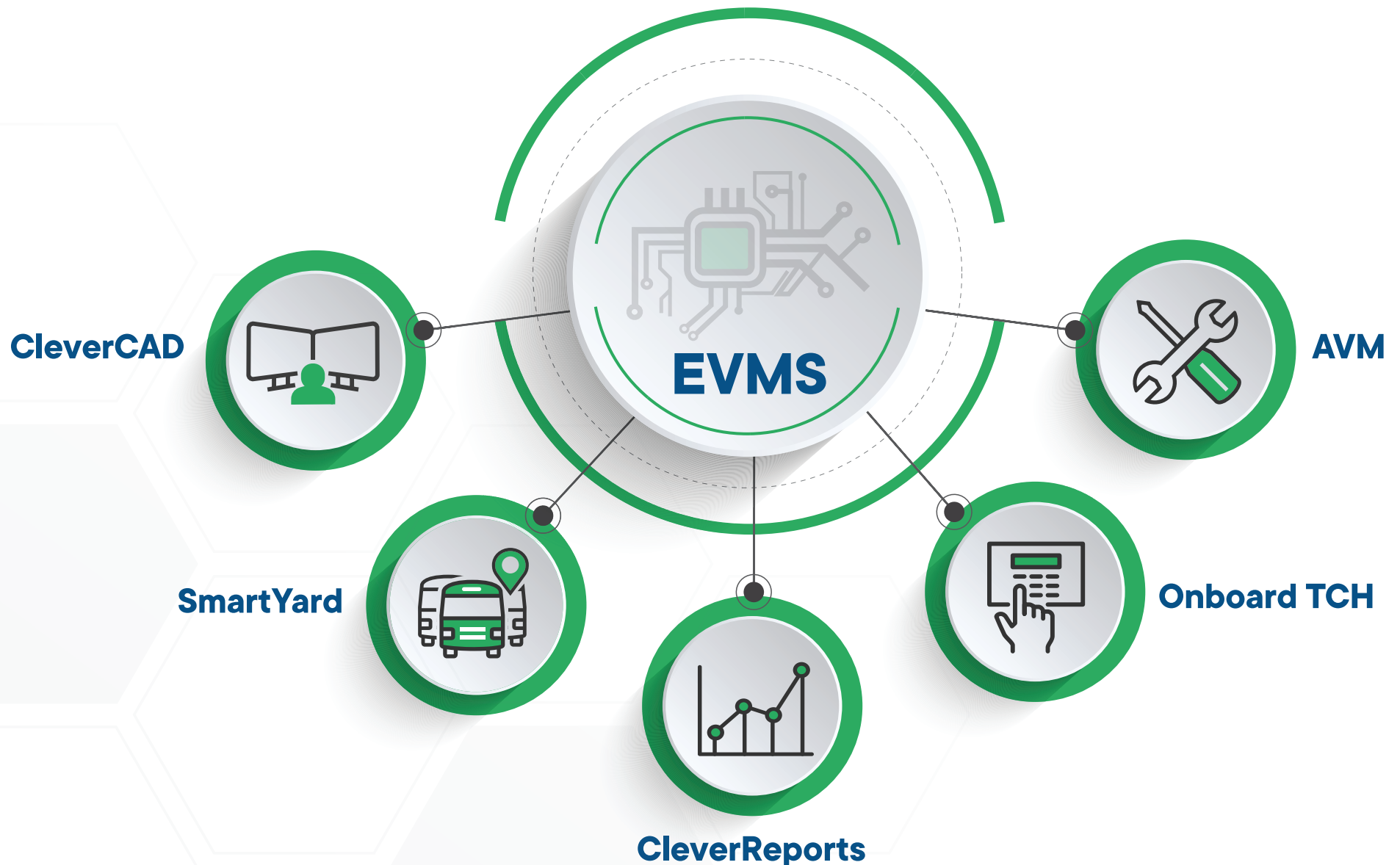


# Electric Vehicle Management Solutions

MANAGE YOUR ELECTRIC VEHICLES IN THE SYSTEM YOU ALREADY OWN

# EVMS BUILT INTO THE CORE: **NO THIRD PARTY REQUIRED**



As you gradually transition to electric vehicles, the odds are that you'll be managing a mixed fleet for the foreseeable future.

