

# C40CITIES

CLIMATE LEADERSHIP GROUP

## 世界大城市的节能减排思路与措施

## C40 Cities Low Carbon Approach and Actions

彭艳, 东亚区域总监

**Yan Peng, Regional Director, East Asia**

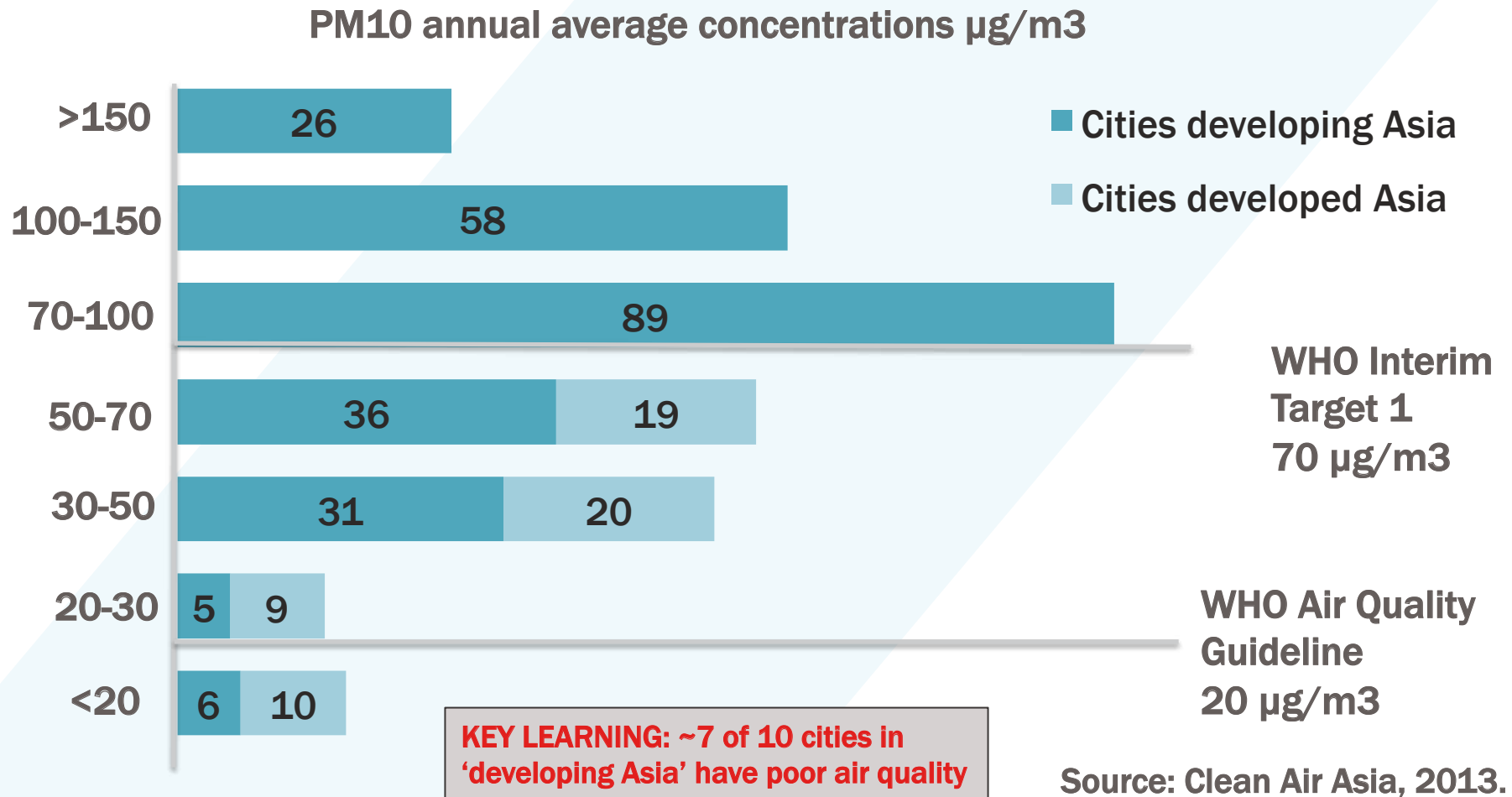
2013年12月5-8日, 北京, Beijing



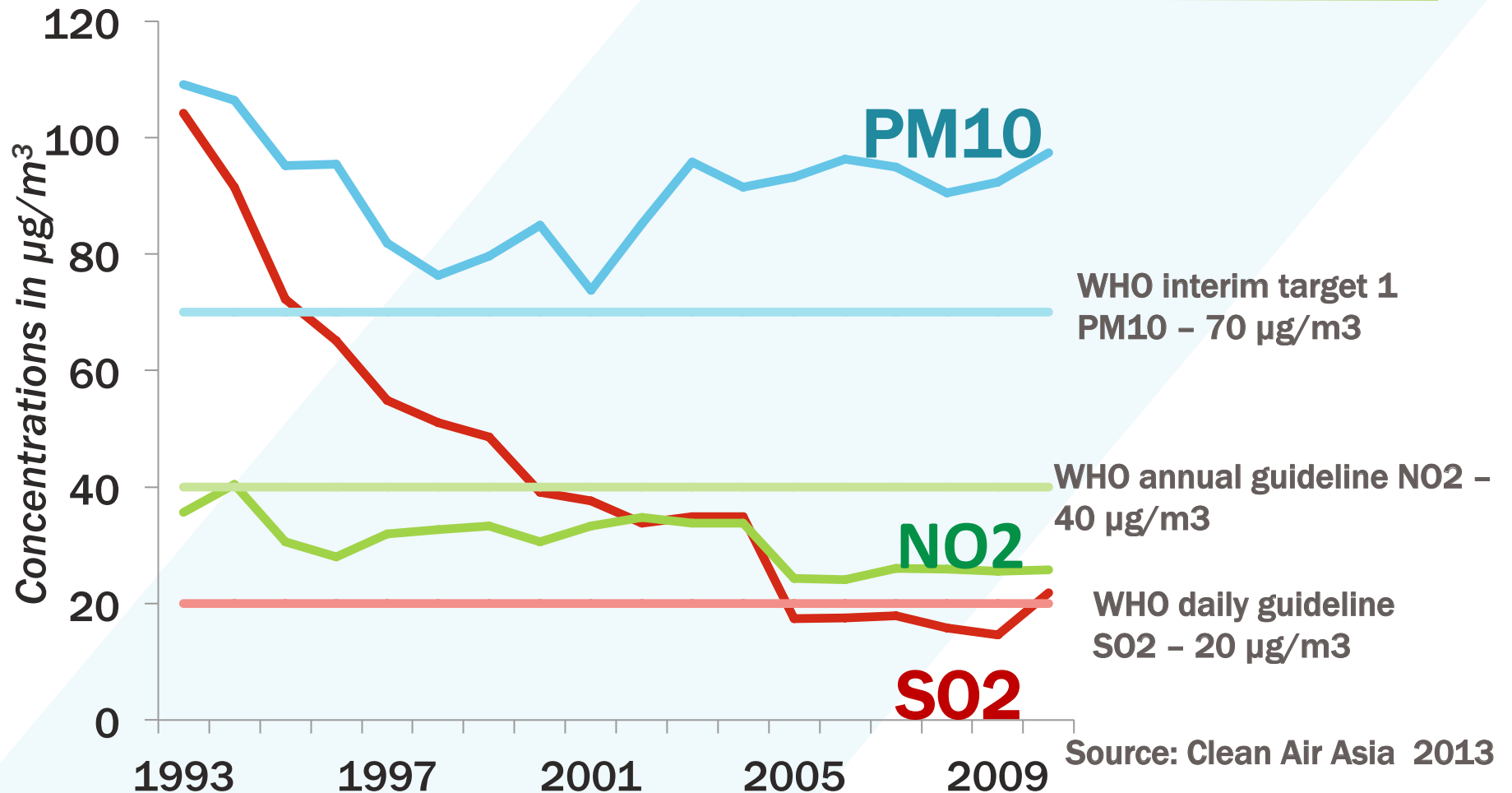
## 要点 **Outline** :

- 关于C40: 直接交流的创新平台  
**Network for Effective Innovation**
- 大城市节能减排措施趋势  
**Trends of Actions in Mega Cities**
- 东亚城市实例  
**Examples from East Asia Cities**

# Air quality for cities in 'developing Asia' and 'developed Asia'



# Air pollution in Asia is getting worse again





# Recommendations for LED Strategies and financing

1. Plans, data and tools essential for sound policy and financial decisions by government and investors
2. Consider city and national plans to see what is already there and where to finance: LEDS provides umbrella
3. Focus on **the root cause: urban development**
4. Make use of tools to **integrate emissions criteria** into policy and investment decisions
5. IFIs should expand portfolio of infrastructure related to LED
6. Broaden funding sources for LED investments beyond CC financing
7. Invest in collaboration among development partners, city networks/initiatives, NGOs, research institutes, universities

