

Strategic Market Creation Plan (Roadmap)

- ※ Setting envisioned society, index, and lifestyle to be achieved by 2030 in the four areas of health and longevity, energy, the next-generation infrastructure, and regional resources. Organizing long-term progress schedules of envisioned society around 2020 (intermediate stage) and development of measures in each strategic area by 2030.

Theme 1

Extending the nation's "healthy life expectancy"

Theme 2

Realizing clean and economical energy demand and supply

Theme 3

Building safe, convenient and economical next-generation infrastructures

Theme 4

Building regional communities that use their unique local resources to appeal to the world

Theme 1

Extending the nation's
“healthy life expectancy”

Envisioned society to be achieved at an intermediate stage (around 2020)

- Services under the cooperation between medical institutions and private companies will be purchased mainly by insurers and performance that contributes to health promotion for insured will be clarified.
- Rules, etc. to be observed by companies which try to enter into the industry to extend healthy life expectancy will be clarified.
- Satisfactory results will be achieved by local governments that promote local health by appropriate combination of health promotion and preventive care services by the industry to extend healthy life expectancy in addition to public insurance medical care.

[Envisioned society] The society where people are able to live a healthy life and get old by enhancing effective preventive care services and health management

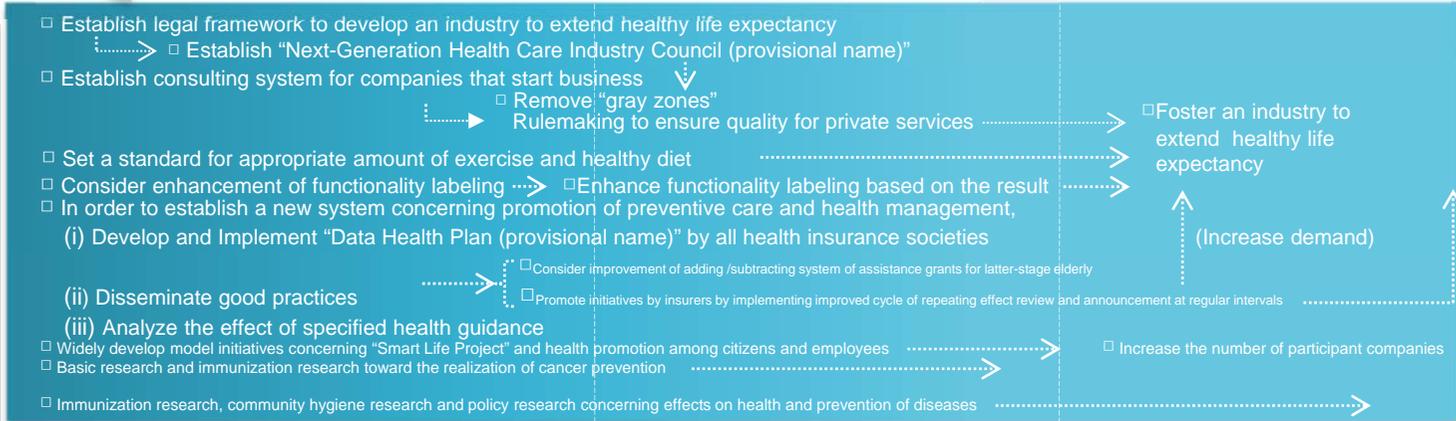
- <Major issues>
- ✓ Clarify and raise awareness about advantages of addressing health promotion and preventive care of individuals, companies and local governments
 - ✓ Enhance services outside insurance under the cooperation between medical institutions and companies

