

# Mitsubishi Electric Group

# Environmental Sustainability Vision 2050

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# Image of How We Must Think of Future Societies

## Convenience/Abundance

- Safe, comfortable lifestyles
- Expanding fields of activity
- Wide-ranging contact with others
- Living longer
- Improving productivity

Seeking material abundance

New values/ lifestyles

Seeking sustainability

Advanced countries

Emerging countries

Industrial revolution

2019

2050

Improvement/ Recovery

## What we have sacrificed

- Contamination due to emissions
- Global warming
- Abnormal climate
- Depletion of resources
- Extinction of animals/plants

Seeking selfish, short-term satisfaction


- Intensification of natural disasters
- Increased water shortages
- Stagnant economies due to resource depletion
- Biodiversity destroyed
- due to dramatic increase in garbage



## Aggravating Various Environmental Issues



Intensification of natural disasters due to increasing frequency of massive typhoons



Enormous influence of water shortages on general health and industries



Economic impact due to depletion of fossil fuel resources



Destruction of biodiversity due to dramatic increase in garbage



# Various Social Changes and Issues Expected in the Future

Growth and change in geographical distribution of world population



**Increasing pollution in emerging countries**

Increasing number of EV/PHEV, mainly official and commercial vehicles



**Increasing energy use/ expanding introduction of renewable energy**

**Environmental deterioration in urban areas**

Development of scientific technologies, market expansion and changes in industrial structure

**Requiring recycling measures and expansion of urban mining**



Increasing food production and change in geographical distribution



**Increasing water shortages**



**Intensification of natural disasters leading to increasing economic loss worldwide**

Advancing technologies for DNA data storage/editing



**Impact on economic growth due to resource depletion**



**Impact of biodiversity destruction on primary industries**

Increasing number of chronic disease patients

**Dissemination of circular economy**

**Damage to the environment due to tourism**

Frequent traffic accidents due aging society



Aging infrastructure in Japan, Rising maintenance costs and deterioration, Hollowing out of cities (sponge-like)



Development of emerging economies, and improving labor productivity



Progress in technologies for communication/monitoring remote areas

Expanding middle-class groups



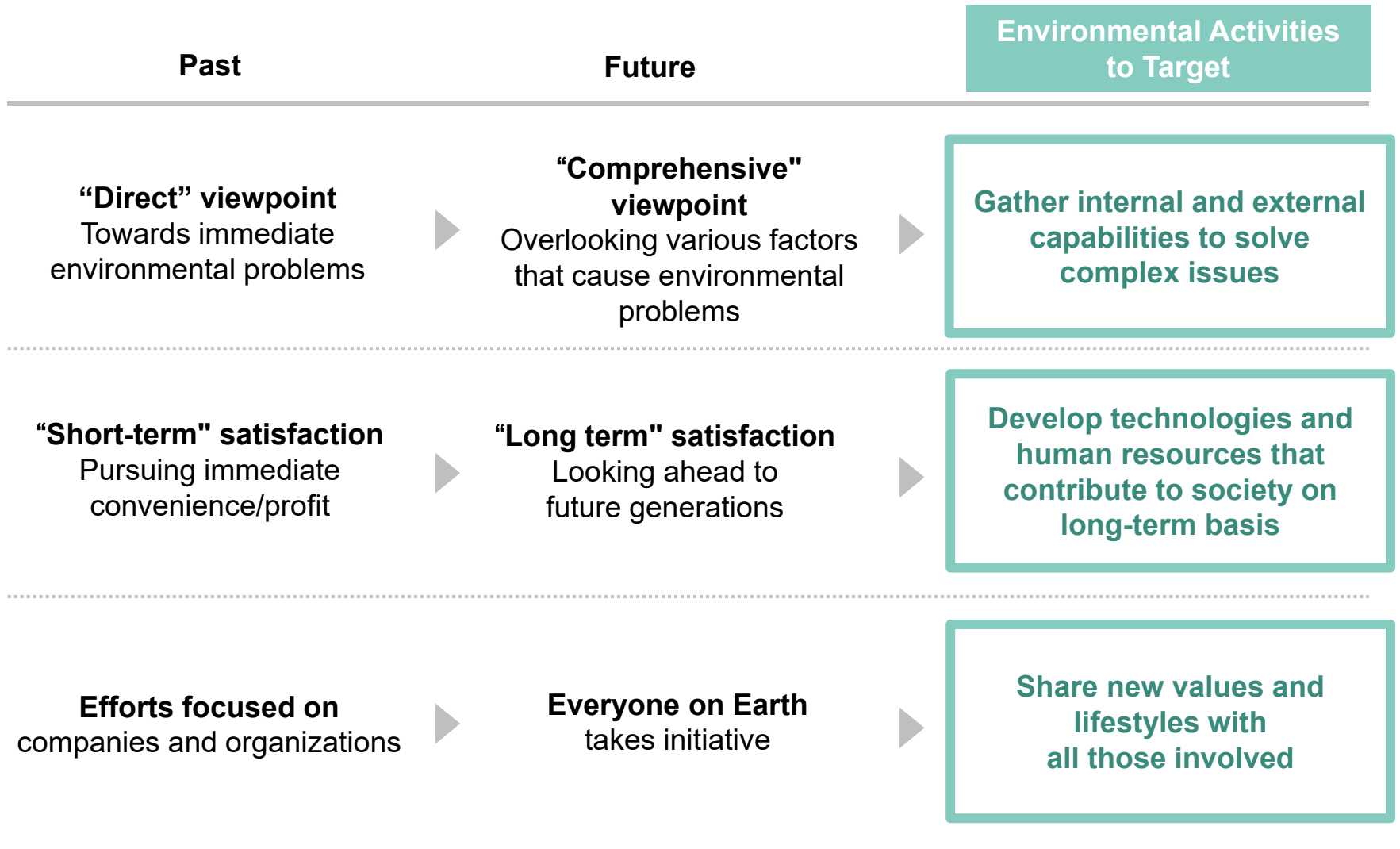
Global development of urban housing and changes in the type of residence

