

# Reinventing next-generation energy infrastructure with AI by the up-coming Japanese utility

2021/07/16

Loop Inc.

# Agenda

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# 01

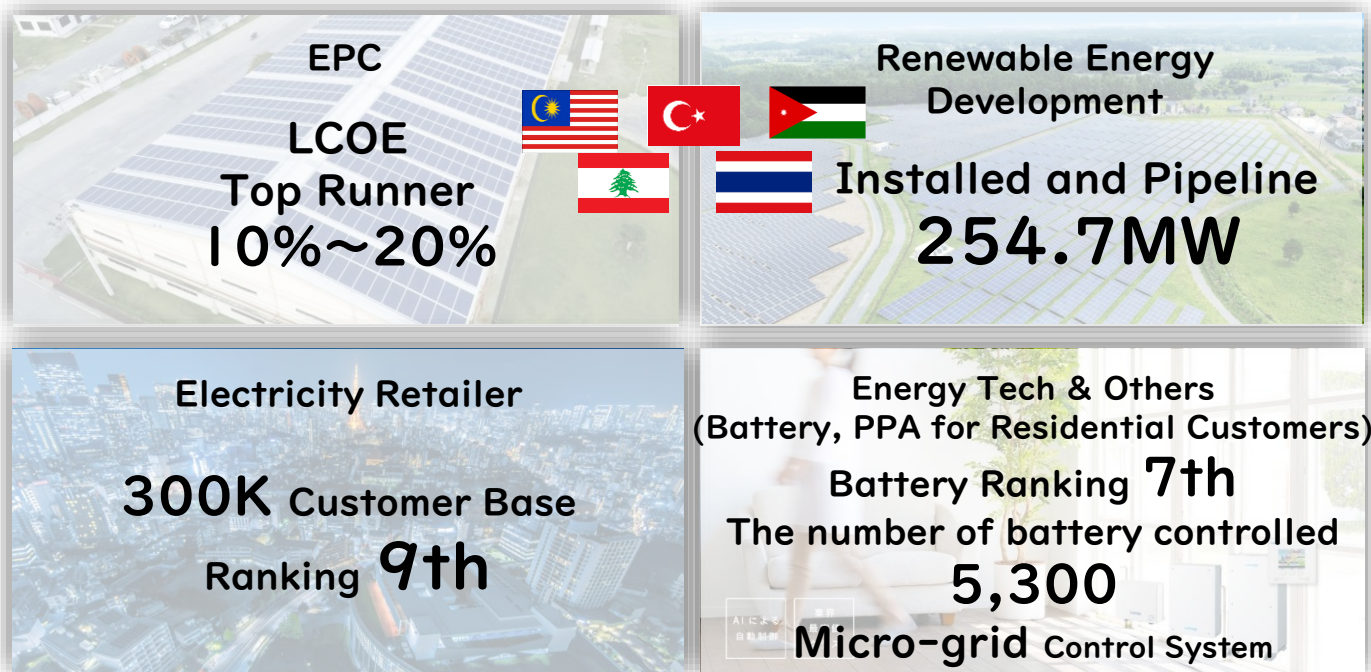
**Company Profile**

## Who are we?

An electric power company specializing in **renewable energy**.

A venture company specializing in **energy technology**.

A company trying to rebuild the electricity market by **utilizing digital technology**.



# Company Profile

<b>Company</b>	Loop Inc.
<b>Headquarters</b>	Tokyo, Japan
<b>Establishment</b>	April 4th 2011
<b>Capital</b>	3,669 million yen (≒34 million USD, as of June 30, 2020)
<b>Business</b>	<ul style="list-style-type: none"> <li>■ Development, Engineering, Construction and Management for Owned Solar/Wind Projects</li> <li>■ Development, Sales, Installation, Construction and Management for C&amp;I Clients and Residential Customers</li> <li>■ Development, Sales, Installation, Construction and Management for Storage Batteries</li> <li>■ Electricity Retail and Related Technology Business</li> </ul>
<b>Subsidiary/ Branch/Office</b>	<b>Japan:</b> Hokkaido, Fukushima, Nagano, Osaka, Tokorozawa <b>Overseas:</b> Kuara Lumpur, Malaysia, Beirut, Lebanon
<b>Employee numbers</b>	330 (as of June 1st, 2021, consolidated)



# Ten Years of Progress

2011/12/13



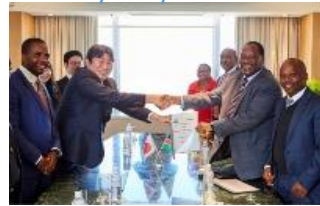
Launched "My own power plant kit ground type"

2016/04/01



Industry's first basic charge of 0 yen - Loop electricity

2017/07/11



"Mega solar with storage battery" in Kenya

2017/09/15



Start VPP demonstration in Kyushu Electric Power jurisdiction

2018/05/23



Established local electricity company through public-private partnership

2018/09/28



Capital and business alliance with Chubu Electric Power

2019/05/15



Japan's first "forest solar power" as a recreation facility in Nasu Town, awarded as the best design in 2020

2019/06/19



Alliance with Nissan Motor to provide the EV electricity menu  
Also offer installation of EV chargers

2019/10/01



Alliance with CD Energy for sales of urban gas for households in the Metropolitan area

2019/09/27



Adopted as a government project to build a decarbonized sustainable community in Saitama Prefecture

2019/12/09



Won the preliminary round of Startup World Cup 2020 in Tokyo

2020/05/14

Issued 3 billion yen green bond

2020/06/24



Expand PPA solar business in Thai Industrial Estate with NIPPON STEEL TRADING CORPORATION

# The Most Active Retailer in Japan











- Loop was featured in Bloomberg's Report as the most active retailer in residential sales of decentralized energy( among the top 10 non-incumbent retailers).

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Strategies

## Strategies of Japan's top 10 new electricity retailers

Legend:   
 Commercial operation   
 Capital investment   
 Research and pilot project   
 No Not active

	Solar power buyback	Residential rooftop solar sales	Third-party ownership of solar	Residential storage sales	Electric vehicle charging	Peer-to-peer trading	Virtual power plants	Demand response
 TOKYO GAS	9.5 – 10.5 yen/kWh (8.9 – 9.9 cent/kWh)	Yes	Yes	Yes	Investment	Investment	Trial	Trial
 KDDI	No	No	No	No	Yes	Trial	Trial	Trial
 OSAKA GAS	8.5 – 9.5 yen/kWh (8 – 8.9 cent/kWh)	Yes	No	Yes	No	Trial	Trial	Trial
 SB Power	No	No	No	No	Trial	No	Trial	Trial
 ENEOS	8 – 11 yen/kWh (7.5 – 10.3 cent/kWh)	No	Investment	Investment	Investment	Investment	Trial	Trial
 J:COM	No	No	No	No	No	No	No	No
 TOHO GAS	9 – 9.5 yen/kWh (8.5 – 8.9 cent/kWh)	No	No	No	No	Investment	Trial	Trial
 Loop	7 – 8 yen/kWh (6.6 – 7.5 cent/kWh)	Yes	Yes	Yes	Yes	Investment	Trial	Yes
 Saisan	No	Yes	No	No	No	No	No	No
 EverGreen	8.8 – 10.5 yen/kWh (8.3 – 9.9 cent/kWh)	No	No	Investment	No	Trial	No	Trial

