Proposed installation of public charging facilities for promoting electrified vehicles

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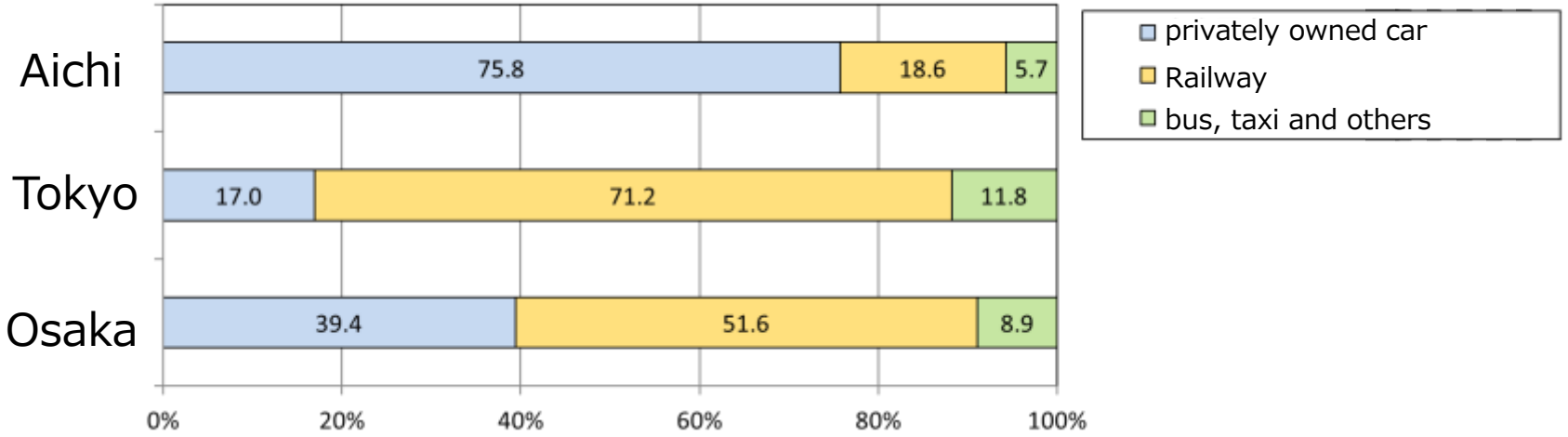
名古屋市
Nagoya City
名古屋港
Nagoya Port
東名&新東名
高速道路
Rice terraces
棚田
東京都
Tokyo Metropolis
愛知県
Aichi Prefecture
東海道新幹線
Tokai-do *Shinkansen*
Tomei and Shintomei
Expressway
セントレア
Tyubu Kokusai Airport
三河港
伊勢湾
Ise Bay
10km

	Aichi	Tokyo	Osaka	Gross Japan	percentage of Aichi prefecture	
Population	7.48million	13.52million	8.84million	127.10million	5.9%	as of October, 2015
Area	5,172km2	2,191km2	1,905km2	377,981km2	1.4%	as of October, 2017
The total amount of manufactured goods shipment	**US$395.0 billion**	US$68.6 billion	US$138.9 billion	**US$2653.9 billion**	14.9%	as of March, 2017

Comparison with Other main Prefecture

Prefecture name	Area	Population	The number of four-wheel vehicle possession			The number of car possession per person	Load extension
				passenger car	Cargo vehicles		
Aichi	5,172km2	7.48million	5.02million	4.15million	0.86million	0.67	5,569km
Tokyo	2,191km2	13.52million	3.95million	3.18million	0.78million	0.29	2,684km
Osaka	1,905km2	8.84million	3.52million	2.78million	0.74million	0.4	1,905km
Domestic total	377,981km2	127.10million	77.67million	61.49million	16.17million	0.61	185,091km
Time of date	October 2017	October 2015	March 2017				April 2015

The percentage of travelers' transportation means　2009



Aichi Prefecture is the area where people have a strong dependency on car transportation.

Aichi Traffic Pollution Control Strategy

Solution for Environmental issues caused by Automobile is needed.

Decision of “Aichi Traffic Pollution Control Strategy in the New Century” (October, 2002)

Decision of “Aichi Traffic Pollution Control Strategy 2020” (March, 2013)

【Future Vision】

“Support peaceful and comfort lives / build the society which make harmony with both car uses and environment,”

【Environmental Target】

○Keep environmental standard of NO2, suspended particle matter and noises.