Changes in corporate management due to economic globalization



Diluting concept of nations and nationalities

## Important Points for Future Environmental Activities



## Environmental Sustainability Vision 2050

### Environmental Declaration

Protect the air, land, and water with our hearts and technologies to sustain a better future for all.

### Three Environmental Action Guidelines

1

Apply diverse technologies in wide-ranging business areas to solve environmental issues

2

Challenge to develop business innovations for future generations

3

Publicize and share new values and lifestyles

### Key Initiatives

- Climate Change Measures
- Resource Circulation
- Live in Harmony with Nature

- Long-term Activities
- Innovation
- Nurturing Human Resources

- Understanding Needs
- Co-create and Disseminate New Values
- Live in Harmony with the Region

# Environmental Declaration

Protect the air, land, and water with our hearts and technologies to sustain a better future for all.

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**Environmental  
Sustainability  
Vision 2050**

To solve various factors that lead to environment issues, the Mitsubishi Electric Group shall unite the wishes of each and every person, and strive to create new value for a sustainable future.

## Three Environmental Action Guidelines

### 1 Apply diverse technologies in wide-ranging business areas to solve environmental issues

The Mitsubishi Electric Group shall utilize diverse technological assets throughout wide-ranging business areas to solve various environmental issues, including climate change, resource recycling and harmony with nature across the entire value chain.

### 2 Challenge to develop business innovations for future generations

The Mitsubishi Electric Group shall draw on internal and external strengths, combine them when required to resolve difficult issues, and take on the challenge of developing technologies and business innovations for future generations.

### 3 Publicize and share new values and lifestyles

The Mitsubishi Electric Group shall promote active dialogue, collaboration, and co-creation with many people and entities outside the Group, publicizing and sharing new values and lifestyles that will result in living comfortably, in harmony with nature.



## 1 Apply diverse technologies in wide-ranging business areas to solve environmental issues

### Climate Change Measures

- 1) **Promoting and disseminating outstanding energy-saving products, systems, services and renewable energy businesses**, together with our stakeholders, we will contribute to reducing greenhouse gases worldwide.
- 2) **Respecting long-term goals based on international agreements**, we will promote the reduction of greenhouse gases **throughout the value chain**, from procurement of raw materials and production through sales, distribution, use and disposal. At present, our target is to reduce CO<sub>2</sub> emissions 30% by 2030 and more than 80% by 2050.
- 3) Observing changes in the global environment, we will provide solutions that contribute to **minimizing the risks of natural disasters**.

### Resource Circulation

- 1) Reducing the size and weight of products, we will **consider the use of recycled materials and recyclability rate** of the products and systems we produce.
- 2) **Eliminating resource waste throughout the value chain**, we will strive to maximize the effective use of resources.
- 3) We will work to **expand the supply of safe, clean water globally**, as well as to enforce water treatment that does not pollute oceans and rivers.
- 4) We will promote the effective use of water taking the **water environment of each region** into consideration.
- 5) We will promote **resource recycling businesses globally**, such as reuse, repair of products/systems and waste reduction.
- 6) We will aim to achieve **100% effective use** of wastes, such as plastics, generated during manufacturing processes.

### Live in Harmony with Nature

- 1) Throughout the Group, we will carry out activities to **preserve biodiversity** in the mountains, rivers, and oceans, and at all business sites, and promote the **development of local environments and human resources** to be passed to future generations.
- 2) We will work to **control, suppress, substitute, and properly dispose of harmful substances** that may affect the natural environment.

## 2

### Challenge to develop business innovations for future generations

#### Long-term Activities

- 1) We will set **specific indices and action items while considering future prospects** in the mid-term Environmental Plan formulated every three years.
- 2) We will verify the validity of long-term goals **approximately every five years**, doing so considering international agreements, foreign affairs and business conditions.

