

EV & PHV Town Report in Japan 2013

EV and PHV
Charging
Infrastructure

CASE STUDY

18 CITIES





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Next Generation Vehicle Promotion Center

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EV & PHV Town Concept

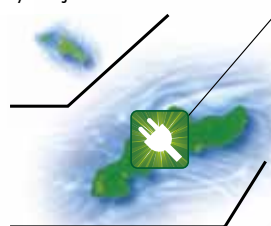


● The EV & PHV Town Concept is a model project for demonstrating deployment of EVs and PHVs in order to expand usage in the future.

● Creating demand for EVs and PHVs means focusing on two critical areas: developing battery charger infrastructure and raising public awareness of EVs and PHVs. We selected as model regions some local governments that are actively deploying EVs and PHVs.

● In each region environmental concerns were noted as regards deployment of EVs and PHVs. Models that take regional characteristics into account were established, and will be applied to other regions in Japan.

Miyakojima Island



Okinawa Prefecture

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Using rental EVs for sightseeing while actively promoting EV usage.

Tottori Prefecture

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Making EVs more accessible via car sharing and public transportation.

Gifu Prefecture

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Using EVs in regions that are both cold and warm while striving to discover other uses for EVs.

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Kyoto Prefecture

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Crafting EV regulations to link the tourism, industrial, educational and public sectors.

Aichi Prefecture

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Aiming to be number 1 in Japan for charger infrastructure by utilizing advanced technology.



Popular EVs and PHVs in Japan



LEAF



PRIUS PHV



ACCORD PHV



i-MiEV



OUTLANDER PHV G

Niigata Prefecture page 9

Reducing the vehicle tax and promoting EV-related companies.

EVs and PHVs Initiatives by Region

Aomori Prefecture page 4

Developing specialized convert-EVs to withstand harsh northern climates.

Tochigi Prefecture page 5

Creating infrastructure for battery chargers at roadside stations. Revitalizing the tourist industry using rail and EVs.

Saitama Prefecture page 6

Developing a low-carbon transportation mix to fit regional requirements.

Tokyo page 7

Promoting low-carbon transportation using EV buses and taxis.

Shizuoka Prefecture page 12

Demonstrating the benefits of EVs and companies to the public in Shizuoka at Mt. Fuji EV Festa.

Kanagawa Prefecture page 8

Proactively managing EV taxis in a region at the forefront of EV usage.

The time is now. Rolling out EVs and PHVs worldwide.

As energy restrictions tighten due to concerns over global warming, electric vehicles (EVs) and plug-in hybrid vehicles (PHVs) are in the global spotlight. The country driving technological innovation in this field is Japan.

To promote consumer interest in these vehicles and satisfy demand, we must raise public awareness while expanding charging facilities and equipment.

In order to accomplish this, we chose specific towns in Japan as model areas to test EVs and PHVs in real-life situations. Model vehicles are being produced and customized to fit local usage and environmental needs. Preliminary test results are already being studied and evaluated.

Battery charger examples



Normal battery charger

For restaurants, leisure facilities, hotels and personal residences where parking times are relatively long. Charger types include standing, hanging and socket models. Average charging time is from four to five hours and as long as eight hours.



Quick battery charger

For roadside stations, convenience stores and highway service areas that cater to long-distance transportation. Average charging time is 15 to 30 minutes. Designed for easy access to alleviate concerns about running out of power during a trip.

This brochure contains the latest case studies of test participants from each locality and corporation with an emphasis on procedures for rolling out EVs and PHVs as well as any subsequent environmental impact.

Next-generation, battery charger infrastructure initiative

The goal was to develop infrastructure suitable for an area subject to cold weather and deep snow. The prefecture hoped to install 279 chargers along national and prefectural roads in cities and towns to accommodate businesses and tourist facilities.

Looking to revitalize industry by developing converted-EVs for cold climates.



Above: Part time, four-wheel drive, converted-EV Good North Runner that uses an FF-type oil heater.

Below: EV bus at a charger in a roadside station along Shichinohe Road. Half of the installation fee was subsidized by the prefecture and national governments.



In cooperation with the Aomori Prefecture Energy Development and Promotion Division.

40% of target achieved

In March 2013 there were only 399 EVs and PHVs deployed in Aomori — 40% of the target. However, installation of quick chargers exceeded the target with 19 quick chargers and 81 normal chargers.

Current

1,000 vehicles by fiscal year 2013

A plan initiated in June 2009 called for deployment of 1,000 EVs and PHVs by fiscal year 2013. Aomori also hoped to install 10 quick and 100 normal chargers.

Target

Promoting EVs by converting prefecture buses to EV.

Aomori was the only area in Tohoku and Hokkaido chosen for the project. The prefecture conceived a plan that would take into account the cold and snow.

To support the project, local stakeholders in the commercial, financial, educational and public sectors formed the Aomori EV

and PHV Business Study Group. One company, Sasaki Petroleum Sales, became a leading member and in March 2013 developed a converted-EV designed to perform well in cold climates. The four-wheel drive prototype exhibited excellent power in snowy conditions, reduced problems with electronics and included an FF-type kerosene heater. The model turned out to be a good example of a cold-weather vehicle. Tajima Motor Co. assisted in development. If the vehicle can be economically deployed, it will represent a concrete achievement in establishing EVs as a feasible alternative in cold climates.

The town of Nanato is trying to harness green energy and is one of the leading local governments currently deploying EVs and PHVs. Using subsidies from national and prefectural agencies, the town bought an EV to use as a shuttle bus. It is also evaluating performance of a small truck converted to EV that is being used for agriculture. Currently the town is urging auto repair shops to learn installation procedures for batteries used in EVs — a service that could generate new business revenue.

Vision

Developing EVs for cold climates

The prefecture wants to develop EVs and PHVs that operate reliably in cold climates. The government and public are studying different types with an eye to developing one that will not compete with models offered by large manufacturers.

User's View

Using EVs for tourism

Aomori is home to Towadako and Oirase, two areas renowned for their natural beauty. To protect the environment, the prefecture uses EV tour buses and limits the number of vehicles into the area. Locals feel encouraged by these efforts.



Converted light truck-EV developed by Tohoku Jidosha in Hachinohe City.

Next-generation, battery charger infrastructure initiative

Tochigi contains both flatlands and mountains, with each area having specific needs and infrastructure requirements. The target was to install 490 chargers. To enhance user convenience at charging facilities — especially at roadside stations — each would ideally contain several chargers.

Boosting tourism by publicizing the fact that chargers are widely available.



Nikko will install chargers at three different places in order to boost tourism.

Current

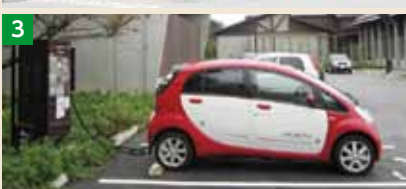
The prefecture exceeded its goal of 1,000 vehicles

By the end of June 2013 a total of 1,022 EVs and PHVs had been deployed. Tochigi also obtained subsidies that allowed it to minimize distances between charging facilities. Currently 51 chargers have been installed — more than twice the number originally targeted.

