# Home Charging as an Operator Product

## Turning private chargers into a managed service

Home charging is where most energy is actually delivered. Very few operators have a product for it.

FOR Operators, OEMs and utilities considering a home offering

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Why remote diagnostics matter more here than anywhere else, and what a realistic support model looks like.


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WHAT YOU GET

- Where the revenue is in home charging, and where it is not
- Reimbursement for employees and fleet drivers charging at home
- What a home charger must support to be manageable remotely
- The tariff and metering questions that decide whether it works

CHAPTER 01

# Four business models

Most energy delivered to electric vehicles is delivered at home, overnight, from a socket or a wallbox that no charge point operator earns anything from. That is the largest volume in the market and almost nobody has a product for it — partly because the obvious product, selling hardware, is the weakest of the four available.

## Hardware sale

Sell a wallbox, install it, take a margin. Simple, immediately understandable, and structurally poor: one transaction, a thin margin against imported units, and a support obligation that outlives the revenue by years.

It is worth doing as a component of one of the models below. It is a bad business on its own, and operators who start here usually discover that the support calls arrive long after the margin has been spent.

## Managed service

The unit is supplied, installed, connected to your platform and supported for a monthly fee. Recurring revenue, an ongoing relationship, and a reason for the customer to stay.

It only works if the service is genuinely worth a monthly fee — remote diagnostics that avoid a visit, scheduling against a time-of-day tariff, consumption reporting the customer actually uses. A monthly fee for an app that shows a number will churn.

## Reimbursement platform

The strongest of the four, and the least served. An employer with company EVs, or a fleet whose drivers take vehicles home, has to pay those drivers for electricity consumed at their own homes — accurately, auditably, and separately from the household bill.

THIS IS A SOFTWARE PROBLEM, AND IT IS UNSOLVED FOR MOST OF THEM

The alternatives in use today are a flat allowance that is wrong for everyone, or drivers submitting photographs of their electricity bills. Both are unsatisfactory to both sides. A metered session record, attributed to a driver and a vehicle, priced at a defensible rate, is the product.

The customer is the employer, not the driver, which makes it a B2B sale with a contract and a monthly invoice rather than a consumer product with churn.

## Utility programme

A distribution company wants visibility of residential charging load and, eventually, the ability to shift it. An operator can run that programme on their behalf: managed units in homes, reporting to the utility, responding to time-of-day signals.

Long sales cycles, procurement, and a counterparty that pays reliably. It is a genuine opportunity in India and it depends on relationships more than on product.

## Comparing them

| MODEL | REVENUE | CUSTOMER | MAIN DIFFICULTY |
|---|---|---|---|
| Hardware sale | One-off | Consumer | Support with no revenue behind it |
| Managed service | Recurring, small | Consumer | Justifying the fee |
| Reimbursement | Recurring, per driver | Employer / fleet | Sales cycle |
| Utility programme | Contract | DisCom | Procurement, and patience |

For most operators the sequence is reimbursement first, because the customer already has the problem and a budget for it, then managed service to the same employers' drivers.

CHAPTER 02

# Reimbursement is the wedge

A company car driver who charges at home is spending their own money on the company's fuel. Every organisation with electric company vehicles has this problem and almost none of them have solved it properly.

## What they do now

| METHOD | PROBLEM |
|---|---|
| Flat monthly allowance | Wrong for everyone; over-pays some, under-pays others |
| Per-kilometre rate | Ignores the tariff the driver actually pays |
| Submitting electricity bills | The bill covers the whole house; unauditable |
| Nothing | The driver absorbs it, and resents it |

The third is the most common and the least defensible. A household bill cannot be apportioned between a vehicle and a refrigerator, so what actually happens is a negotiation, annually, that satisfies nobody.

## What the product is

01 A managed charger at the driver's home, reporting sessions with meter values.

02 Each session attributed to a driver and a vehicle, not to a household.

03 Priced at a defensible rate: the driver's actual domestic tariff where it can be established, or a published state rate where it cannot.