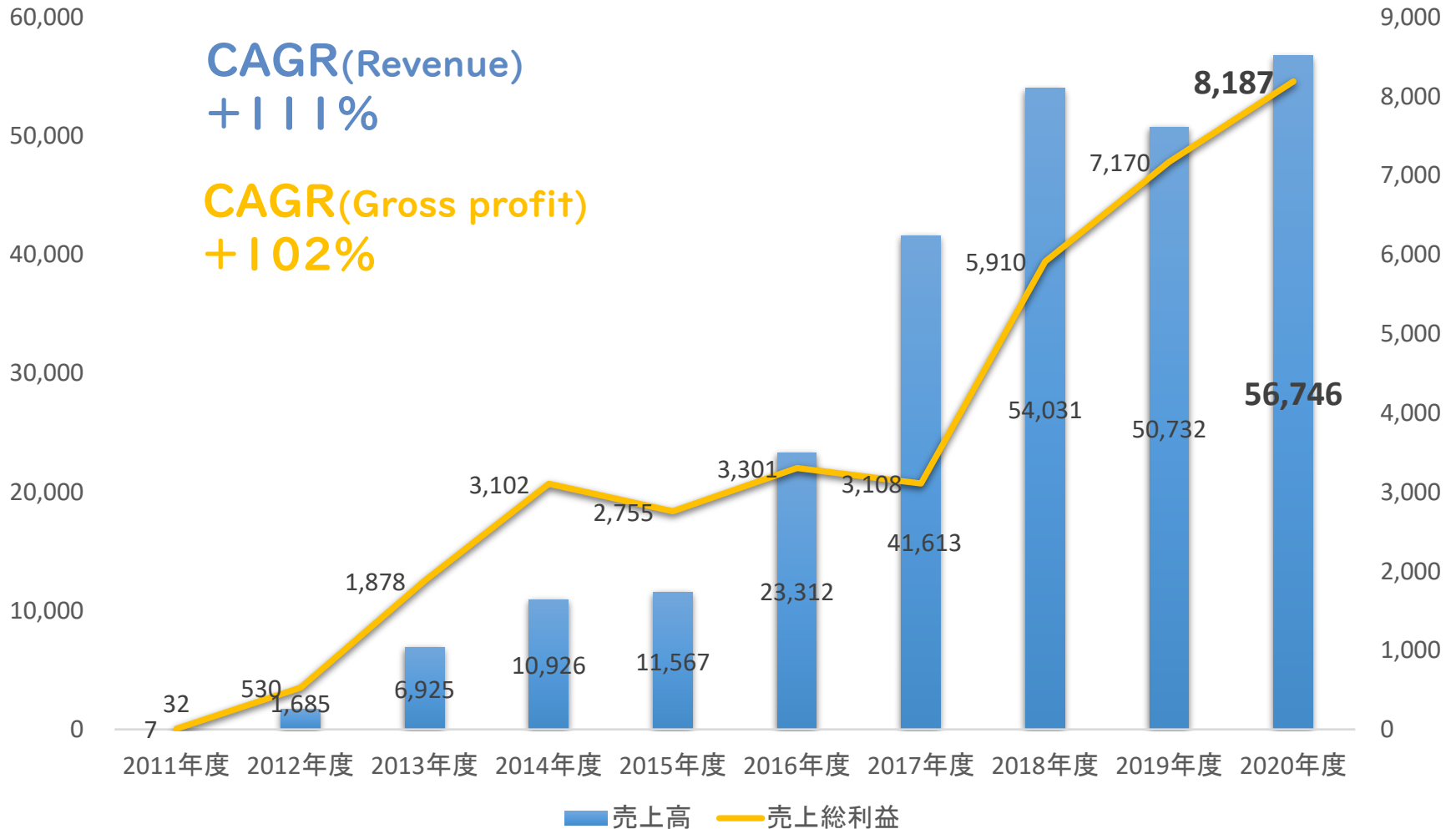
Source: BloombergNEF, company websites. Note: companies sort by descending order of residential sales in 2019.

6 September 28, 2020 BloombergNEF

# Revenue and Gross Profit

- Loop recorded a continuous revenue growth since 2011.
- Revenue and gross profit are rising at 111%, 102% CAGR, respectively.

(Unit: Million)

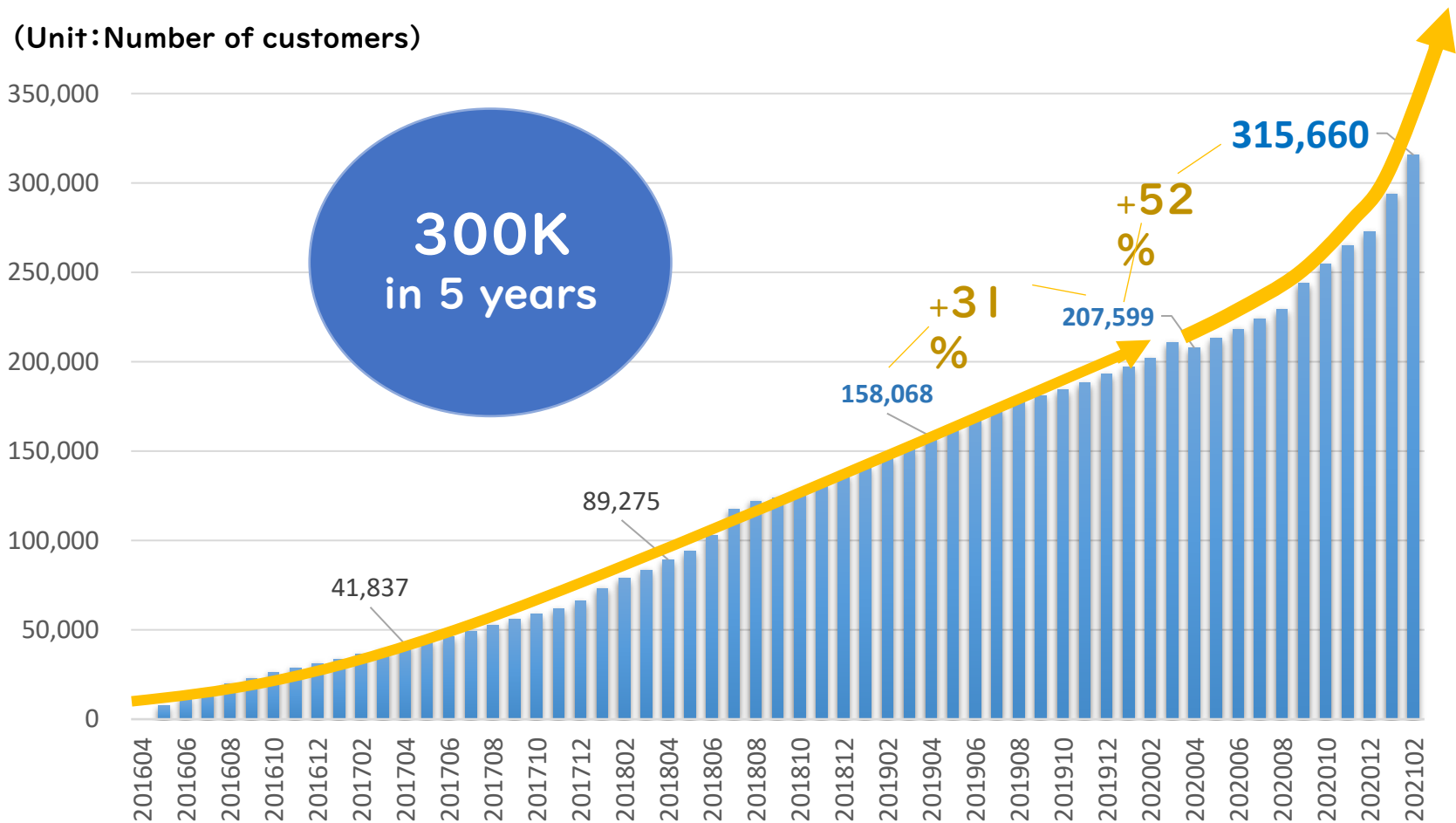




# Growth in the Number of Customers

- After 5 years of starting the Electricity Retail Business, the number of customers using “Loop Electricity” have already reached 300K.

(Unit: Number of customers)



# Financial Track Record

**MS&AD** 三井住友海上

Mitsui Sumitomo  
Insurance  
Company, Ltd.