#### Innovation

- 1) We will cooperate with other companies and institutions, and use our technological assets, technologies and business synergies to **create innovative technologies and solutions**
- 2) We will proactively adopt innovational technologies and solutions that enable us to lead **manufacturing in future generations**.

#### Nurturing Human Resources

- 1) We will foster a corporate culture in which employees, as ordinary citizens, **take the initiative on creating new lifestyles in harmony with nature**.
- 2) We will develop highly specialized human resources who **accept diverse values**, and proactively work on environmental issues.

## 3

### Publicize and share new values and lifestyles

#### Understanding Needs

- 1) We will work to understand our **customers' needs and expectations for the environment** through sales activities, exhibitions, events, and other initiatives.
- 2) We will **hold discussions with stakeholders, and confirm the validity of our environmental targets and measures**, to promote more effective environmental activities.

#### Co-create and Disseminate New Values

- 1) We will propose **new lifestyles** that provide the pleasure of contributing to the environment through the use of our products, systems, and services.

#### Live in Harmony with the Region

- 1) We will hold **discussions with local residents and municipalities**, and contribute to creating a better local environment, including Satoyama conservation and bio-diversity preservation activities at business sites.

# **How the Mitsubishi Electric Group can contribute to a sustainable future**

# Business Group Contribution to a Sustainable Future

## Three Environmental Action Guidelines

1

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Publicize and share new values and lifestyles





# Environmental Activities for a Sustainable Future

## 1 Apply diverse technologies in wide-ranging business areas to solve environmental issues

### Mobility

Safe and comfortable car life free from traffic accidents and congestion



Safe and effective railway systems with high energy efficiency



### Lifestyles

Space harmonious with nature where high energy efficiency and amenity coexist



Support next-generation communications with advanced technologies



Buildings and cities equipped with environment-friendly infrastructures



Contribute to the supply of clean, safe water for all



Thorough reduction of CO<sub>2</sub> and emissions from manufacturing processes



Manufacturing that optimizes productivity, quality improvement, energy use, etc.



### Infrastructure

### Industry

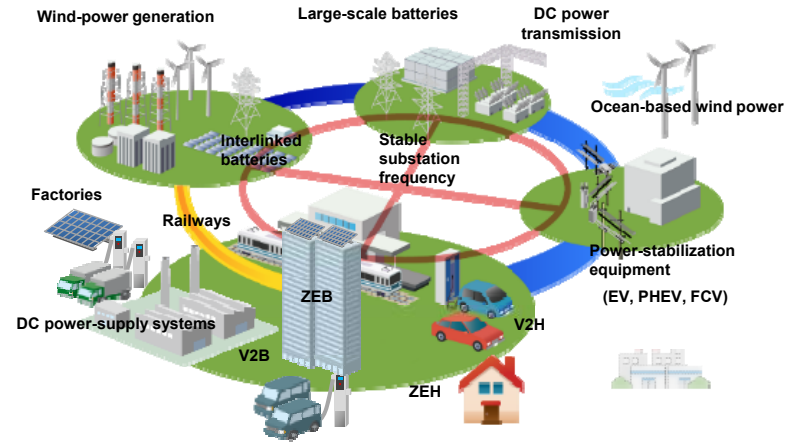
## 2 Challenge to develop business innovations for future generations

### R&D as a Result of Social Issues

Well balanced short-, mid- and long-term R&D

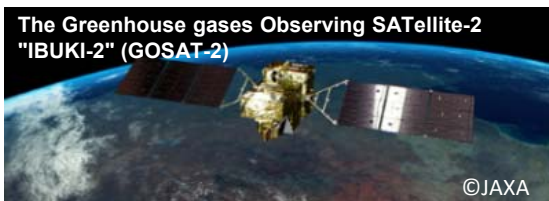


### Next-generation Energy Systems (including virtual power plants, VPP)



### Observation of global environment by satellite

Observation for GHG, Air pollution



### Environmental contribution utilizing AI

Study on AI utilization for diversifying environmental issues



### Development of high-level recycle technologies

Effective use of plastics





## 3 Publicize and share new values and lifestyles

### Environmental exhibitions



### Communication with local communities



### Discussions with experts

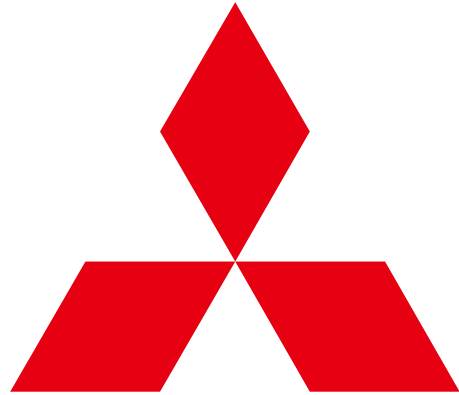


### School visitation/ lecturer dispatch



### Satoyama conservation





**MITSUBISHI  
ELECTRIC**

*Changes for the Better*