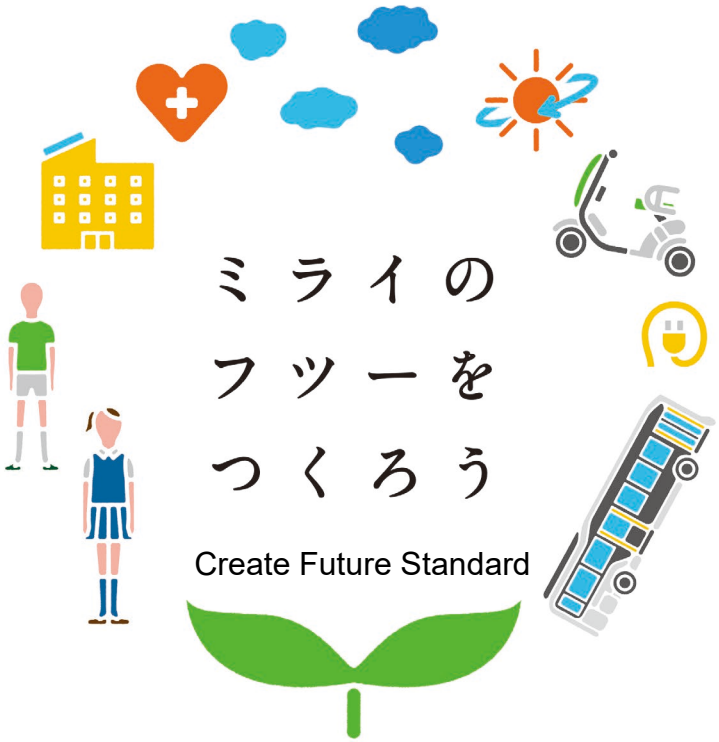
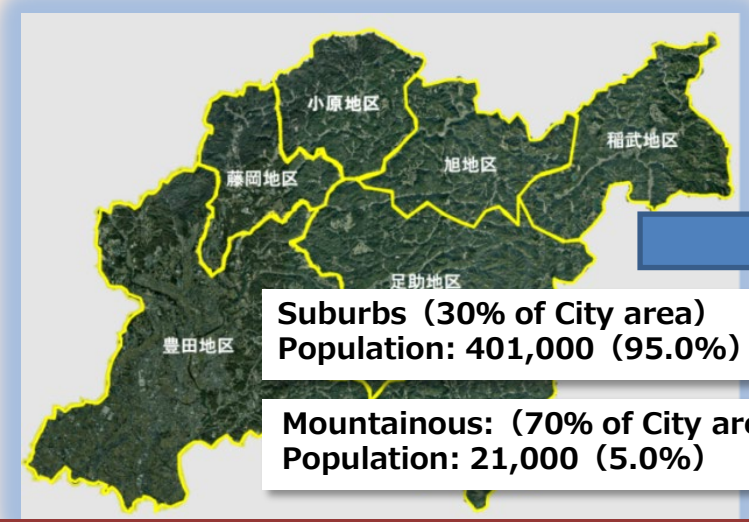


SDGs
未来都市
とよた
SDGs
Future City
TOYOTA

Toyota City
Advanced City Promotion Division,
Planning Department

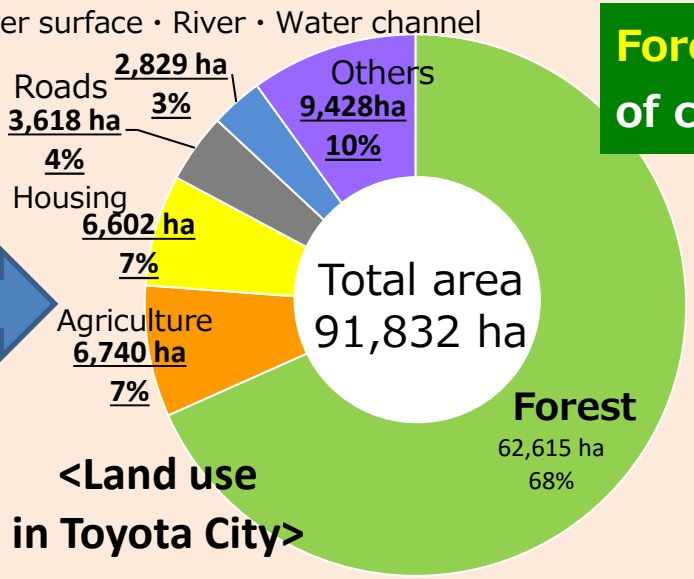
1. Outline of Toyota City, a "Microcosm of Japan" where Urban and Mountainous Areas Coexist

Six towns and villages merge in 2005



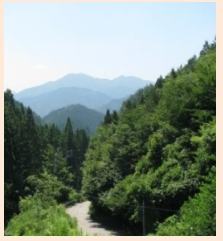
Suburbs（30% of City area）
Population: 401,000（95.0%）

Mountainous:（70% of City area）
Population: 21,000（5.0%）



<Land use in Toyota City>

Forests on 70% of city area

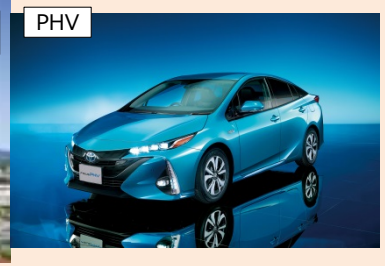


City of *Monozukuri* (Manufacturing)


Land of Manufacturing


FCV

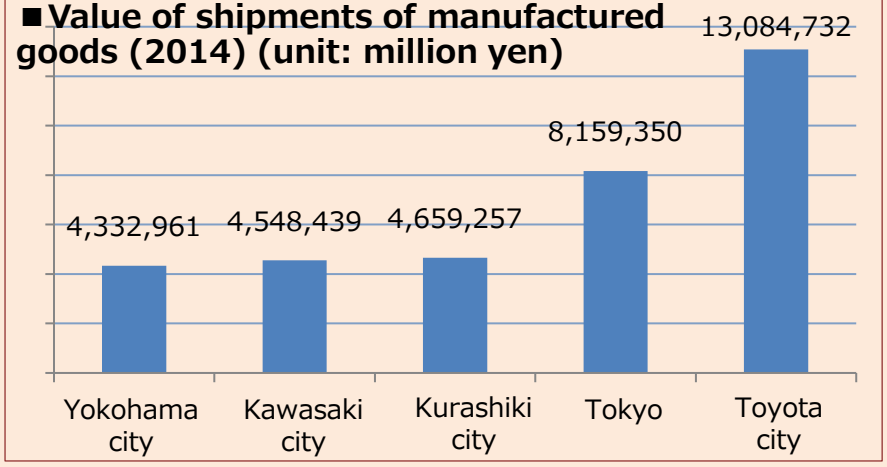

Head Office of Toyota Motor Corporation


PHV

One of Japan's largest industrial cities

Value of shipments of manufactured goods from Toyota City has been highest in Japan since 2002.