**MUFG**  
三菱UFJキャピタル  
Mitsubishi UFJ  
Capital Co., Ltd.

**DBJ**  
DBJキャピタル株式会社

**Energy  
Environment  
Investment**

**i-mobile**



**中部電力**  
Chubu Electric Power



FFGベンチャービジネスパートナーズ  
**FFG Venture  
Business Partners**



**ENEOS**

ENEOS Corporation



Soiitsu Corporation

**NEC**

NECキャピタルソリューション  
NEC Capital Solution Limited

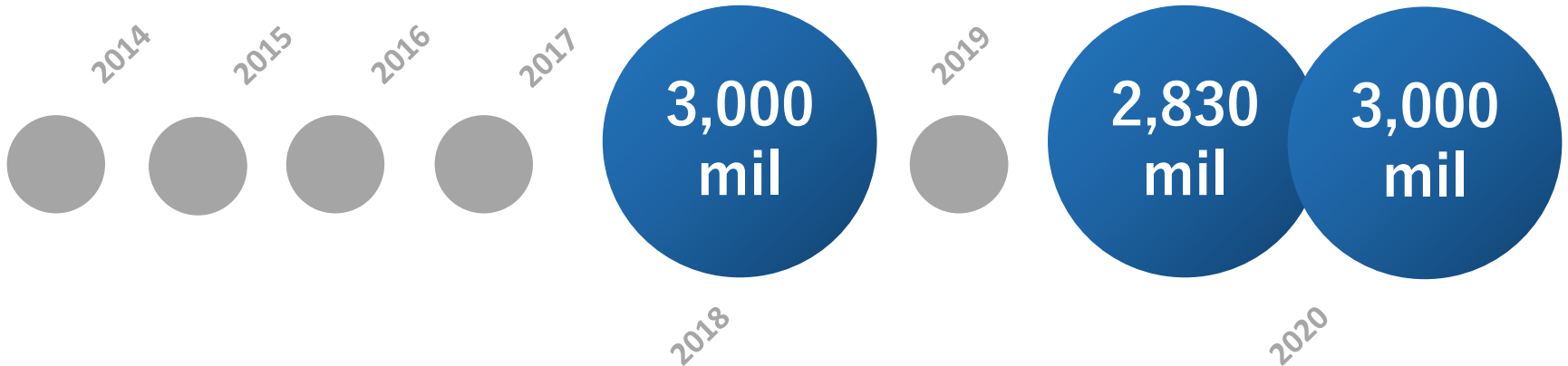


**日本グリーン電力開発**  
Green Power Development Corporation of Japan

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- 
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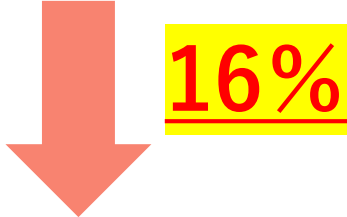
**The  
Green Bond  
Principles**



# Energy Market in Japan

02

## Major Energy Shift after the Great Earthquake in 2011

- Nuclear power plant power generation was **279.8 billion kWh in 2010**
  - 2011 Great East Japan Earthquake → Meltdown  
→ Nuclear power plants fully stopped.
  - Nuclear power plant power generation was **44.9 billion kWh in 2020**
- 

The FIT policy started in 2012 to cover the shortage of 84% (234.9 billion kWh) with a focus on renewable energy.

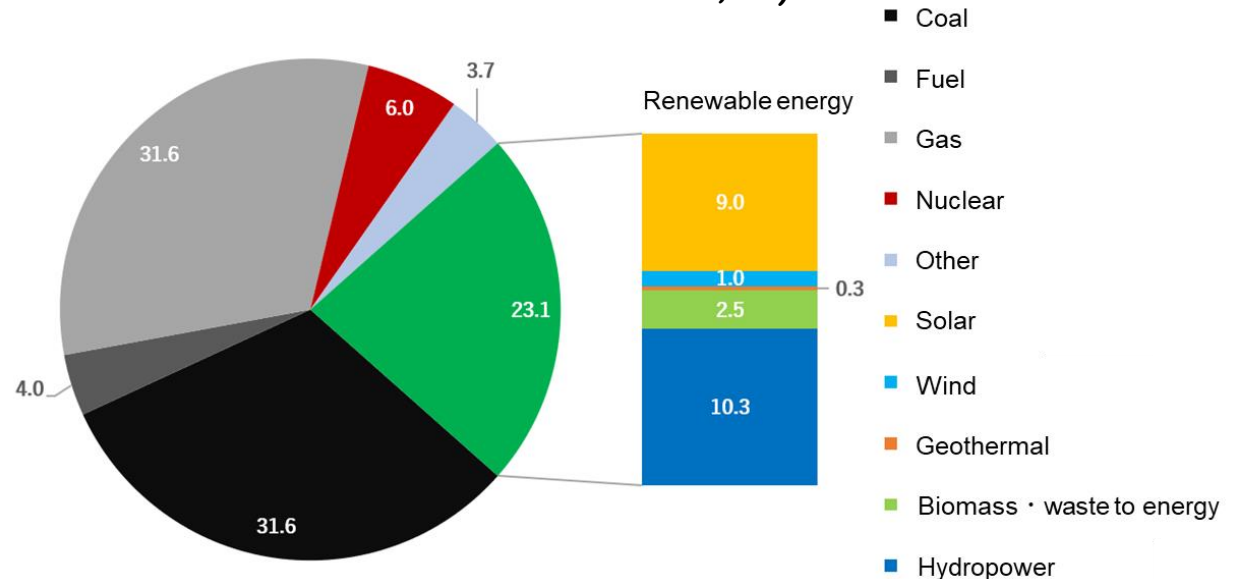
**Loop's commitment is to solve this problem by using renewable energy.**

## Major Energy Shift after the Great Earthquake in 2011

- Although the renewable energy ratio has increased dramatically (about 90 billion kWh) and some nuclear power plants have restarted, there is still **a shortage of 150 billion kWh**. The energy environment in Japan is extremely harsh as the situation of dependency on fossil fuel such as LNG power generation to cover the shortage.

Ratio of power generation in Japan (January-June 2020, %)

Coal, oil and gas account for 67.2% in total, occupying more than two-thirds.



Source: IEA, Monthly Electricity Statistics (2020/9/16)

## 2050 Carbon Neutral Declaration in Japan

Japanese Prime Minister Suga pledged to “reduce greenhouse gas emissions in Japan to net zero by 2050, that is, carbon neutral by 2050, and aim to achieve a decarbonized society.”

NATIONAL

Suga to declare Japan will go carbon neutral by 2050 in policy speech



Prime Minister Yoshihide Suga addresses the media during a news conference in Jakarta on Wednesday. | AFP - JIJI

KYODO, JIJI

10 SHARE Oct 22, 2020

Prime Minister Yoshihide Suga plans to pledge a cut in greenhouse gas emissions in Japan to net zero by 2050 in his first policy speech in the Diet next week, government sources said Wednesday.

It will be the first time a Japanese prime minister has presented a specific timeline for realizing a carbon-free society.