[Index] Develop an industry to extend healthy life expectancy

Lifestyle to be realized in an ideal society

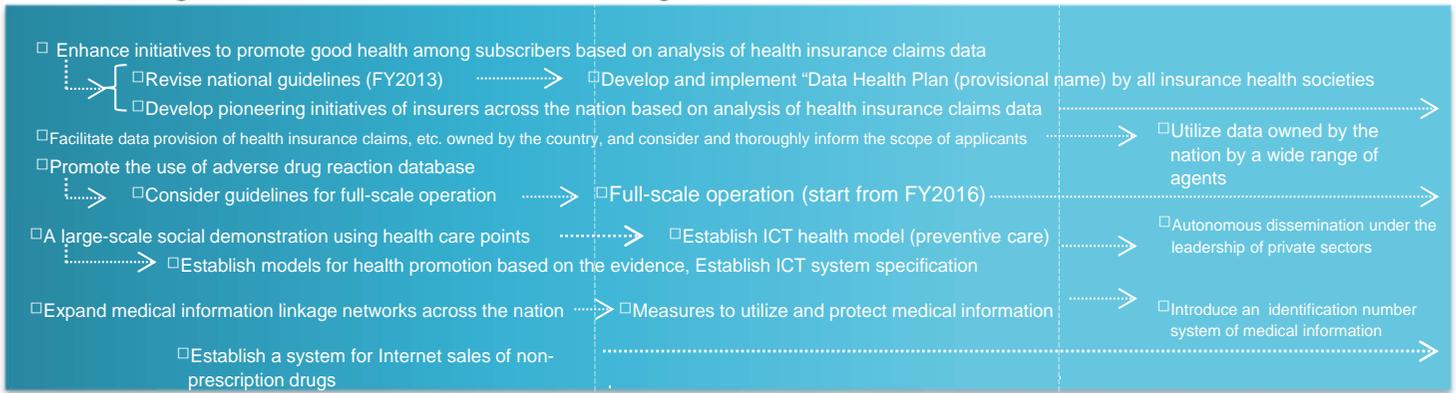
People will get access to preventive care services in a way that effortlessly integrates into everyday life to avoid onset and aggravation of lifestyle-related diseases such as diabetes. Medically reliable prevention method will be established and people will get access to preventive care services concerning diet and exercise, etc. from reliable providers such as medical institutions as services with ingenuity appropriate to individual occupations and age so that everyone can prevent diseases.

<Develop an industry to extend healthy life expectancy by improving an environment such as laws and institutions, rules, etc.>



○Extend healthy life expectancy, decrease the number of people with metabolic syndrome, and raise consultation rate of medical check-ups by improving a framework toward developing an industry to extend healthy life expectancy, etc.

<Promote digitalization of medical care and nursing care information>



○Improve the quality of medical care by using ICT

Envisioned society to be achieved at an intermediate stage (around 2020)

- We will realize the steady progress toward the goal of conquering cancer, incurable diseases, rare diseases, infectious diseases, dementia, etc., and R&D in Japan will lead the world.
- The safety system which also respond to new medical technologies including regenerative medical care will be established and operated and the power of brands will be also formed in global deployment of Japanese medical technologies and services.
- Portfolios of Japan's international health cooperation and international medical cooperation in business projects will be properly built mainly in emerging countries

[Envisioned society] The society which can provide the world's most advanced necessary medical care by activating medical care industries

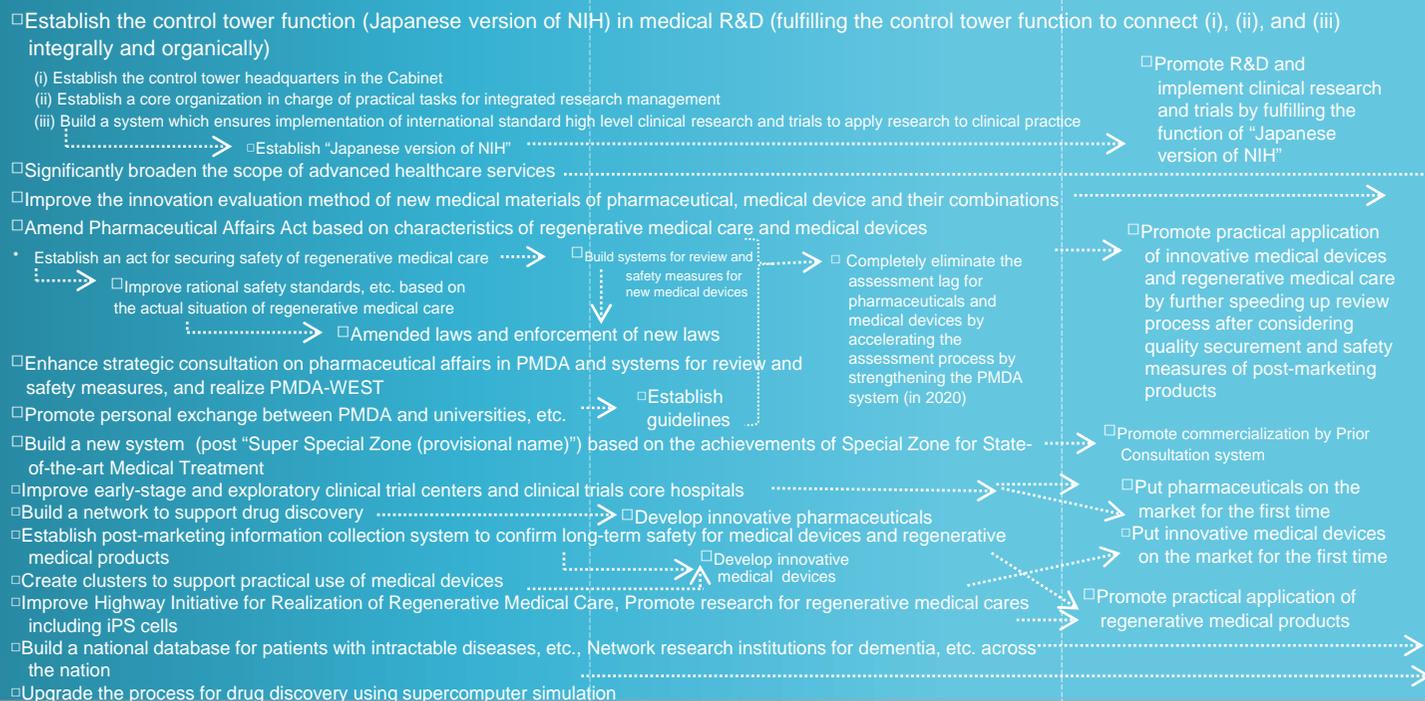
- <Major issues>
- ✓ Fulfill the control tower function in R&D in government sectors
 - ✓ Drastically improve international competitiveness and power of R&D in private sectors
 - ✓ Establish systems and rules to secure safety which adopt to the next generation technologies and apply human resources properly

