sales!



For your end-users

With the UOB Go Green Car Loan, your individual customers receive instant approval for their purchase of EV.

As for your corporate customers, UOB has fast lane financing processes for the purchase of EV and charging equipment





Apart from U-Drive being able to finance your charging requirements, we can also work with you on a charging co-sponsorship program to motivate end-users to shift to greener vehicles!

U-Drive – EV Integrated Solution





Distributors/Dealers



End-Users



Charging Infrastructure

UOB's support for Brand Owners

- 1 Customised solutions for OEMs including but not limited to:
 - Supporting new business models such as Battery-as-a-Service (BaaS), Leasing of EVs to corporate End-Users, etc.
 - Capex financing
 - Inventory financing
 - Cash management solutions

UOB's support for your Dealers

UOB EV Dealership Financing

- Green trade facility
- Green floor stock financing
- EV Battery extension warranty (exploring)

UOB's support for Dealer's customers

UOB Go Green Car Loan

- Finance purchase of full EV cars, up to 70%
- Attractive interest rate at 1.28% for Tesla and 1.68% for other EVs
- 3 RECs for every loan

Green HP Loan

- Finance purchase of electric commercial vehicles, up to 90%**
- Max loan tenor: 5 years

UOB's support for your charging requirements



- Finance purchase of EV charging equipment together with EV, up to 80%
- Max loan tenor: 3 years



Charging Co-Sponsorship (on a case by case basis)



Bundled facilities and flexible financing from our suite of EV solutions across the ecosystem!



Support Brands' penetration into local markets leveraging on UOB's strong ASEAN footprint



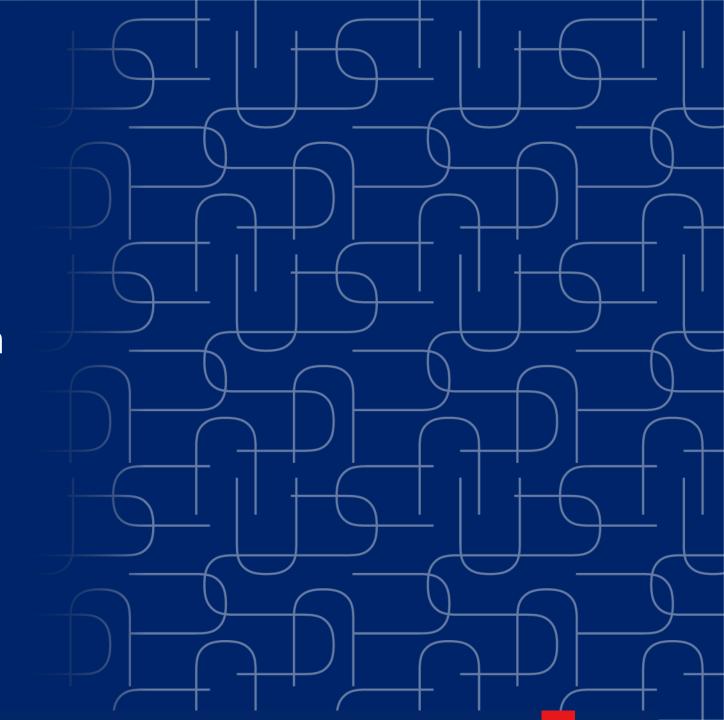
Be a Co-Sponsor and share your cost of charging benefits with UOB to go to market quicker and drive sales!



Minimum upfront costs as we finance you through Charging Equipment Financing



Example of U-Drive solution incl. Charging Co-Sponsor



Example of U-Drive solution between Hong Seh and UOB



Apart from Green HP Loan and Green Dealership Financing which includes green trade and dealer stock financing, we have also partnered with Hong Seh to co-sponsor charging credits for end-users.



To celebrate the launch of **U-Drive**, we have partnered Hong Seh Evolution to bring you exclusive benefits when you finance your purchase of a DFSK EC35 / EC31 or BYD T3 commercial vehicle, with a UOB loan.

From 15 September to 31 October 2021, you can enjoy



Special interest rate of 1.99% for your Green Hire Purchase Loan, as an existing UOB client



1-year's worth of free SHELL 1500kW DC Charging Credits (worth \$825)

Register your interest



Visit our Sustainable Financing page!







Scan the QR code to find out more



To simplify the switch to electric vehicles, UOB has launched **U-Drive** – a comprehensive electric vehicle financing solution for the ecosystem, catered to both businesses and individuals in Singapore.

SINGAPORE

BUSINESS









Electric Vehicles – Opportunities, Trends and Challenges

Mr. Kelvin Tay
Managing Director, Future Mobility and Advisor to CEO
Goldbell Group

Kelvin Tay is the Managing Director, Future Mobility and Advisor to CEO for Goldbell Group, Singapore's market leader in distribution and leasing of commercial vehicles, where he shapes the Group's vision to be the leading player in the future mobility landscape for smart cities. Kelvin leads the Group's innovation and transformation through new technologies in Goldbell's core business and creates new revenue streams through venture building.