WORLD NEWS 2020/10/22 06:23:11 (1:18) / UPDATED 10:00

Japan aims for zero emissions, carbon neutral society by 2050 - PM

By Elaine Lier

4 MIN READ



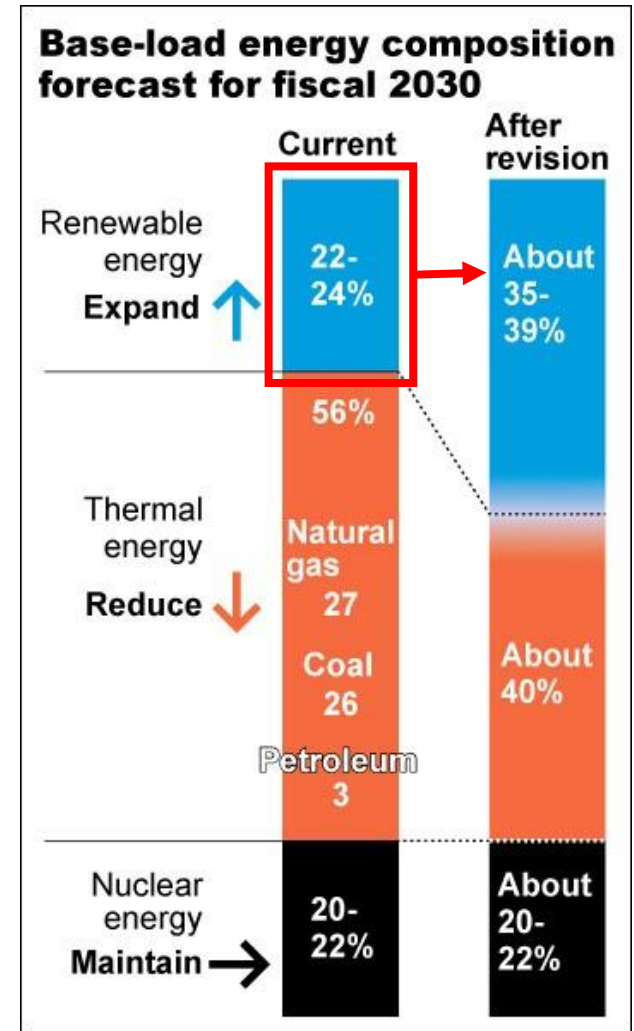
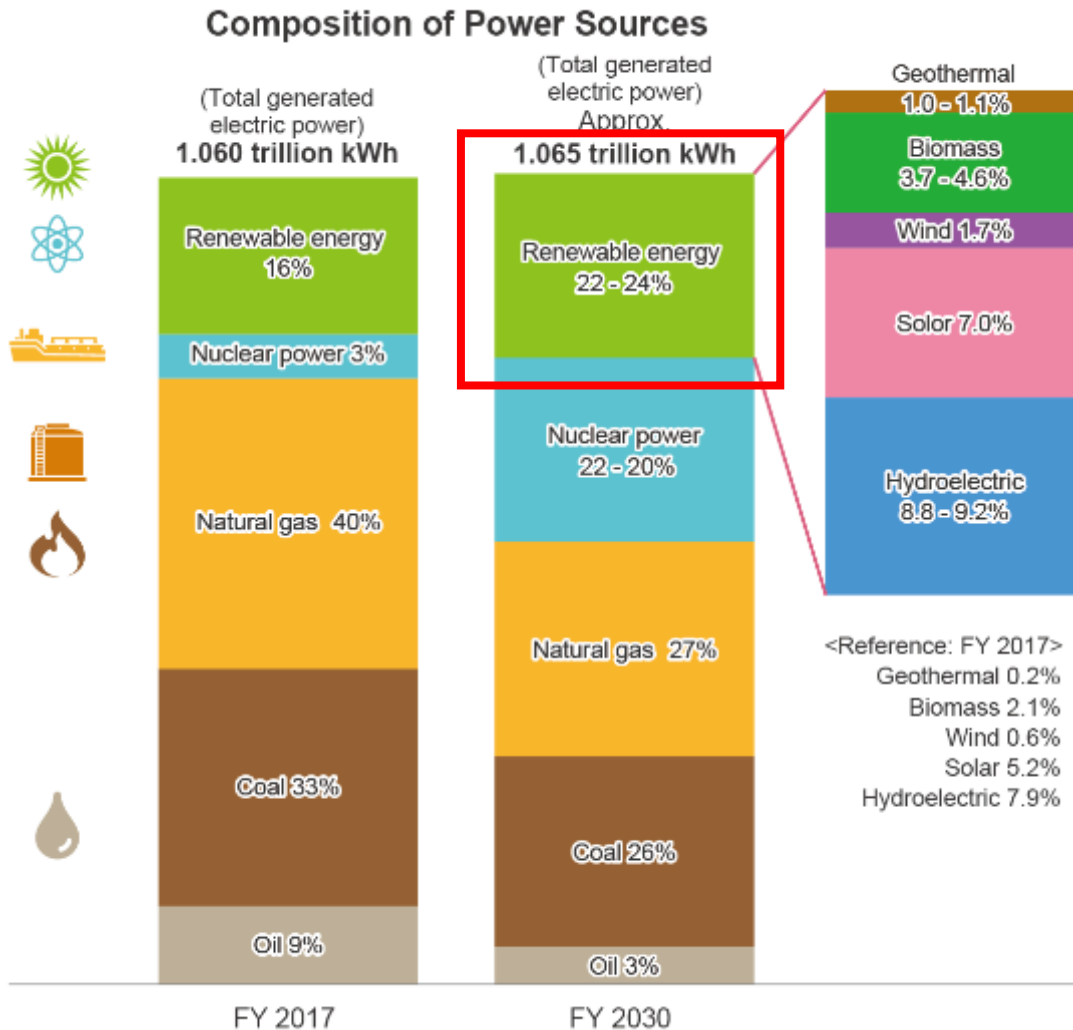
TOKYO (Reuters) - Japan is aiming to cut greenhouse gases to zero by 2050 and become a carbon-neutral society, Prime Minister Yoshihide Suga said on Monday as he unveiled a major shift in position on climate change.



Source: [Renewable Energy Institute](#)

# Proposal for 2030 Energy Mix in Japan

The energy mix for fiscal 2030 determined by the government consists of 22-24% renewable energy, 20-22% nuclear power. However, this May, discussed a proposal for the new plan under which renewable energy sources would set somewhere between 35 and 39% for fiscal 2030.



# OS

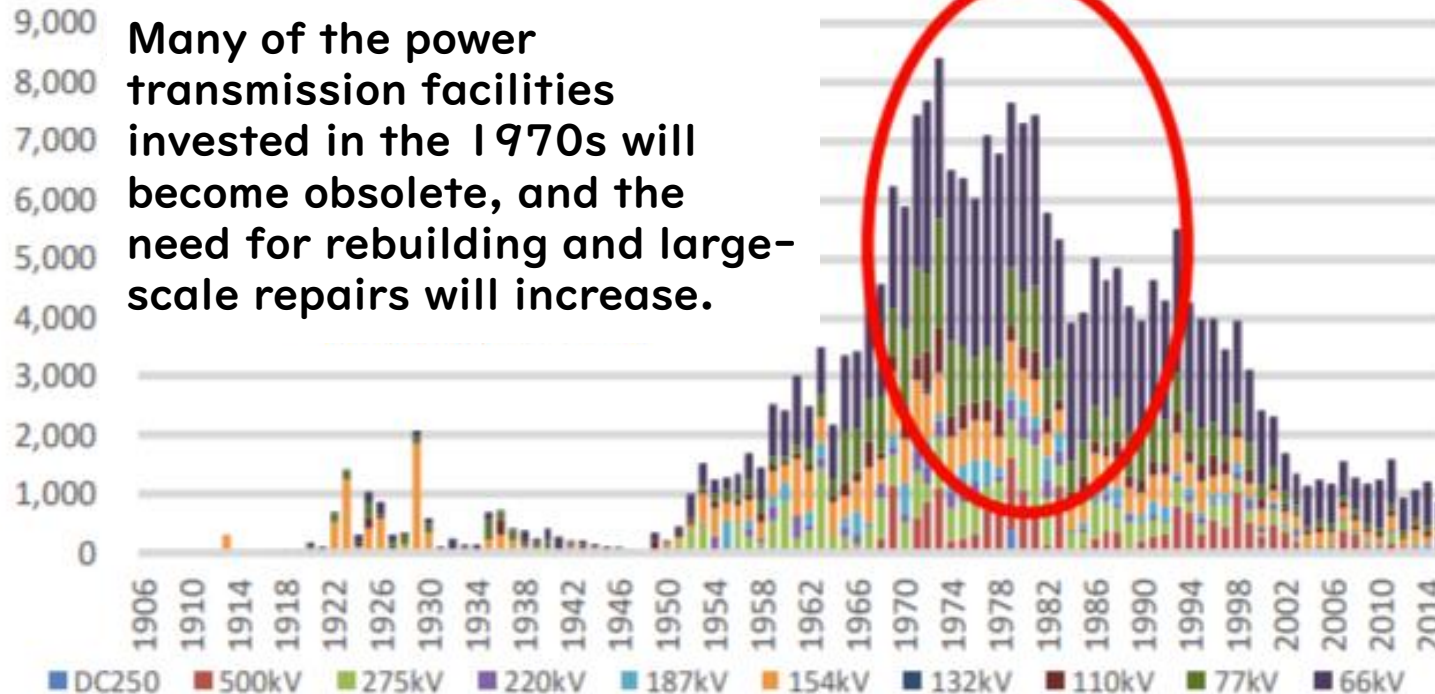
**Our Future Vision**



# The Importance of Installing the Power Supply near the Demand-Side

- It is necessary for power utility companies to cost-effectively strengthen and smarten existing transmission and distribution grid in order to switch to **next-generation grid** in light of aging and future supply and demand trends.