With EVMS, you can easily manage ALL your vehicles within the ITS ecosystem you already own and that your employees are already familiar with. There's no need to toggle between systems or pay for an expensive solution that doesn't support your entire fleet. We've built EVMS considerations into the core of our ITS solutions.

With a simple upgrade and minimal training, your system and your employees are up and running quickly.

**EVMS makes managing your mixed fleet easy.**

# CHALLENGES OF GOING ELECTRIC

## **Fleet Availability**

Not every electric vehicle in your fleet is able to handle every block of work

## **Battery Limitations**

Battery limitations and charging requirements play a huge role in how you plan your schedule

## **Maintenance Learning Curve**

Your maintenance teams aren't yet familiar with the nuances of electric motors

## **Associated Costs of Charging**

Increased costs of charging your fleet and the impact on your power grid

# EVMS INTELLIGENCE

## Gets Smarter as It Learns About Your Agency

When a new battery electric vehicle rolls off the production floor the manufacturer provides the suggested miles/km per charge. This estimate is impacted by a variety of factors such as how many stops your vehicles make, traffic patterns, distance driven, elevations, temperatures and even passenger loads and operator driving behaviors.

Since manufacturers can't possibly know this specific information, their estimates aren't always indicative of your vehicle's true range capabilities which makes adding electric vehicles into your fleet a bit more complicated than you may have imagined.

**EVMS takes all these unique variables into consideration and makes it easy.**





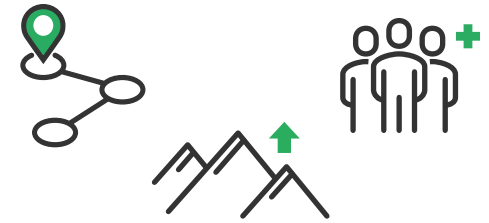
## It All Begins with Your Schedule of Work

Since our system will know your schedule, we have the advantage of knowing exactly the work you need the vehicle to perform.



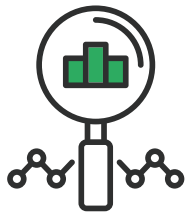
## Considers Specifics About Your Fleet

The system understands the capabilities of each type of electric vehicle in your fleet and considers that for our predictions.



## Accounts for Unique Operational Variables

From your topography to your ridership patterns and everything in between, EVMS accounts for all the elements that are unique to your agency and factors them into the equation.



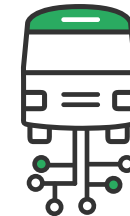
## Continuously References Your Data

EVMS continuously references what it has already learned and applies that knowledge into our predictions – which means, as more historical data is gathered, the more exacting your predictions become.



## Predicts Energy Consumption

Armed with these data points and considerations, EVMS will provide your stakeholders with energy consumption predictions for every Bus/Block combination in your schedule.



## Feeds Back Into Our Product Suite

EVMS from Clever Devices gives you energy predictions you can count on across your entire ITS ecosystem.



# CLEVERCAD

- Dispatchers can monitor the entire fleet in the same CAD/AVL system they are already trained on
- Receive real-time state of charge updates from each vehicle
- Inform drivers of any low-energy issues that may inhibit drivers from completing their logged in work