■Value of shipments of manufactured goods (2014) (unit: million yen)



Strengths of Toyota City — A City Where Advanced Technologies are Created

"City of Automobiles"
"City of *Monozukuri* (manufacturing)"
"City with Advanced Environmental Awareness"

***Monozukuri* Creative Base (SENTAN)**

Toyota Stadium

Land of manufacturing

FCV

Head office of Toyota Motor Corporation

PHV

Toyota *Ecoful* Town
Reopened on April 27, 2019 as a base for dissemination of information on SDGs

Sky Hall Toyota

Learning program for *Monozukuri* (manufacturing)

Strengths of Toyota City — Rich in greenery, enabling people to return to nature

■ Greenery in suburban areas

Wetlands registered under the Ramsar Convention
- Tokai Hilly Land Spring-Fed Mires
Seven km from Head office of Toyota Motor Corporation

■ Rich in nature, agriculture, and special products

Moved to mountainous area by using vacant house databank

Film set in Toyota city

Community life in rural villages

2. Evaluations by External Organizations (1)

No. 1 among core cities in Happiness Index Ranking in 2018

Rankings

1st place Toyota city

2nd place Toyama city
3rd place Nagano city
4th place Kashiwa city
5th place Okazaki city
6th place Takasaki city
7th place Utsunomiya city
8th place Kanazawa city
9th place Maebashi city
10th place Kurume city

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Source: Happiness Index Ranking of 47 Prefectures in 2018
Edited by Japan Research Institute; supervised by Jitsuro Terashima, Toyo Keizai Inc.

Evaluations by External Organizations (2)

Ranked No. 4 in “Innovativeness of SDGs” Survey

Rankings

1st place Kyoto city
2nd place Kitakyushu city
3rd place Utsunomiya city
4th place Toyota city

Source : Nikkei Glocal
Nikkei Inc.

3 Toyota City Moves Ahead

A society where human life is in harmony with the environment, creating a comfortable life without wasted effort or hardship.

Toyota advancing, creating "standards for the future"

Image of City of the Future

A city connected, creative, and enjoyable: TOYOTA

Enhancing connections between people, people and the region, people and the natural environment, a city aiming to create values and possibilities, to make people enjoy living

December 22, 2011, designated
Regional Revitalization Comprehensive Special Zone
(Creation of next-generation energy and mobility)

Selected April 8, 2010
Demonstration area for next-generation energy and social systems

Selected June 15, 2018
SDGs Future City

April 23, 2009, selected as an Environmental Model City

2009 — 2010 — 2011 — 2012 — 2013 — 2014 — 2015 — 2016 — 2017 — 2018 2030

Activities to Realize SDGs

January 2015 High-level Symposium on Sustainable Cities
— Connecting People, the Environment and Technology

世界のミライを、とよたから、
とよた世界環境ウィーク 2015
ミライのフツーを目指そう 1月10日（土）－18日（日）

United Nations Department of Economic and Social Affairs (UNDESA),
United Nations Centre for Regional Development (UNCRD),
Toyota City

250 participants (106 from overseas) from
23 countries, 7 international organizations
⇒”Toyota Statement” released by UN in March

February 2018, ”International Symposium on Implementation of SDGs – Role of Technology, Partnerships and City-to-City (C2C) Cooperation for Building Resilient, Sustainable Societies”

United Nations Centre for Regional Development (UNCRD), Toyota City with 180 participants from 4 countries

17 PARTNERSHIPS FOR THE GOALS

Related event:
“Think SDGs”
@ Ecoful Town

Aiming for Ideal Development by 2030

“A Toyota City connected, creative, and enjoyable to live in”

(The 8th Toyota City Comprehensive Plan for Future Toyota)

Priority areas for SDGs:

- Energy
- Mobility
- Wellness

つながる社会
TOYOTA CITY

おいでん・さんそんセンター

Two major Toyota City platforms for SDGs

つながる社会
TOYOTA CITY

Toyota City Council to Verify Connection with Communities

<Urban Areas>

Established: 2016/10/12
Members: 72 organizations (end Oct. 2019)
Chairman: Mayor of Toyota City

Major Activities of the Council

1. Efforts to solve social issues by using advanced technologies like AI, IoT
2. Collaboration of private, industry, financial, academia, and government sectors
3. Horizontal deployment in Japan and overseas
4. Using subsidy for regional revitalization
5. Center for Promotion of Comprehensive Special Zone
6. Center for Promotion of Regional IoT Laboratory

Toyota City Future City Workshop
(January to November 2018)

Five organizations: Chubu Electric Power Corporation, Toyota Motor Corporation, Nagoya University, MUFG Bank, Toyota City

Orientation of efforts in next 10 years to create vision of future city 50 years from now.

Oiden-Sanson Center

Connecting people and the region (the main actors), developing efforts to solve problems of both urban and rural areas, to realize a community where urban and rural areas support each other, and people can choose various lifestyles.

Major Activities

1. Coordinate mountain village–urban area interaction
2. Serve as general contact window for countryside
3. Study and implement "Society of Mutual Support"

Results

- No. of coordination projects (FY 2013–2016): 137
- No. of moving (FY 2013–2016): 207 people (80 households)
- No. of participants in round-table meetings of rural and urban residents (FY 2013–2016): 450

Awards, etc.

- Excellent project to promote self-reliance and revitalization of depopulated areas (awarded in FY2017)
- Toyota Satoyama's wild boar meat curry was selected as a "Treasure of Our Villages" ("*Mura no takara*") in 2018)

