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13th SINGAPORE ECONOMIC POLICY FORUM 2021

SUSTAINABILITY IN THE TIME OF UNCERTAINTY

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Technologies to Make our Society Sustainable: Electric vehicles in Singapore

There are eight areas of new economic activity surrounding the electric vehicle

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1. EV Manufacturing
2. EV car sales / leasing companies
3. Charging Infrastructure providers
4. Malls / Buildings owners or managers
5. Petrol Stations operators
6. Carpark owner / operators
7. Private homes, condo or private establishment owners
8. Cloud platform solution providers

1

EV manufacturing provides jobs and also builds an ecosystem around itself

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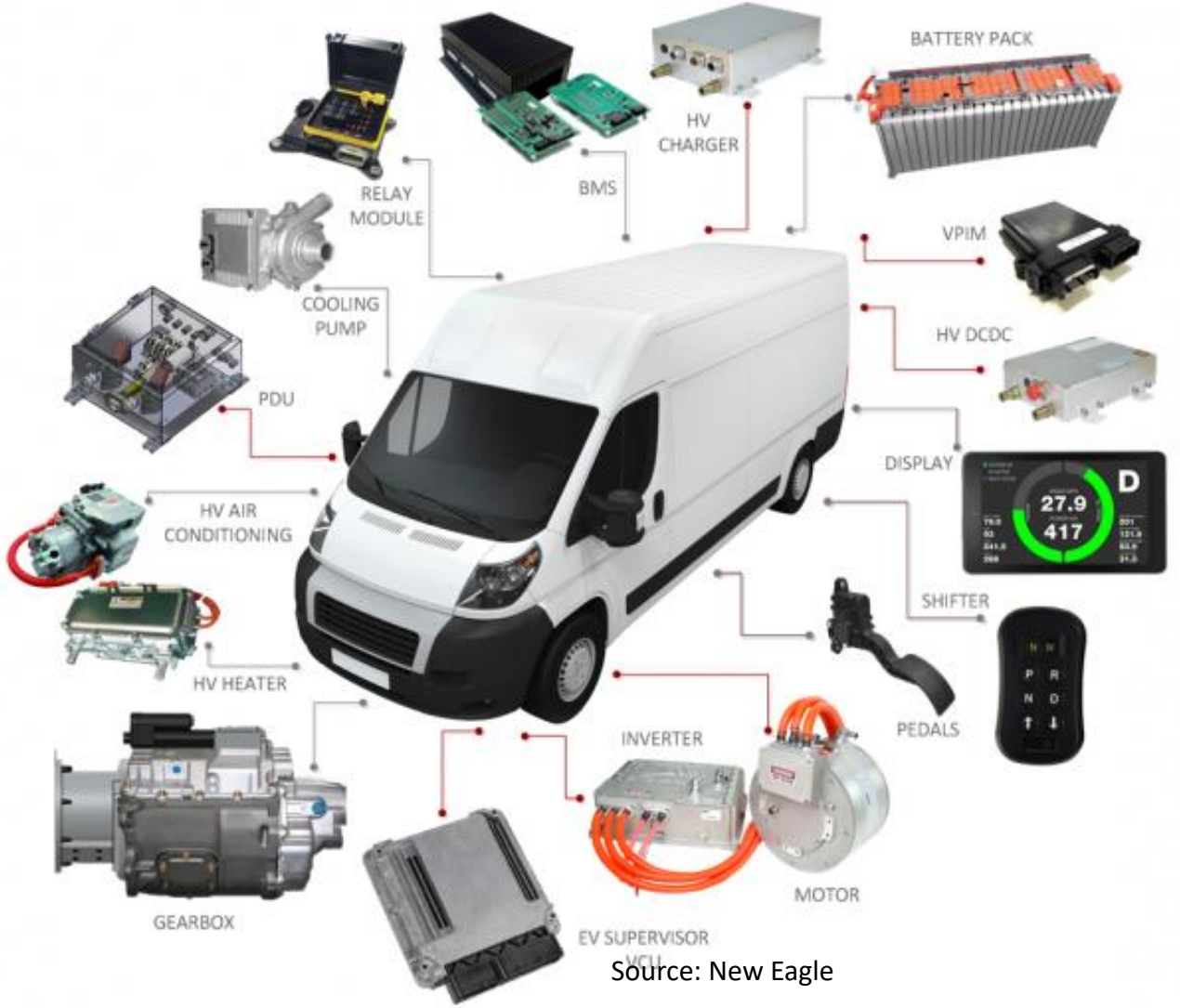
- **Electrical and Electronics**
  - ❖ **Motors**
  - ❖ **Reducer**
  - ❖ **Battery**
  - ❖ **On board Charger**
  - ❖ **Electric Power Control Unit**
- **Additive Manufacturing**
- **Advance materials**