[Index] Improve international competitiveness in health and medical care industries

Lifestyle to be realized in an ideal society

Treatment techniques for incurable diseases such as cancer, dementia and auto immune disease will be improved. As for cancer, "Ten-year General Strategy Against Cancer" will be steadily enhanced and will promote early detection, early treatment and prevention of recurrence which will enable people to organize their life peacefully. As for dementia, the growth rate of the patients will be 0% by improving early detection and prevention. R&D for development of drastic treatment techniques will make progress.

<The most advanced pharmaceuticals, medical devices, regenerative medical products>



- Improve trade balance of pharmaceuticals and medical devices
- Increase the number of regenerative medical products which move into clinical research and trials and that of new regenerative medical products to world top level by 2030 in the regenerative medical care industry
- Expand overseas market size of Japanese medical technologies and services to 5 trillion yen

Goals for 2030

<Global outreach of medical market>

- Promote business-based global deployment of medical technologies and services by integrated promotion organization, Medical Excellence Japan
- Establish around 10 Japanese medical centers by 2020, with focus on emerging countries
- Establish around 50 by 2030
- Promote R&D and support supply of pharmaceuticals for emerging countries under the cooperation between the public and private sectors

Present

2017

2020

2030

Envisioned society to be achieved at an intermediate stage (around 2020)

- People will receive services for medical care, nursing care, and livelihood support at home comfortably by improving an environment for cooperation between the public sector and private businesses in communities (establishment of guidelines for information sharing and coordination using ICT)
- The development of care support equipment which significantly contributes to self-support for the elderly and the disabled will be advanced and the equipment will be diffused to consumers at a reasonable cost by utilizing lease arrangement

[Envisioned society] The society where people who are out of work due to illness or injury can return to work as quickly as possible by access to better medical care and nursing care.

<Major issues>

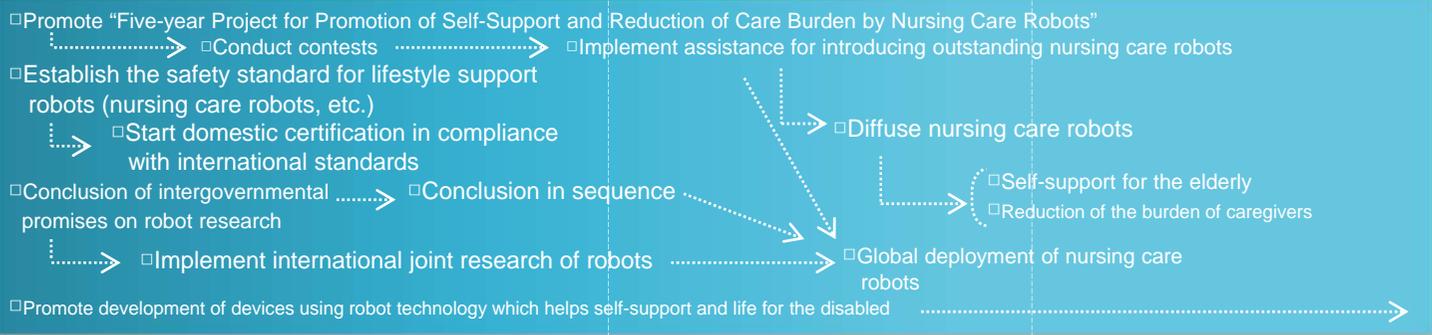
- ✓ Enhance services outside insurance by ICT technology, application of digital devices, and cooperation between medical institutions and companies
- ✓ Diffuse cheap and user-friendly nursing care equipment
- ✓ Develop houses and communities where people have secure life

[Index] Diffuse nursing care equipment and realize "Smart Wellness Housing and City"

Lifestyle to be realized in an ideal society

Life where necessary medical care will be accessible within a reasonable time by sharing information for medical care and nursing care according to characteristics of social communities and various livelihood support services, etc. will be available at hand. A wide range of generations including the elderly will interact with each other in communities and are able to live a healthy life without anxiety.