Number of transmission towers



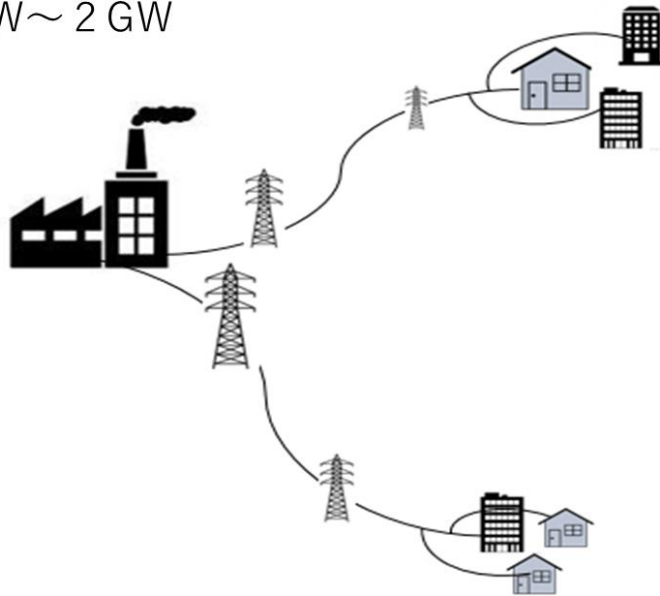
Breakdown of transmission towers throughout Japan by year of construction

# The Importance of Installing the Power Supply near the Demand-Side

- In the process of realizing our vision of a free energy society, we aim to create the next-generation power infrastructure network.

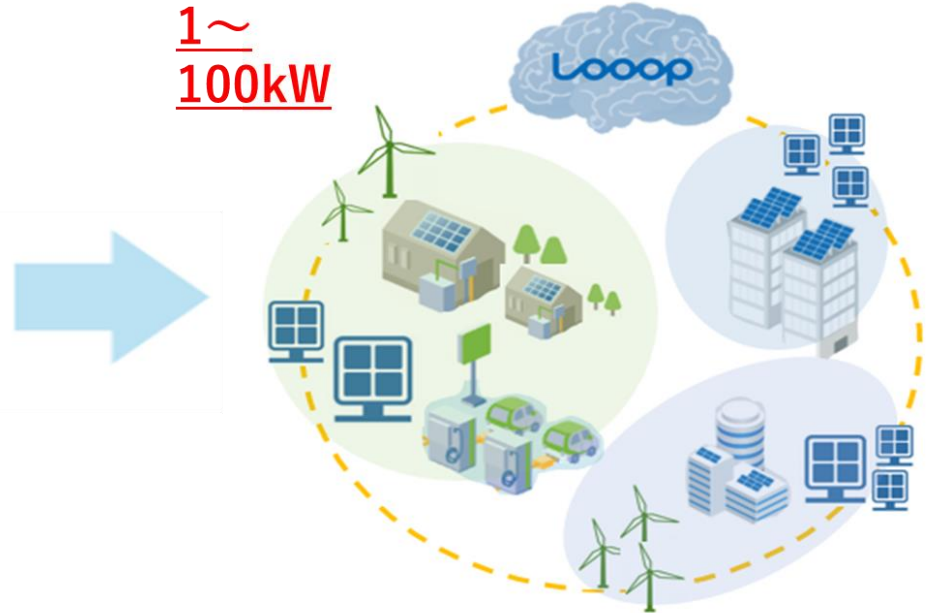
Existing power grid

1GW~ 2 GW



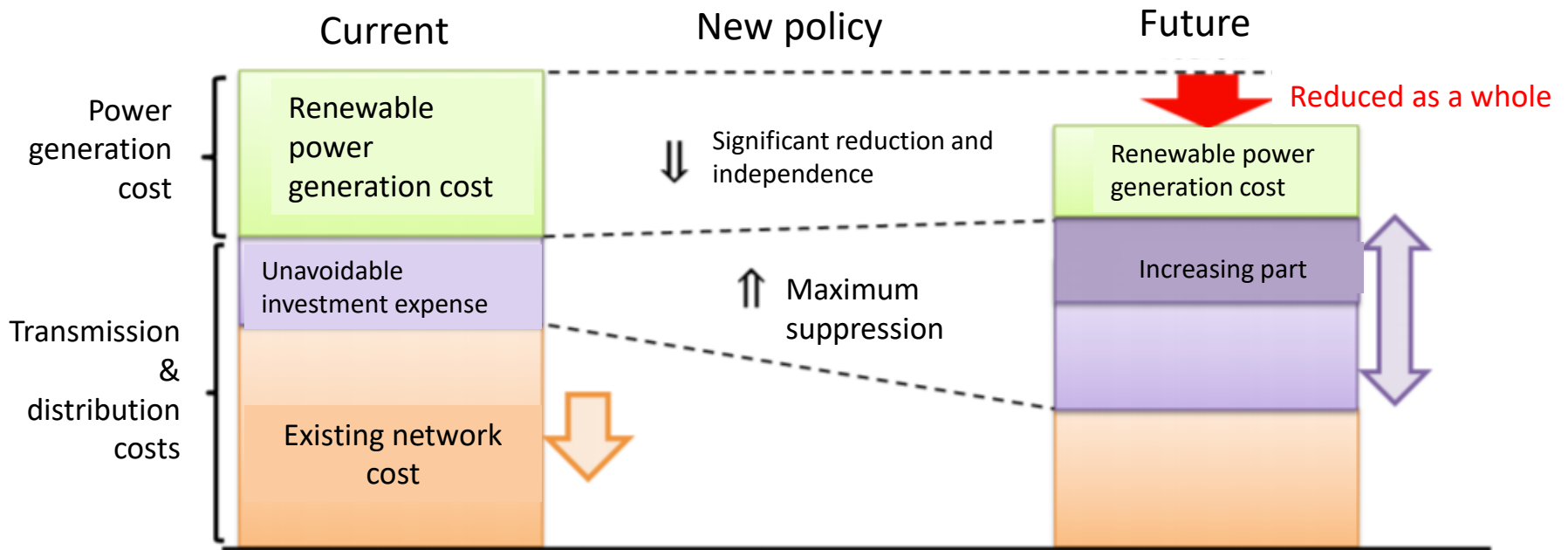
Next-gen power grid

1~  
100kW



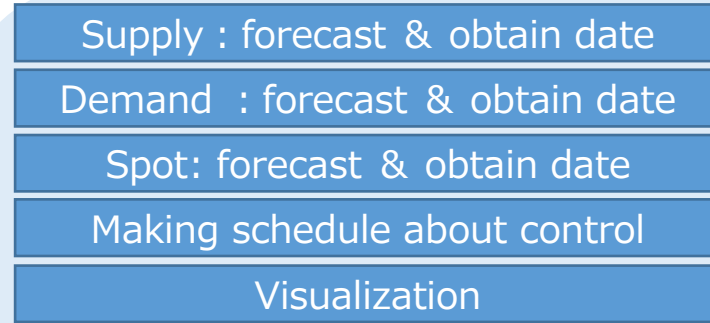
# The Importance of Installing the Power Supply near the Demand-Side

- Power cost can be significantly reduced by installing renewable power plants and setting the batteries close to the demand-side with energy management technology.