## System Continuously Updates Throughout the Service Day

Regular updates ensure service runs smoothly



## Address Situations Quickly with Minimal Impact

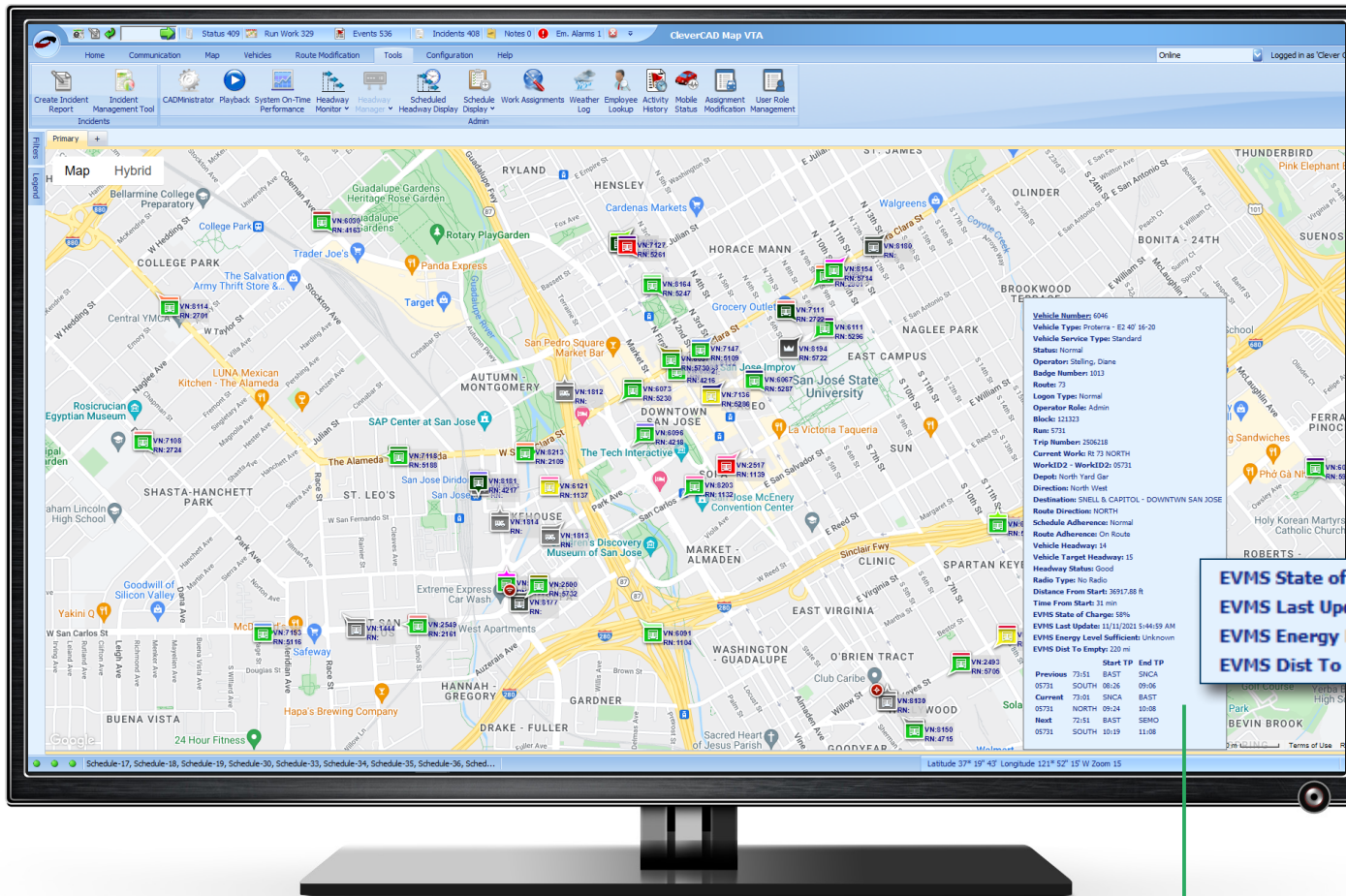
System can send email or text messages to quickly resolve issues before they impact riders



## Simultaneous Information

Dispatchers and operators can see the exact same real-time state of charge

# EASILY MANAGE YOUR ELECTRIC VEHICLES RIGHT FROM YOUR STANDARD CLEVERCAD SCREENS



## Map Screen

Vehicle tooltip reveals state of charge and distance to empty

# TCH OPERATOR DISPLAY

- Continuously updates and displays the state of charge, distance to complete block and distance to empty right on the screen
- Gives drivers the confidence that their vehicle can complete the assigned work
- If a vehicle can't complete the work, it simultaneously notifies both the operator and the dispatcher



## Communicates with All Subsystems

Gathers charging, energy usage and performance data for use within your ITS system



## Insufficient Energy Warnings

Lets operators know if they don't have enough energy to complete work or return to the depot



## Alleviates Vehicle Operator's Range Anxiety

Continuous monitoring throughout the shift eliminates range anxiety and concerns about running out of energy



# AVM

## Automated Vehicle Monitoring

Use the same health monitoring solution your maintenance team is already familiar with, to monitor your battery electric buses and all their subsystems.