Source : Clean Air Asia, 2012

# 大城市与气候变化



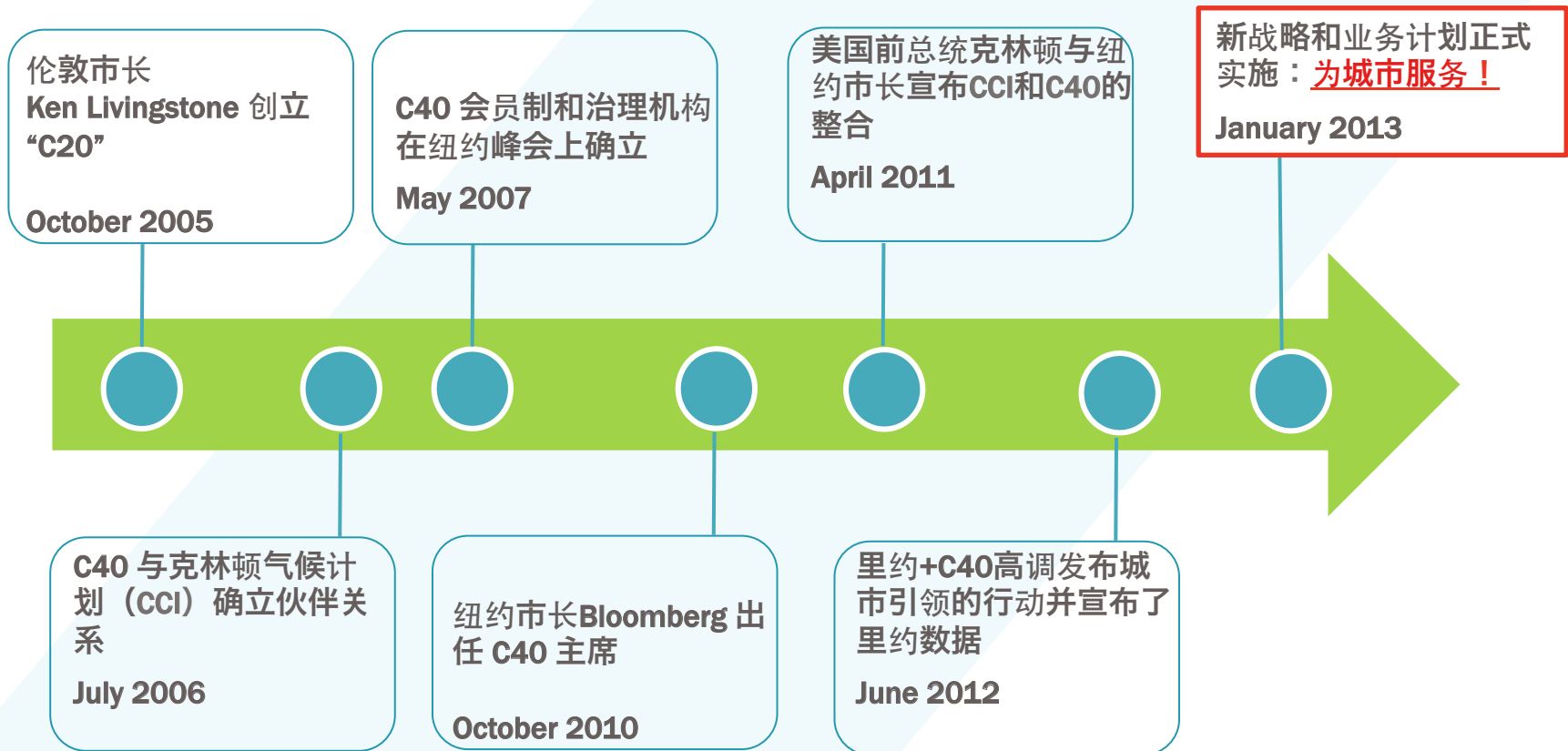
# C40 Cities Climate Leadership Group

## C40城市气候领袖群



- 由城市创立为城市服务
- C40是一个由世界大城市及其市长组成的网络，旨在推进有意义的温室气体减排和气候风险减低的目标

# C40的发展历程





# C40 治理

## C40 指导委员会

角色: 确立C40战略愿景.

- 纽约, 主席
- 伦敦, 副主席
- 柏林
- 香港
- 雅加达
- 约翰内斯堡
- 洛杉矶
- 圣保罗
- 首尔
- 东京

### C40 指导委员

C40 主席

C40 主席或代表

### C40 理事会

行政总监  
Jay Carson

## C40 理事会

角色: 日常管理

C40 主席代表:

**Rohit Aggarwala**

指导委员会:

**Matthew Pencharz**  
大伦敦权力机构

Steering Committee:

**Aisa Tobing**  
雅加达城市代表

Bloomberg 慈善组织:

**David Miller**  
Former Mayor of Toronto,  
Former C40 Chair

克林顿基金会

**Bruce Lindsey**  
首席执行官

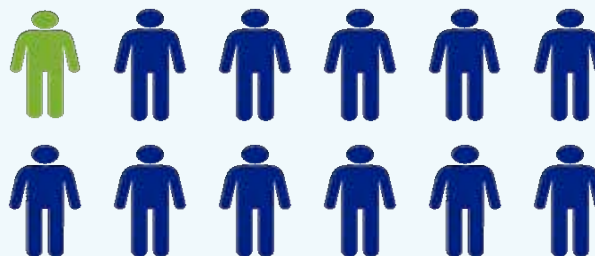
# The C40 Cities: 目前全球共63个成员



# C40城市的群体力量

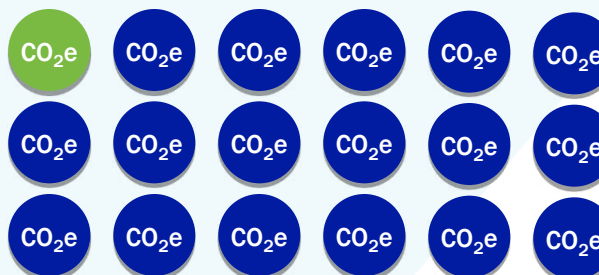
8%

全球人口



5%

全球温室气体排放总量



21%

全球GDP



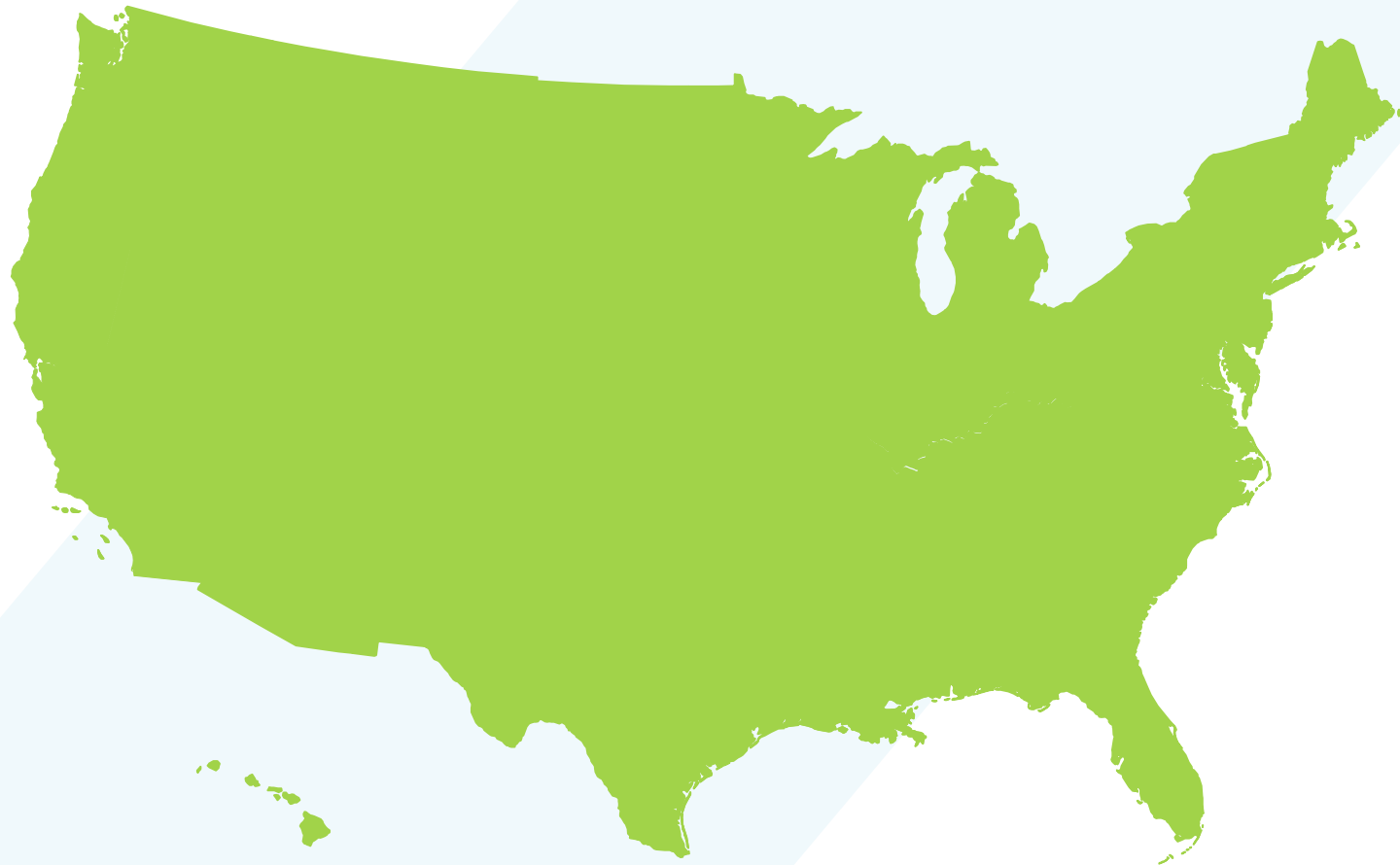
# C40城市的群体力量



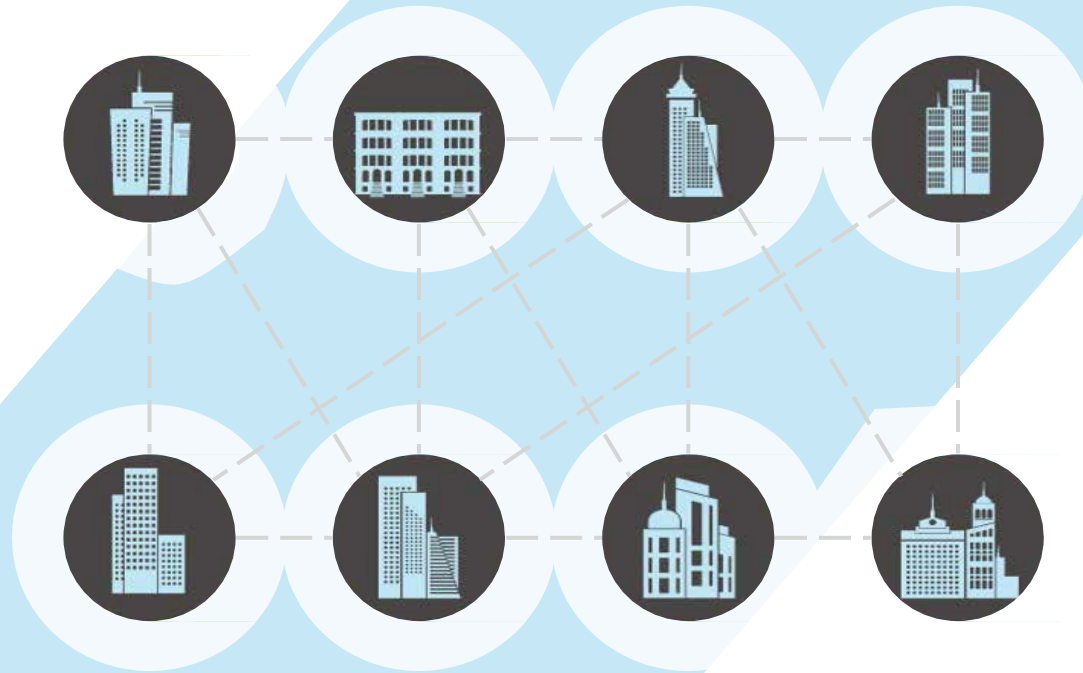


# C40城市的群体力量

---



# What does C40 do?





# C40 creates NETWORKS

PEER-TO-PEER EXCHANGE



ON-THE-GROUND CITY SUPPORT

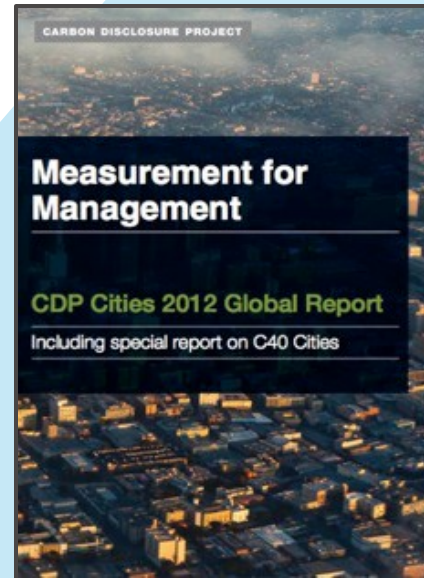


RESEARCH & KNOWLEDGE MANAGEMENT



# Service A: C40 Shares Knowledge

## C40 Cities as a collective Group



## Tailored City Report:



# Service B: C40 brings out Impact



The Washington Post

BBC

GreenBiz  
.com

REUTERS

THE WORLD BANK

The  
Economist

# Service C: C40 Provides Support



# What does C40 Network Do?

“an active working group of C40 cities with commonly identified opportunities, interests or priorities”.

- knowledge transfer
- Joint problem solving (peer-to peer)
- provide direct support to cities