○Regarding Global greenhouse gases, reduce 12% from transportation section. (compared with 1990)

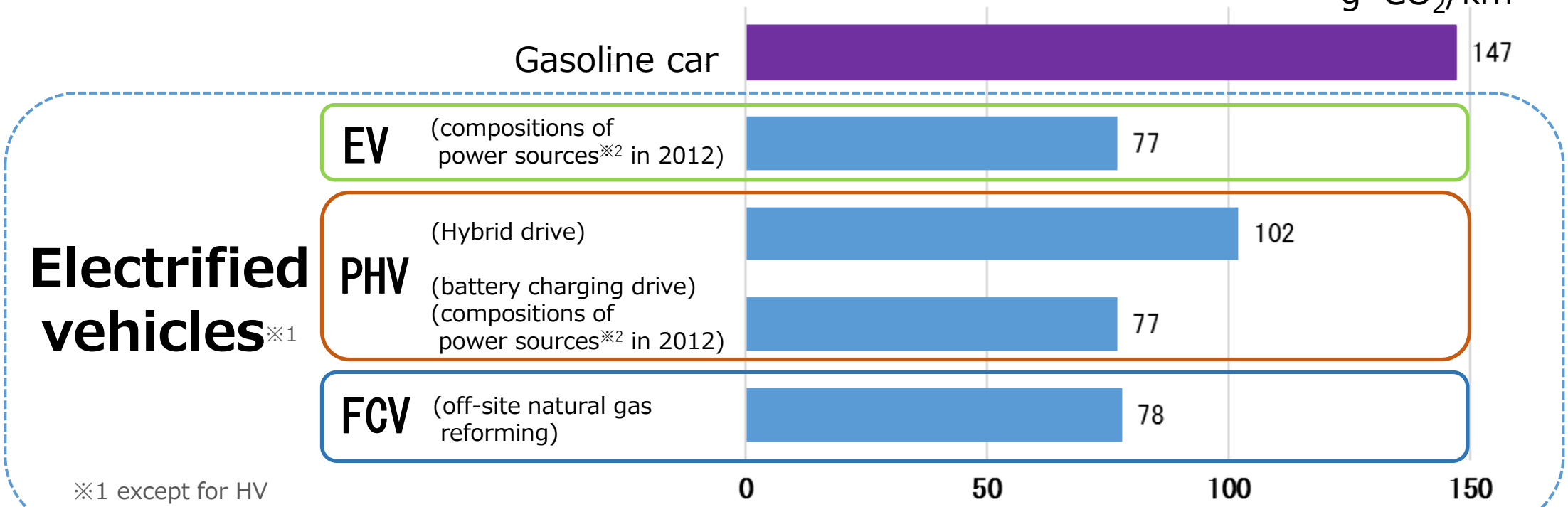
Aichi works on followings with national government and municipality

Efforts	public works
①Reinforcement of measures for Automobile	Promotion of measures for diesel vehicle
②Conducting car type restriction / promote turn Cars from outside to emission standard cleared cars	Promote control of using car type restriction unmatched car
③Promotion of low-emission vehicle	・Promotion of introducing electrified vehicle, low-emission car and car with good gas mileage ・Promotion of building infrastructure of fuel supply facilities
④Promotion of Eco-drive	Conducting Eco-drive
⑤Adjustment and reduction of transportation needs	Maintenance, improvement and promotion of public transportation
⑥Promotion of measures for transportation	Decentralization and avoidance of transit and inflow transportation
⑦Promotion of measures for Automobile transportation concentrated area	Promotion of measures for Automobile environment in South Nagoya area
⑧Promotion of enlightening activities	Promotion and enlightening activities of innovative Eco-car like next generational automobiles
⑨Measures for improving load environment	Promotion of measures for road structure and improving roadside environment

Japanese electrified vehicles' environmental performance

Electrified vehicles' CO_2 emission is less than conventional automobiles'.

Comparison of CO_2 emission ('well to wheel')



Reference; Made by aichi prefectural government, based on "Comprehensive efficiency and GHG emission analytics report" by incorporated foundation of Japan automobile research institute, March 2011,

※ 2 compositions of power sources in 2012

Support measures to promote electrified vehicles

EV
PHV
FCV

Supports for introduction of EVs, PHVs and FCVs

Tax exemption from national and Aichi prefectural government

Ex: Exempt tax for buying and possessing cars

Subsidies from national and Aichi prefectural government

Ex: support 30% of prices of newly-bought EV taxi

Ex: support 40% of prices of newly-bought FCV taxi

Supports for installing charging facilities

Subsidies from national and Aichi prefectural government

- Increase support rate for construction which along with our plan
- Supports 75% of maintenance cost of hydrogen stations and 90% of operation cost

Our view of constructing battery charging facilities

Private Area

Basic charging facilities

・Home

・Office

Normal battery charging

Public Area

Path charging facilities

Dwell time around 30minnutes

Quick battery charging

Roadside service areas
SA/PA convenience stores…

Dwell time around an hour

Normal battery charger

Restaurants, roadside stations, around interchanges・・・

Destination charging facilities

Dwell time Over an hour

Quick battery charger

Hotels sightseeing places
mass commercial facilities
public facilities (museums)…

We made “Aichi arrangement and installation plan of charging facilities for EV,PHV”

For mass popularization of EV, promote instalment of appropriate setting of public charging facilities.

Appropriate arrangement and installation policy

According to the following ideas by each municipality,
we make the Arrangement Plan.