<Develop nursing care robots>



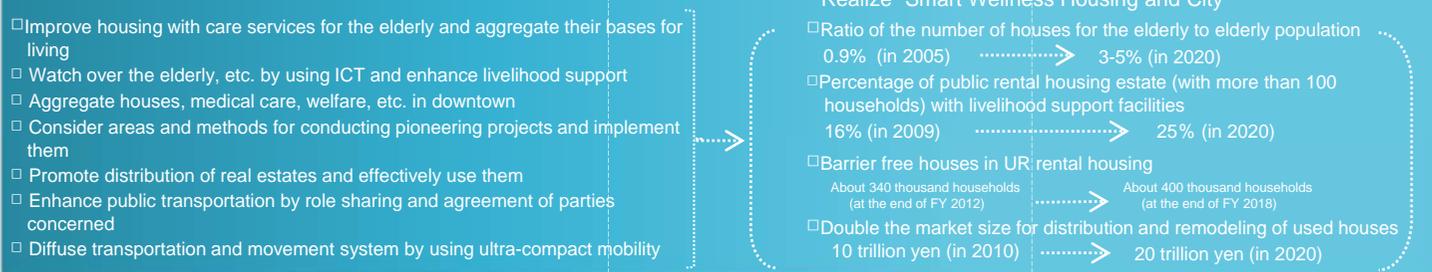
○ Domestic market size for nursing care robots is 260 billion yen (in 2030)

<Provide services for nursing care and lifestyle support (Strengthen the system)>



○ Secure services for various medical care, nursing care and lifestyle support

<Promote housing and community planning for the elderly>



○ Create and enhance next-generation housing and community planning industries

○ Continuously expand the market size of distribution and remodeling of used houses

Present

2017

2020

2030

Goal for 2030

Theme 2

Realizing clean and
economical energy demand
and supply

Envisioned society to be achieved at an intermediate stage (around 2020)

- Next-generation energy sources are practically realized one by one such as next-generation highly efficient thermal power (IGCC, etc.), offshore floating wind power generation to support future low cost and clean energy generation.
- On top of FIT, the foundation for full-fledged dissemination of clean energy toward 2030 including streamlining the procedure of environmental impact assessments, regulatory and institutional reform, expansion of transmission network, etc. has been built.
- Although there are still some challenges to overcome to realize commercialization, element technologies with potential to be core technologies which will be one of future energy have been established one by one.

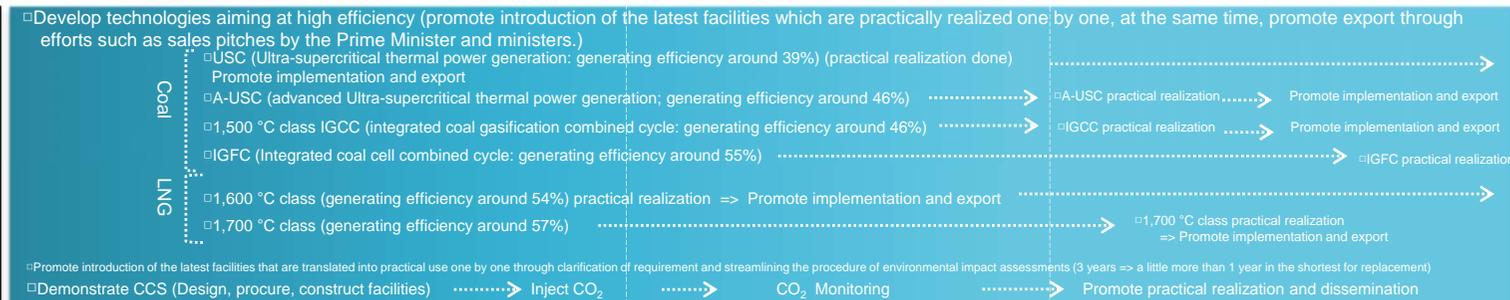
[Envisioned society] Realizing clean and economical energy demand and supply