04 Rolled into a monthly statement per driver, exportable to payroll or accounts payable.

05 With the underlying session records retained, so any line can be evidenced years later.

THE REQUIREMENT THAT DECIDES THE PRODUCT

Auditable. This is a payment from an employer to an employee for a cost incurred, and it will eventually be examined by somebody. A figure that cannot be traced to a metered session at a timestamp is a figure that will be questioned.

## The rate question

What should the driver be reimbursed per unit? There is no universally right answer and the choice should be explicit rather than implicit.

- The driver's own domestic slab rate: most accurate, hardest to establish, and it changes as their household consumption moves between slabs.
- A published average domestic rate for the state: simple, defensible, slightly wrong for everyone, and the most common choice.
- A rate agreed in the employment policy: simplest to administer, and the one to prefer where the amounts are modest.

Whichever is chosen, apply it as a tariff on the session so the statement shows energy, rate and amount as separate lines. A single total invites the argument the product exists to prevent.

## Selling it

The buyer is a fleet or HR function, and the pitch is not about charging. It is: your drivers are currently funding the company's fuel and being reimbursed by estimate; here is the same thing measured, on a monthly statement your auditor will accept.

The natural follow-on is depot and public charging on the same account, so the organisation sees one energy cost per vehicle wherever it charged. That is the reason this is a wedge rather than a niche.

CHAPTER 03

# Specifying a manageable home unit

A home charger you cannot see is a home charger you will visit. At household scale a single unnecessary visit can exceed a year of margin on that unit, so the specification question is entirely about what can be diagnosed and corrected remotely.

## Non-negotiable

01 OCPP over the network to your platform, not a vendor cloud you cannot query. A unit that only speaks to its manufacturer's app is not manageable.

02 A metering register reported through OCPP, with a known accuracy class. You are billing or reimbursing from it.

03 Remote start, stop and reset. Without these every fault is a visit.

04 Fault reporting with a vendor error code, and diagnostics retrievable remotely.

05 Remote firmware update. A fleet of home units on divergent firmware is unsupportable.

## Strongly preferred

- Local authorisation, so the unit works when the household internet does not — which it will.
- Scheduled charging enforced on the unit, so a time-of-day schedule survives a connectivity gap.
- Ethernet as well as wifi. Household wifi changes passwords and nobody tells you.

- A clear physical indication of state, so a householder can describe the problem accurately on the phone.
- A field-replaceable cable, because the cable is what fails.

THE CONNECTIVITY QUESTION IS THE SUPPORT COST

Home units sit in garages, basements and outside walls — the worst places in a house for signal. Decide at survey how the unit will connect, and prefer a unit that can fall back rather than one that assumes wifi. This single decision drives more of your support load than the brand on the box.

## What to leave out

Home charging attracts feature specification that raises cost and support load without changing the outcome. Be sceptical of anything that adds a failure mode.

- Screens. They fail, they date, and the phone in the customer's hand is a better screen.
- Proprietary apps that duplicate what your platform already does, and confuse the customer about where to look.
- Solar integration that only works with one inverter brand.
- Load balancing against the household supply, unless you can actually commission and support the sensor it depends on — it is genuinely useful and genuinely fiddly.

## Commissioning matters more here

You will not be back. Confirm at installation: the unit connects and stays connected with the door closed, a full session runs, meter values arrive, a remote reset works, and the householder has been shown what a normal indicator looks like. Twenty minutes that prevents the visit.

CHAPTER 04

# Tariffs, metering and the DisCom

Home charging sits on a domestic connection, which brings tariff structures, slab pricing and metering questions that public charging never encounters. Getting these wrong does not stop the product working — it makes the numbers indefensible, which for a reimbursement product is the same thing.

## Slabs are the complication

Domestic tariffs are usually slabbed: the rate rises as monthly consumption does. Adding vehicle charging to a household can push it into a higher slab, which means the marginal cost of the charging exceeds the rate the household was previously paying.

For reimbursement this matters. A driver reimbursed at their old average rate is being under-paid, because the vehicle is what pushed them up the slab. Reimbursing at the marginal rate is more correct and harder to administer; a published state average is the common compromise and should be stated as such.

## Time-of-day domestic tariffs

Several states have introduced or are introducing time-of-day pricing for domestic consumers. Where it exists it is directly useful: overnight charging is exactly the flexible load such a tariff is designed to shift, and scheduling it costs the householder nothing in convenience.