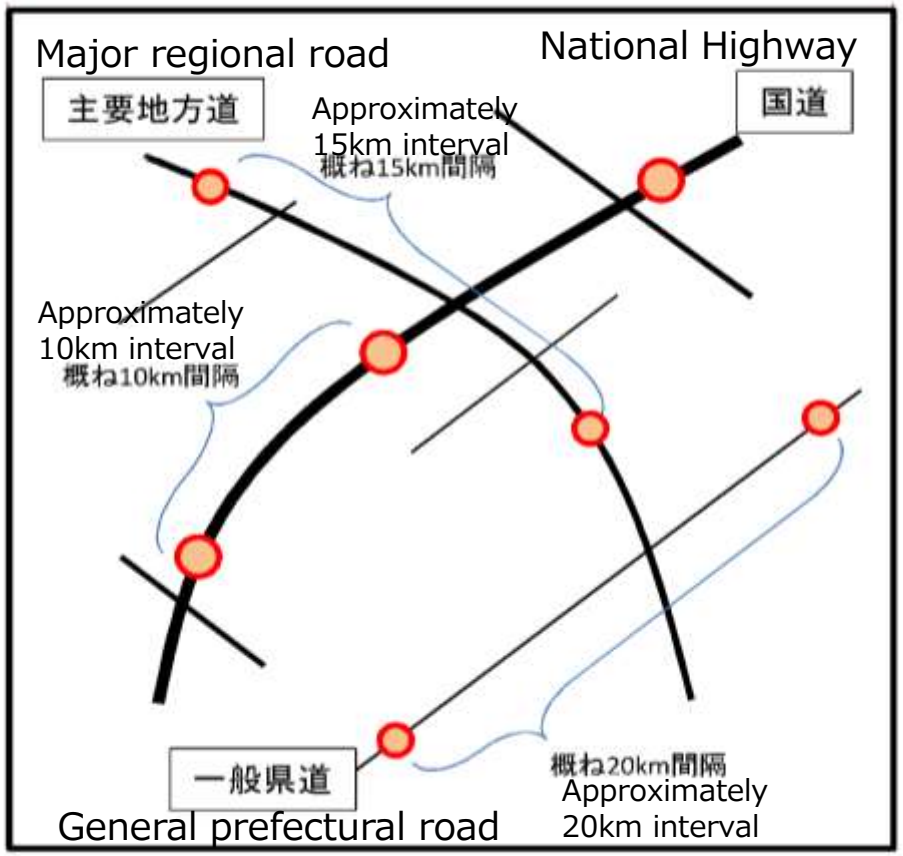
□ Path charging facilities

①Arrangement depends on road extension
②In case of city area
③Setting around expressways' interchanges

□ Destination charging facilities

○Setting in commercial facilities etc

Path charging facilities (①Arrangement depends on road extension)



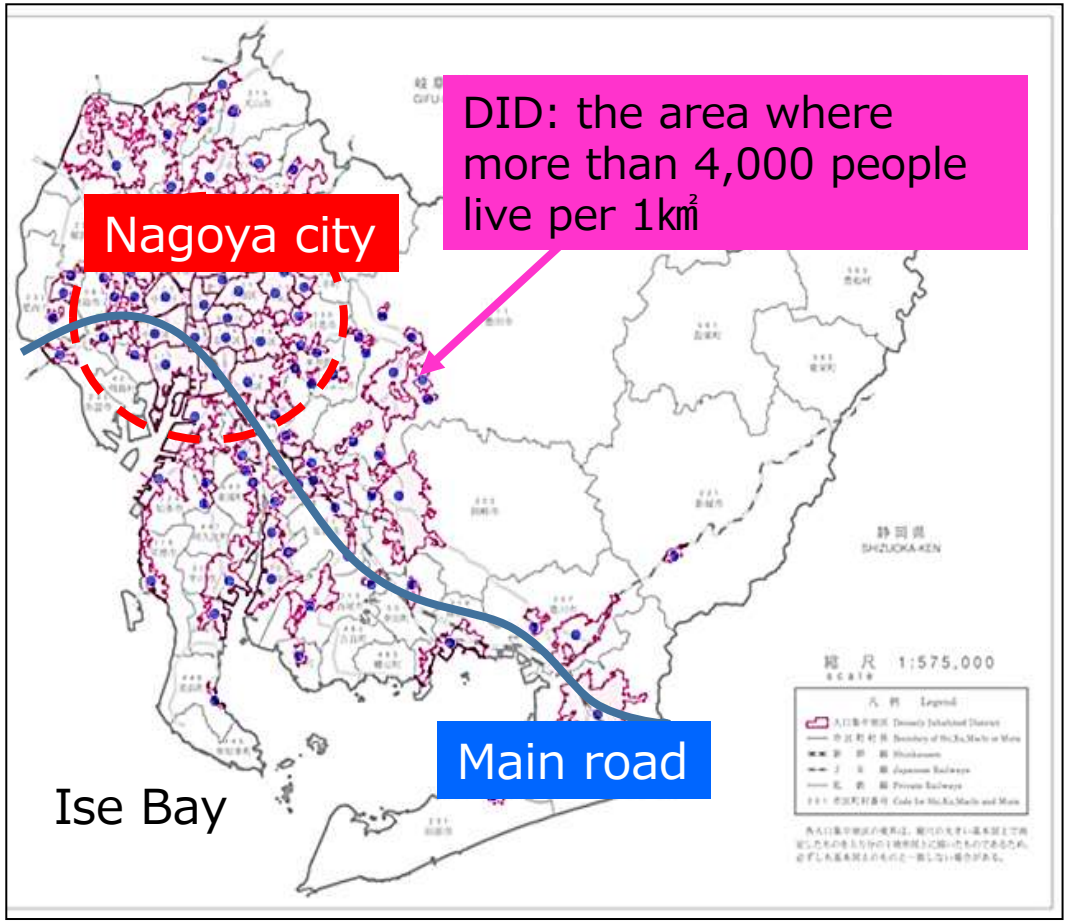
【Types of battery charger】
quick battery charger and normal battery charger