be dynamic and nimble,  
responding to the changing needs and priorities of participating  
cities

## 要点 **Outline** :

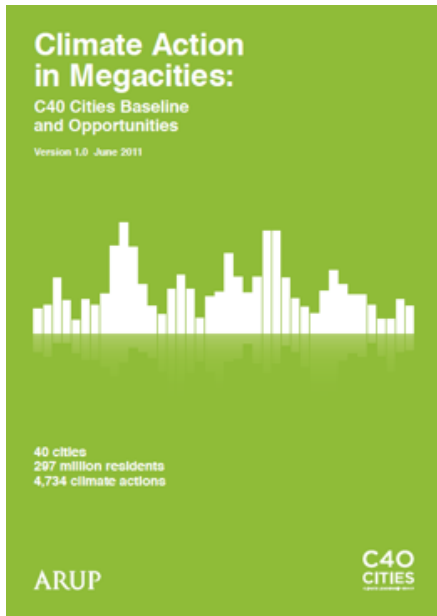
- 关于C40: 直接交流的创新平台  
**Network for Effective Innovation**
- 大城市节能减排措施趋势  
**Trends of Actions in Mega Cities**
- 东亚城市实例  
**Examples from East Asia Cities**











# Cities act



# Cities decide



	City streets & parking	87%
	Outdoor lighting	80%
	Transit	63%
	Residential waste	66%
	Landfills	60%
	Building regulation	57%
	Water supply	60%
	City planning	50%

# Cities lead

Climate Action  
in Megacities:  
C40 Cities Baseline  
and Opportunities  
Version 1.0 - June 2011

**4734**  
climate  
actions

ARUP C40  
CITIES



City streets & parking	<b>194</b>
Outdoor lighting	<b>121</b>
Transit	<b>417</b>
Residential waste	<b>156</b>
Landfills	<b>32</b>
Building regulation	<b>1343</b>
Water supply	<b>192</b>
City planning	<b>388</b>

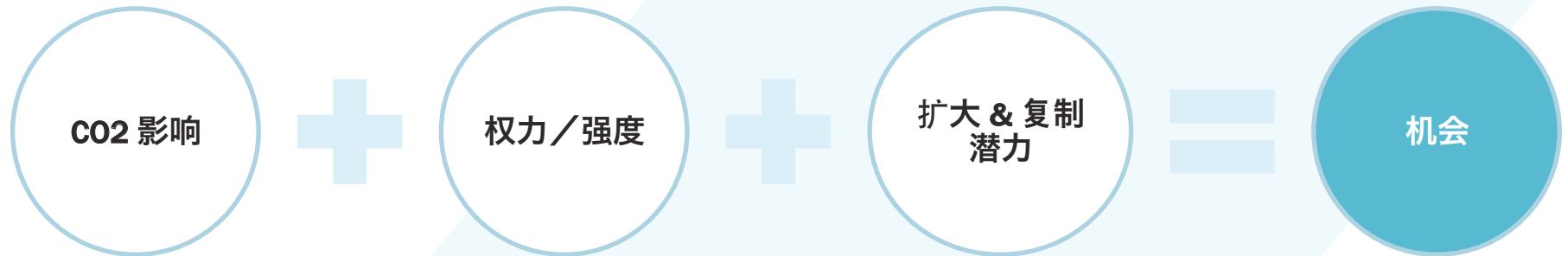
# 3 Selected Approaches:

---

- Impact Opportunity identification
- Measurement and Planning
- Climate Positive Development

