

# Kyoto City's policies for buildings

– with a focus on those  
concerning the installation of  
renewable-power generators

**FUJITA Masayuki**

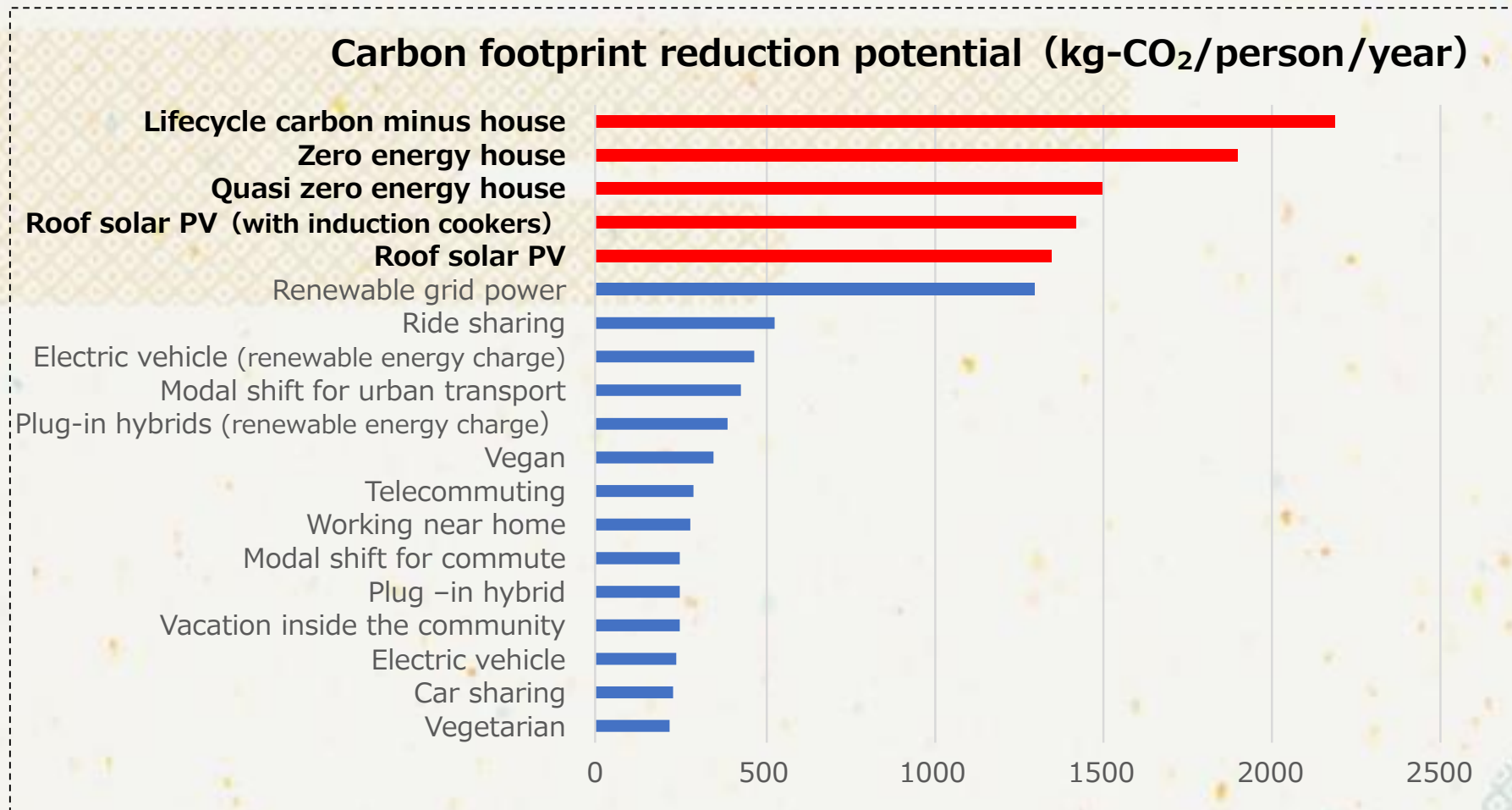
Chief, Global Warming Countermeasure Office  
Environmental Policy Department  
Kyoto City





# Why are we promoting policies for buildings?

⇒ Carbon emission reduction potential is substantial



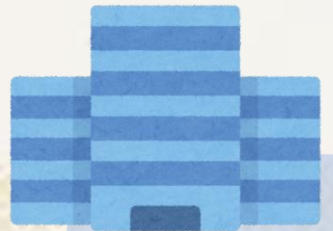
※ Developed using the data from "Quantifying the effects of decarbonized lifestyles in 52 cities in Japan: Pathways to a decarbonized society through changes in carbon footprint of mobility, housing, food, leisure, and use of consumer goods" (by the National Institute for Environmental Studies, Institute for Global Environmental Strategies, etc.)