【Installation places】
Around main highways

【Installation policy】
Even drivers look for charging facilities after they receive battery amount left warning, their car don’t run out battery

【The number of needed battery chargers】
One battery charger in every 10-20 km.

Path charging facilities （②In case of city area）



【Types of battery charger】
quick battery charger and normal battery charger

【Installation places】
city area and center of downtown
DID(Densely Inhabited Destrict)

【Instalment policy】
there is no congestion of battery charging in city area and center of downtown

【The number of needed battery chargers】
one battery charger in every 4 ㎢.

Path charging facilities (③Setting around expressways' interchanges)

【Types of battery charger】
quick battery charger and normal battery charger

【Installation places】
around interchanges

【Instalment policy】
for additional battery charging before/after using expressway

【The number of needed battery chargers】
one battery charger in every up and down lane interchanges

Destination charging facilities (Setting in commercial facilities)

【Type of battery charger】
normal battery charger

【Installation places】
hotels, big malls, sightseeing places, City halls, Town halls, and museums.

【Instalment policy】
charge battery while drivers stay their destination

【The number of needed battery chargers】
one battery charger in every place

Target number by 2020 (Public Area)

Classification	Path charging facilities	Destination charging facilities	Total
The number of places	721	730	**1,451**
The number of battery chargers	954	1,046	**2,000**

「Aichi EV/PHV popularization network 」

It is made up people who take the lead to conduct or support promotion of electric car popularization and construction of battery charging infrastructure.

・Establishment 23 April, 2009
・Participants 96 enterprises and organizations（ February, 2018 ）

Participants	
Automobile maker (Toyota Motor Corporation, Mitsubishi Motors, Nissan Motor Co., Ltd., Toyota Auto Body Co., Ltd., Honda Motor Co., Ltd.,)	**5 companies**
Local government （Aichi Prefecture, Nagoya City, Toyohashi city, Okazaki City, Kariya City, Toyota city and others)	**12 groups**
Other enterprises （DENSO Corporation, Toyota Industries Corporation)	**79 groups**
Total	**96 Operator**

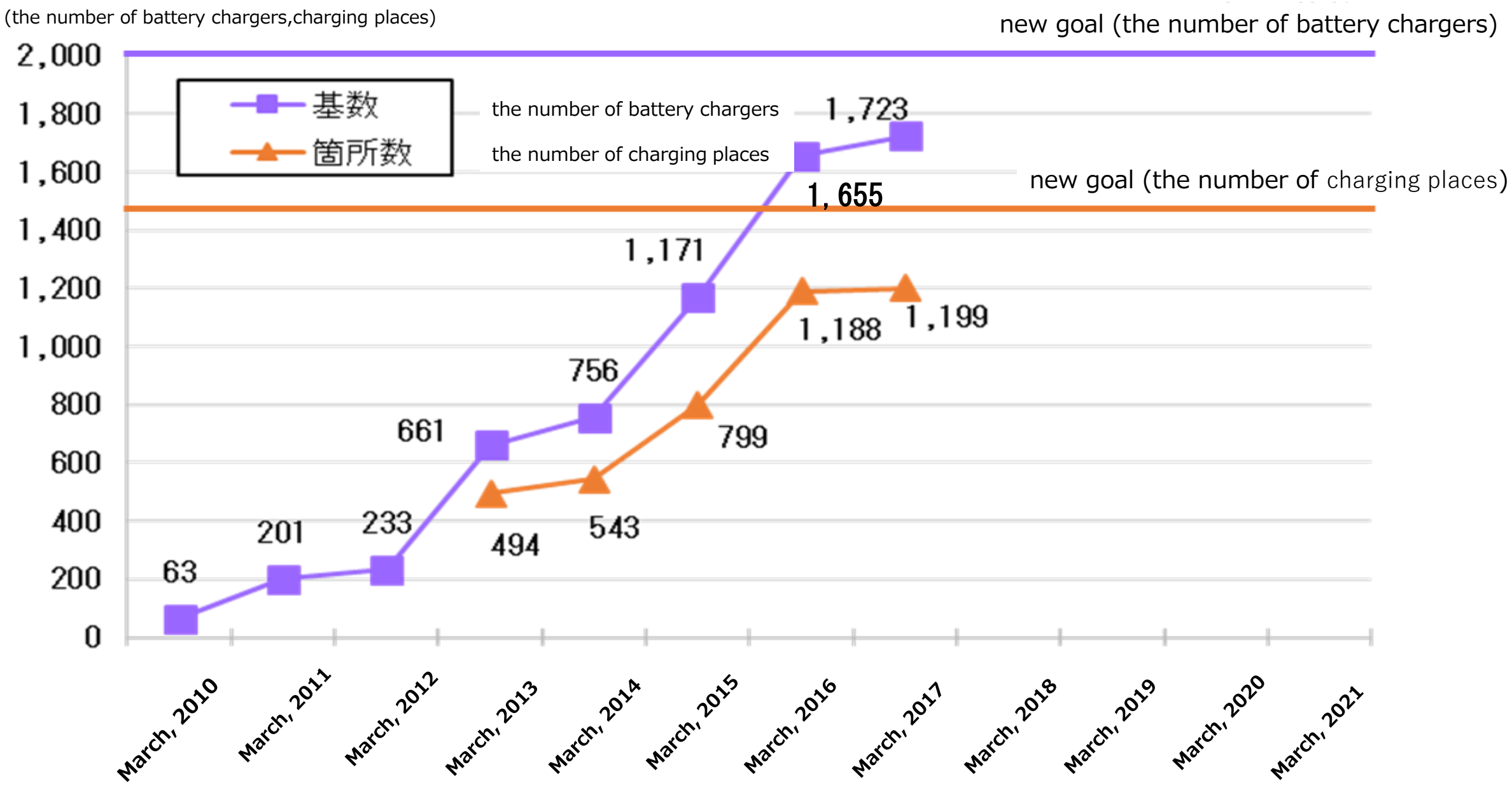
Activities decide action plans, evaluate and report conducted, willingly introduce electric cars, construct battery charging infrastructure, and do enlightening activities to popularize EV and PHV.