His expertise in business development, venture capital management and fund-raising initiatives has equipped him with exemplary skills and knowledge to head Southeast Asia's leading mobility focused accelerator programme MOVE.SG, focusing on three main verticals – Sharing Economy, Electric and Autonomy.







Market Leader

in industrial vehicles, a literal driving force behind Singapore's economy.

Largest Fleet

of industrial vehicles for lease in Singapore with over 8,500 units and counting.

Wide Reputable

customer network with 41,000 and counting, reaching to businesses across majority of the industries.

Substantial Dataset

in industrial vehicles to enable data driven decisions and innovations.





Distribution

- Market Leader for LDT >3.5T to HDT
- Distributing MHEs across 3 markets:
 Singapore, Malaysia and Vietnam

Leasing

 Largest industrial vehicles lessor in Singapore with over 8,500 units

Financial Services

- Fast growing non-bank financial institution
- \$906 million funded since inception
- 99.87% performing loans



Tech - Enabled Core

- Future proof workshop EV-Ready & enhanced with Autonomous Parts Transporter
- Workshop Sharing Technology

Venture Build









Investments

Supported 17 early-stage mobilityrelated companies from Singapore, Israel, U.S. India and the United Kingdom

Accelerator

 South East Asia's leading mobility-focused accelerator programme for mobility and transport start-ups from all over the world























GOLDBELL MOBILITY-AS-A-SERVICE VISION (2030)

Public Fixed Bus Route

Public Subway











Primary means of transport:

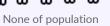
EXAMPLE:

SECONDARY means of transport:

Goldbell's **Invovement:**

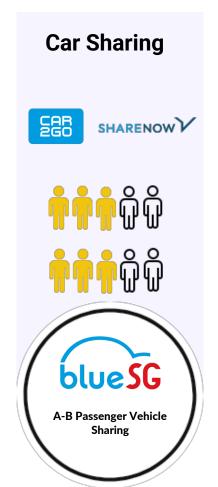


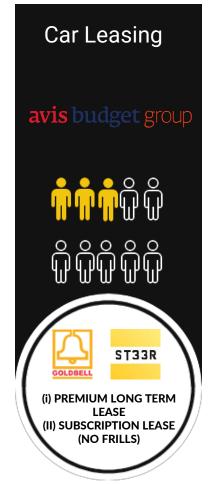
Legend:













Underlying Mega Trends: (i) Car Ownership to Drop by 10-20%

- (ii) Sustainable Transport
- (iii) Polycentric Town Planning



A STATION-BASED ONE-WAY CAR SHARING MODEL.

Users can pick up and drop off any car anywhere in the city, saving time and avoiding unnecessary trips.

- 4 years in operation
- Roughly 700 electric vehicles,
- More than 120,000 subscriptions sold
- More than 2,000,000 rentals to date
- 1,500 charging points

Suntec City



LEASING OR PURCHASING ELECTRIC VANS



Basic Selling Price : S\$70,000 (Exclude TCOE & Insurance)

Selling Price inclusive : GST, 6 mths Road Tax, Registration Fee, Number plate

3 Servicing (1k, 5k & 10k servicing)

Warranty

Vehicle - 3 yrs warranty or 100,000km whichever comes first

Battery - 5 yrs warranty or 200,000km whichever comes first

Stock Availability : End of 2nd Quarter 2022

Electric Charger : Based on Customers' Needs

LTA EV Grant information

- Electric van is under Band A, Total grant amount of \$\$30,000 by LTA. The grant is disbursed in three equal instalments of \$\$10,000 per instalment to the prevailing vehicle owner as of each disbursement date, with the first instalment upon vehicle registration, the second upon the first anniversary date from vehicle registration and the final instalment upon the second anniversary date from vehicle registration
- Upon vehicle deregistration or beyond the second anniversary date from vehicle registration, no further instalments will be granted
- Upon transfer of ownership, any further instalments would be due to the next owner.

COMBINING EV WITH ON-DEMAND ALGORITHMS



PASSENGER POOLING & VEHICLE OPTIMISATION

J:COM

910t

Potential annual reduction of CO2 emissions



18%

Increase in bus utilisation



30%

Annual savings from **bus fleet optimisation**

TRANSITION TO EVs







Helping companies plan for EV transitions with our partners

QUANTIFY YOUR IMPACT



"J:COM plans to expand the ride-sharing service with SWAT Mobility and reduce the number of vehicles used by half.
We believe that this will enable us to reduce CO2 emission, which is part of the

J:COM Co., Ltd., Japan

Sustainable Development Goals (SDGs) that we are working on."





BATTERY FOR LARGER COMMERCIAL VEHICLES



OPTIMISATION OF EV USAGE



USER/CUSTOMER EDUCATION



CHARGING INFRASTRUCTURE





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Business Development & Origination, Infrastructure

Email to: chihowe.teo@sbf.org.sg

Learn more about the Infrastructure Committee





Sign up with our interest group and get first dibs on our activities!



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