# Kyoto City's Building Policies for **New constructs and extensions** (2011~)



Total till now  
**PV19MW**



**New construction and extension of large buildings**  
(with total floor area of 2,000m<sup>2</sup> and beyond)

**New Construction extension, retrofits of buildings in large sites**  
(with site area of 1,000m<sup>2</sup> and beyond)

**Installation of renewable-power generators**  
Obligatory volume : **30GJ** (equivalent to 3kW solar PV system)  
Available renewables : Solar PV, solar thermal, biomass, wind power, micro-hydro etc.



**Use of locally produced timber**  
Obligatory volume (m<sup>3</sup>) =  $1/100 (\sqrt{A1} + \sqrt{A2} + \sqrt{A3} + \dots + \sqrt{An})$   
(A1, A2, A3 . . . An is the floor area for the available rooms (m<sup>2</sup>))  
Locally produced timber : Kyoto City's "Miyako somagi" brand, Kyoto Prefecture's "Wood mileage CO2 certified wood " brand

**Indication of environmentally friendly performance**  
Benchmarking system : CASBEE Kyoto  
Displayed at: Construction sites, Condominium sales ads



**Greening of buildings and sites**  
Obligatory volume :  
<above ground (the smaller of 1 , 2 ) >  
1 . Site area – building area ×15%  
2 . Site area – (site area × building to land ratio×0.8) ×15%  
<roof top> roof area×20%

**※Solar PVs can be calculated as greening area**



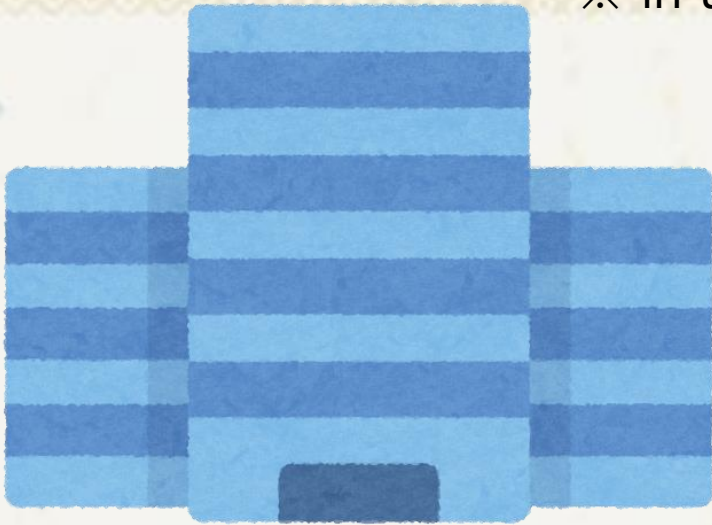
# Obligation to install renewable-power generators

A building has the obligation to install renewable-power generators for **30GJ**  
This means..

Large buildings (total floor area 2,000m<sup>2</sup> )

Annual energy consumption = **3TJ (3,000GJ)**

※ in the year 2010



**1%** of the energy used in buildings is generated within the building.



# On 2019.5.11 Kyoto became the first in Japan to declare “net zero CO<sub>2</sub> emissions by 2050”



Then Prime Minister Suga declared net zero (2020.10.26)

## ○ Clarification of the roles played by each actor

- Consideration of the maximum possible efforts by Kyoto City
- Proposals and requests for the role to be played by the national government
- Guidance and encouragement of initiatives required by the private sector

## ○ Key initiatives

### ◆ Considerations for the year 2030

- Establishment of new measures to promote renewable energy
- **Strengthen measures** for households, **buildings**, etc.

※ Excerpts from Kyoto City Environmental Council document, August 2019.