4. Activities（1）

Energy

ミライのフツーをつくろう

SDGs

未来都市とよた

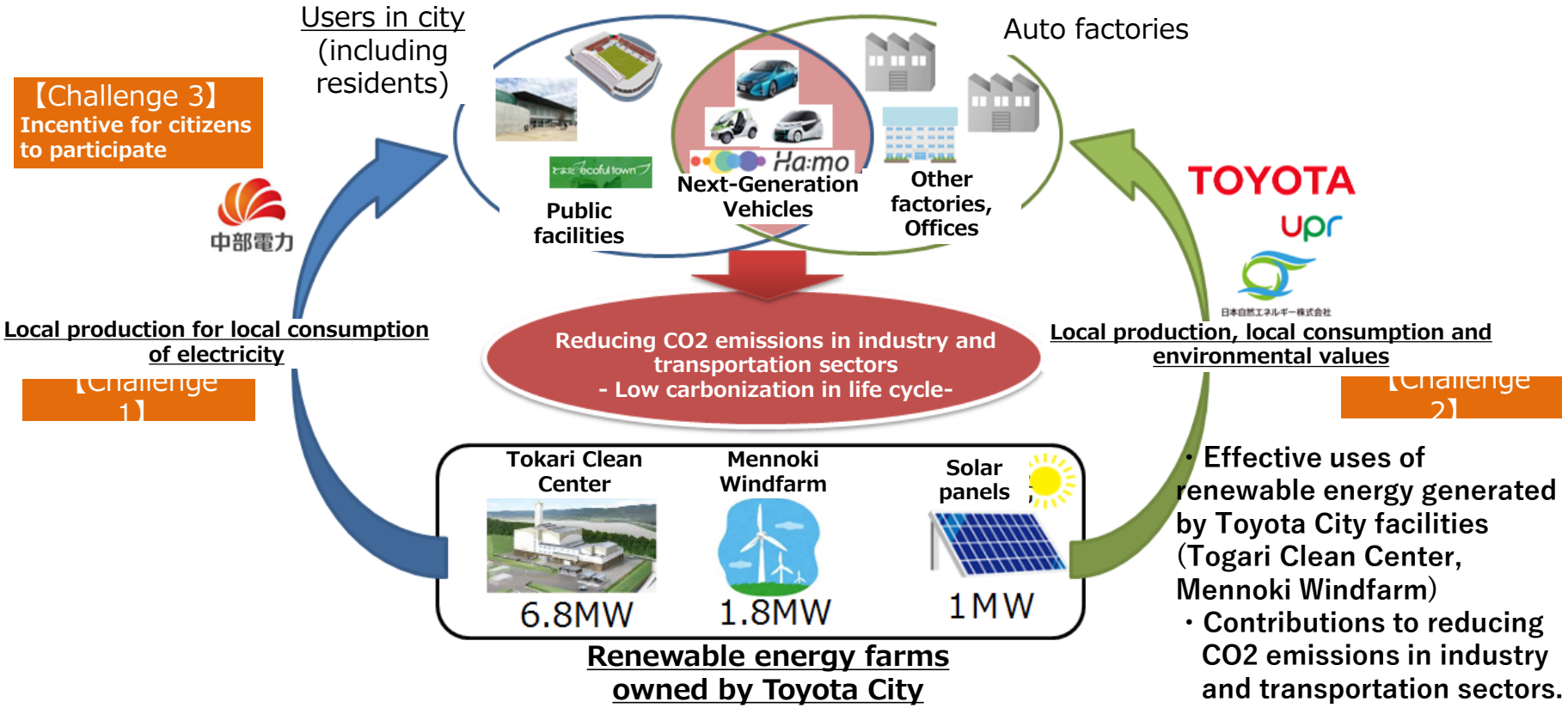
Verification Projects in Energy Sector

Verification Projects: Nine in energy sector among 31 projects

	Theme for verification	Participants
1	Regional service project for solving issues in rural areas	Mikawanoyamasato Kadaikaiketsu Farm, Chubu Electric Power Co., Inc.
2	New microminiature normal battery charger	Mitsui & Co., Ltd., Jigowatts Inc.
3	**SDGs Toyota renewable energy challenge**	Chubu Electric Power Co., Inc.,Toyota Motor Corporation, Japan Natural Energy Company Limited, UPR Inc.
4	V2G aggregator	Toyota Tsusho Corporation, Chubu Electric Power Co., Inc.
5	**V P P**	Chubu Electric Power Co., Inc.、Toyota Motor Corporation, Toyota Energy Solutions Inc. DENSO CORPORATION, Toho Gas Co., Ltd., Aishin Seiki Co., Ltd.
6	Trans-heat Container	Toyota Motor Corporation, Chubu Electric Power Co., Inc., Toho Gas Co., Ltd.
7	Small Hydropower Generation	National Institute of Technology Toyota College, Kojima Industries Corporation
8	Wastewater heat recycle	Sekisui Chemical Company, Limited.
9	Utilization and application of Hydrogen	Toyota Motor Corporation, Chubu Electric Power Co., Inc., Toho Gas Co., Ltd., Toshiba Corporation

Image of a project: “SDGs and the Toyota Renewable Energy Challenge”

1. Chubu Electric Power Co. , Toyota Motor Corporation, Japan Natural Energy Corporation, UPR, and Toyota City collaborate in verification tests conducted by Toyota City Council to Verify Connection with Communities
2. Three projects are executed as unified effort from April 2019 to March 2022,
3. Efforts are made public inside and outside Japan through 2019 Rugby World Cup. They are horizontally deployed

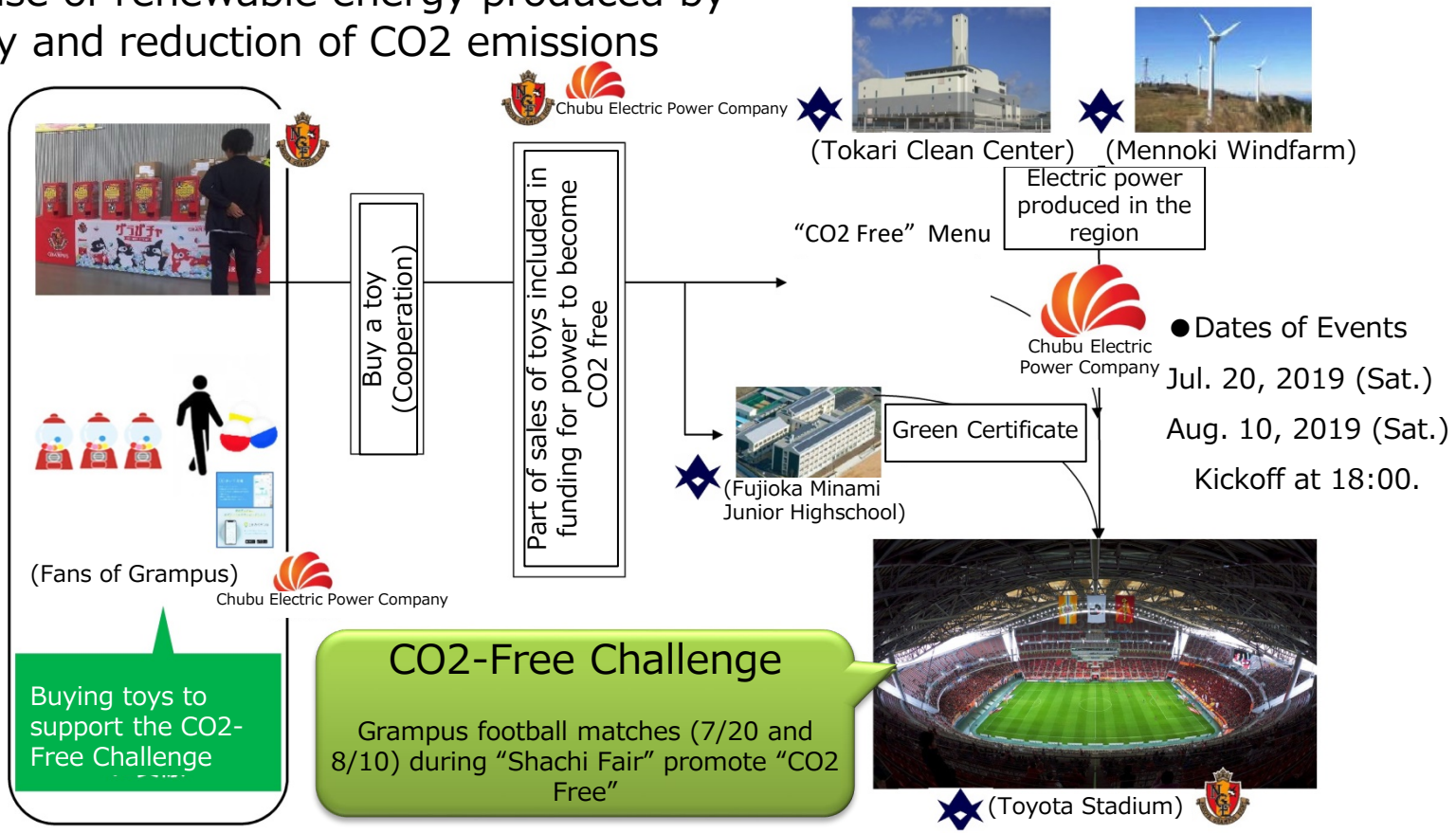


・Effective uses of renewable energy generated by Toyota City facilities (Togari Clean Center, Mennoki Windfarm)
・Contributions to reducing CO2 emissions in industry and transportation sectors.