- <Major issues>
- ✓ Fuel cost of thermal power generation has drastically increased due to increased use of old thermal plants
 - ✓ Introduction of renewable energy is still at low level
 - ✓ Considerable time is necessary to realize practical use of energy which can support future

[Index] Realize globally competitive energy price (Reduce energy price as much as possible)

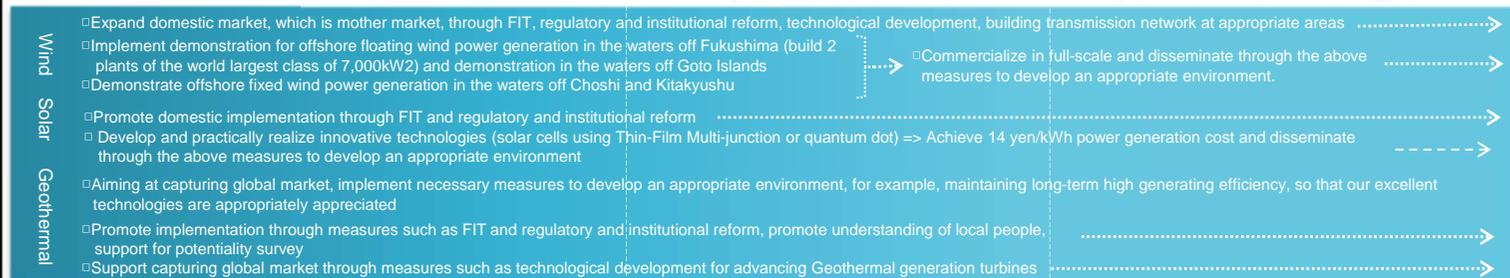
- Lifestyle to be realized in an ideal society**
- A society where we can feel easy to use necessary volume of clean inexpensive energy whenever needed as usual even though there are unexpected changes of the energy situation such as supply disruption of energy sources and wild ups and downs of prices.

< Highly efficient thermal power > **Global market size** Highly efficient thermal power : 217 trillion yen (2012 - 2035: Cumulative investment) (Source: IEA (World Energy Outlook 2012))



○ Try to practically realize IGFC which incorporates fuel cells into coal thermal power generation to improve generating efficiency of coal thermal power generation from around 39% to around 55% to initiate implementation

< Renewable energy > **Global market size** Wind: 170 trillion yen (2012 - 2035: Cumulative investment) (incl. land and offshore) (Source: IEA(World Energy Outlook 2012))
Solar: 101 trillion yen (2012 - 2035: Cumulative investment) (Source: IEA(World Energy Outlook 2012))
Geothermal: 8 trillion yen (2012 - 2035: Cumulative investment) (Source: IEA(World Energy Outlook 2012))



○ Commercialize the world's first offshore floating wind power generation (by around 2018) and create global market

○ Reduce power generation cost, which is 30 yen/kWh or more currently, to be one third or less, i.e. less than 7 yen/kWh after 2030

○ Capture 70% global market by turbines

< Energy technologies with potential to support future >



○ Develop technology for commercialization of methane hydrate by around fiscal year 2018

○ Have clear perspective for commercialization of other future energy technologies

Present

2017

2020

2030

Goal for 2030

[Envisioned society] A society where efficient distribution of energy is realized through competition

Envisioned society to be achieved at an intermediate stage (around 2020)

- Peripheral service for household is created one after another by electricity deregulation.
- Households and individuals can select electricity company. Rate menu can be selected as well.
- Diverse players participate in energy supply and control including consumers, also integration of various industries (electricity, gas communications, etc.) is promoted.
- Dissemination of storage batteries which are commonly combined with renewable energy, excess energy is stored, and can be utilized during night-time and in case of outage
- Development of next-generation device, parts and materials makes progress, and they are incorporated into every point from production, distribution and consumption, so that energy is efficiently used.

<Major issues>

- ✓ There is no efficient inter-regional demand and supply adjustment system among electricity companies
- ✓ Users cannot use or save energy to suit their lifestyle
- ✓ Even if users want to change electricity company, there are no alternatives