# The system for energy conservation in new buildings in Japan



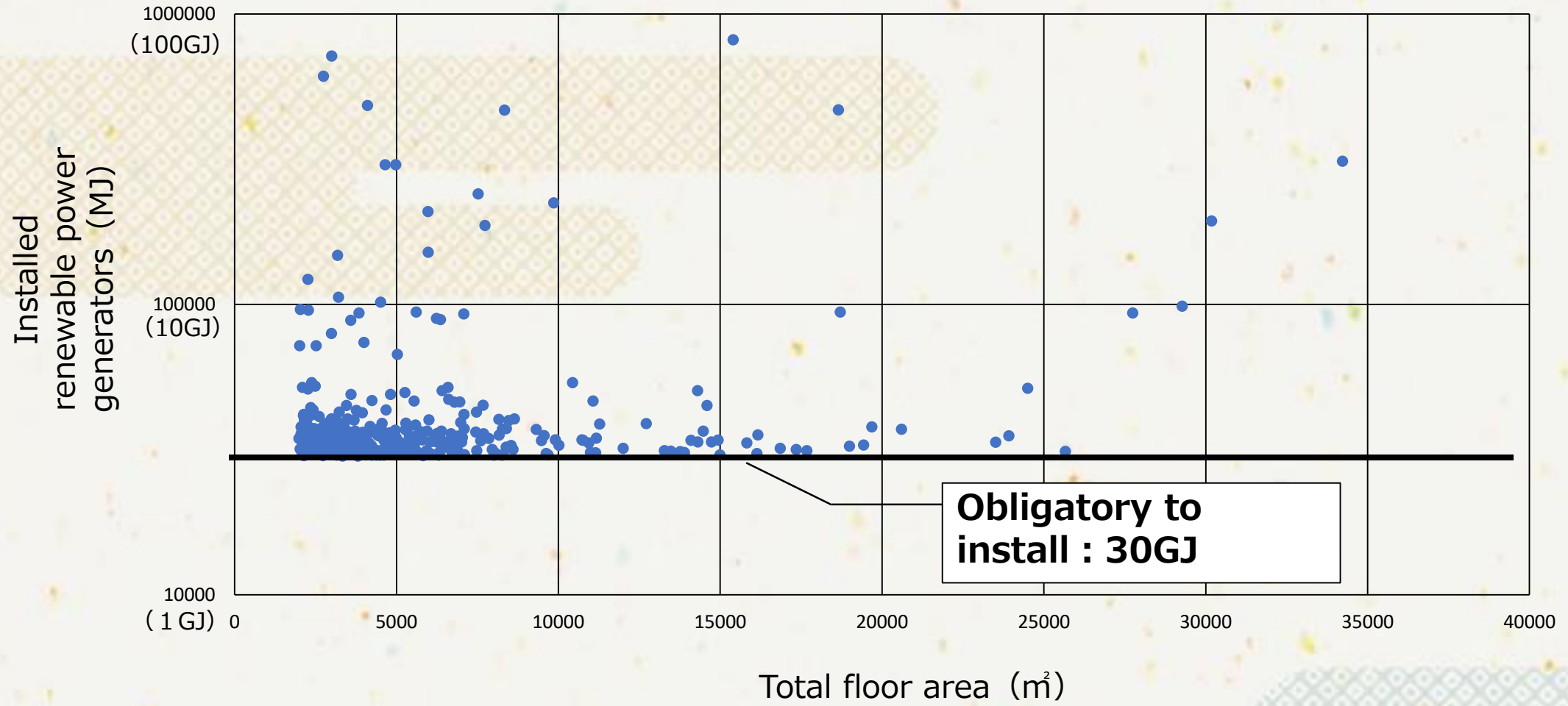
## Regulation by the Energy Conservation Law

⇒ Difficult for local governments to enact additional ordinance

	Non-residential bldg.	Residential bldg. (including condominiums)						
Large bldg. (2,000m <sup>2</sup> and beyond)	<p><b>Obligation to comply with energy conservation standards</b></p> <p>【Linked to building permit procedures】</p>	<p><b>Obligation to report</b></p> <p>【Instructions, orders, etc. are offered in the event the standard is not met and it is deemed necessary.】</p>						
Mid size bldg. (300~2,000m <sup>2</sup> )								
Small bldg. (less than 300m <sup>2</sup> )	<p>Obligation to make efforts to comply with energy conservation standards</p> <p>+</p> <p>Explanations by the architect to the building owner is mandatory</p>	<p>Obligation to make efforts to comply with energy conservation standards</p> <p>+</p> <p>Explanations by the architect to the building owner is mandatory</p> <div style="border: 1px dashed blue; border-radius: 15px; padding: 10px; margin-top: 10px;"> <p style="text-align: center;">Top Runner Program</p> <p style="text-align: center;">【Comply with the Top Runner Standard】</p> <p style="text-align: center;">Widen the scope</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">owned</td> <td style="padding: 5px;">Ready-built detached house</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;">Custom built detached house</td> </tr> <tr> <td style="padding: 5px;">rented</td> <td style="padding: 5px;">Apartments for rent</td> </tr> </table> </div>	owned	Ready-built detached house		Custom built detached house	rented	Apartments for rent
owned	Ready-built detached house							
	Custom built detached house							
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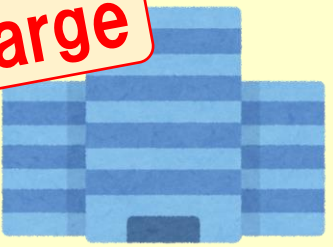
# Correlation between the total floor area of buildings of 2,000m<sup>2</sup> or more and the amount of renewable-power generators installed (2015~2019)