SCHEDULE ON THE UNIT, NOT IN THE CLOUD

A charging schedule that depends on a live connection will occasionally miss its window, and the customer will see it on their bill. Push the schedule to the charger so it holds through a network outage.

## Separate metering

Some states offer a separate meter or a distinct tariff category for EV charging at a domestic premises. Where available it is worth investigating: it can carry a lower rate, and it cleanly separates vehicle consumption from household consumption, which removes the whole apportionment problem.

The trade-off is cost and process — a second connection, a second meter, an application — which is rarely worth it for a single household and can be for a fleet rolling out fifty.

## What the charger's meter can and cannot evidence

| QUESTION | CHARGER METER ANSWERS IT? |
|---|---|
| How much energy went to the vehicle | Yes — this is what it measures |
| What the household paid per unit | No — that is the DisCom's tariff |
| Which vehicle received it | Yes, if authorisation identifies the vehicle |
| Whether the household would have used it anyway | Not relevant, and worth saying so |

The division is clean: the charger establishes quantity, the tariff establishes price. Keep them separate in the statement and both become defensible.

## Talking to the DisCom

01 Is there a separate tariff category or meter option for EV charging on a domestic connection, and what does it require?

02 Is time-of-day pricing applicable to domestic consumers here, and what are the windows?

03 Does adding a charger require any notification, given the additional load?

04 What is the sanctioned load on a typical domestic connection here, and does a wallbox require it to be raised?

The last one catches people. A 7.4kW wallbox on a modest domestic sanction is a meaningful addition, and a household that trips its main supply the first evening will not be a customer for long.

CHAPTER 05

# Support at household scale

A public network has a hundred chargers in twenty locations. A home programme has a thousand chargers in a thousand locations, each behind a front door, each with a customer who is not a technician. The economics only work if almost nothing requires a visit.

## The arithmetic that governs everything

Take the monthly fee, multiply by twelve, and compare it to the cost of one visit. For most managed-service pricing, a single visit consumes a year of revenue on that unit. So the target is not a low visit rate; it is a visit rate close to zero for anything that is not a hardware failure.

WHICH MEANS THE SPECIFICATION CHAPTER IS THE SUPPORT STRATEGY

Remote reset, remote diagnostics and remote firmware are not conveniences. They are the difference between a viable home product and a support obligation you cannot fund.

## The three things householders actually call about

01 It is not charging. Usually the vehicle, the schedule, or the household breaker — rarely the charger. The first question is always what the indicator shows.

02 It went offline. Almost always household wifi: a changed password, a new router, a signal that was marginal from the start.

03 The bill or statement looks wrong. Usually a schedule that did not run, or a session attributed to the wrong vehicle in a two-EV household.

All three are answerable from the session and message history without anyone leaving the office — provided that history exists and support can read it.

## A realistic model

| TIER | HANDLES | RESOLVES |
|---|---|---|
| Self-serve | Indicator meanings, wifi reconnection, schedules | A large share, if the guidance is good |
| Remote support | Reads state, log and history; resets; reconfigures | Most of the rest |
| Vendor / warranty | Confirmed hardware failure | A small number |
| Visit | Physical damage, electrical work, replacement | It should be rare |

## Proactive beats reactive

The cheapest support interaction is one the customer never has to start. Two alerts do most of the work: a unit that has been offline for more than a day, and a unit that has delivered no energy for a week when it usually does. Both are visible to you and invisible to the householder until their bill or their reimbursement is wrong.

Reaching out first — "we noticed your charger has been offline since Tuesday, it is usually the wifi, here is what to check" — converts a future complaint into a moment of goodwill, and it costs a message.

## What to write down for the customer

One page, left at installation and available online: what each indicator means, how to reconnect it to wifi, what to check before calling, and the number. Most home charging support volume is created by the absence of that page.

# About this document

Written by the team building zevOS, the charge point management platform. We publish this kind of thing because operators who understand utilisation, demand charges and settlement make better decisions — including about us.

Corrections and disagreements are genuinely welcome. If something here is wrong, or true in most states but not yours, write to support@zevos.ai and we will fix it in the next revision.

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