Grampus Games at “Shachi Fair” Promote CO2-Free Challenge in Toyota Stadium — The First Renewable Energy Challenge for SDG Program

● Objectives

Effective use of renewable energy produced by Toyota City and reduction of CO2 emissions



● Dates of Events

Jul. 20, 2019 (Sat.)

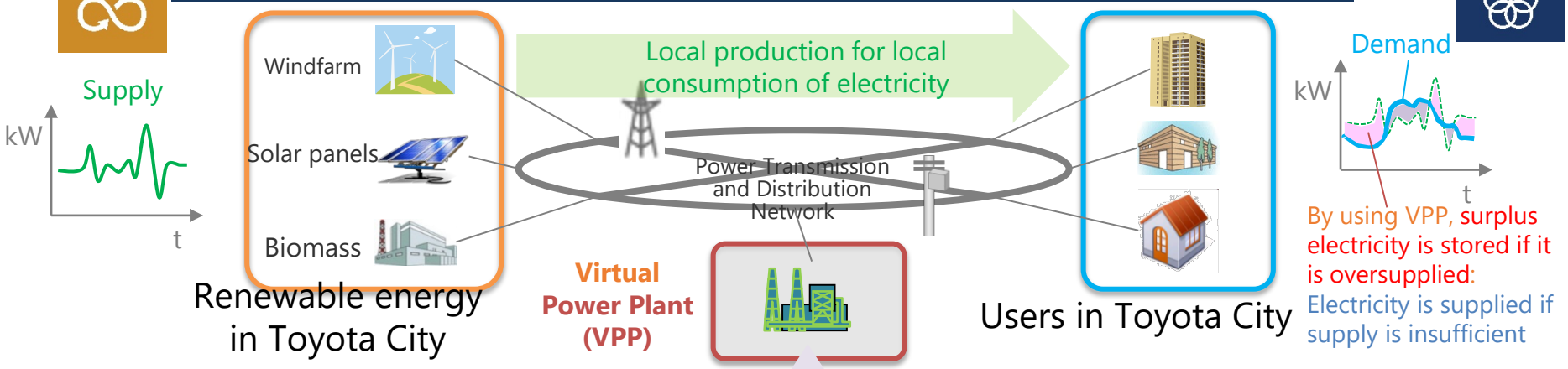
Aug. 10, 2019 (Sat.)

Kickoff at 18:00.

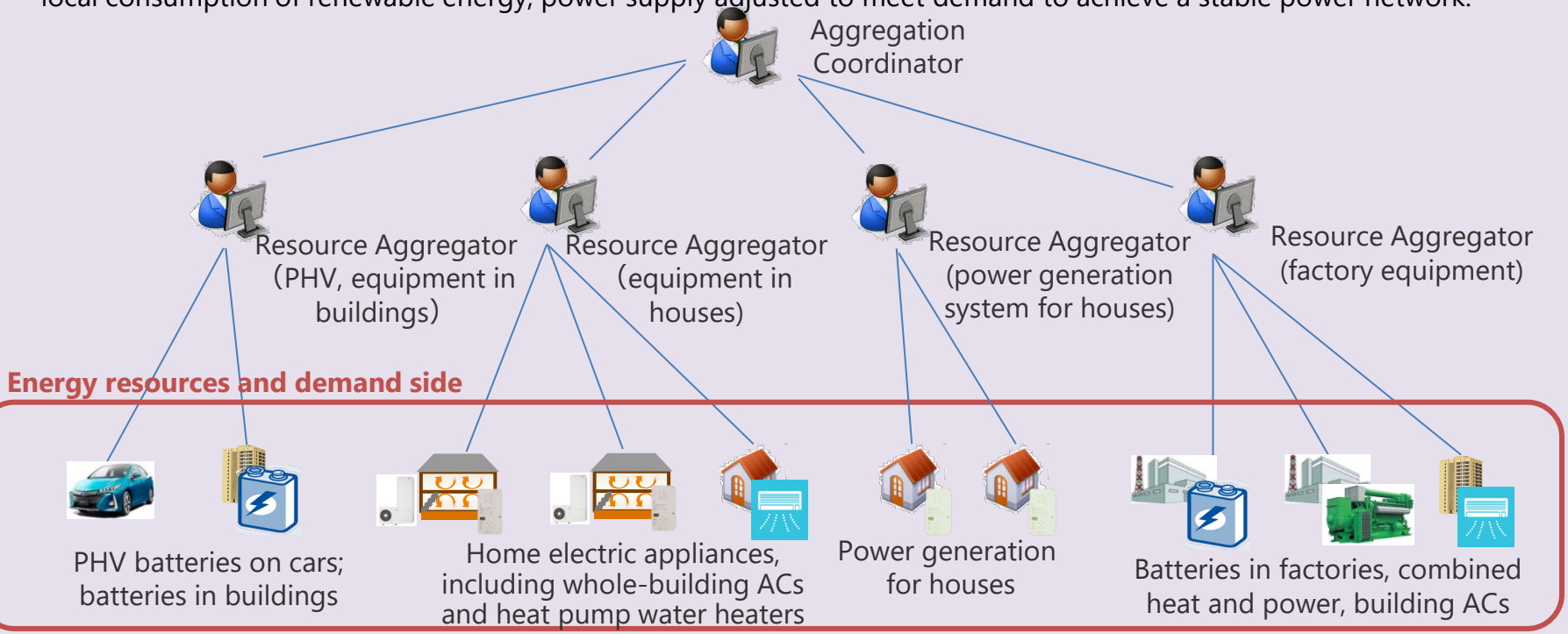
● **CO2-Free Campaign in “SDGs Toyota Renewable Energy Challenge”**

- ” Local production of electricity for local consumption”: Power is supplied to Toyota Stadium all year from Tokari Clean Center and Mennoki Windfarm (Challenge 1)
- “Local production for local consumption of electricity” campaign to make Toyota Stadium CO2-Free. (Use of “Green Power” Certificates for solar panels at Fujioka Minami Junior Highschool in Toyota City; and use of CO2-Free menu of Chubu Electric Power Company (Challenge 2)
- To hold the CO2-Free football match with cooperation of fans (Challenge 3)

Toyota City's VPP Project



"Virtual Power Plant" to control various energy resources connected to power network to achieve local production for local consumption of renewable energy; power supply adjusted to meet demand to achieve a stable power network.