# Identify impact Opportunities

## 识别影响机会



- 编制市长可能有所作为的行动清单

- 每项行动都匹配碳排放权重，（依据CDP2011年报告中对应的按行业的排放权重）

- 对排放产生的各行业市长具有不同的控制力。

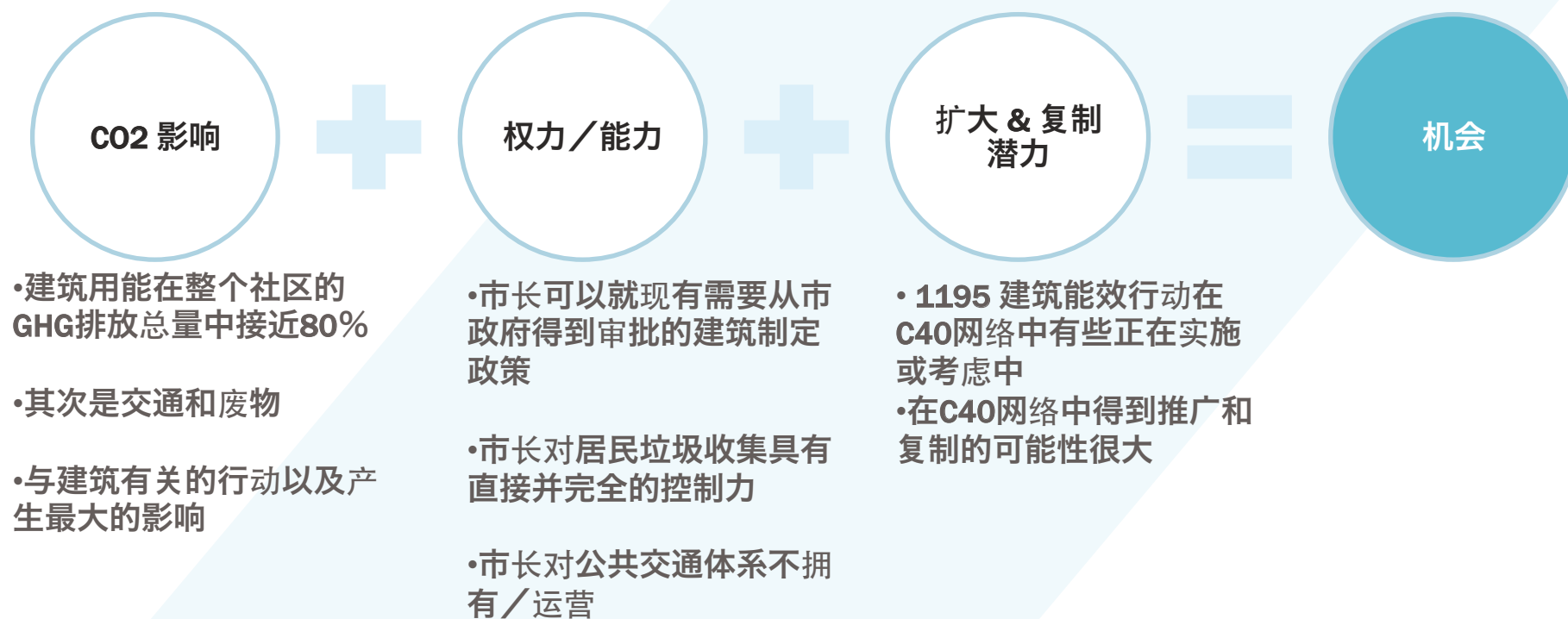
- 市长控制力高的行动具备的权重更高。

- 市长控制力少的行动可以靠后排

- C40某城市中的某项行动/政策能通过C40网络得到推广和复制的程度

- 实例：该行动可能只在少数城市推广适用=可移植的程度；如果在很多城市推广运用=试点；如果正在被其他城市考虑=其他

# 影响实例：纽约



# THE NEED FOR M+P

## Trends

- C40 cities account for 20% of global GDP and 8% of the global population.
- C40 cities make up over 1.7 GtCO<sub>2</sub>e of global GHG emissions
- Mayors have **direct control over 75% of urban emissions sources\***
- Actions that C40 cities have already put in place should reduce global emissions by 248 million tonnes per year in 2020, compared to business as usual.
- There is even greater potential for cities to act – reducing future emissions by up to 1.3 billion tonnes per year in 2030

\*C40 Studies

## Conclusions

- City-scale actions, especially in C40 cities, can play a key role in reducing global greenhouse gas emissions globally
- [Mayors in] C40 Cities are already taking action, but there is more opportunity for greater impact
- Higher quality data, analysis and reporting can inform priorities for local action and investment (how best to lower GHG emissions)
- Consistent and robust data analysis and planning allows for better quantification of progress in cities and potential for continued action and investment

# M+P LIFECYCLE

## Measurement

- **Description:** What you measure and how you measure it
- **Output:** Protocol/Standard