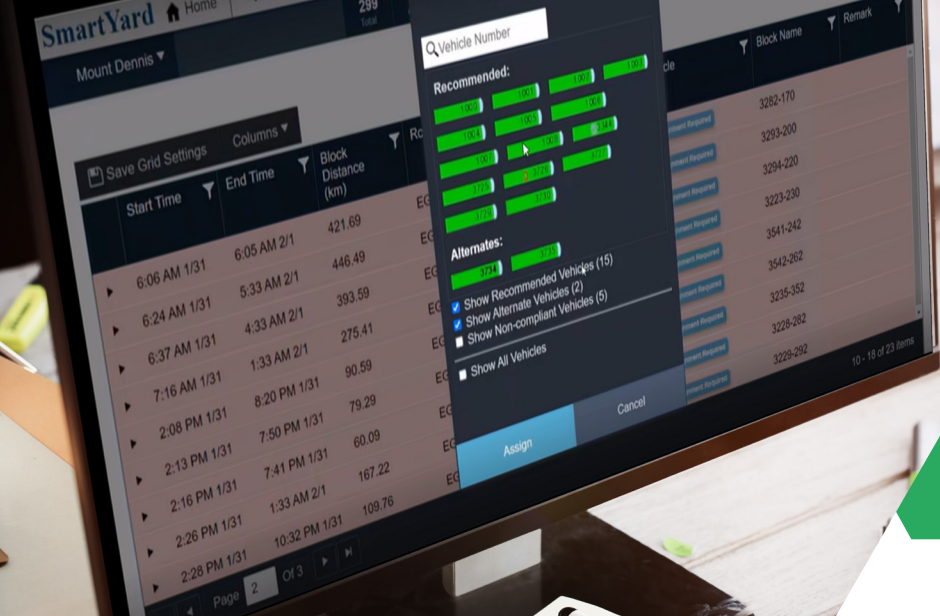


# CLEVER REPORTS

## Historical Reporting Solution

EVMS works behind the scenes to provide the necessary information to our historical reporting system.

Lets you see how well your electric vehicles performed against established KPIs.