Activities (2)

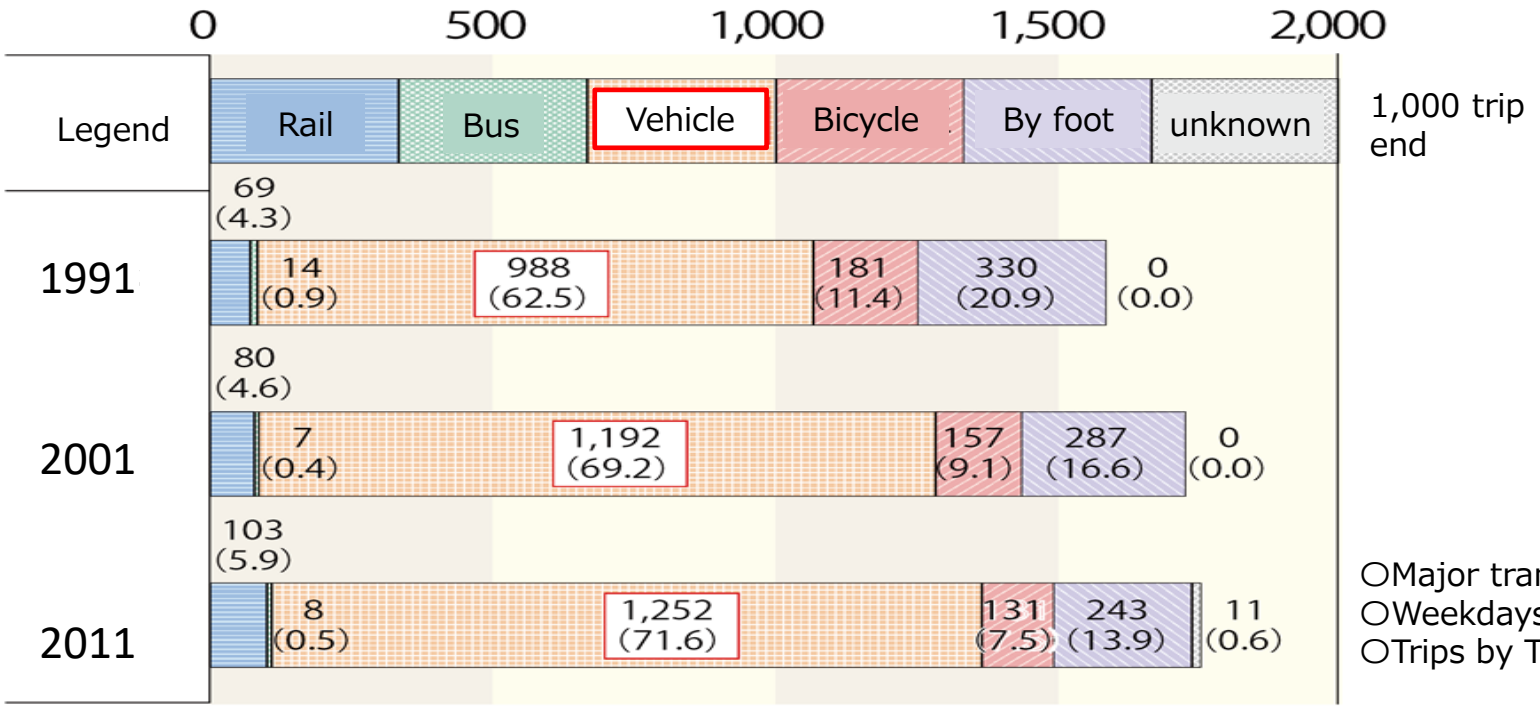
Mobility

ミライのフツーをつくろう

SDGs

未来都市とよた

Present Conditions and Transportation Issues in Toyota city



○Major transportation means
○Weekdays and holidays
○Trips by Toyota city residents

: Parentheses ( ) shows share ratio

Note: Totalization of 3rd regional research

Changes in number of vehicle trips (concentration in Toyota city)

○Share ratio of vehicles (autos) is increasing; over 70%.
○Share ratio of vehicles is expected to increase in future.
○Average number of driver's licenses is above average in city center area; percentage of population holding licenses (almost 80%) is especially high among the elderly (70 and above).

(Issue)
Dependence on private cars is a concern; if public transportation is not improved, mobility-impaired people will increase as population ages.

Source: Comprehensive Transportation System Survey(Toyota city person trip survey) [in 2011]

Toyota City SDGs × Mobility

- Low-carbon transportation system (sharing) **Ha:mo [Toyota Motor Corporation]**
- Infrastructure verification test conducted by humanoid robot [Tokyo University]
- Slow autonomous driving in mountainous area [Nagoya University]
- Road maintenance inspection by connected car [Toyota Motor Corporation]
- On-Demand Bus utilizing MONET platform [MONET Technologies]

Ha:mo RIDE

■ Ultra-compact electric mobility

■ Developing humanoid robots

■ Personal mobility

■ Hydrogen charging station

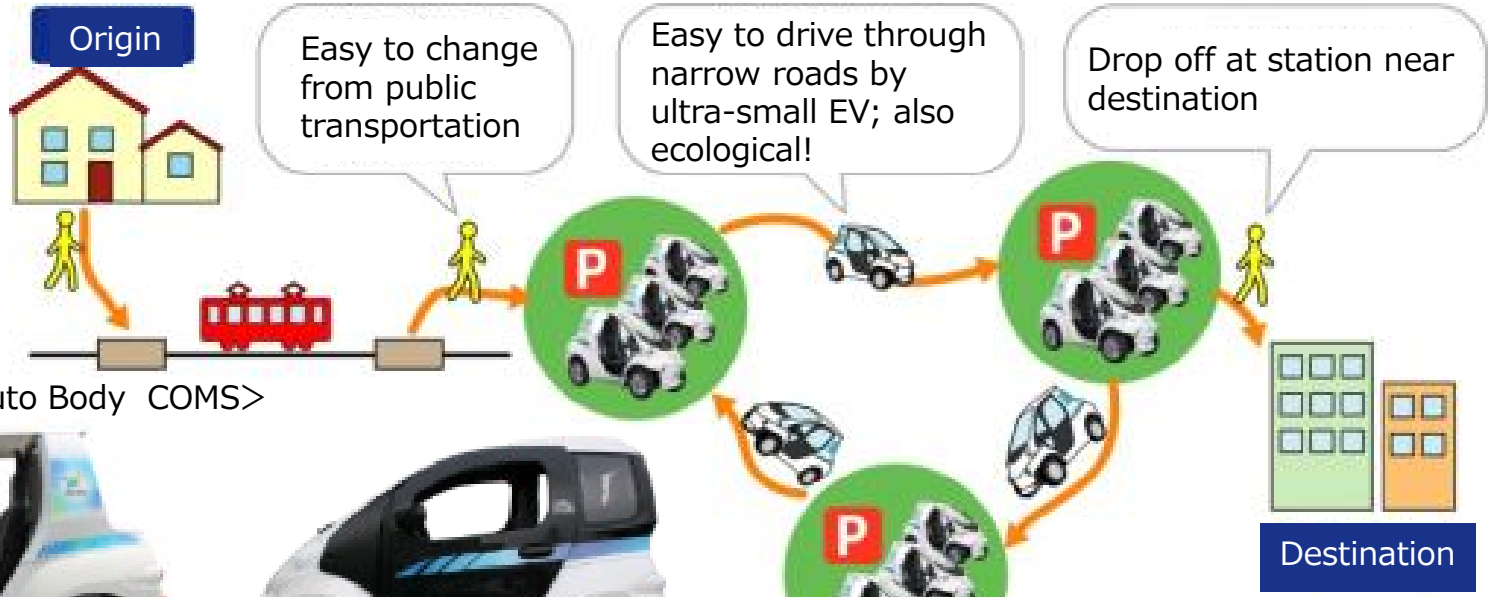
■ FC bus (SORA)