Target

1,000 vehicles by fiscal year 2013

A plan initiated in June 2009 called for deployment of 1,000 EVs and PHVs by fiscal year 2013. Tochigi also wanted to avoid long distances between chargers, with one every 20 km for a total of 25 chargers.



- 1 Hotel Kaan installed two normal chargers.
- 2 Nasu's Rusk Shop installed one quick charger at the entrance.
- 3 People visit the Nasu Highland Visitor Center while charging their vehicles.

Revitalizing the tourist industry using the power of rail and EVs.

Tochigi undertook five model projects as part of EV & PHV Town Concept. Among them, most emphasis was put on revitalizing the tourist industry using rail and EV.

Nikko and the Nasu Highlands are popular tourist destinations teeming with wildlife. By combining rail and EV, an ecologically sound way of visiting the area could be realized. In the future this will be a key point for promoting tourism. For example, tourists will receive discounts on tolls for the Nikko-Utsunomiya highway when travelling by rental EV/PHV or taxi. In addition, parking will be discounted inside of Oku Nikko National Park.

Both areas support discounted tolls and parking fees. Moreover, restaurants and tourist facilities are also participating in the program with qualified visitors being offered additional discounts or souvenirs.

The prefecture also subsidizes installation of chargers at hotels, restaurants and souvenir shops. One such program is already underway. Inside the Nasu Highland Visitor Center operated by the Ministry of Environment, the prefecture is renting part of the land and collecting funds in order to install a quick charger. This has attracted the attention of businesses as a way to fund further installations.

Vision

Chargers at roadside stations

When service areas along the Tohoku Expressway install chargers, EV and PHV usage will undoubtedly increase. Tochigi is planning to subsidize installation of quick chargers at roadside stations.

User's View

Prefecture handling the project well

Many hotels, restaurants, souvenir shops and visitor centers in Nikko and Nasu offer easy access to chargers.

Next-generation, battery charger infrastructure initiative

The goal was to install 430 chargers in high-traffic areas as follows: 38 at roadside stations; 262 along national and prefectural roads as well as near highway intersections; 118 at large shopping facilities, hotels and public facilities and; 12 interspersed in the prefecture to avoid long distances between chargers.

Niigata, Gunma and Saitama collaborating to install chargers along Route 17, targeting commuters, sightseers and transportation for seniors.



Special signage for charger installed in conjunction with three prefectures.



1 Ryusei Kaikan roadside station has two chargers. Solar panels decrease operating costs. **2** A park-and-ride project is being tested through February 2014 at Kagohara Station. The parking lot uses solar power and features a new storage battery. **3** At the Chichibu Cemetery, Honda's rental electric cart Monparu is available for seniors and is garnering favorable attention.

The prefecture achieved 90% of its goal regarding vehicle deployment and more than doubled its goal of chargers. In March 2013 Saitama had deployed 2,564 vehicles (1,755 EVs and 809 PHVs). This amounted to 90% of the goal. In addition, 94 chargers were installed, more than double the goal of 40. The plan for the current year is to vastly increase the number of chargers.

3,000 vehicles by 2013

In the near term, between March 2011 and 2013, the goal was to deploy 3,000 vehicles. By 2020 the prefecture hopes to deploy 200,000 vehicles. Regarding chargers, the near-term goal was to install 40 quick chargers and 100 for the mid-term.

Local governments promoting park-and-ride and rail-and-ride programs to achieve a low-carbon mobility mix.

In Saitama, Honda Motor Co., Ltd. is playing a strategic role by actively supporting the project. As a result the deployment of EVs and PHVs as well as installation of quick chargers is proceeding rapidly.

Route 17 in Saitama runs north to south. Along it are many public facilities and car dealers, 33 of which already offer chargers. Further along the highway are 17 chargers in Gunma with an additional 12 in Niigata, making it possible to drive via EV or PHV from Saitama to the Japan Sea. To further enhance infrastructure, a next-generation charger initiative is being undertaken with the aim of installing chargers at an additional 19 roadside stations.

The Kagohara area in Kumagaya City is currently conducting a new park-and-ride commuter system that employs solar power and storage batteries. Train commuters leave their cars in specially equipped parking lots where their cars charge while they work. This is ushering in a new form of commuting.

Chichibu City is aiming to become more eco friendly while attempting to boost tourism. One quick charger in front of Chichibu Station recorded 300 users. Moreover, there are three

roadside stations with chargers: Ryusei Kaikan, Ohasa Onsen and Arakawa. These are all part of the Chichibu Rail-and-EV/PHV Ride program implemented to study the feasibility of low-carbon tourism. The program also offers elderly tourists new electric carts — the Honda *Monparu* — that require no license to operate. All aspects of the program employ EVs and PHVs.

Vision

Different views on reducing CO₂

Saitama ranks third in Japan for vehicle ownership. In the metro areas, the prefecture is especially active in trying to achieve a low-carbon society through deployment of EVs and PHVs. With this in mind, charging infrastructure will be expanded along national roads, at shopping centers, near parks and in other areas.

User's View

Practical use to fit local needs

The project is providing insights into user-friendly, low-carbon commuting/tourism and mobility for senior citizens. The Honda *Monparus* have been especially popular.

Next-generation, battery charger infrastructure initiative

The goal was to create 18 test areas, each 10 km x 10 km square, then install four to 16 chargers in each area. A total of 251 chargers were to be installed in Tokyo, including its islands.

Deploying EVs and PHVs to create a safe and comfortable, low-carbon environment.



Above: *Hamuran* connected to a special charger at Hamuro City Hall.

Bottom: The name *Hamuran* is derived from "Hamura City" and "running" and was selected via a public contest.



Sumirin Chan passing Tokyo Sky Tree. The designer of the bus exterior lives in Sumida ward.

Goal met for quick chargers

In March 2012 there were 2,381 vehicles deployed (1,975 EVs and 407 PHVs). Currently there are approximately 3,000 vehicles. Regarding chargers, the target was to install 80 quick chargers within three years from 2009. By February 2013 there were already 117 chargers.

Current

15,000 EVs and PHVs

The Tokyo Metropolitan Government's environment plan, issued in March 2008, aimed to reduce CO₂ emissions. A short-term goal, pursued over five years, was to have EVs and PHVs account for 2% of new vehicle sales over the period — about 15,000 vehicles. This would decrease CO₂ emissions by 23,000 tons. Tokyo also hoped to install 80 quick chargers.

Target

Public and private sectors eagerly trying out EV buses and taxis.