# Kyoto City's Measures to Promote Renewable Energy in **New Building** Constructions, Extensions and Retrofits

**Large**



(total floor area 2,000m<sup>2</sup>~)

Renewable-power generators\* increased obligations fixed (All 30GJ)  
 → by meter (60~450GJ) (2022~)

**Increased obligations**

**Mid size**



(total floor area 300 ~2,000m<sup>2</sup>)

Renewable-power generators\* new obligations fixed (All 30GJ) (2022~)

**Widened the scope**

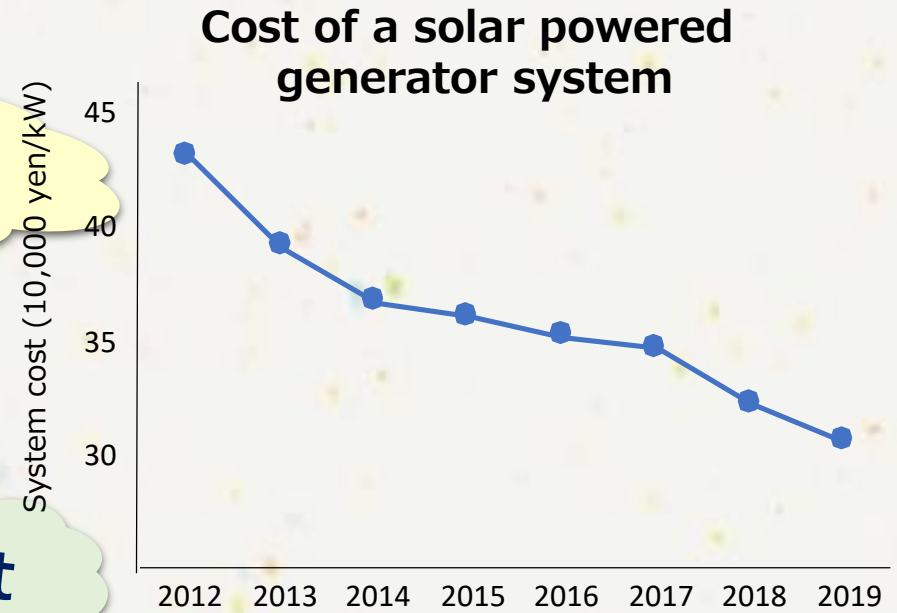
**Small**



(total floor area ~300m<sup>2</sup>)

