

EV Charging Installation

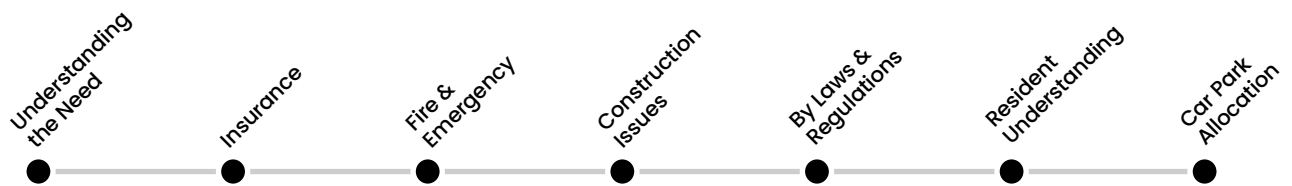
STRATA MANAGER'S GUIDE

Introduction

Retrofitting the installation of Electric Vehicle Charging (EVC) is likely to become one of the major challenges facing Strata Managers in the coming years.

This simple guide aims to give you a place to start working through the process and to take away some of the confusion around an EVC upgrade project at your building.

Where To Start



UNDERSTANDING THE NEED

Some points to consider when accessing the need is your immediate Vs Future need:

- How many are actively engaged in purchasing an EV today?
- In 6 – 12 months?
- In 12 months – 2 years?
- No Plans

When you have a better sense of what is needed or expected in your building you are much better placed to make sensible, strategic decisions. Maybe you just need one common property charger to tide you over, but it may be that you need a charging solution to every car park.

There is a lot of time and a lot of money between these extremes, so getting this right before you start briefing suppliers will save lots of both.

INSURANCE

An EV charging installation (of any type) may present your building with an increased insurance risk. Your specialist insurance providers will be best placed to advise you on what you need to consider here.

FIRE & EMERGENCY

There have been a number of news stories from Australia and around the world about the challenges faced by fire services when an EV catches fire. You will need to work closely to with your specialist fire services providers to understand your building's requirements. Your insurance broker will probably need to be involved here as well.

CONSTRUCTION ISSUES

EV's are heavier than an average car. You will need to engage with a construction engineer to ensure that car park levels are constructed to a weight bearing standard sufficient to meet the demands of 100% of vehicles being EV. This may be more of an issue in older buildings but should be verified in every building for safety.

BY LAWS & RESOLUTIONS

Our recent experience here has been that each building has needed a range of changes to by laws and other areas to be passed, so preparing for that is important.

RESIDENT KNOWLEDGE

Research shows that people in the purchase and early ownership stage of an EV vehicle often have a large gap between what they think that they need in terms of EV charging and what they actually need. This is often referred to as range anxiety.

For most situations, lower cost and lower electricity consuming chargers will meet the need. The chart below gives an idea on how long each type of charger may take to charge.

Approximate KM of range added per hour				
3.7kW	7kW	22kW	50kW	150kW
24	45	140	285	640
NOTES:				
1. Amounts are to be used as a guide only				
2. Range per hour varies depending on the efficiency of your car.				
3. A heavier/larger car will get less range per hour than a smaller EV I.E Tesla Model X will get less KM per hour than the smaller Tesla Model 3.				
4. Environmental factors can influence a cars efficiency I.E Evs will be slightly more efficient in Summer than in winter due to the temperature difference.				

Remember cars are parked overnight so have a longer charge period available to them.

CAR PARK ALLOCATION

Are owners flexible with car park allocation? Could an EV owner takeover a space with access to power supply from an owner with no interest in buying one? The capacity to do this may simplify your infrastructure requirements in the shorter term.



Infrastructure Works

The second stage of your EV planning is working with Active to plan the design of your EV charging network. This is the technical approach to installing the electrical infrastructure.

BUILDING ELECTRICITY MAXIMUM DEMAND

Every building, whether it has a dedicated sub-station on site or is fed from a dedicated circuit from the street has a maximum allowable electricity supply limit. This is the total load amount that the building can draw at only one point and to draw a greater amount will cause the circuit to shut down causing an outage.

Knowing your building's maximum demand is critical. This information may be found in your handover files from your Developer / Builder and will generally be in the form of a Connection Agreement with your local Distribution company. (Ausgrid, Energex, CitiPower, SA Power etc.). If you do not have this Active is here to help and can source on your behalf with appropriate approval.

BUILDING ACTUAL ELECTRICITY DEMAND

If your building is set up as an electrical embedded network, this information should be readily available as the supply into the building comes through a single Parent Meter. Your Parent Meter Retailer or your Embedded Network Operator will be able to provide this data to you.