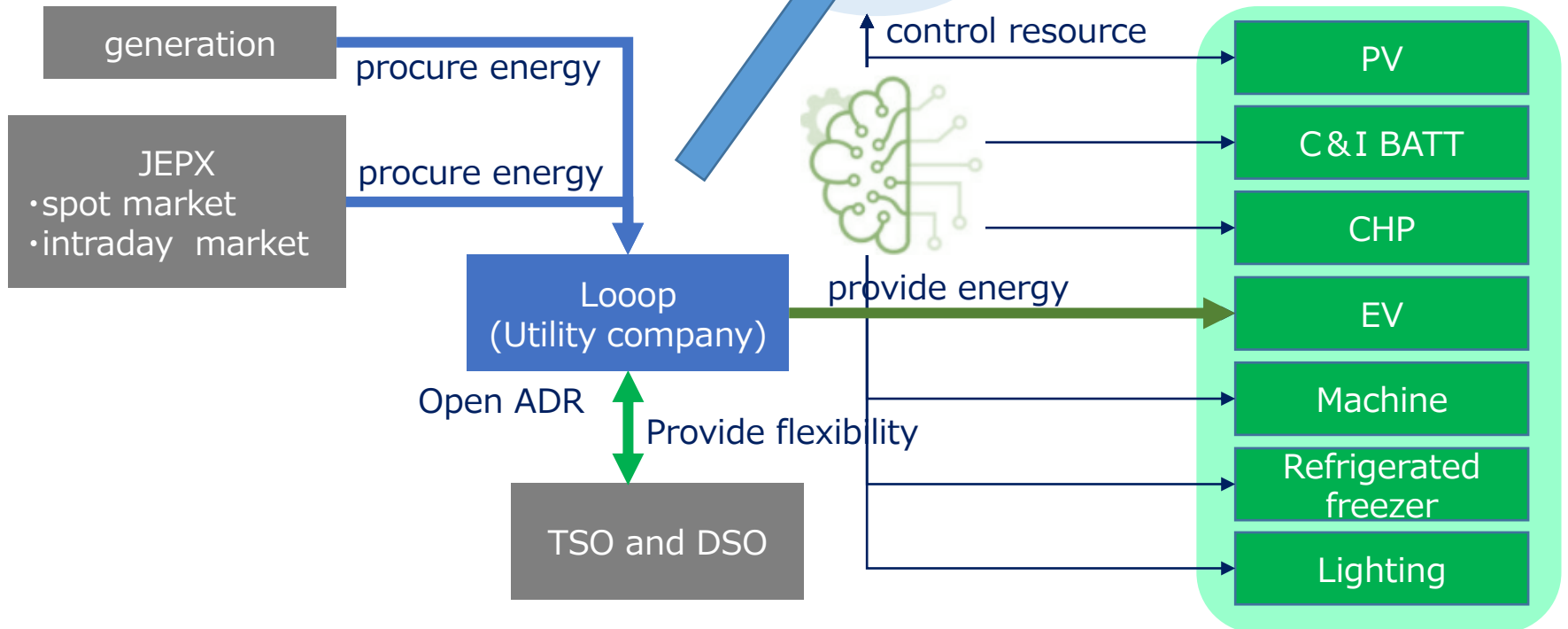
# Overview: Hardware Control and Energy Management on the Demand Side

**Visualization**  
**Optimization**  
**Autonomy**  
**De-carbonization**



Front of the meter

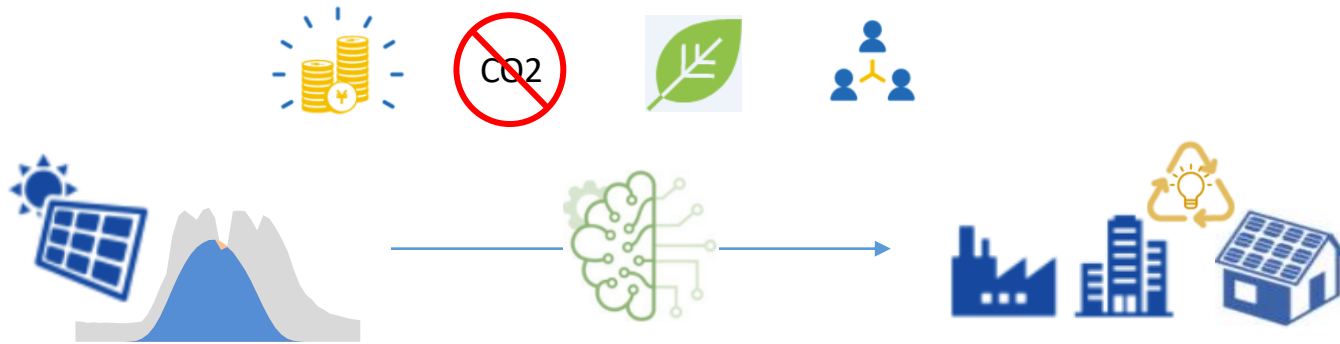
Behind of the meter



# A: Improving the Energy Self-Sufficiency Rate using Self-Consumption and Energy Management Technology

**Consumers**

**Reducing electricity charges & CO2 emission  
Environmental value & localized disaster-resilience**



**Thailand**



- PPA collaborating with Local and Japanese Partner.
- Installing 1MW
- Several Projects are ready to install.

**Lebanon**

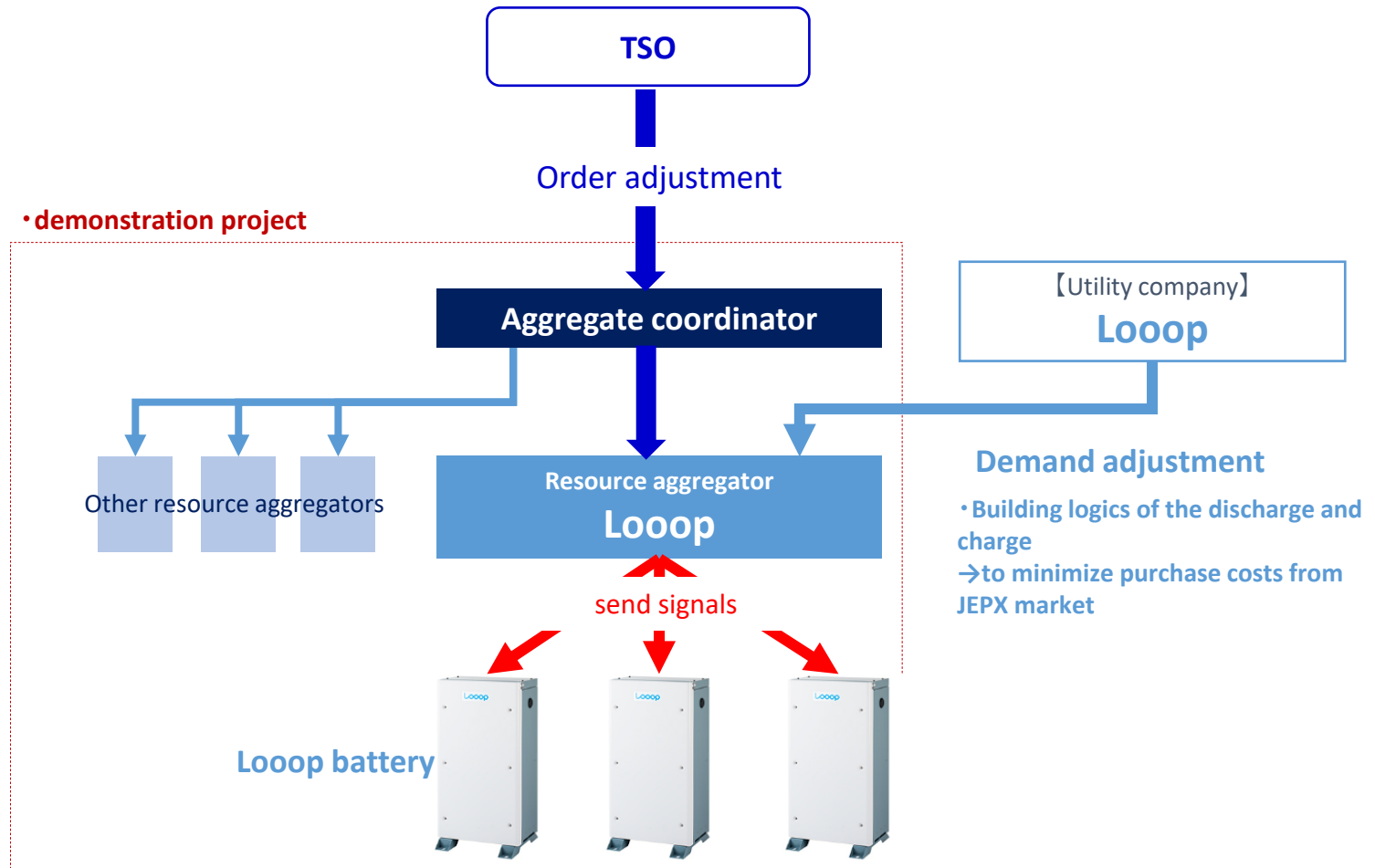


- Installed about 1MW PPA (Leasing) to schools
- Shortlisted for government tender of 15MW IPP.



