

Impacts Of EV Charging On Strata Building Distribution Infrastructure



Background

'Strata'

- Property ownership title
- Ownership of one or more apartments belong to different owners throughout an apartment building. Shared ownership of common property.

'Electric Vehicles' (EV)

- Zero tail-pipe emissions.
- Battery powered and rechargeable.

Aims

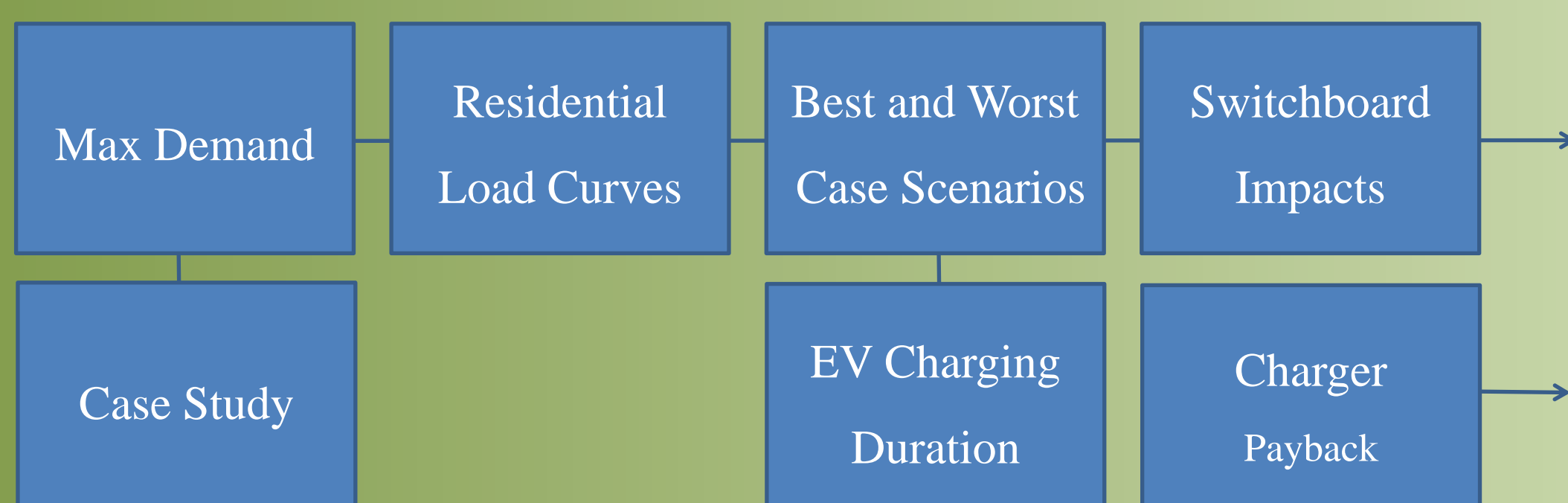
Provide strata community with a better idea regarding EV charging and impacts on distribution infrastructure.

Promote EV uptake in strata communities.

Objectives

- Model different charging levels to analyse EV charging impacts on strata distribution infrastructure.
- Charging duration impacts on switchboards.
- Payback period for EV chargers.

Methodology



EV charging impacts

- Case study based
- Maximum demand calculation
- Queensland residential energy demand profile
- Best and worse-case scenarios

EV charging durations

- Charging rate: distance charged per hour
- EV range

Charger Payback Period

- Annual EV fuel costs VS Mazda 3 annual fuel costs
- EV Capital investment installation

Findings

Causes of Switchboard Impacts

- Too many EV charging on same phase
- Charging at a higher level than needed
- Charging during peak demand times