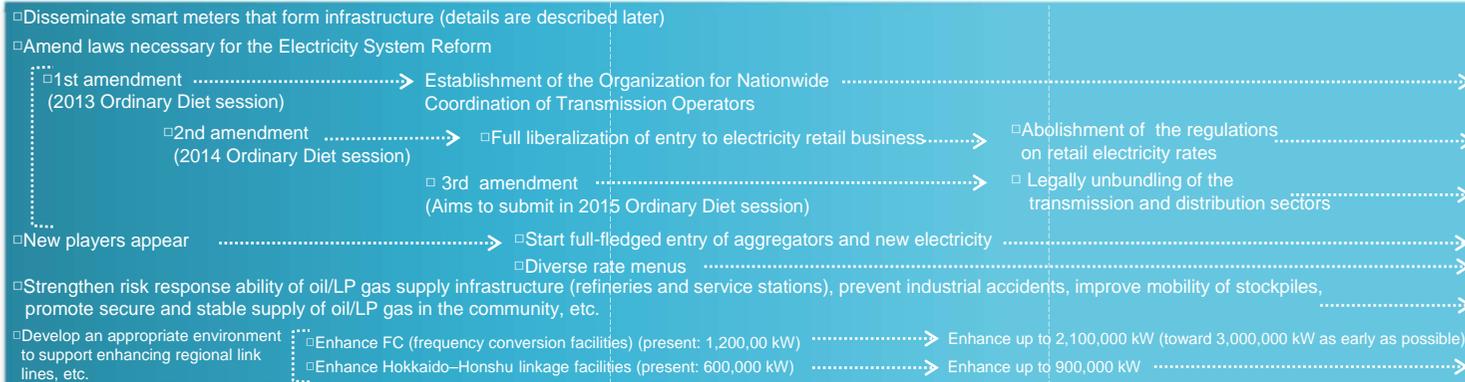
[Index]

- Increase options for electricity use and expand companies that participate in electricity business
- Realize globally competitive energy price (reduce energy price as much as possible) [Repealed]

Lifestyle to be realized in an ideal society

- Like mobile phones, users can pick an energy provider freely and select a plan meeting their needs from a wide variety.
- Through disseminating storage batteries, wide-area operation, devices, parts and materials that thoroughly eliminate waste, efficient energy use without limitations on time and place will be achieved to realize a society in which optimal energy use will be possible all over nation.

< Streamline energy distribution and establish growth base (Electricity System Reform) >



- The Organization for Nationwide Coordination of Transmission Operators (by around 2015)
- Full liberalization of power generation and electricity retail business (by around 2016)
- Make transmission network available for everybody freely (neutralize power-grids), abolishment of the regulations on retail electricity rates prices (by around 2018 to 2020)

< Storage batteries > Global market size Storage batteries: 1 trillion yen (present) => 20 trillion yen (2020)

- Promote introduction of large grid storage batteries through R&D, demonstration, etc.
- Promote introduction of fuel cell vehicles through regulatory and institutional reform related to hydrogen refueling stations that supply fuel to such vehicles
- Support for establishing Japan's initial market of stationary storage batteries, at the same time, through acquiring international standards according to Japan-originated safety standard (JIS), promote capturing global market.

- Reduce cost for large grid storage batteries to be half or less (23 thousand yen/kWh or less). Capture 50% global market (2020)

< Next-generation device, parts and materials (power electronics, etc.) > (incorporated into every point from production, distribution and consumption)

Global market size power electronics: 6 trillion yen (present) => 20 trillion yen (2030)

- Technical development and dissemination of power electronics
- Establish national projects and intensive R&D support (E.g.) Develop new materials (SiC, GaN, diamond), design devices and circuits, systemization, etc.
- Support for commercialization such as demonstration projects
- Establish evaluation method → Standardization
- Promote dissemination of equipment incorporating power electronics globally through support for global deployment of energy-saving technology (FS study, etc.) (For example, when power electronics is incorporated into air conditioning system, 30% energy is saved, with power electronics using new material (SiC), when applied such materials to trains, sometimes further 40% energy is saved)
- Also for next-generation devices, parts and materials (ultra-low power consumption devices, photonic technology, ultra-light structural materials with high strength, etc.) promote technical development and systemization aiming at commercialization.

- Aim to fully commercialize next-generation power electronics using new materials, etc. by 2020

Present

2017

2020

2030

Goal for 2030

Theme 3

Building safe, convenient
and economical next-
generation infrastructures

Envisioned society to be achieved at an intermediate stage (around 2020)

- Highly efficient inspection, maintenance and repair using sensors, robots, non-destructive testing technique, etc. are applied to 20% of domestic important infrastructures and aging infrastructures
- 30% global markets is captured for sensors, robots, etc. for inspection, maintenance and repair
- Goal for practical realization of new materials such as self-restoring materials becomes clear

[Envisioned society] A society where safe and resilient infrastructures are provided at low cost

<Major issues>

- ✓ Establishment and dissemination of safety and reliability of infrastructure maintenance technology using sensors, robots, etc.
- ✓ Opening public data such as transportation data, promoting to make them big data and enhancement of geospatial information through development and construction of satellites

[Index] Construct new maintenance systems incorporating advanced technologies such as IT, and achieve zero serious accident of important infrastructures in 2030

Lifestyle to be realized in an ideal society

- Infrastructure maintenance, repair and update can be properly conducted nationwide using IT, robots, etc. and early anomaly detection forestalls accidents. All citizens can live without worry.