Improving convenience of charging facilities ~Send out location information of battery chargers~

Location information of battery chargers (Web site)

Location information of battery chargers (application)

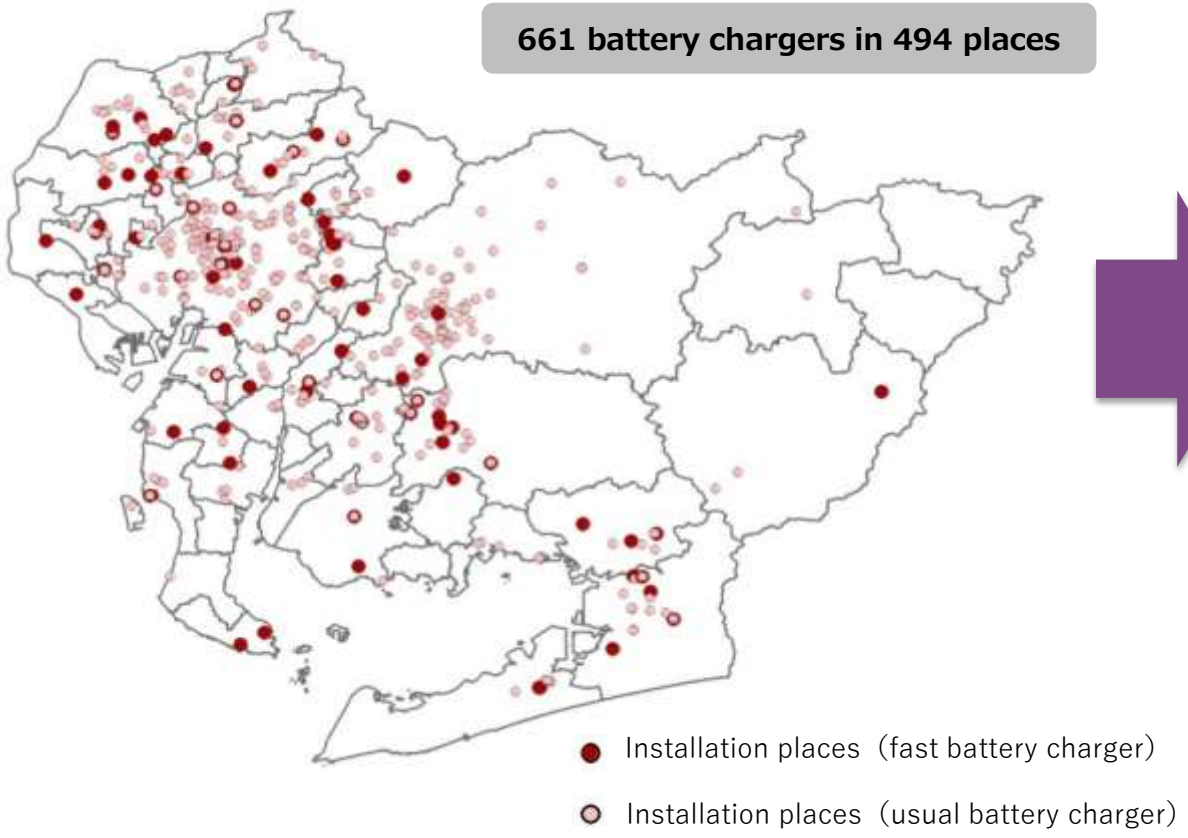
Situation of installation of charging facilities in Aichi