Source: New Eagle

2

There are a number of new schemes that can be availed to the EV owner

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- Car sharing schemes
- Car leasing schemes
- Green financing
- Battery related
  - ❖ Enhanced battery warranty (Warranty period to match CoE period)
  - ❖ Insurance plan to cover CoE and battery warranty gap
  - ❖ Used battery exchange (second life of battery for renewable industry)

Source: BlueSG

Source: OCBC, Charge+

3

Charging infrastructure providers have the opportunity to innovate beyond electrons

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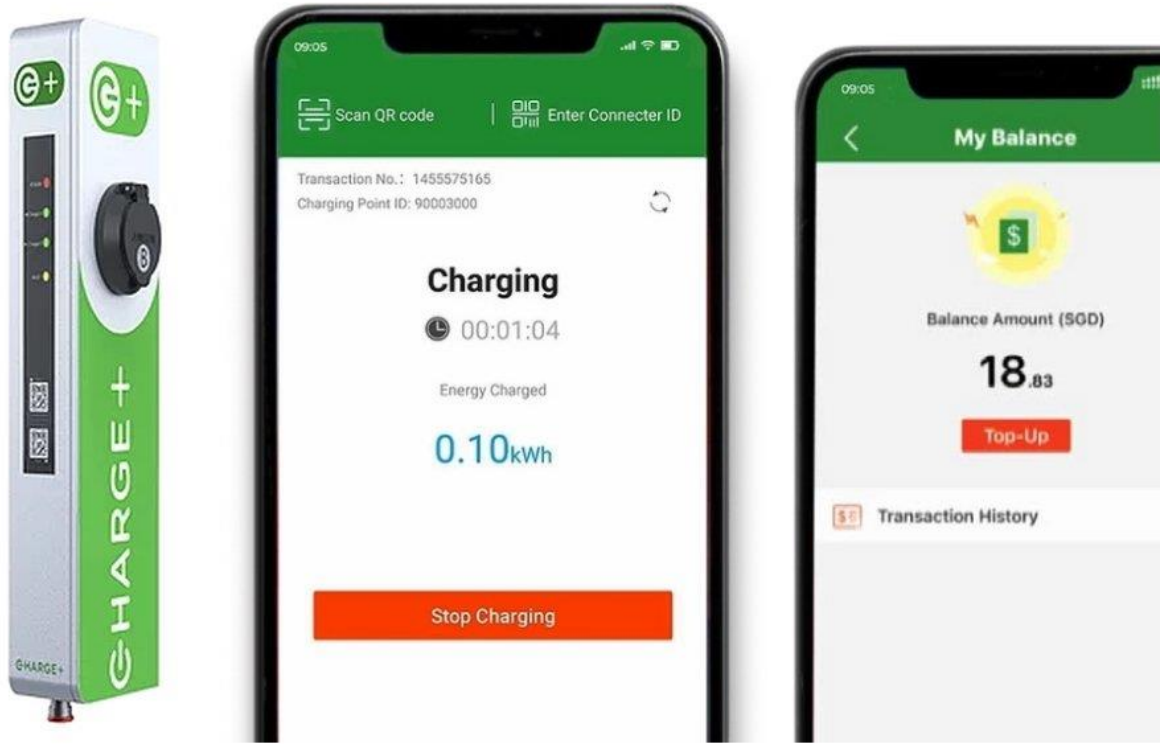
- **Manufacturing of new designs**
- **Sale of infrastructure**
- **Sale of electrons (BOO)**
- **Promotional tie up with electricity and other retailers**
- **New designs to access to Solar/Storage systems for green electrons**
- **Develop a conduit to link up with other promotional activity**
- **V2X opportunities**