If your building is not an embedded network, this is slightly more difficult to obtain as you will generally only have data available for your common property metering, not the whole building. In this situation, your Distributor will be the source of the information as they should be able to access data from the sub-station. If not Active is here to help with sound assumptions for average apartment usages.

ELECTRICAL SINGLE LINE DIAGRAMS (SLD'S)

These are the "As Built" drawings of the electrical works in the building and should have come to you from your Developer / Builder as part of the handover. These drawings are essential to determine the infrastructure requirements.

We understand you may not have available so we can assist with an electrical Audit to assist in developing and ensuring the most efficient solution for EV ready charging is deployed.

BUILDING PLANS / CAR PARK LAYOUTS

As with the SLD's above, these drawings assist in the design of the electrical solution.

LOAD MANAGEMENT SYSTEM (LMS)

What this does is pretty much right there in the name, and it is a critical component of any installation and design. Based on the demand/power available for EV charging the LMS allows you to control the load between multiple charges ensuring all cars are charged but not exceeding the available power.

An LMS will allow you to deploy more charges with less power available and still maintain an efficient EV environment.

SITE INSPECTION

Even with all the information above in hand, a visit to the site is essential. Only a physical inspection can identify structural elements that will have an impact on your design and your outcomes. A desktop study may give you an idea, but only a site inspection will give you the true picture.

CHARGING FOR CHARGING

A very important question in your design, LMS and charger selection is who is to pay for the electricity used in the charging process. This is very, very important when the power supply is connected to common property supply and paid for by Lot Owners. Hence the issues faced with residents plugging into power points in the garage. The building is funding their use.

All charging solutions need to be user pays.

In an embedded network situation, your ENO should be able to meter the usage per charger and include the consumption on the resident's electricity account. The Owners Corporation is then not incurring the cost of the electricity.

This is harder in a grid connected building as generally running a supply from behind the apartment electricity meter is not possible or cost prohibitive. In these cases, the charging and LMS solution must include a billing solution. The user then opens an account and pays for each charging session by credit card. The cost of any common property power used by the charging solution is then refunded to the Owners Corporation by the biller.



EV Chargers (EVC)

Solution design does not start with the EV charger. Too many investigations start with the charger itself and work backwards from there. Having an expert solution provider like Active who is not tied to a particular charger model will give you a better outcome in the long run.

CHARGER OPTIONS

Much of the confusion with EV Charging comes from the multitude of devices on offer. 7 kW – 22 kW single phase, 22 kW 3 phase, AC charging, DC charging, Fast Charging, Super Charging and so on. And then there is trickle charging using the plug and cable supplied with the car itself.

Get everything right up front and charger selection becomes a much more straightforward exercise. As mentioned above the power of the charger is dramatically decreased based on the duration of stay in the car park I.E Overnight every night.

Importantly, there are lots of different LMS out there and not all work with all chargers, so once an LMS is selected, your charger options are then much clearer.

ELECTRICITY METERING

Charger selection needs to include the capacity to install a meter that can accurately record electricity usage data for billing purposes. Active recommends that any solution chosen has the capacity to include National Measurement Institute (NMI) Pattern Approved electricity metering. These are meters that have a federal approval for use in energy billing, giving peace of mind to the end user that their usage is recorded accurately.

In an embedded network scenario, the ENO may be able to install metering in the Distribution Board (DB) or on a Metering Panel installed in the car park as part of the infrastructure or we can also receive the data from the charger meter and use this to include on the resident's electricity invoice.

A Final Thought

WHAT IS EV READY?

You will likely hear this term bandied about a lot. The trouble is that it means different things to different people in different places. Essentially the term means that every car park in the building is provisioned in some form to have an EV charger installed.

The confusion comes from the fact that the description could mean space and a connection on the Main Switchboard (MSB) to carry an EV electricity supply through to Distribution Boards (DB's) on each car park level and all the way through to cable trays installed with electrical and data cabling laid all the way to a point on the wall or on a pole inside the car park.

Each extra step in the EV Readiness continuum adds additional cost to the building in infrastructure.

In most residential buildings the "Last Mile" of the electrical solution, which is from where the installed infrastructure stops and the final link in the charger installation starts, is seen as a cost to the resident who wants a charger installed. An Active solution will incorporate the last mile installation and set up into the charger purchase price.

It is the building's decision as to how long the "last Mile" is.

How Can We Help?

It all seems pretty easy now that you've seen it on paper, doesn't it?

We've tried to make it so, but there is a lot of iceberg under this small tip. We're here to help you through this process from end to end. To guide you in what you need to do and to help you over any hurdles.