Situation of installation of charging facilities opened to the public in Aichi

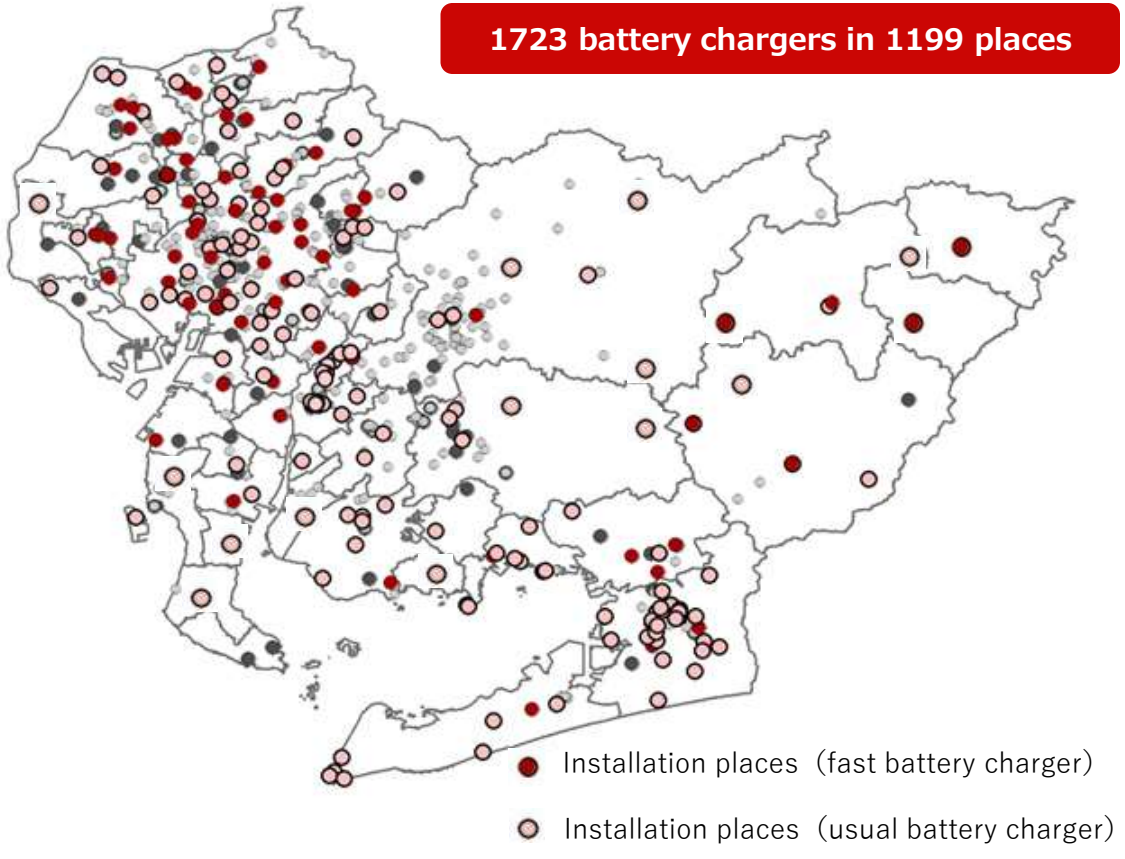
< Installation places as of March, 2013 >

661 battery chargers in 494 places



< Installation places as of March, 2017>

1723 battery chargers in 1199 places



Constructing hydrogen stations

“Aichi FCV promotion council ”

For promoting FCV, we promote and guide preparations for hydrogen stations, in conjunction with national and local governments, and private companies.

- Establishment 1 July, 2005
- Participants 69 enterprises and organizations（ March, 2018 ）