Source: Charge +

Mall and building owners can enhance their business value proposition

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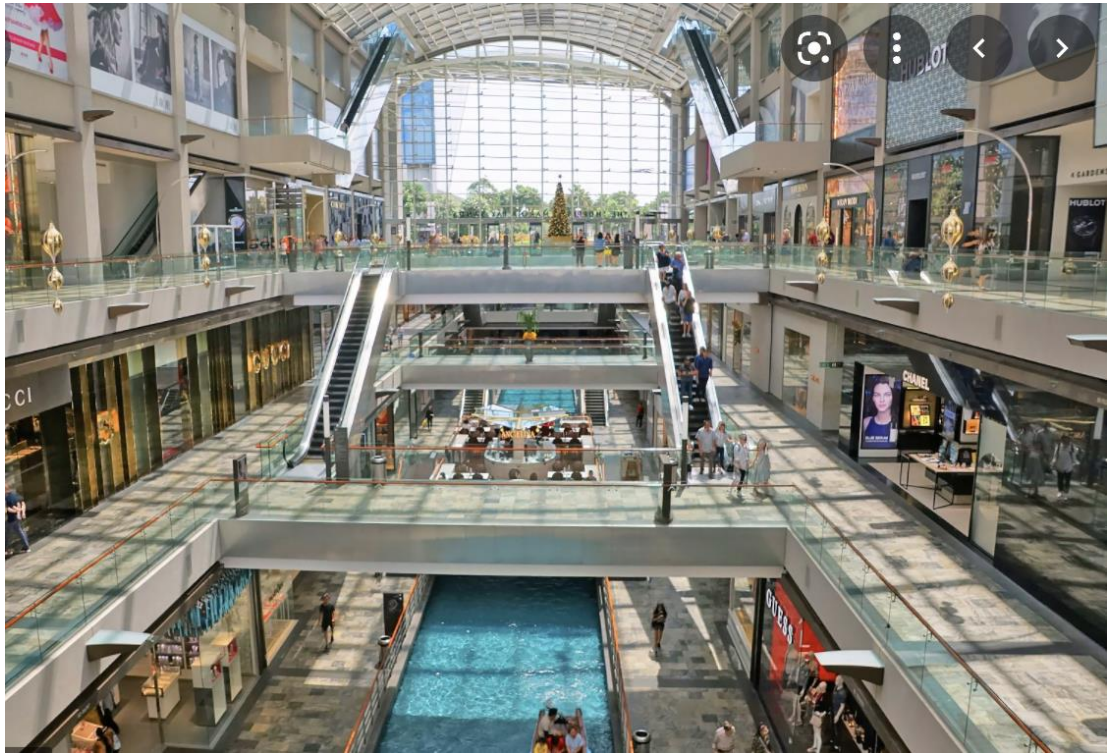
- Increase mall footfall
- Attractive proposition for ”green” tenants
- Green mark points
- Additional revenue from electricity sale
- Promotional tie up with electricity retailers or tenants
- Access to Renewable Energy Certificates (REC) or Carbon Credits
- Offer green electrons at a premium by coupling rooftop Solar systems