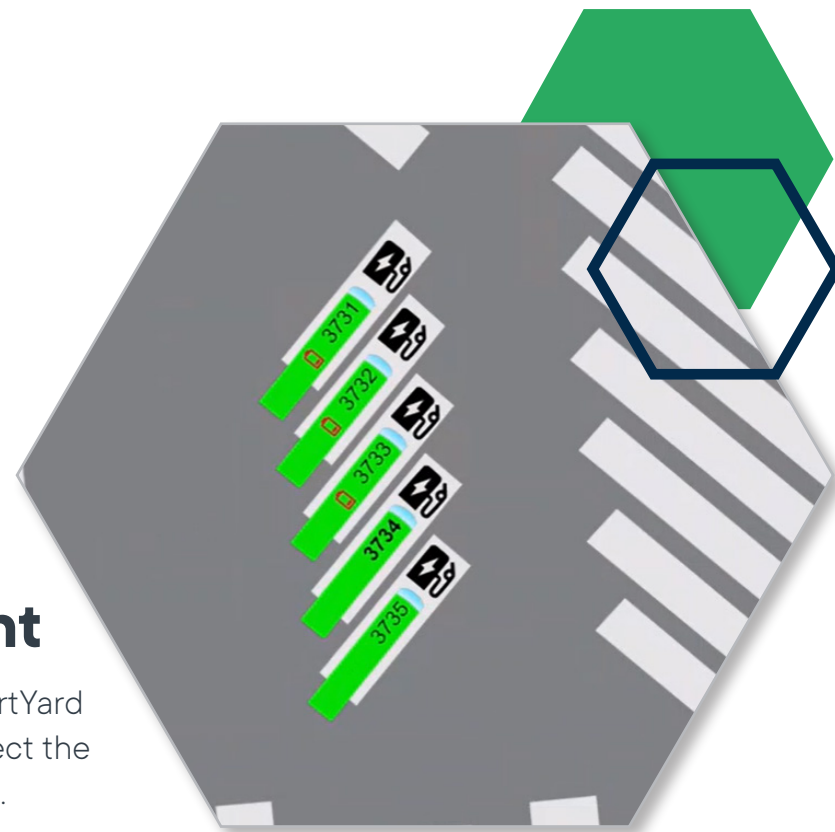
# SMARTYARD

**Pull-Out Management Module makes assigning unassigned Battery Electric Buses easy.**

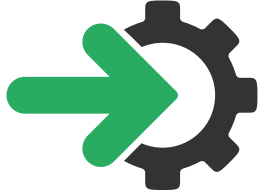
- SmartYard knows the open work
- It knows the energy requirements for each piece of work
- It will only recommend electric vehicles that are charged appropriately to complete that work

## Charge Management

When a BEB returns to the depot, SmartYard can assess the state of charge and direct the vehicle to the charging area if required.

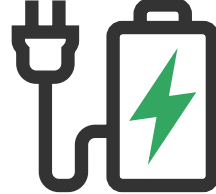


# ENERGY-EFFICIENT **CHARGE MANAGEMENT**



## **INTEGRATION WITH CHARGE MANAGEMENT SYSTEMS**

When integrated with a charge management system like Chargepoint®, EVMS from Clever Devices can make energy requirement recommendations for your current scheduled work.



## **EFFICIENT CHARGING STRATEGIES**

When your schedule, fleet information and operating conditions are factored into charge management processes, it creates opportunities for more efficient charging strategies and the ability to determine recommended energy levels.



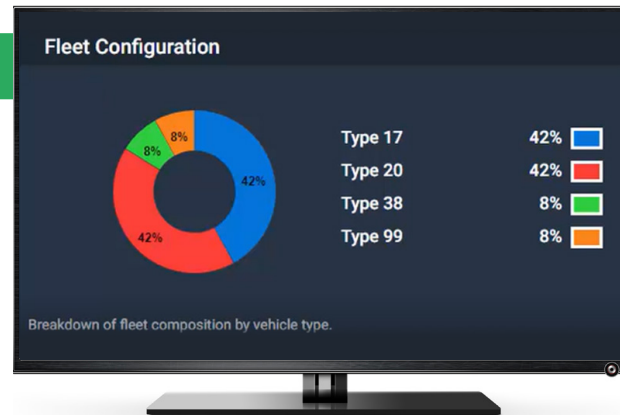
## **LOWER ENERGY COSTS**

In partnership with your Charge Management system, EVMS can help you lower your energy costs and spend less time trying to determine optimal charging levels for each vehicle.

# REAL-TIME DASHBOARDS

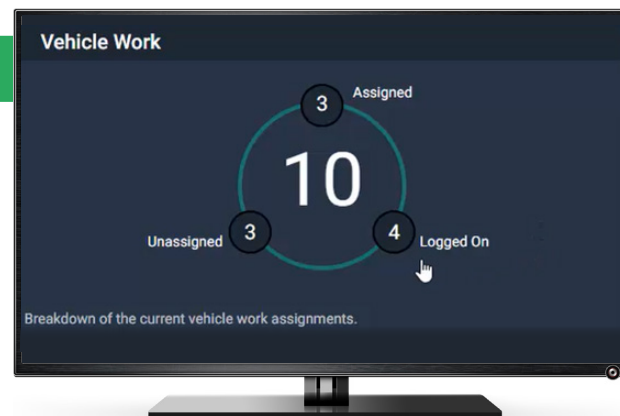
## Overall Fleet Configuration

Easily see the make, model, and type ID for each of your electric vehicles. Drill down and see the state of charge for each vehicle and set the threshold for the desirable state of charge to preserve battery life.