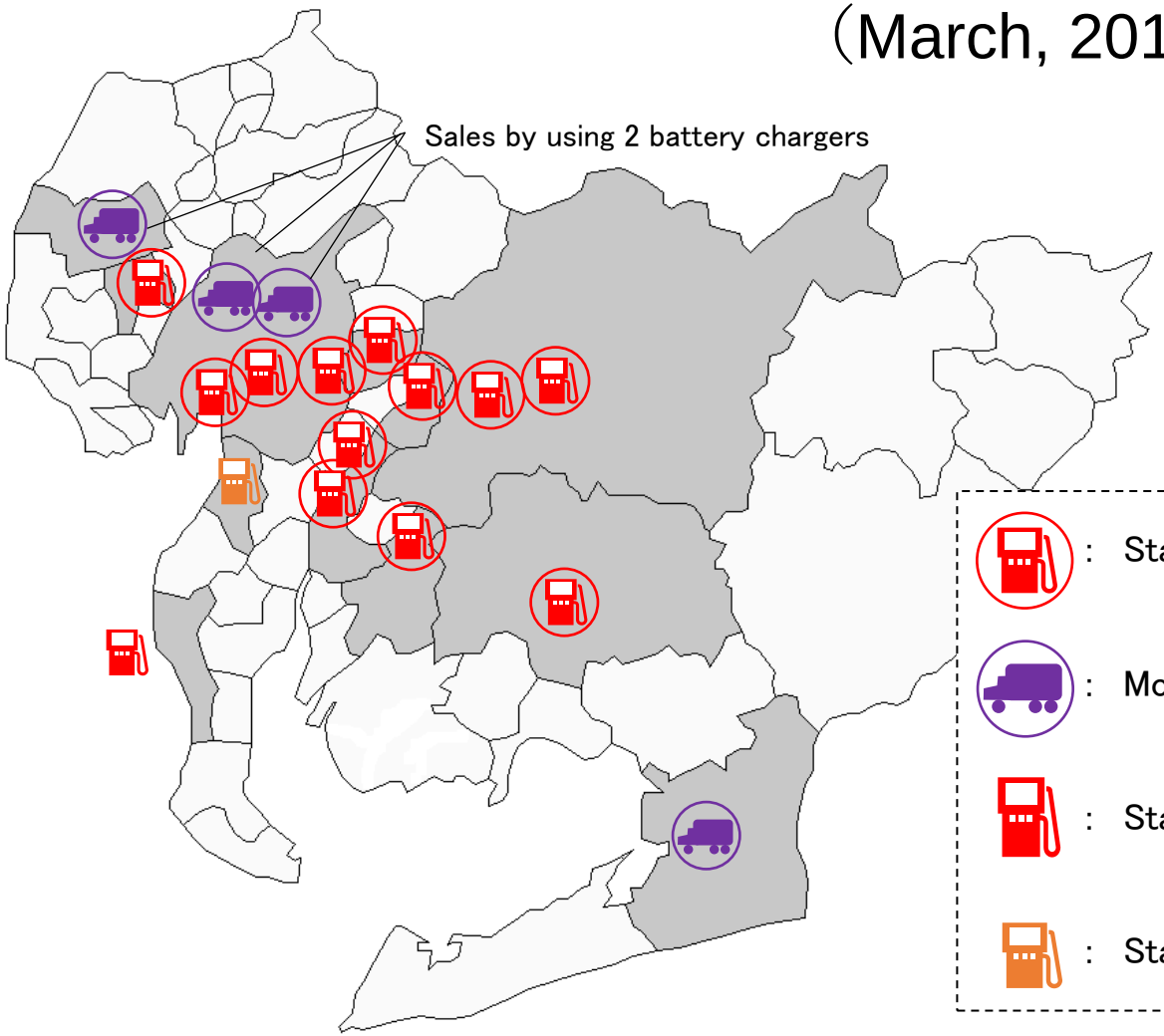
“Aichi hydrogen stations arrangement and installation plan “ (February,2014)