On March 10, 2012 Hamuro City started scheduled EV bus service for the first time in Japan. Christened *Electronic Bus Hamura*, the bus was developed by Hino Motors, which has a factory in Hamuro. The bus route — called Hamuro Center Course — goes from Hamuro Station to Kosaku Station, stopping at city hall and other points along the way. A round trip covers 7.4 km and takes about 30 minutes, after which the bus charges for 20-30 minutes before departing again. The body of the bus displays

a logo showing an electric socket. Bus stops are marked with the same logo. Some people have asked that the route be extended to Fussa Hospital. (Civic Life Division of Hamuro City Hall) Currently the city is planning to extend the round-trip distance route to 14 km.

At nearly the same time, on March 20, 2012, Sumida Ward kicked off Sumida Environment Manifest and started EV bus service using their own vehicle, *Sumirin Chan* — the same type of bus that Hamuro City uses. The bus is operated by Keisei Bus and services three routes. Of the 52 bus runs, seven are serviced by *Sumirin Chan*.

In Tokyo's Marunouchi district from 2011 to 2012, 18 EV taxis were tested. A survey of passengers revealed that 70% wanted to use EV taxis again while a similar survey given to taxi drivers noted their concern regarding driving distances. To allay concerns, they wanted to be assured of 24-hour access to chargers.

Vision

Continue subsidies for businesses

In addition to national subsidies, the Tokyo government is offering small and large businesses financial incentives to deploy EVs and PHVs. The tests in Hamuro City and Sumida Ward are helping to popularize the vehicles.

User's View

Various testing still underway

Sumirin Chan has a multilingual display in four languages, making it useful for both residents and tourists. It's also comfortable and drew favorable responses from passengers.



Seniors love the quiet, comfortable ride and are frequent passengers.

Next-generation, battery charger infrastructure initiative

Kanagawa is among the leaders for charging infrastructure in Japan. Currently there are 477 quick chargers and 531 normal chargers along major highways, at the intersection of Odawara-Atsugi roads and in other locations frequented by tourists and shoppers.

Accelerating Kanagawa's program for deploying EVs in one of the world's most EV-friendly locales.



EV taxi stand at Saiseikai Yokohama Tobu Hospital.

Current

Two years ahead of schedule

In March 2013 the number of EVs deployed hit 4,398 along with 159 chargers. This was two years ahead of schedule. Tying up with manufacturers in conjunction with subsidies from Kanagawa proved to be instrumental in achieving the goals.

Target

Deploy 3,000 EVs and PHVs

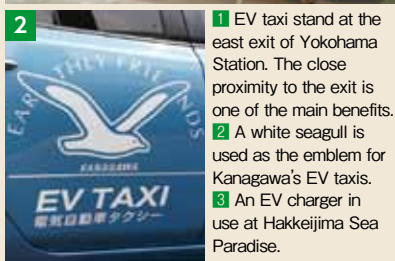
Conceived in 2008, the Kanagawa EV Promotion Measures called for wide deployment of 3,000 ecological EVs by 2014 along with installation of 100 quick chargers throughout the prefecture.

EV taxis key to the vehicles' autonomous rise in popularity

As soon as EVs hit the market, Kanagawa looked for ways to deploy them. The prefecture deployed them in various ways, especially for use as taxis.

The Kanagawa EV Taxi Project and Yokohama Mobility Project ZERO combined efforts to introduce a taxi stand at Saiseikai Yokohama Tobu Hospital. At the front of the LPG taxi stand are two areas for EVs, which are more profitable than LPG taxis. In June 2013 a special UD/EV taxi stand opened at the east exit of Yokohama Station catering specially to people with lots of luggage or physical disabilities. This is one test case representative of Yokohama's efforts at trying to achieve a low-carbon society. Moreover, the prefecture is promoting EV tourism by tying up with tour agencies and holding special events.

These test cases are good examples of EV usage and how to popularize the vehicles.



- 1 EV taxi stand at the east exit of Yokohama Station. The close proximity to the exit is one of the main benefits.
- 2 A white seagull is used as the emblem for Kanagawa's EV taxis.
- 3 An EV charger in use at Hakkeijima Sea Paradise.

Vision

Autonomous spread of EVs

Because of the abundance of chargers, drivers feel more assured using EVs. Subsidies can be eased and EV usage should expand on its own. Introducing more EV taxis, promoting EVs for tourism and adjusting quick charging rates should increase popularity.

User's View

EV vehicles are becoming more popular

EV vehicles — including EV taxis — are becoming more popular. Using the same color scheme and logos for EV taxis is effective promotion. More than 75% of EV taxi users prefer the vehicles to other taxis.

Next-generation, battery charger infrastructure initiative

Heavy snowfall in Niigata makes it necessary to expend a great deal of energy on heating cars. Hence, the driving range should be 20 to 30 km shorter than for other areas. The goal was to space 252 chargers about 20 km apart.

Reducing the automobile tax is expected to promote usage of EVs and PHVs as well as boost industry.



Helper EV II (developed by Saikawa) assists stranded vehicles.



1 JA Sado monitoring EV rentals to farmers. 2 Free rental EVs for guests staying at Hotel New Katsura. 3 Kashiwazaki Sanwa Station, which installed two quick chargers. Installation was in April 2013 at the Kashiwazaki Promotion Bureau in Niigata.

Quick charger installations three times more than expected

By the end of March 2013 more than 724 vehicles were deployed (502 EVs and 222 PHVs). As of the end of May 2013, there were more than three times the number of quick chargers installed than planned. Now Niigata is planning to install chargers at 20-km intervals to allay drivers' concern regarding charger availability.

2,000 vehicles by 2015

EV light-vehicles should comprise about 0.3% of the total vehicles (about 2,000) by 2015. The goal for installing chargers has already been achieved. A new goal has now been set to install chargers every 30 km.

Aiming for ultra-compact, next-generation transport within Niigata prefecture and developing the world's first helper EV.

Niigata drastically reduced taxes for EVs and PHVs in addition to providing ¥300,000 in subsidies for converting normal vehicle to EVs. In addition, Sado City's Eco Island Sado campaign has been quite popular. EV vehicles are well suited for short-distance driving and their eco appeal complements the island's attempts to reintroduce the Japanese crested ibis. Locals are very committed to building a thriving tourist industry.

Efforts are also underway to deploy a very small EV called Hiriko, which was originally developed in Spain. A domestic version is slated to be produced in Niigata. Currently the program is under review by the local government after which testing will commence.

In Kashiwazaki the world's first helper EV was developed — a unique EV truck equipped with a charger and condenser. This vehicle provides charging assistance to vehicles stranded without battery power. There are currently two vehicles undergoing testing with deployment scheduled for the near future.

Vision

Revitalizing industry in Niigata prefecture

By combining efforts with Saitama and Gunma, more chargers along Route 17 will be installed. Service areas and parking areas along Kanetsu Highway are also being improved. If the Hiriko project goes as planned, it should boost industry in Niigata, ultimately increasing demand for EVs and PHVs.

User's View

Monitoring shows results

Sado City is requesting feedback from tourists and rental EV truck users via JA Sado. One such comment is that the vehicles are much more powerful than originally imagined. Some users actually purchased EVs after trying them out.