## Reporting

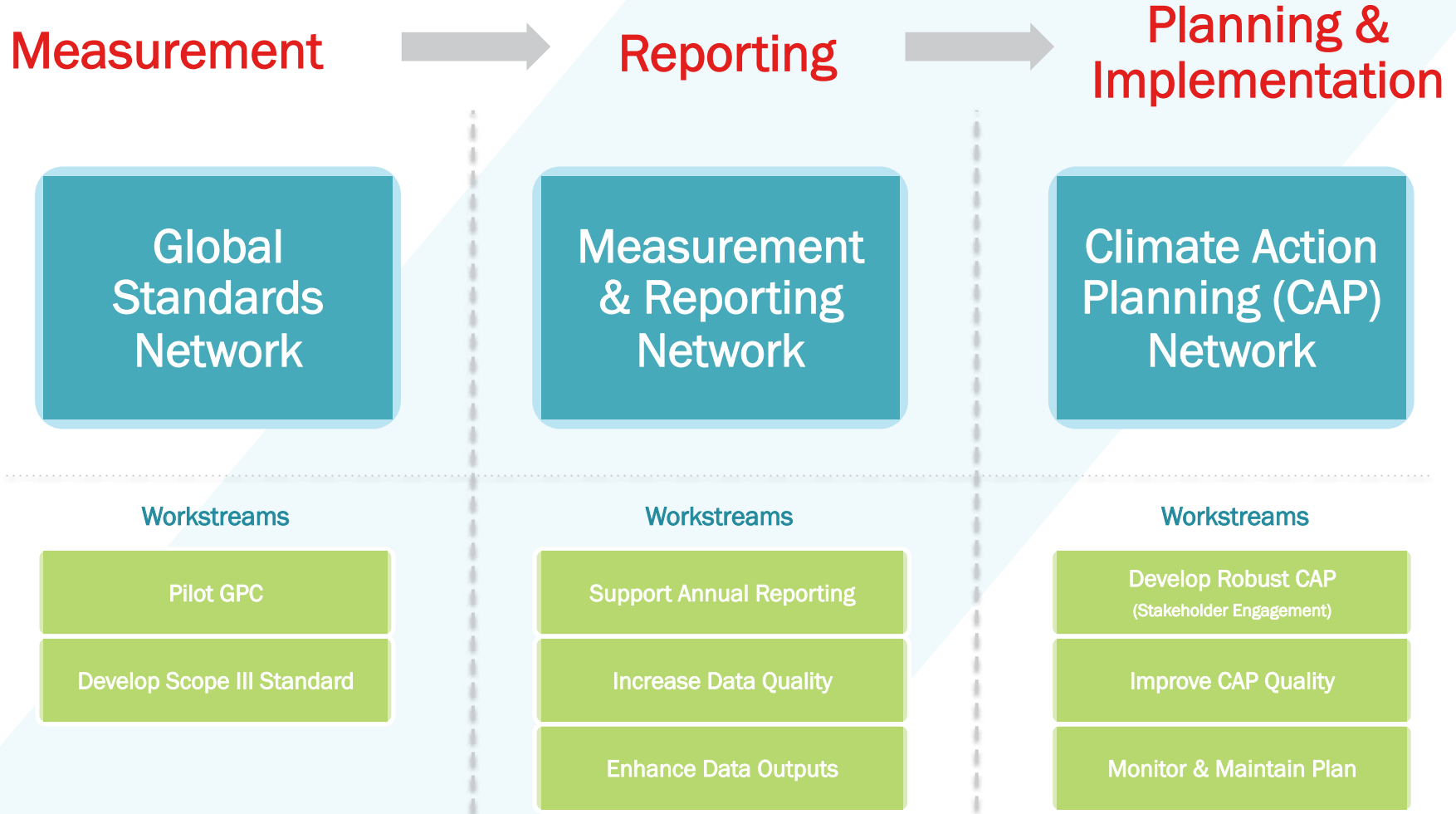
- **Description:** What, when, and how you report
- **Output:** Inventory and actions baseline

## Planning & Implementation

- **Description:** What you do with the data
- **Output:** Climate action plan and strategy



# INITIATIVE OVERVIEW



# MEASUREMENT AND REPORTING

- Network will directly focus on providing cities with the necessary tools, best practices, and support mechanisms to facilitate higher quality annual data gathering, measurement, analysis and reporting.
  - Initial efforts will on cities that do not currently have inventories in place.
- Three major workstreams within the network

Support Annual Reporting	Increase Data Quality	Enhance Data Outputs
<ul style="list-style-type: none"><li>• Dedicated, personalized support for cities to measure, analyze, publicly report their data</li></ul>	<ul style="list-style-type: none"><li>• Improve overall quality of emissions, action, and risk data in annual reporting</li></ul>	<ul style="list-style-type: none"><li>• Make datasets robust, actionable, and financeable</li></ul>

# CLIMATE ACTION PLANNING

- Culmination of the Measurement and Planning Initiative.
  - Initial efforts will target 14 cities without CAPs in place, providing TA and capacity support to cities
- Three major workstreams within the network

Develop Robust CAP	Improve CAP Quality	Monitor and Maintain Plan
<ul style="list-style-type: none"><li>• Cities that require support in engaging key stakeholders, city staff, across all functions of local government that can have an impact on greenhouse gas emissions</li><li>• Encourage a minimum standard for CAPs that can be used to ensure consistency across and external financial support of projects</li></ul>	<ul style="list-style-type: none"><li>• Cities that have created action plans, but lack a level of quality that hinders effective implementation</li></ul>	<ul style="list-style-type: none"><li>• Cities that have implemented plans, but lack a uniform process to track progress against baseline goals.</li></ul>

# ANTICIPATED OUTCOMES

## Global Standards Network

- Roll-out of the GPC from pilot to a standard
- Standards and best practices related to third-party verification of annual reporting
- Establishing a Scope III standard

## Measurement and Reporting

- 100% of C40 cities reporting GHG emissions using a consistent methodology (GPC) at the citywide level
- Capacity building for cities who have never reported their emissions
- Increased number of cities reporting on emissions at the community scale v. the municipal level

## Climate Actions Planning

- Ensuring a minimum standard for climate action plan quality
- 100% of C40 cities with climate action plans
- Introduction of climate action plan monitoring systems
- Standardization of 80x50 plans as well as targets for how they will be used

# KEY PARTNERS

SIEMENS



UN HABITAT  
FOR A BETTER URBAN FUTURE



ARUP



# 正气候开发计划

# CLIMATE<sup>+</sup> Development Program

**C40**  
**CITIES**  
CLIMATE LEADERSHIP GROUP

Developed in partnership with:



**C40CITIES**  
CLIMATE LEADERSHIP GROUP



# CLIMATE+ DEVELOPMENT PROGRAM

# VISION

通过引入以业绩为导向的指导框架，认可城市实现既经济又完成净-负值排放这个目标的卓越成就，来支持C40城市成员加速实施大规模可持续城市规划最佳实践。

# 正气候开发框架： 减低现场内和周边社区的排放

## ON-SITE

Maximize efficiency.



ENERGY



WASTE



TRANSPORTATION

## OFF-SITE

Earn credits by reducing emissions  
in the surrounding community.