< Basic plan for longer life of infrastructures >

- Formulate basic plan for longer life of infrastructures (basic policy) (Targets, roadmap, roles of the government and local governments, academic-industrial alliance, etc.)
- Formulate plan for longer life of infrastructures (action plans) (implements full check, review for management criteria, formulate facility-specific plan, develop new technologies, implement demonstration tests, etc.)

< Infrastructure inspection and diagnostics systems >

Global market size Sensors: 0.5 trillion yen (present) => 10 trillion yen (2030) / robots: 5 billion yen (present) => 2 trillion yen (2030)
Monitoring: 0 yen (present) => 20 trillion yen (2030)

- Digitize infrastructure information (basic information, inspection, maintenance and repair information) and integrate with geospatial information
- Install various sensors to infrastructures
- Develop new inspection, maintenance and repair techniques using sensors, robots, etc.
- Overseas survey by public and private sectors, building connection
- Planned operation of inspection, maintenance and repairs using big data
- Integrated operation with transportation data
- Demonstrate new inspection, maintenance and repair techniques
- Apply to important infrastructures nationwide
- Full-fledged overseas deployment of intelligent infrastructure (package)

< New materials >

Global market size Self-restoring materials, etc.: 0 yen (present) => 30 trillion yen (2030)

- R&D for new materials such as self-restoring materials under collaboration of the related ministries and agencies
- Promote use of new materials such as self-restoring materials (including adoption by government procurement)

< Space infrastructure (quasi-zenith satellite and remote sensing satellite) >

Global market size Market size of satellite data: 0.1 trillion yen (present) => 1.6 trillion yen (2030)
Market for satellite positioning: 11 trillion yen (2005) => 29 trillion yen (2030)

- Quasi-zenith satellite [1-satellite system]> [4-satellite system]> [Targeting 7-satellite system]>
- Remote sensing [examine optimal configuration and maintain and operate several satellites in an integrated manner]
- Start maintenance using PPP/PFI methods> Use geospatial information for infrastructure management, etc., to lead the world for core satellites by our satellite group
- Use domestic data> Promote use of positioning data in Asia-Pacific region (realize a society where geospatial data are used in an advanced manner)

Highly advanced and efficient inspection, maintenance and repair are applied to domestic important infrastructures and aging infrastructures using sensors, robots, non-destructive testing technique, etc.

Capture 30% of global markets of sensors, robots, etc. for inspection, maintenance and repair

Present

2017

2020

2030

Goal for 2030

Theme 4

Building regional
communities that use their
unique local resources to
appeal to the world

A rich rural society which produces world's best quality agricultural, forestry and fishery products and food produce

Envisioned society to be achieved at an intermediate stage (around 2020)

- Consolidation of farmland to motivated entities is realized. (KPI: Ratio of farmland used by motivated entities in total is 80% (49% in 2010))
- Diverse players such as corporates enter in agriculture to create active innovation. (KPI: The number of corporate management entities is 50,000 (4 times more than 2010))
- Productivity improvement due to larger farmland operation reduce production cost. (KPI: With combined efforts of industry in terms of materials and distribution, rice production cost by motivated entities reduced by 40% vs. the current national average (16 thousand yen per 60kg))
- Through strategic cross-industry partnerships, strength of our country's agriculture is maximized. (KPI: "AFFrinnovation" (the sixth industry) market is 10 trillion yen (1 trillion yen in 2010))
- Under market-in mindset, agriculture grows as an export industry. (KPI: Export amount of agricultural, forestry and fishery products and food produce is 1 trillion yen (approx. 450 billion yen in 2012))

*AFFrinnovation(the sixth industry): adding value to agricultural products, forest products, and fishery products in an innovative way, making new combination, creating value chain.

[Envisioned society] A rich rural society which produces world's best quality agricultural, forestry and fishery products and food produce

<Major issues>

- Product-out mindset to produce goods
- Rich agriculture, forestry and fishery products and dietary culture are not used actively

[Index] Realize aggressive agriculture, forestry and fishery industries

Lifestyle to be realized in an ideal society

- By matching consumer-oriented market-in mindset and agriculture, forestry and fishery taking advantage of characteristics of local areas, excellent agricultural, forestry and fishery products and food produce of Japan will be exported all over the world and local agricultural, forestry and fishery products and food produce will be sweep the global market.
- Agriculture is converted into growth industry and there is stronger collaboration between diverse main players such as young people, the elderly and companies and agriculture, so that rural society will be active and become basis for creating innovation.
- Using rich resources inherited in rural areas as pabulum, regional potential can be exerted by adequately and fully exerting multifaceted functions of agriculture, forestry, and fishery throughout the time to the future.