Next-generation, battery charger infrastructure initiative

The Fukui area experiences heavy traffic (2,500 vehicles per 24 hours) so it was estimated that 240 chargers would be needed: 172 at stopover facilities along main highways, 11 at roadside stations and 57 at tourist facilities.

Using EVs to reduce fuel expenses in the prefecture with the most vehicles per family.



Eiheiji Lanterns Floating Festival is a summer poem popular in Fukui. LED candles — bobbing lanterns — shine at the feet of residents. EVs from Prof. Ikuo Akaishi of Fukui University and members of his Akari project were used to 'light' the candles. At the event, prefecture subsidies of up to ¥10,000 were offered.



Left: Leaflets for the Experience Fukui by EV tour conducted in collaboration with JTB Chubu Fukui and students at Fukui Prefecture University.
Right: Umino Hotel Hirose in Mihamacho used a subsidy from the prefecture to install two normal chargers. One of the stops along the Experience Fukui by EV tour.

90 public chargers

By the end of March 2013, Fukui had deployed 366 vehicles (230 EVs and 136 PHVs). Despite this, more promotion is needed. In addition, 18 public quick chargers and 72 public normal charges have been installed. Positive results are expected through the end of the year.

Current

Introduce 1,500 EVs by the next fiscal year

The goal, conceived in March 2010, was to deploy 1,500 vehicles by fiscal year 2014. This would reduce CO₂ emissions by approximately 2,500 tons yearly.

Target

Using special events and tourism to change perceptions regarding EVs.

Fukui has the highest number of vehicles per household in Japan. Moreover, yearly mileage is 10,423 km per vehicle versus the national average of 9,300 km. Fuel costs are very high.

Residents are heavily dependent on cars and other vehicles so

EVs and PHVs will help reduce CO₂ emissions and fuel costs. Fukui is installing quick chargers at commercial facilities and subsidizing installation of normal charges and the purchase of EVs and PHVs by rental car companies. Furthermore, the prefecture is actively promoting EVs and PHVs.

During the Next-generation Vehicle Promotion event, Fukui awarded subsidies of ¥10,000 to participants to encourage promotion of EVs and PHVs.

The prefecture also wants to tie up with JTB Chubu Fukui for EV tours. The Experience Fukui by EV tour was held three times last year with all tours fully booked. A total of 74 people in 31 groups participated with 88% of participants saying they were very satisfied with the tours and were better able to understand EVs and their benefits.

In Fukui City a charity event was held to purchase an EV in 2012. As the first prefecture to implement the Hometown Tax System, residents and firms regard charity events highly, and another one will be held next year.

Vision

Proposing alternative vehicles

Fukui has the highest number of vehicles per household in Japan so alternative vehicles are a popular topic. Commute Delivery is an easy-to-understand project for promoting deployment of EVs and PHVs.

User's View

EVs for easy winter driving

Fukui is highly vehicle dependent and the population views EVs as expensive and having limited range. Residents want a vehicle for under ¥1,500,000 with a range of about 200 to 300 km. In addition, the area is subject to heavy snowfall so four-wheel EVs with sufficient heating are needed.



Fukui City used a charity event to purchase an EV. Elementary and junior high-school students proposed vehicle designs. The design chosen was created by a girl in junior high-school.

Next-generation, battery charger infrastructure initiative

The prefecture's next-generation, charger infrastructure initiative, conceived in May 2013, proposed the installation of 252 quick chargers and 555 normal chargers by 2020.

Promoting EVs and PHVs as part of Gifu's Next Generation Energy Vision project.



Above: Quick charger at roadside station in Sakura no Sato Shokawa.

Below: Signage for quick charger in Gifu City.

Current

Only 70% of the deployment goal was achieved

By the end of March 2013 the prefecture had deployed 1,034 EVs and PHVs. It appears that government subsidies and campaigns by car dealers are successful. In addition, 31 quick chargers had been installed by the end of June 2013.

Target

1,500 vehicles by fiscal year 2013

The plan calls for deployment of approximately 1,500 EVs and PHVs by the end of fiscal year 2013. By fiscal year 2020, 156,000 will be deployed and by 2050, 1,000,000. In addition, the short-term goal is to install 20 quick and medium-speed chargers.

Cold hill regions in the north and warm southern climates make good testing grounds for EVs and PHVs.

The Tokai region of the prefecture was chosen for the second stage of EV/PHV testing. Gifu is highly dependent on vehicles and is characterized by a large number of vehicles per household. Fully 98% of passenger traffic is dependent on motor vehicles. For the Next Generation of Infrastructure project currently underway, one of the goals is to make the region more self-sufficient as regards energy use in transportation.

The most important aspect of the project is to install quick chargers at roadside stations in hill regions. During fiscal year 2011 and 2012, EV usage by residents and businesses was analyzed. The results show the cost benefits for shopping, commuting and delivery services. But for long distances or irregular use the benefits are few. This knowledge allowed the prefecture to set up a website that rated the benefits of EVs for each area.

Takayama City deployed EVs and PHVs to kickstart tourism in the city, with the Norikura Skyline chosen as the first test area. In Guiyo City chargers are located outside coin laundries, and in Toki City there is a coffee shop with a charger. Private businesses are just beginning to deploy EVs and PHVs.



1 Testing EVs at the Norikura Skyline. 2 Charger at a coin laundry installed by Hatanaka Water in Guiyo City. 3 Charger at Comeda Coffee installed by Ishiguro Shoji in Toki City.

Vision

Boosting tourist industry with eco tourism

The Norikura Skyline is a favorite scenic drive in Japan. Testing of EVs and PHVs in this area went well and helped popularize EVs. Because of exhaust fumes, many tourist spots control vehicle access. EVs should make this area easier to access and increase tourism.

User's View

Deregulation required to expand charger infrastructure

Gifu has many roadside stations, however charger installation must comply with government regulations. Hence, regulations should be modified to promote growth.

Next-generation, battery charger infrastructure initiative

The goal of 300 chargers was upped to 500 last year. The additional 200 chargers were a special goal of the prefecture. Chargers are to be installed every 25 km along surfaced roads.

Mt. Fuji — a World Heritage site — was the venue for Mt. Fuji EV Festa this summer, held to promote EVs and demonstrate how they can benefit companies in Shizuoka.



To promote EVs and PHVs, Mt. Fuji EV Festa was held on August 1, 2013 — the anniversary of Mt. Fuji's designation as a World Heritage site. 35 EVs and PHVs from around the country took part in a parade up the mountain. At the exhibition, companies from Shizuoka prefecture showcased advanced EV technology and vehicles.



1 J League's Shimizu S-Pulse promotes eco-friendly living. Their official car is an EV, which is on display at their home stadium.

2 A tiny offering by Tajima Motor Corporation.

3 The Hamamatsu Industry Technology Center has a new-generation vehicle library with EV parts

on display. Admission is free. **4** NTN, a major ball bearing manufacturer, developed an in-wheel motor. The experimental car can change directions while stationary.