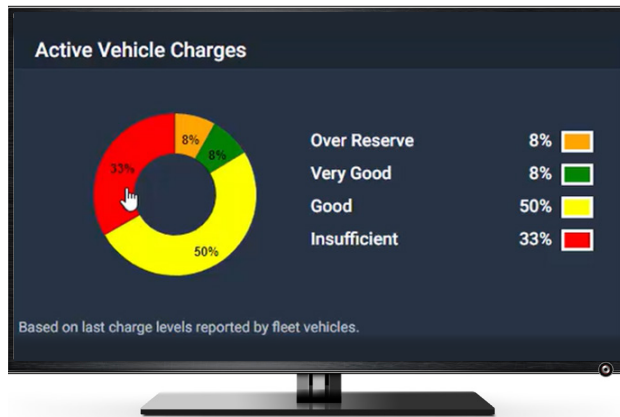
## Vehicle Work

High level overview of all the vehicles assigned, unassigned and logged on to work.



The real-time EVMS dashboard provides an efficient way to track important information about all the vehicles in your electric fleet including:

- State of charge
- The last time the vehicle reported into the server
- Vehicles logged in to work vs those that have been assigned work
- Overall fleet configuration



## Active Vehicle Charges

Easily see the high-level status of the state of charge of your entire fleet. Drill down to see detailed information on each individual vehicle including state of charge, required state of charge, last burn rate, ambient temperature and even the odometer reading.



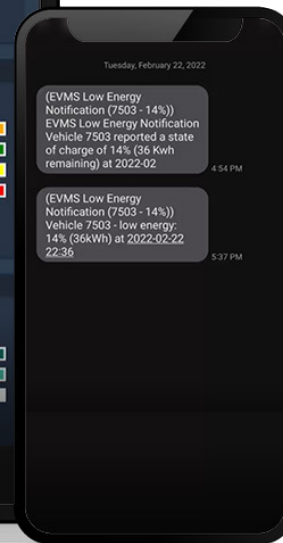
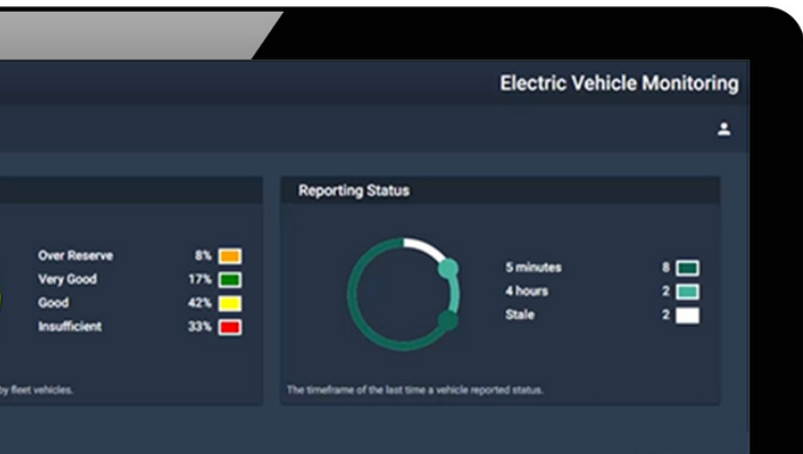
## Reporting Status

Quickly see the last time a vehicle reported into the server.

# EVMS WORKS WHERE YOU ARE

Access real-time data from anywhere with responsive web-based dashboards that are device agnostic.





## Send Emails or Text Messages to Alert Stakeholders

The EVMS dashboard can push notifications via email or text messages to notify stakeholders when there is a state of charge concern that needs to be addressed.

# Electric Vehicle Management Solutions

MANAGE YOUR ELECTRIC VEHICLES IN THE SYSTEM YOU ALREADY OWN

Let us show you how EVMS can help you integrate Electric Vehicles into your fleet seamlessly with the technology your operators, dispatchers and maintenance staff are already comfortable with.

[Schedule a demo today](#)

 **Clever Devices**  
Where Mobility Matters