AN EV Ready solution will likely require a substantial investment, so getting it right first time will make your job much easier.



The Active Difference

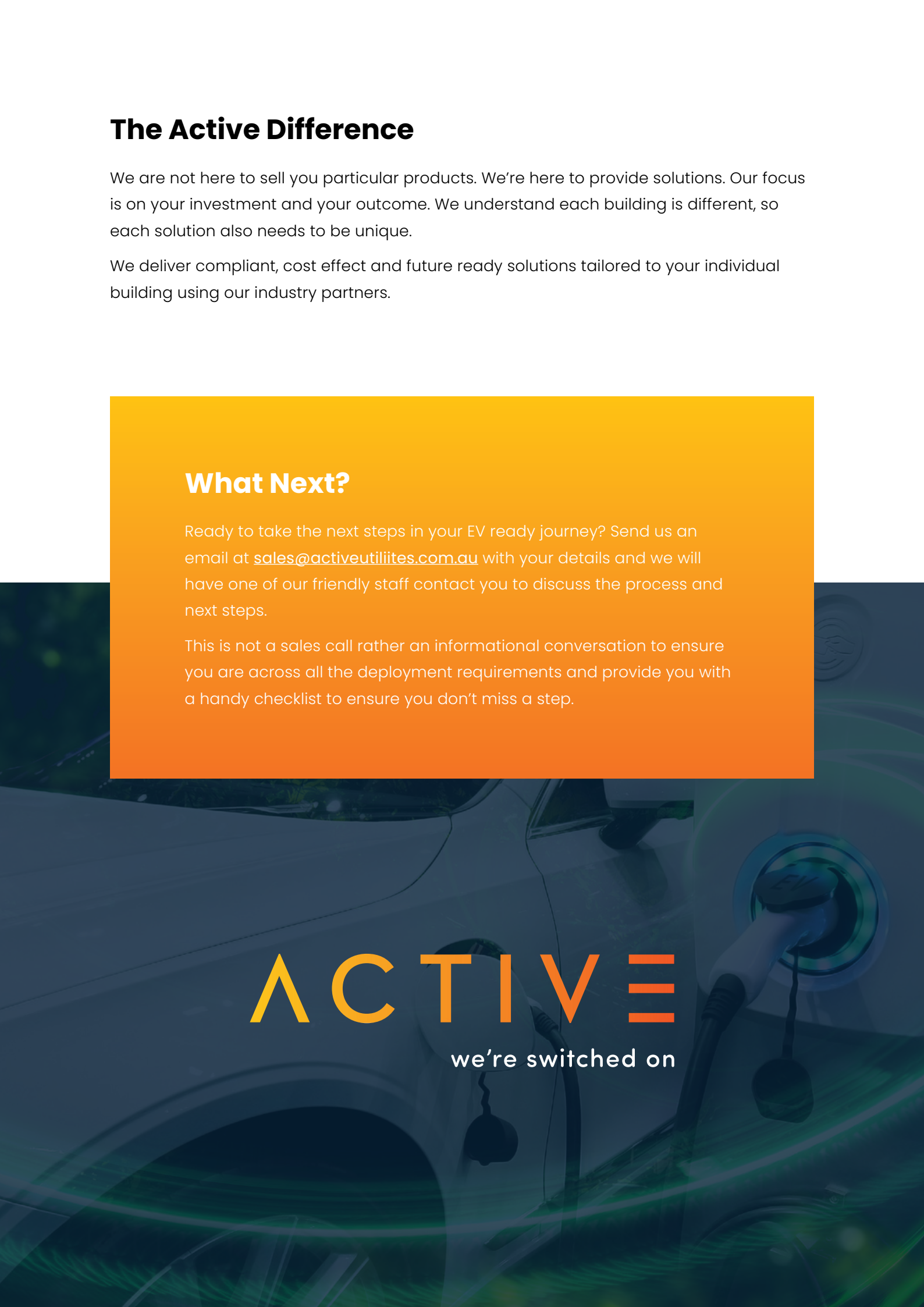
We are not here to sell you particular products. We're here to provide solutions. Our focus is on your investment and your outcome. We understand each building is different, so each solution also needs to be unique.

We deliver compliant, cost effective and future ready solutions tailored to your individual building using our industry partners.

What Next?

Ready to take the next steps in your EV ready journey? Send us an email at sales@activeutilities.com.au with your details and we will have one of our friendly staff contact you to discuss the process and next steps.

This is not a sales call rather an informational conversation to ensure you are across all the deployment requirements and provide you with a handy checklist to ensure you don't miss a step.



ACTIVE

we're switched on