Progress with charger installations

By the end of fiscal year 2012, 1,645 EVs, 450 PHVs and 314 electric bicycles had been deployed. In addition, at the end of July 2013 a total of 351 chargers had been installed; 82 quick chargers and 269 normal chargers.

Aiming as high as Mt. Fuji

The plan called for deploying as many EVs as Mt. Fuji is high (in meters) or some 3,776 vehicles, including electric bicycles. In addition, the initial goal of 300 chargers was upped to 500 due to the ease at which the first goal was achieved. (This is public information.)

Targeting assembly companies in the area with an EV parade to the fifth station of Mt. Fuji and exhibition of EVs.

Shizuoka is a transportation hub linking east and west Japan. The area is also known as the Craft Prefecture. In the future the prefecture aims to revive industry and construct a low-carbon society.

The prefecture is actively developing charger infrastructure and achieved its goals a year earlier than planned. Quick chargers were installed by NEXCO Central Nippon and normal chargers by PIS Network. The area has a vibrant private sector and infrastructure expansion is being planned for the east coast of Izu, which hosts many tourists visiting the area by EV.

In order to promote the EV-friendly environment, the first-ever Mt. Fuji EV Festa was held. During the event, the hill-climbing ability of EVs was demonstrated by 35 vehicles paraded to the Fujimiya exit that marks the fifth station up the mountain — a distance of about 16 km that climbs more than 900 m and takes about 40 minutes. The parade was comprised of small EVs and electric bicycles developed by companies in Shizuoka.

The test run and exhibition was joined by 11 Shizuoka companies and one university. At

the exhibition, people could test drive small EVs, converted EVs and electric bicycles. NTN's in-wheel motor and Tajima Motor Corporation's converted EV and Super Small Mobility system were representative of the area's commitment to EV technology. The prefectural government also has a library dedicated to new-generation vehicle publications.

Vision

A need for collaboration

Shizuoka is home to many parts suppliers for conventional cars. To develop new-generation vehicles, collaboration between these companies is a must. The prefecture is quickly expanding charging infrastructure in order to support the new industry and provide employment opportunities.

User's View

A chance to experience Shizuoka technology

The parade and exhibition demonstrated the hill-climbing ability of EVs and their quiet ride that lets users enjoy the sounds of birds along the way. Visitors were pleasantly surprised by all the advanced technology.

Next-generation, battery charger infrastructure initiative

Aichi has many vehicle-related companies, a fact that has facilitated deployment of both normal and quick chargers. The prefecture hopes to deploy 1,600 chargers.

Aichi automotive companies leading with cutting-edge technology.



Above: Solar-powered EV/PHV chargers at Toyoda City Hall.
Below: Rental point for advanced, eco-conscious Ha:mo at Toyota Ecoful Town. There are 20 rental points in the city. (<http://www.toyota.co.jp/jpn/tec/its/hamo/>)

Rapidly achieving the target of 5,000 vehicles

By December 2012 there were 3,952 vehicles in the prefecture (2,367 EVs and 1,585 PHVs), indicating steady progress towards the target of 5,000. In addition, there are currently 661 chargers installed (85 quick and 576 normal). The target was revised and installations are steadily increasing.

Current

1,600 chargers by fiscal year 2020

The prefecture exceeded its target of 2,000 EVs and PHVs for fiscal year 2013, deploying more than 5,000 vehicles. In addition, there were already 100 chargers installed by 2010 with a goal of 1,600 for the future, which would be the most in Japan.

Target



Normal charger from Toyota Industries Corporation with excellent communication functionality. Equipped with IC card authentication and PIN authentication.

Aiming to be number 1 in all areas — Toyoda City's eco-friendly transport system powered by small EVs.

Vehicle ownership in Aichi leads the nation due in part to the large number of vehicle makers and related companies, which form the industrial base of the prefecture. Residents are also very eco conscious, resulting in a great deal of interest in next-generation EVs and PHVs.

EVs and PHVs are tax-free for five years thanks to the prefecture's special tax system. Introduced in January 2012, the system is helping boost sales of the vehicles.

By the end of fiscal year 2020 Aichi hopes to have 1,600 chargers in place to service its rapidly growing EV/PHV fleet, which is the largest in Japan. The prefecture wants to lead the nation in both EVs and PHVs as well as chargers.

Toyoda City is using super-small Coms and other EVs developed by Toyota Auto Body. The vehicles are being deployed for the Hamo City transport test project, an efficient and ecological undertaking that is garnering favorable reviews.

Aichi is also home to many charger manufacturers, including Toyota Industry Corporation — Japan's first JARI (Japan Automobile Research Institute) certified company. It and other cutting-edge EV/PHV firms are helping to popularize the vehicles.

Vision

Introduce HEMS to boost deployment

Toyota's HEMS H2V allows users to charge EVs and PHVs by remote like other home electronics. HEMS makes people more energy-conscious, ultimately helping to popularize EVs and PHVs.

User's View

Chargers at convenience stores well received

Chubu Electric Power took advantage of special tax breaks to install 21 quick chargers at convenience stores — a move that proved to be quite popular.



Super-small EV Coms developed and sold by Toyota Auto Body. It can be charged via standard 100 VAC electrical outlet.

Next-generation, battery charger infrastructure initiative

The city where the Kyoto Protocol was inaugurated, Kyoto aims to install 629 quick and normal chargers at roadside stations, service areas, parking lots, major intersections and other locations.

Taking ecology seriously — The city of the Kyoto Protocol aims to lead the nation in EV/PHV usage.



The sports EV *Tommy Kaira ZZ* by Green Load Motors (GLM).

Current

Having the most is the best

As of March 2013 there were 1,050 EVs and PHVs in Kyoto along with 42 quick chargers and an undetermined number of normal chargers. Kyoto is determined to lead the nation in all categories.

Target

5,000 EVs by the end of fiscal year 201

Kyoto hoped to deploy 5,000 EVs by the end of fiscal year 2013 and install 50 quick chargers along with 7,000 100/200V electrical outlets.



1 The Buddhist Society, Association of Shinto Shrines, restaurants and tourist facilities are promoting Kyoto EV/PHV Stories aimed at encouraging tourists to use EV taxis and rentals.

2 Mr. Miwa, president of Mobility Plus. The firm developed Q Den Maru, which has a generator and self-charging lithium-ion battery. **3** Public EV charger installed by Ueharasei Shoji. **4** Kyoto Hotel Okura linked up with Ueharasei Shoji to offer a plan that includes a rental EV.

Japan's first EV regulations linking the tourism, public, private and educational sectors.

This year heralded the linking of the Kyoto Jyukan Expressway with Meishin Highway. Next year will see completion of the Kyoto Namiwachi and Tanba intersection, opening up north-south traffic through the city. These accomplishments lie at the core of Kyoto's Always Charged project that kicked off in April 2013.