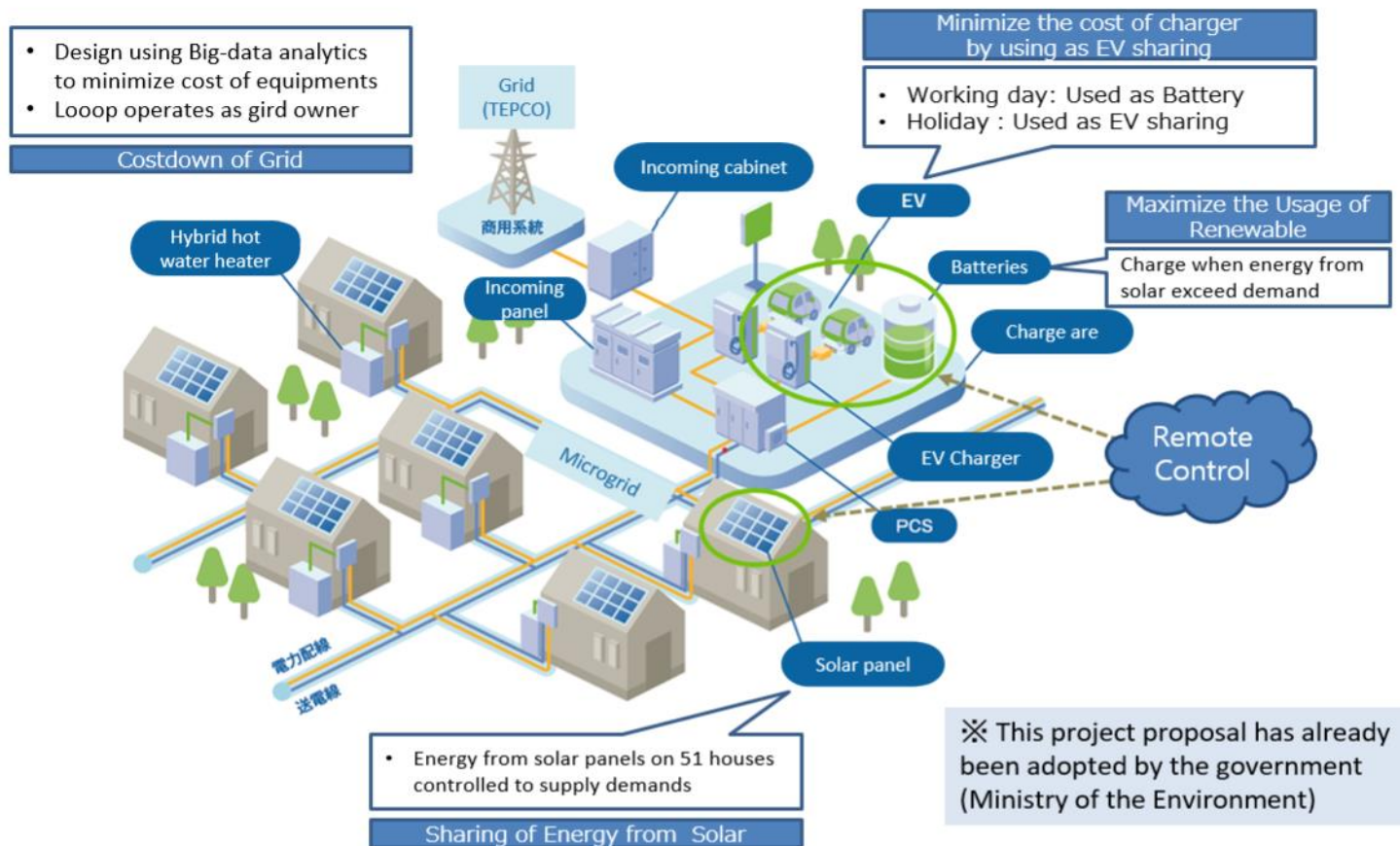
## B: Control and Manage Batteries with Demand and Supply Forecasting

- Participated in a VPP trial project to study variety of batteries' control since 2017, have a track record of controlling 5,300 Loop household storage batteries last year.
- Charge and discharge household storage batteries as a resource aggregator (RA) in response to a command from the aggregate coordinator (AC).



# C: Final Climactic Stage of an Integrated Supply-Demand Model Loop

- Jointly applied with Saitama Prefecture for a subsidy project (decarbonization innovation construction project) of the Ministry of the Environment and build a smart city
- FS will be completed in 2019, and equipment will be introduced and constructed in 2020-21.
- Maximize the renewable energy rate, leveling demand, and creating adjustment power by accommodating renewable energy with solar power, storage batteries, and EV in 51 houses.

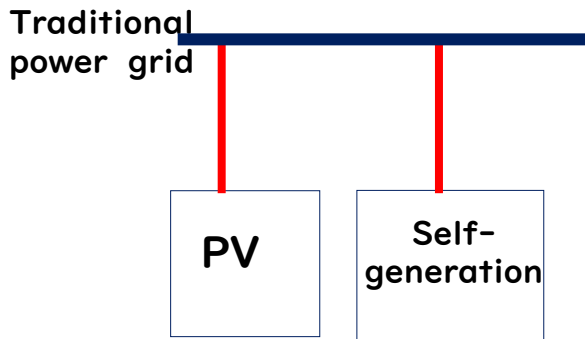


# Future Prospect of the Advanced Smart City



Stage①: Single cell

Self-generation/Self consumption of a single consumer

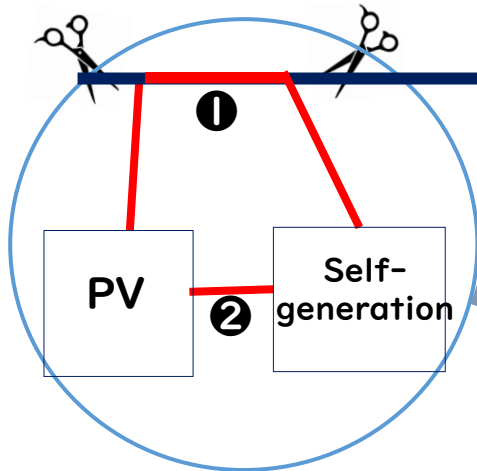


- ① Individually install PV or other self-generator
- ② Individually conduct self-consumption



Stage②: Community

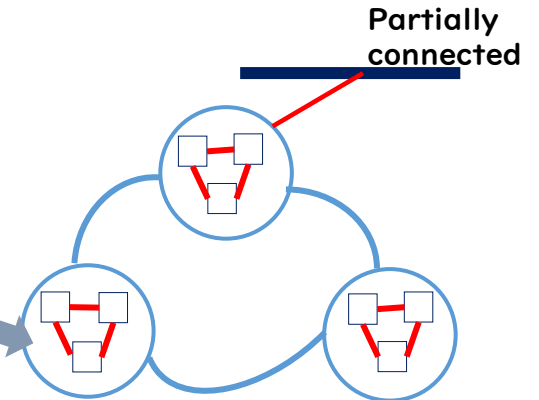
Energy interchange between consumers



- Create a community grid (micro-grid)
- ① Receive the transfer of the traditional power grid.
  - ② Introduce new privately-owned grid
  - ③ Energy management