■ FCV （MIRAI)

■ On-Demand bus

Efforts Made So Far (Sharing System)

October 2012 –
As a “Demonstration of the Next-Generation Energy and Social System,” private companies (Toyota Motor Corporation and Yamaha Motor) and Toyota City collaborate to demonstrate a new urban transportation system called Ha:mo



<Made by Toyota Auto Body COMS>

P-COM (for 1 person)

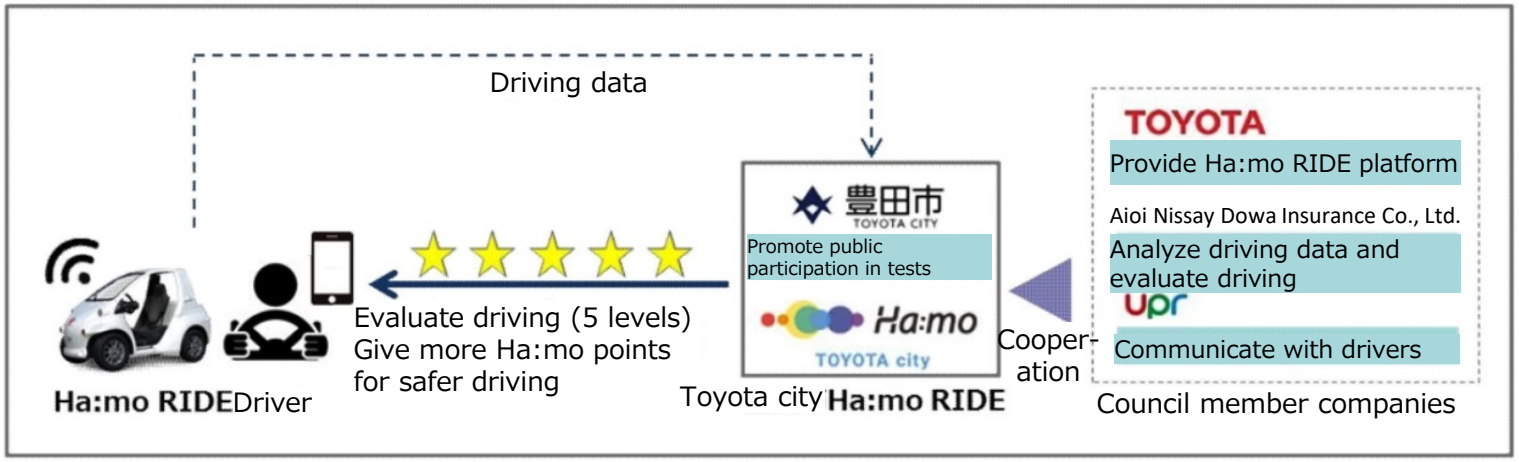
T-COM (for 2 persons)

FY2017 **– <u>Practical service of Ha:mo RIDE project</u>**
Private companies **consider practical use of system and new way of using vehicles: 109 COMS; stations: 65; members: 6,333 (as of end Oct. 2019)**

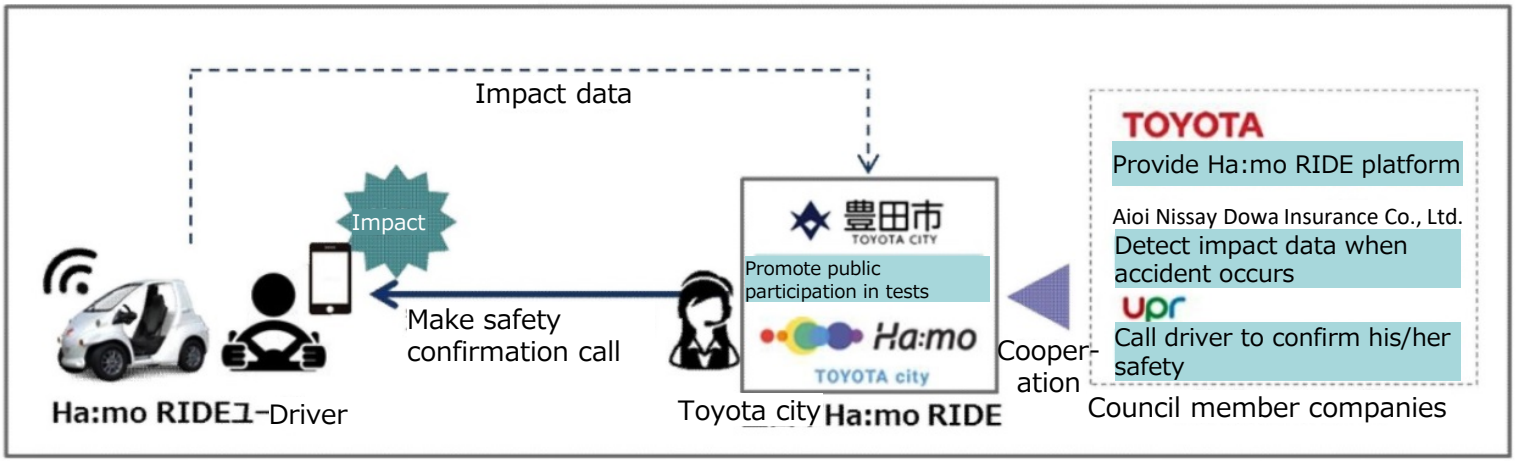
New Verification: Utilization of Ha:mo RIDE Driving Data

In September and October 2019,
Verification of improvement of drivers safety awareness and relief after accident through use of Ha:mo RIDE driving data.