The birthplace of the Kyoto Protocol, Kyoto also promulgated Japan's first EV regulations in 2009. Since then a number of undertakings have helped popularize EVs and PHVs: Industry and public/educational institutions have held joint conferences. The Buddhist Society and Association of Shinto Shrines along with restaurants and tourist facilities set up the Kyoto EV/PHV Stories project to promote EV/PHV taxis and rentals. And the Kansai Government Union held an EV/PHV photo contest.

This year is the final year of a five-year undertaking that saw expansion in new areas. The renowned sports EV *Tommy Kaira ZZ* patented by Green Road Motors was released and could be driven on public roads. In addition, the Q Den Maru quick charger developed

by Mobility Plus is being deployed for road services. Kyoto's EV-related companies are becoming increasingly vibrant and well known.

Vision

Kyoto's Always Charged project

Chargers will be installed along the north-south highways and also along other main roads. If all goes as planned, Kyoto will realize its dream of petrol-free transport.

User's View

Perfectly suited for the city of the Kyoto Protocol

Kyoto is known as the birthplace of the Kyoto Protocol, with many sightseeing points that can be accessed by EV taxis and rentals. Since they are so quiet, tourists can fully enjoy the serenity of the bamboo forests and other peaceful attractions.

Kyoto Hotel is now offering guests a plan that includes an EV rental while Miyako Taxi is providing EVs for school excursions and childcare support. The changing EV landscape is also increasing demand for chargers.

Next-generation, battery charger infrastructure initiative

Osaka is to be divided into 14 areas and contain a total of 175 chargers. Areas with heavy traffic will have 20 chargers each, main sightseeing areas 10 each, and five each in other areas. (Published in April 2013.)

Transforming Osaka into the leader of EV-related industry and promotion.



Orix Motors and Mercedes Benz Japan are jointly managing the Smart EV Car Share project at Grand Front Osaka.



1 The Lab at Knowledge Capital features the elegant sports EV *Tommy Kaira ZZ*.
2 Mobile quick charger developed by Dengen. 3 Smart houses by Daiwa House in Harumidai Eco Town, Sakai City. The town's second car is a Nissan Leaf. 4 EV/HV taxi stand at Grand Front Osaka.

Development of charger infrastructure going well

By the end of 2011 Osaka had deployed 1,026 EVs and 193 PHVs while the latest data shows more than 2,300 EVs and PHVs in operation — a nearly two-fold increase in a year. In addition, car dealers boast the most charger installations, with many more chargers available at shopping malls and large retail stores. By the end of fiscal year 2012, 60 quick chargers and 322 normal chargers had been installed.

Half of all vehicles to be eco cars*

Osaka hopes to ultimately deploy 53,000 vehicles (31,000 EVs and 22,000 PHVs). The mid-term target through fiscal year 2015 is to deploy more than 12,000 vehicles (7,000+ EVs and 5,000+ PHVs). At the same time the prefecture wants to install 33 quick chargers and, by the end of fiscal year 2020 or sooner, 1,300 normal chargers.

* Including EVs, PHVs, NGVs and HVs.

Presenting information on sports EVs, car shares, EV taxis and more in a state-of-the-art knowledge center.

The large number of firms in the Hanshin region devoted to electricity storage prompted the Osaka government to kick off Osaka EV Action Program, a project aimed at fostering cooperation between energy companies. Manufacturing, government and educational sectors are all linking up to promote the expansion of EVs.

Grand Front Osaka in Umeda showcases the prefecture's efforts, featuring an EV/PHV-only taxi stand that provides taxis identified by distinctive markings. The same complex is home to Knowledge Capital (which houses The Lab) and a display of the sports EV *Tommy Kaira ZZ* developed by Kyoto University's Green Load Motors. In the basement, Orix Motors and Mercedes Benz Japan introduce the Smart EV Car Share project. This prime location — known as the Kansai International Strategic Research Innovation Zone — represents the vitality of the burgeoning EV field.

Nishi Yodogawa ward hosts Dengen, the company that developed Japan's first limited-area mobile quick charger boasting output of 10 kW. In addition, Sakai City has formally instituted car sharing using EVs.

These and other examples make Osaka a leader in the EV/PHV field.

Vision

Creating the leading EV/PHV city

EVs use lithium batteries so Osaka is a prime area for deployment due to the many new and existing companies in the field of electricity storage. Mobile chargers, car sharing and tie-ups between the public and private sectors are driving development.

User's View

Practical normal chargers

Quick chargers are unnecessary when there is ample time to charge. Normal chargers are less expensive than quick chargers, making them important to the overall infrastructure. Users can charge their vehicles while shopping or watching movies.

Next-generation, battery charger infrastructure initiative

Tottori is promoting e-mobility to foster eco tourism and also hopes to install 500 chargers as part of its Always Charged project.

Getting the most out of EVs — Meeting the daily transportation needs of Tottori.



Above: Car share space located one minute from Tottori Station.

Below: Touching the rear window with Chizu Sekiyu's membership card opens and closes doors.



Free quick charger in Tottori's municipal parking lot. Parking is free for the first 30 minutes and rental EVs can be charged for free.

Rates are ¥200 per 15 minutes with a maximum fee of ¥4,300 for 24 hours. Payment is via credit card, which must be registered in the system. Membership is expanding: After only three months the pickup and charging lots expanded from three to four. Chizu Sekiyu also tied up with Tottori City and Tottori University to set up an EV rental business with a fleet of 10 vehicles.

Ohyama in western Tottori replaced its municipal bus in March 2012 with an EV demand-taxi. People can book a ride one hour in advance by phone. Currently there are five such taxis — operated by a firm under contract with the local government — servicing 379 fixed destinations, including 168 in the town to supermarkets, hospitals, golf facilities and more along with another 80 destinations. Passengers can choose from eight departure times. The fee is ¥500 per ride.

EVs are a natural fit for rural Ohyama, and the town leads the prefecture in charger infrastructure, offering three quick and nine normal chargers.

Vision

Expanding EV usage

The ratio of quick chargers per person should be improved and EV car sharing and rentals increased. The prefecture is also reviewing usage fees.

User's View

Discovering different uses for EV

The system is ideal for people who don't own cars, like students or company transferees, and the ability to use the vehicles for a limited time is very convenient. Ohyama's demand-taxi system is a good replacement for the bus and also very eco friendly.



The Smile Ohyama Go car share is popular with handicapped drivers who commute to nursing homes.

Next-generation, battery charger infrastructure initiative

Increasing EV use and promoting safe driving are targets for Okayama in the future. The prefecture hopes to install 586 chargers along heavily travelled freeways and main roads, near government offices and tourists spots, and in other areas.

Smoothly deploying EVs along the Chugoku-Shikoku-Kinki nexus.



Viajar is a driving website that shows distances between quick chargers and tourist destinations. It can be accessed from the prefecture's official website. (<http://www.pref.okayama.jp/page/276436.html>) Charger locations in the Chugoku-Shikoku regions are shown above.