Stage③: Inter-community cooperation

Energy interchange between communities



Increase and scale communities to achieve further energy independence



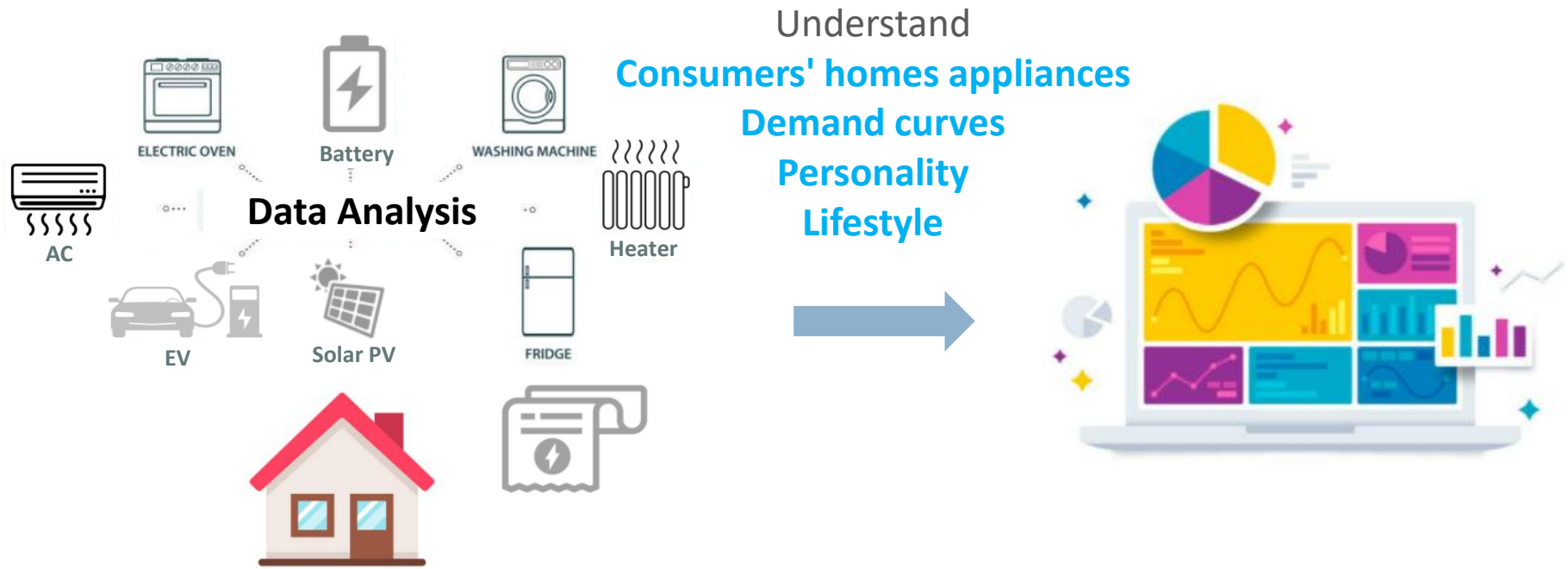
# 04

**Next action**

# Our Mission

To achieving the following mission, it is important to leverage the energy consumption data.

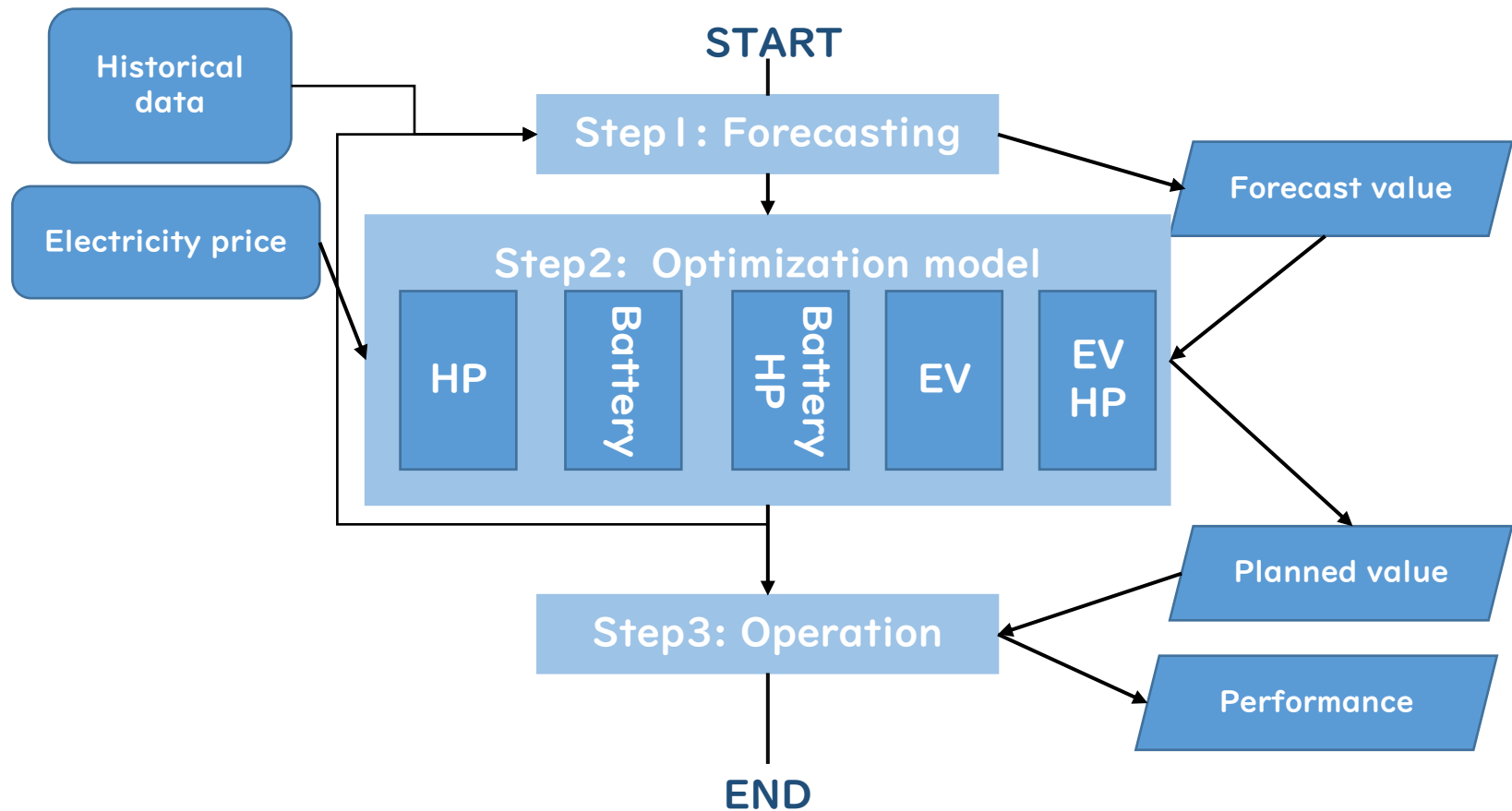
- ① Develop renewable energy power plants at the lowest cost
- ② Offering attractive services to both C&I and household customers



# Ways to leverage energy consumption data①

## Analysis of power usage optimization

- Joint research with the Tokyo University for optimizing the operation of solar power, storage batteries, heat pumps, etc..



# Ways to leverage energy consumption data②

## Enhance Utility Customer Engagement with AI

- Leverage unique and multidimensional data to gain a deeper understanding of consumers' homes, appliances, personality, lifestyle, and purchase propensity to create behavior change for global decarbonisation.

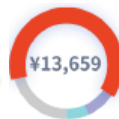
**Consumers** High electricity bill reduction

**Retailers** Customer lifetime value improvement/Churn rate reduction  
Customer satisfaction improvement

### Personalization, Digitalization, Monetization



Demand and supply forecasting with weather data



Energy disaggregation



Bill explanation & intelligent forecasting



Energy consumption data  
• Smart meters & analog meters data



Similar home comparison



Budgets notification



Customer communication data



AI energy advisor



Cross selling

# Future prospect of leveraging energy consumption data

- Energy consumption data can be combined with various industries to provide more added value.