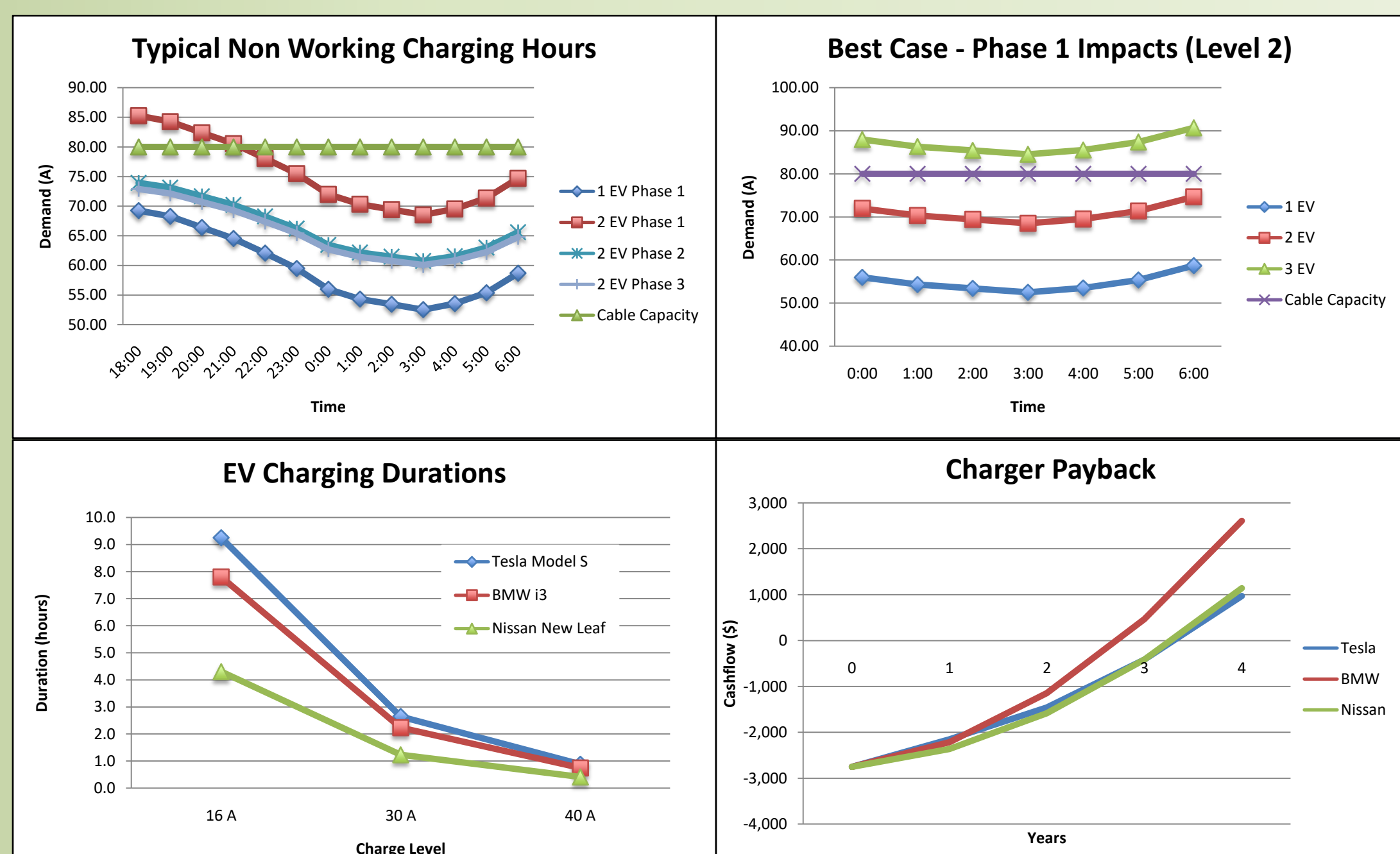
Possible Solutions

- Energy Audit – Increase Energy Efficiency
- Demand Management – Charging Management
- System Upgrade – Infrastructure

Quick Tips

Charging Management – Choose your charge speed, charge time and charge duration wisely to reduce impacts.

Own-A-Charger – Investing in your own charger can be repaid in 3 – 4 years.



A Glimpse Into The Strata EV Future

Current Strata EV Challenges

- What is the process for individual charger installations?
- How does charging happen for visitor EV?
- Where are chargers placed? At tenant car-parks or near switchboards?
- Does charging use individual power or community energy?

Future Strata EV Challenges

- Impacts for distribution infrastructure from mass uptake of EV
- Vehicle-2-Grid charging implementation
- Driverless EV by-laws
- EV charging
- Electrical works design to cater for EV charging
- How many chargers can one tenant have?