Current

Two years ahead of schedule

As of March 2013 there were 1,037 EVs deployed — clearly two years ahead of schedule — and 17 of the planned 20 charge points installed. There are now 52 quick chargers in the prefecture.

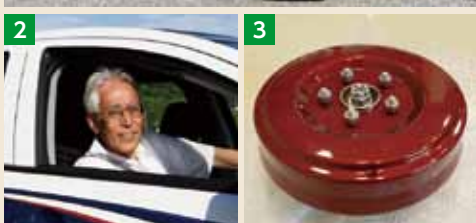
Target

1,000 vehicles by fiscal year 2015

The short-term goals, implemented in March 2011, called for deployment of 1,000 EVs and PHVs by fiscal year 2015 in addition to installation of 20 charge points throughout the prefecture, each covering a circular area of 30 km.

Publicizing the availability of chargers while studying and developing technologies for next-generation vehicles at OVEC (Okayama Vehicle Engineering Center).

Okayama connects nine prefectures through the nexus formed by Chugoku, Shikoku, Osaka and Hyogo. The Chugoku-Shikoku Joint Meeting for Increasing EV Usage was held to smooth transition to EVs. Also, in order to assist people touring the area via EV, information regarding distances and times between quick chargers is available on a tourist website.



1 OVEC-ONE, based on Mitsubishi Motors' GALANT FORTIS. 2 OVEC director Hiroshi Yoshida, who spearheaded development. 3 Thin, in-wheel motors separately control each of the four wheels.

Vision

Promoting tourism

The prefecture is considering introduction of a billing system to subsidize operating costs for chargers. At the same time, in order to boost tourism in Kansai, Chugoku and Shikoku, the locations of chargers will be publicized and more will be installed.

User's View

Attempting to promote EV tourism

Okayama is promoting tie-ups between governments both inside and outside the prefecture for using EVs and PHVs for tourism. In an area characterized by an aging population and decreasing gas stations, the potential for EVs is high.

they unveiled their prototype EV named OVEC-ONE, which uses efficient, lightweight in-wheel motors. The vehicle has attracted attention from various sectors.

Next-generation, battery charger infrastructure initiative

To avoid running out of power during medium-range trips, Saga plans to install 129 quick chargers distributed every 5 km along highways and every 20 km along main prefecture roads. Depending on the location and typical length of stay, a total of 392 quick and normal chargers will be installed.

24-hour availability for anybody, anywhere, anytime — Making Saga renowned for EV/PHV driving ease.



¥500 per charge at Family Mart's quick chargers. Stores are open 24 hours.

Current	Target
<p>On track to exceed targets</p> <p>By the end of March 2013 the target had nearly been achieved, with 703 vehicles deployed (579 EVs and 124 PHVs). In addition, seven chargers had been installed at Family Mart stores and four more at main train stations and airports. Saga now has 23 chargers, including those run by the private sector.</p>	<p>1,000 vehicles by fiscal year 2013</p> <p>The short-term goal by fiscal year 2013 is to deploy 1,000 EVs and PHVs. Saga also plans to install quick chargers at seven Family Mart convenience stores and another six throughout the prefecture at key points like airports and main train stations. Subsidies will also be available for those purchasing EVs or PHVs and/or installing chargers.</p>



1 Charger and fee collection system using a vending machine near Karatsu Station. **2** Quick charger at the Nananoyu EV Spa. Charging costs ¥500 for yen for 15 minutes with a clerk available to assist. **3** Roller Test Drive for 10,000 is found at various events throughout the prefecture.

Actively promoting development of EVs and charger infrastructure by events such as test drives.

According to the prefecture's own findings, by the end of September 2012 Saga boasted 4.6 EVs per 10,000 people — the most in Japan. Saga is now promoting its 24-hour Ubiquitous EV Network project.

For the first time ever, Saga, Nissan and Family Mart collaborated to install seven quick chargers at Family Mart locations, which users are finding very convenient. Fees are ¥500 per charge. During one month last year, a high of 46 charges was recorded. Saga is also testing a system that allows users to pay charging fees using vending machines. This low-maintenance system — a world-first — was developed to solve the problems associated with collecting usage fees, which threatens to slow the growth of infrastructure.

In the Sefuri Mountains close to Fukuoka prefecture, quick chargers were installed at three spas. Called EV Spas, the chargers mainly target EV tourists from the city with their unique appeal.

Further efforts at promoting EVs and PHVs included a Roller Test Drive for 10,000 campaign, which attracted 2,105 people for a total of 83 test drives by the end of fiscal year 2012. The campaign will continue through the current fiscal year. In addition, Karatsu City has discovered an excellent way to promote EVs: During the weekends its government EVs are available as rentals to the general public.

Vision	User's View
<p>Continue prefecture subsidies</p> <p>Current efforts are focused mainly on expanding infrastructure by installing quick chargers at places where high voltage is already available, such as shopping centers and roadside stations. At the same time the prefecture wants to accelerate the spread of EVs and PHVs using its own subsidies.</p>	<p>Practical charging infrastructure</p> <p>Saga planned from the outset to collect charging fees, which led to development of the world's first vending-machine pay points as well as chargers located at convenience stores and mountain spas. The prefecture plays a very active role in promoting EVs.</p>

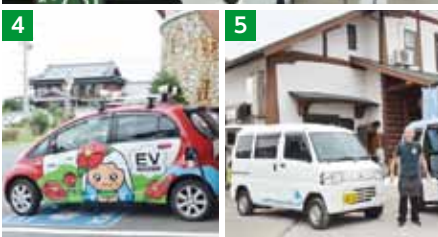
Next-generation, battery charger infrastructure initiative

Nagasaki drew up its plans in May 2013 based on the results from promotional conferences and business model research. The prefecture hopes to install a total of 64 chargers; 32 quick and an additional 32 quick or normal chargers depending on the area and regional characteristics.

EVs/PHVs and ITS forming the basis of a futuristic way to sightsee!



At the combined ITS and quick charger area, tourists can obtain sightseeing information. The close up shows the Nagasaki Future Navigation System.



1 Rental EVs at Takahama, one of Japan's top 100 beaches. Goto Island abounds with lightweight rental EVs with their signature WA license plates. 2 五 Douzaki church, a popular sightseeing spot. 3 Ohhato Taxi charges EV taxis late at night. 4 Goto City's government car with its instantly recognizable design. 5 Utsumi restaurant uses EVs for delivery.

Exceeding expectations

As of April 30, 2013 the city had deployed about 630 vehicles (510 EVs and 120 PHVs) and installed 43 public quick chargers along with 49 normal chargers. In Goto chargers were installed every 20 km.

500 EVs by 2013

The original plan was to deploy 500 vehicles by around fiscal year 2013 serviced by 500 200V chargers, including private chargers, which were not part of the target number.

Creating new businesses and using local resources to make EV tourism the norm.