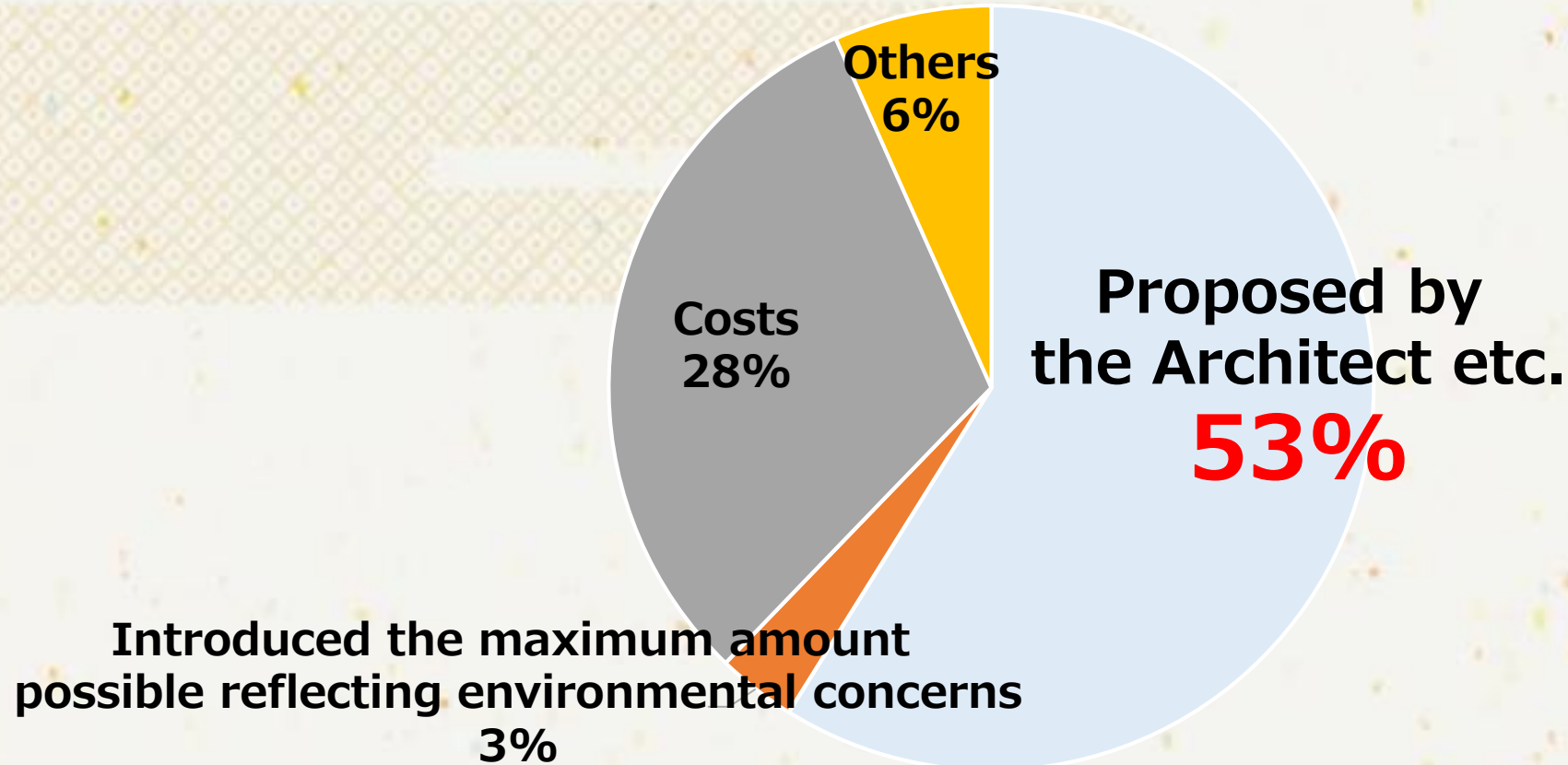
Joint purchase of solar PVs and other measures to encourage the spread of solar PVs to homes.

**Support**



\* Generators using solar PVs, solar thermal, biomass, wind power etc.

## Q. How was the **amount of renewable energy equipment installed** determined?



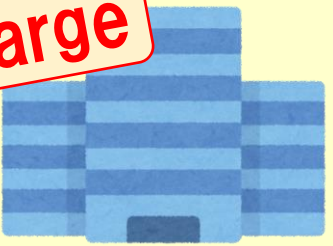
Developed from data in "A Guide to the System of Obligatory Explanations by Architects for the Introduction and Installation of Renewable Energies under the Kyoto Prefectural and Kyoto City Ordinances"



# Kyoto City's Measures to Promote Renewable Energy in **New Building** Constructions, Extensions and Retrofits



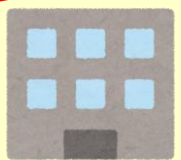
**Large**



(total floor area 2,000m<sup>2</sup>~)

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increased obligations  
fixed (All 30GJ)  
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(2022~)

**Mid size**



(total floor area 300 ~2,000m<sup>2</sup>)

Renewable-power generators ※  
new obligations  
fixed (All 30GJ) (2022~)

**Small**



(total floor area ~300m<sup>2</sup>)

Joint purchase of solar PVs and other measures to encourage the spread of solar PVs to homes.

Explanations regarding the installation of renewable energy is mandatory (2021~)

Architect



Building owner

<Must explain>

- CO2 reduction impact from renewables
- Maximum amount of renewable energy that can be installed
- Types of renewable energy that can be introduced, etc.

※ Generators using solar PV, solar thermal, biomass, wind power etc.