◇ Improving driving safety by using driving data



◇Confirmation call after impact detected



Efforts Made So Far (Personal Mobility)

FY2010 –Verification tests start
Aim is utilization to promote personal mobility as a tool for human mobility along with pedestrians

<Winglet produced by Toyota Motor Corporation>

Used in events

2018-
Standing-type personal mobility with three wheels

Sightseeing tour on public roads in city center

Aug. 2019 — Verification test of new ultra-compact EV

Pedestrian area EV produced by Toyota Motor Corporation

Seated type

Wheelchair-linked type

Standing type

17 PARTNERSHIPS FOR THE GOALS

Inter-City Network for Next-Generation Mobility

Aiming to solve social issues by utilizing next-generation mobility, and sharing knowledge

Making friends → Sharing tasks → Preceding test → Customized test → Sharing results/ imple-mentation → Widening network Making more friends → Enriched life / Better society

Improvement of technology and service → Policy-making by national government → Spread of technology

Returning driver's license, support for going out
• promotion of tourism and industries
• reconstruction/disaster prevention
health enhancement
• Energy …

Development of system
Dissemination of information

Miyagi Pref.
<Creative revival>

Izumo City

Kumejima Cho

Minami Sanriku Cho

Onagawa Cho

Toyota City

Tsukuba City

Next-Generation Mobility Promotion Network (established in July 2019)

Activities (3)

Wellness

ミライのフツーをつくろう

SDGs

未来都市とよた

Verification test of “Regional services addressing issues in mountainous area”

For verification conducted by the Toyota City Council to Verify Connection with Communities, Mikawanoyamasato Kadaikaiketsu Farm, Chubu Electric Power Co., Inc. and Toyota City concluded agreement

Supporting each other with “initiative” and “network” to create abundance

Economic cycle in the region
- Regional economic activity (electricity, services)
- Promotion of employment

“We love Toyota” and arouse spirit of cooperation
- Spirit of mutual help
- Whole community supports activities

Improving QOL in the region
- Addressing regional issues

Solving regional issues with new company

Continuing NU COI (“Tasukeai Project,” mutual help)

- Support to transfer
- Support for health
- Promotion of renewable energy
- Other services

Developing new company as new public agency

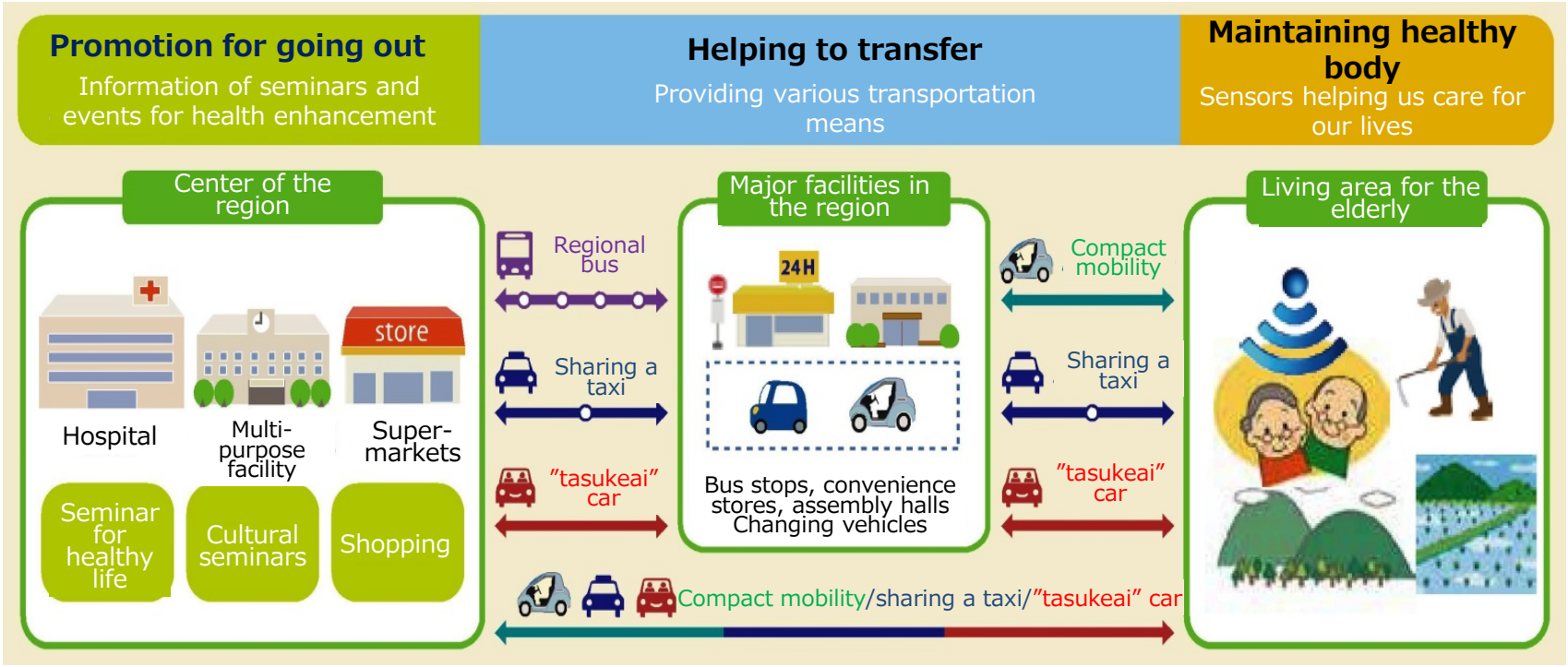
Purchase of electric power by government, residents

Continuing NU COI (project for “tasukeai,” mutual help)

Project for helping each other is・・・

Comprehensive support, including “watching” and “help going out” to maintain health and “mobility” for everyone, including the elderly, to enable them live and end their days comfortably in a place where they used to live.

(Jointly implemented Nagoya University, Toyota City, Asuke Hospital, and residents)



- Safe and free mobility
- Developing a regional community to live comfortably in

Toyota Satoyama Wild Boar Meat Curry Project

(Project to coordinate exchanges)

Develop and sell Wild Boar Curry by taking advantage of Employees' agricultural training

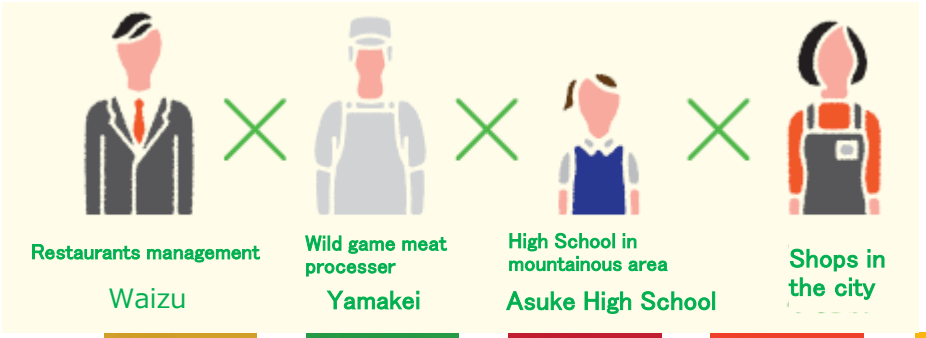
"Network" creating new value

おいでん さんそん センター

Sponsored by Cabinet Secretariat and MAFF

selected as an excellent project in "Discover village treasures"

32 organizations were selected from 1,015 applicants



Supporting connection between urban and mountainous areas

Society

Partnership between companies and region

Economy

Creation of new business

Environment

Reduce food waste by using wild boars

11 SUSTAINABLE CITIES AND COMMUNITIES

17 PARTNERSHIPS FOR THE GOALS

8 DECENT WORK AND ECONOMIC GROWTH

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

7 AFFORDABLE AND CLEAN ENERGY

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

13 CLIMATE ACTION

15 LIFE ON LAND

Wooden Nameplate Project

Wooden Nameplate Project

Forest Owner's Cooperative

Asahi Lumber Manufacturing Co-op

Order handling

Arudei

Day Care Type Community Activity Support Center "Azemichi"

Wood Processors (Residents)

Brand logo CRAFT WOOD imprinted on wood from Toyota city

GOAL

[City with Disaster Resilience] Toyota SAKURA Project

<Promotion of Self-help and Cooperation during Disaster>

By showing usefulness of next-generation vehicles in time of disaster, the plan is to improve disaster preparedness and to promote and spread the use of next-generation vehicles.