* Local revitalization board for agriculture, forestry and fishery will discuss future policy direction and formulate "The local revitalization plan for agriculture, forestry and fishery" as early as possible.

< Consolidation and intensification of farmland to motivated entities (strengthening production) >

Ratio of farmland used by motivated entities

49% (2010) => 80% (after 10 years)



80% or more farmland is consolidated to motivated entities and productivity is improved

< Export, overseas deployment strategies, etc.(Expand key frontiers) >

Export of agricultural, forestry and fishery products and food produce

Approx. 450 billion yen (2012) => 1 trillion yen (2020)

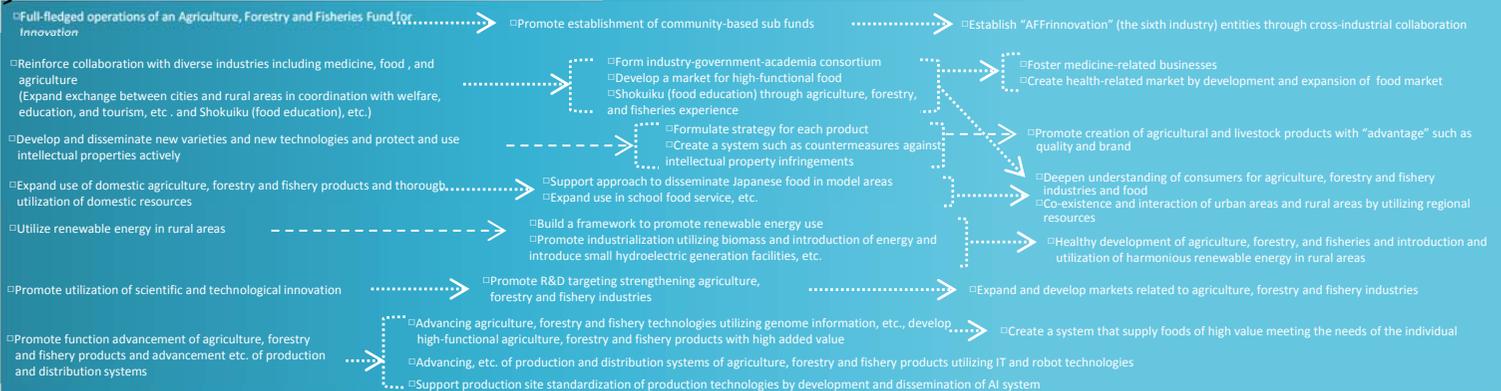


Export of agricultural, forestry and fishery products and food produce exceeds 1 trillion yen and Japanese agriculture, forestry and fishery products establish substantial presence in growing global food market

< "AFFrinnovation" (the sixth industry), cross-industrial collaboration, etc. >

Market size of "AFFrinnovation" (the sixth industry)

1 trillion yen (2010) => 3 trillion yen (2015) => 10 trillion yen (2020)



Cross-industrial collaboration is activated and attractive businesses utilizing agriculture, forestry and fisheries products expanded in many areas with total value exceeding 10 trillion yen

< Forestry and fishery industries >



Goal for 2030

Present

2017

2020

2030

Envisioned society to be achieved at an intermediate stage (around 2020)

- ❑ Many people visit Japan from all over the world (aims to receive 25 million foreign visitors in 2020).
- ❑ Foreign visitors visit any place all over the nation.
- ❑ Japan is a central nation to publicize information on sports and culture.
- ❑ Humans and investment are concentrated and Japan becomes an Asian top host nation of international conferences.

[Envisioned society] A society which makes use of potentials such as tourism resources to invite many world's tourists to the society

<Major issues>

- ✓ Potentials of tourism resources including rich cultural heritage and natural environment are not fully utilized.

[Index] Receive 30 million foreign visitors in 2030

Lifestyle to be realized in an ideal society

- ❑ Create Japan Boom by penetrating Japan brand and invite visitors to Japan, "holy land"
- ❑ Expand direct inter-regional exchange with Asian countries
- ❑ Realize an environment where foreign visitors can move and stay without stress
- ❑ Increase foreign visitors who can enjoy marathon, bike riding, etc.
- ❑ Create business innovation by concentrating world's intelligence through international conferences



○ Achieve 30 million foreign visitors

○ To be a top-class country in Asia in terms of tourism receipts

○ Approx. one in six overnight guests is a foreign visitor

○ Establish Japan's position as an Asian top host nation of international conferences

Goal for 2030