Petrol stations have an opportunity to re-imagine their value proposition

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- Increase C-store sales
- Opportunity to re-imagine the petrol station business
  - ❖ Green Energy Station (Electrons and Biofuels)
- Promotional tie up with electricity retailers
- Additional revenue from electricity sale and petrol sales (PHEV customers)
- Access to Renewable Energy Certificates (REC) or Carbon Credits

Source: Shell

Carpark owners have an opportunity to extract more returns from the sites

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- **Increase carpark utilisation**
- **Promotional tie up with electricity retailers**
- **Additional revenue from electricity sale**
- **Access to Renewable Energy Certificates (REC) or Carbon Credits**
- **Co-location of F&B “pop ups” or rest areas**

Private establishments condos and offices also have the opportunity to monetise

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- **Promotional tie up with electricity and other retailers**
  - ❖ **roof top solar systems**
  - ❖ **Other onsite renewable energy**
  - ❖ **Carbon offsets**
- **Access to Renewable Energy Certificates (REC) or Carbon Credits**
- **Sale of electrons or green electrons**

PaaS and SaaS opportunities abound for cloud based solution providers

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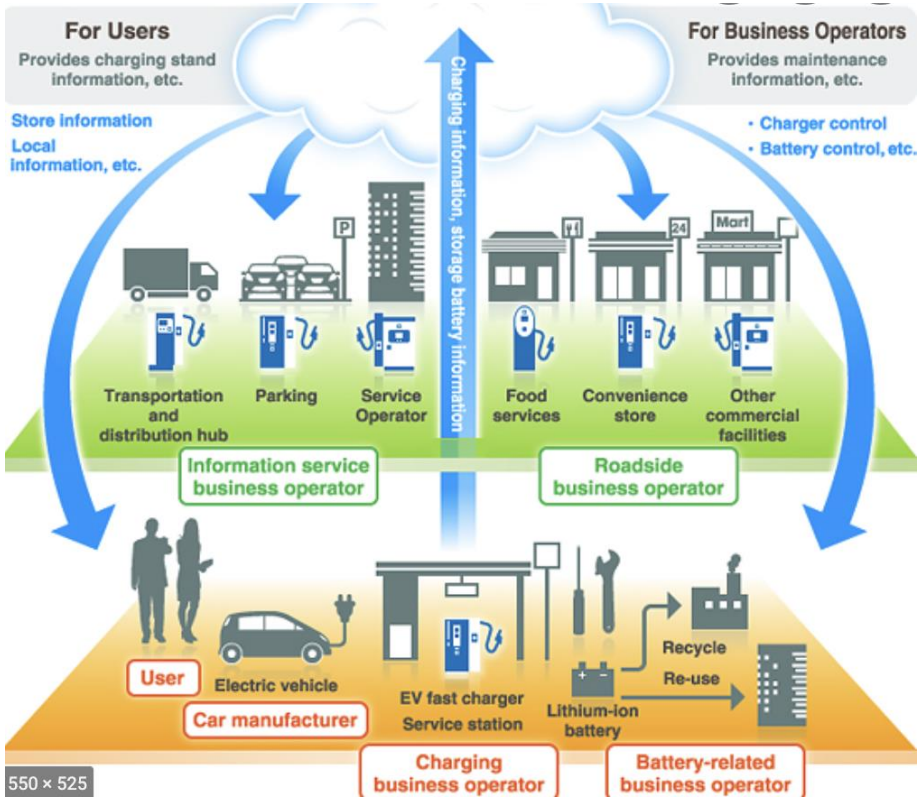
- Execution of different business models /tiered pricing
- Location and availability details (current and future)
- Analytics to optimise infrastructure
- Deployment of retail offers or rebates
- Management of V2Grid, V2Building or V2Home
- Integration of EVCI providers
- Access to and management of REC and Carbon Credit
- Access to EVCI in Malaysia



Source: NEC

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THANK YOU for listening