Subsidies for preparations × Subsidies for managements

Situation of installation of hydrogen stations in Aichi

17 hydrogen stations in 18 places

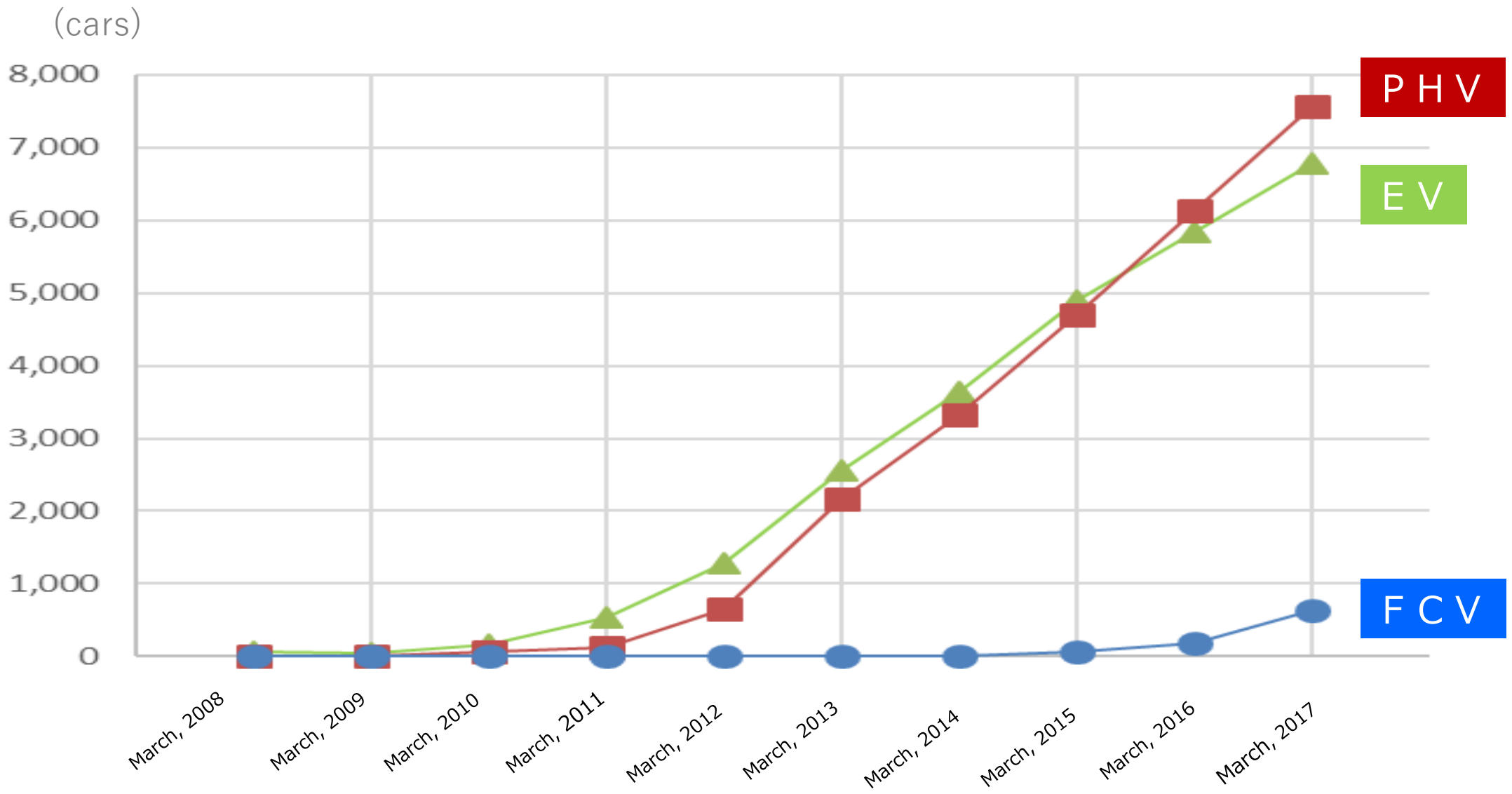
（March, 2018）



Mobile hydrogen station

- Station（open）・・・12 hydrogen stations in 12 places
- Mobile（open）・・・ 3 hydrogen stations in 4 places
- Station（unfinished）・・・1 hydrogen stations in 1 places
- Station（demonstration）・・・1 hydrogen stations in 1 places

Change in Electrified vehicles' situation in Aichi （ as of March, 2017 ）



Comparison of the situation of installation of public charging facilities

March,2017

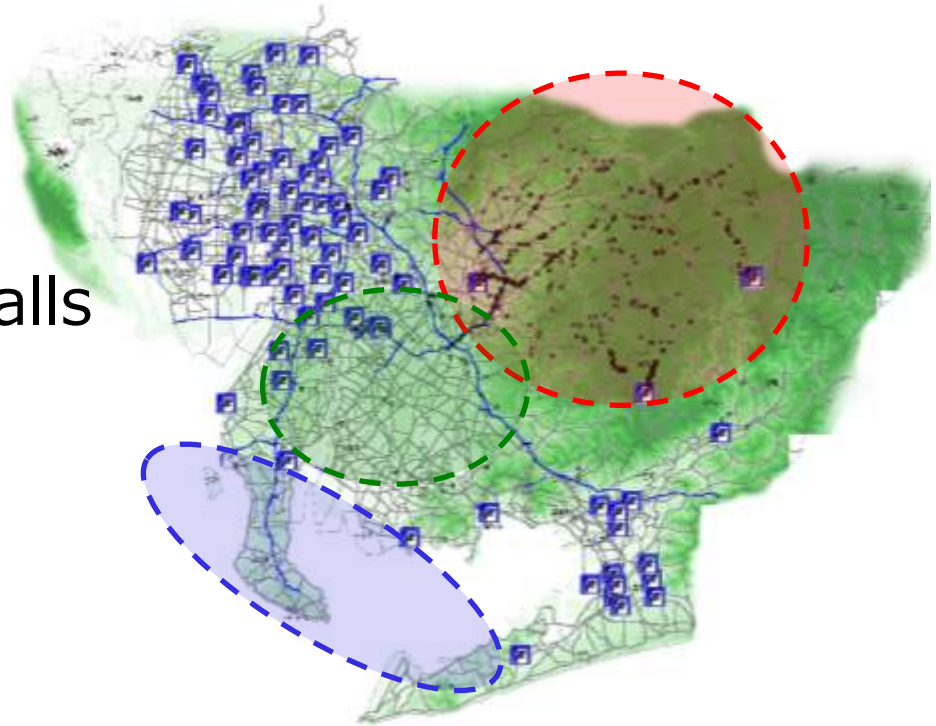
Item	EV	PHV	FCV
The situation of installation of public charging facilities 【In Aichi Prefecture】	**about 1200places** (battery charger) (6% of gross Japan)	about 1500places (gas station) about 1200places (battery charger)	16places (hydrogen station) (16% of gross Japan)
The situation of installation of public charging facilities 【In Japan】	about 21000places (battery charger)	about 31000places (gas station) about 21000places (battery charger)	about 100places (hydrogen station)
The number of popularization of the Automobile 【In Aichi Prefecture】	about 7 thousand	about 8 thousand	about 6 hundred

Future plans

<Charging facilities>
①Setting in unconstructed areas
including　mountainous areas

②Setting in new facilities attracting
many customers like large shopping malls

③having more than one battery
charger per place to reduce congestion



<Hydrogen-supply facilities>
Setting in both city areas and unconstructed areas

Thank you for listening

The tower of Nagoya Castle