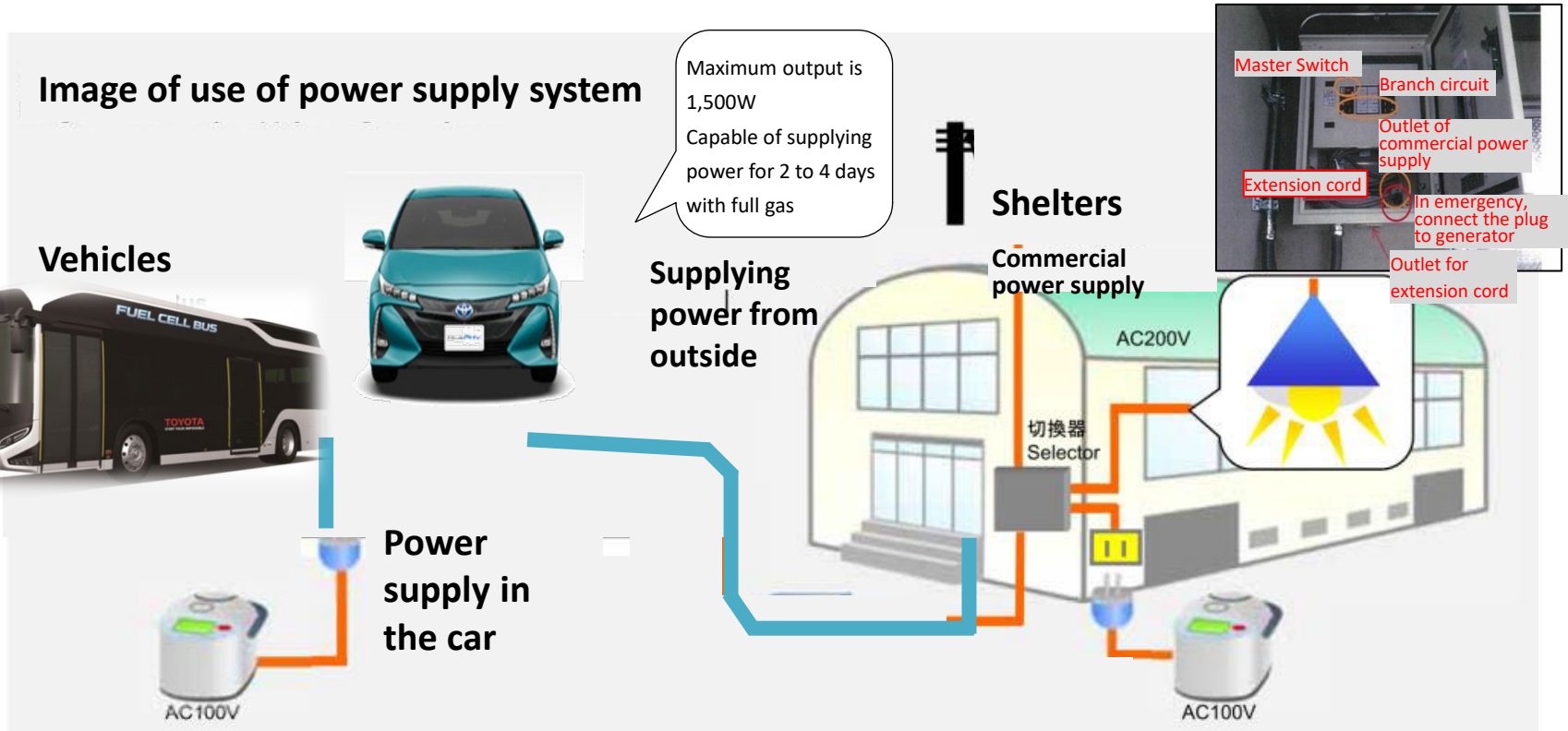
Participated in various city events, demonstrated external power supply for promotion

In FY 2018, participated in 20 events, including supplying power to disaster prevention camp and to movable polling stations.

Development of Power Supply for Shelters

<Improving functions during time of disaster>

Developing power supply facility, and supplying power to shelters with official cars (PHV, FCV, FC Bus, EV, etc.).

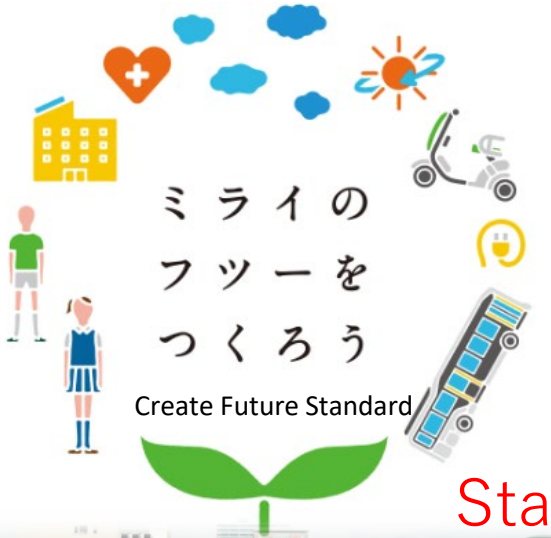


As an emergency response during a disaster like a huge earthquake, shelters in the city will be equipped with power supply systems able to receive power from hybrid vehicles (FCVs and Evs). Moreover, system for power supply from official cars will be developed. Trainings assuming real operations are carried out. ⇒ Plans are to settle connecting equipment in 25 shelters (already furnished in 11 shelters).

5. Development in Future

Partnership project for collaboration across fields of expertise

The Standards of Tomorrow, Today



Create Future Standard

とよた SDGs パートナー

TOYOTA SDGs PARTNER

17 PARTNERSHIPS FOR THE GOALS

Starting on Nov. 27, 2019!

New communities are created and connected to others, creating rich towns.
Successful projects and good practices created in Toyota City will spread all over Japan.

SDGS Future City Toyota
Through achieving World Common Goals, "SDGS," we can contribute to Japan and other nations.

SUSTAINABLE DEVELOPMENT GOALS

"Sustainable Development Goals" are adapted all United Nations Member States for 2030

Future City Toyota—Aiming for Affluent Lives

From a city of manufacturing goods
to a city shaped by goods, events, and people