Goto is a picturesque chain of islands containing Goto City and Shinkamigoto Town, and is host to the Nagasaki EV & ITS consortium. The area — renowned for its Christian heritage — deployed 138 EVs and two PHVs through fiscal year 2011, all of which are being used as taxis or rental cars. About two-thirds of the quick chargers (28) in the area are installed in 15 places. The high concentration of chargers in one area is ideal for the Futurized Drive Sightseeing System, which links EV and ITS (Intelligent Transport Systems).

ITS is being employed for tourism. Currently the 217 groups in the Nagasaki EV & ITS consortium are standardizing EVs & ITS within the government, industry and educational sectors. ITS spots on the island contain sophisticated quick chargers that tourists can use to find points of interest and chargers along their route. They can also use the Nagasaki Future Navigation function in the charger to download information to their car navigation systems and program destinations. This feature will soon be upgraded.

In areas not served by ITS, traffic and disaster information is automatically transmitted to car navigation systems. In addition, smart phones can be used to locate charging facilities and check remaining power and power required to reach the destination by calculating gradients along the route. These advanced technologies help users avoid experiencing power shortages while driving.

Private companies on Goto Island are actively introducing EVs.

Vision

Touring the island via advanced ITS

Whether or not an area is served by IP ITS, drivers will always be provided with useful information. The system is almost finished and will represent a successful development of driving technology based on new business models.

User's View

Very popular as an EV destination

More than 60,000 people have used EV rental cars since being deployed on Goto Island. Tourists have made it a point to use EVs for sightseeing, with the cars receiving very favorable reactions.

Next-generation, battery charger infrastructure initiative

Kumamoto hopes to install more than 550 chargers, of which 110 will be quick chargers. In order to achieve their goal, the prefecture is encouraging the private sector to develop charger infrastructure.

Rolling out the Kumamoto with EV program at industry, government and educational locations. Providing EVs for sightseeing and developing charger signage.



Guide sign at a Kumamoto Castle parking lot.



1 Signage indicating chargers. 2 Sightseeing tests let users experience Aso's natural beauty via EV. 3 Electric rental scooters charging.

Current

Exceeding expectations

By the end of June 2013 Kumamoto had deployed 475 EVs, exceeding the goal by a large number. In addition, 23 quick chargers and 126 normal chargers had been installed. Nearly half the chargers (nine quick and 51 normal) were installed by the prefecture.

Target

300 EVs and PHVs within this fiscal year

Kumamoto planned to deploy 300 EVs and 1,000 electric bicycles by the end of fiscal year 2013. The prefecture also wanted to install 10 quick chargers and 80 normal chargers along with a website showing charger locations.

Revitalizing the tourist industry with EVs by encouraging tie-ups with manufacturers and creating signage for chargers.

In August 2010 the prefecture linked up with Honda motors — which has a plant in Kumamoto — and implemented the Comprehensive Agreement for Next-generation Personal Mobility and Operation Tests. The program utilizes vehicles lent by Honda in order to popularize EVs.

Honda and Sojo University jointly designed materials, which (along with the logo) are crucial to publicizing EVs. The Harada Lab at Sojo University's College of Arts also created a style guide used when making the prefecture's website. The design and logo can be seen at local Honda dealers in Kumamoto and at Honda headquarters in Aoyama, Tokyo. In July Kumamoto City displayed the logo at a parking lot for Kumamoto Castle.

On May 19, 2013 the village of Minami Aso started testing its EV sightseeing program. Groups can use a Honda Fit EV free of charge for up to four hours. There are three test routes available, the most popular being the Aso Summit and Water Source course, with 80% of tourists choosing this route. The prefecture is also planning to test EV car sharing in Kumamoto City and continue to expand charging infrastructure.

Vision

Looking to continue tests

The prefecture wants to continue the Next-generation Personal Mobility and Operation Test and the EV Sightseeing Test. These projects are very effective at publicizing EVs. EV usage has a ripple effect for nature and sightseeing.

User's View

Reviews are mostly positive

EV sightseeing tests have been well received. Tourists can drive four hours for free and take in many sights. Moreover, the attractive signage makes it easy to find chargers.

Next-generation, battery charger infrastructure initiative

Okinawa wants to deploy EVs to reduce greenhouse gas emissions and install 227 chargers throughout the prefecture based on presumed driving habits.

Developing new ways to use EVs in a remote island environment.



Based on Isuzu's mid-size bus. The bus has a system that displays travel information.

Private sector leading installers of quick chargers

By the end of March 2013 Okinawa had deployed 549 EVs and PHVs. Of these, 195 were purchased using prefecture subsidies, of which 50 were rentals. Okinawa also installed 33 quick chargers and 148 normal chargers. Of the 33 quick charges, 30 were installed by AEC.

Current

5% of new vehicle sales over the next five years

In March 2011 the prefecture launched the short-term EV/PHV Town Action Plan with the goal of having EVs account for 5% of new vehicle sales over the subsequent five years. Okinawa also hoped to install quick chargers along main roads and at major tourist attractions. The overall goal was to lessen environmental burden and greenhouse gases.

Target



1 Small EV developed in Miyakojima. The city is planning to develop a second model. 2 EV deployment in Miyakojima hit more than 50 vehicles. Many businesses use EVs for deliveries. 3 EV as a mobile library.

Using EV buses to ease traffic congestion and planning to deploy ultra-small EVs on isolated islands.

Okinawa is highly car dependent with even tourists having to rely on rental cars. Because of this, the prefecture has the highest level of CO₂ emissions in Japan. In the capital city of Naha traffic comes from three directions, creating huge traffic jams in the morning and evening, during which the average speed is 14 km/hr — much slower than in Tokyo's 23 wards. In short, Okinawa has the worst traffic conditions in the country.

In November 2012 Okinawa introduced the EV bus Garju Go, running a test route of 11 km. Over a four-month period the bus — on four charges a day — was cheaper to operate than a diesel-powered vehicle. A second EV bus has been added to the fleet for further testing. Starting in September 2013 two EV buses were operating even at rush hour. Both cost about ¥200,000,000 but are proving invaluable as regards the environment and as a viable means of public transport.

Okinawa is aiming to be an Eco Island. Miyakojima is a model for an eco-conscious society and is having private companies provide training for EV-related projects.

Companies on the island are linking up to develop compact EVs via the Small EV Industrialization Model project. They deploy EVs as public vehicles and even have a mobile library. Starting this fall Honda and Toshiba tied up to help lessen the carbon footprint on more isolated islands through recycling efforts and trial EV programs.

Vision

Keep your eyes on Miyakojima and Nanjyo

Miyakojima is aiming to be an Eco Island with their own plan for popularizing EVs while Nanjyo is rapidly expanding charging infrastructure. Those two cities lead Okinawa's EV development, including the deployment of EV buses and rental cars.

User's View

The benefits of EV are huge

Islands in Okinawa are fairly flat with few hills. Due to its isolation, fossil-based fuels are relatively expensive so EVs have a bright future here. Also, tests conducted on the islands can be concluded fairly quickly, hence many EV projects are tested here.