## 开发项目所在城市加入C40

**CLIMATE+**  
Candidate

### 第1步：候选者-项目申请被接受

- 签署意向书并得到C40支持

**CLIMATE+**  
Participant

### 第2步：参与者-详细计划得到批准

- 路线图（实现净-负GHG排放的战略战术）
- 测量、验证计划
- 合作方
- 里程碑

**CLIMATE+**  
Progress Site

### 第3步：进展现场-路线图的进展

- 实施
- 战略战术实施的证明
- 里程碑的排放影响测量

**CLIMATE+**

### 第4步：正气候（项目）：项目完成


- 测量和验证证明运行性GHG排放低于零

## 要点 **Outline** :

- 关于C40: 直接交流的创新平台  
**Network for Effective Innovation**

- 大城市节能减排措施趋势  
**Trends of Actions in Mega Cities**

- 东亚城市实例: 东京、横滨  
**Examples East Asia Cities : Tokyo, Yokohama**



# Tokyo Cap-and-Trade

Driver for a Low Carbon City

Yuki Arata Bureau of Environment **Tokyo Metropolitan  
Government**



## 1. Remarkable results!

2<sup>nd</sup> Year Report

**Green Buildings Era** in Tokyo



# The results of the second year report 1

In total **23%** Reduction  
from the base-year emissions  
Cf. Their obligated reduction: 6 % or 8%

**93%** of the covered  
facilities reduced more than the  
obligations



**C40 CITIES**  
1. Remarkable results!  
CLIMATE LEADERSHIP GROUP

 TOKYO METROPOLITAN GOVERNMENT

# The results of the second year report 2

About **5,500** reduction measures in 5 years

**826,700<sub>t-CO2</sub>**  
will be reduced by these measures



**1. Remarkable results!**  
CLIMATE LEADERSHIP GROUP

 TOKYO METROPOLITAN GOVERNMENT





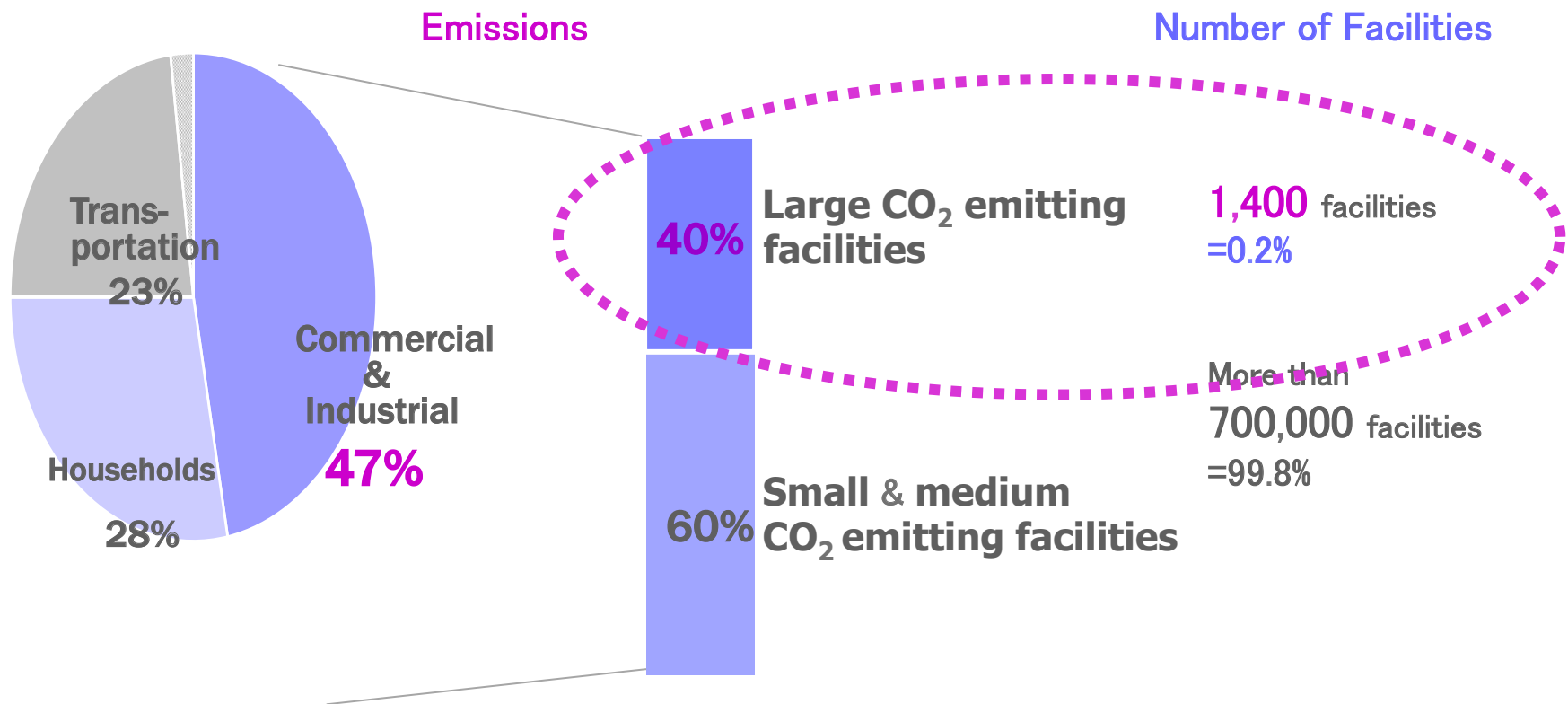
# Tokyo's GHG Emission Reduction Target

**25%** below 2000 levels by **2020**



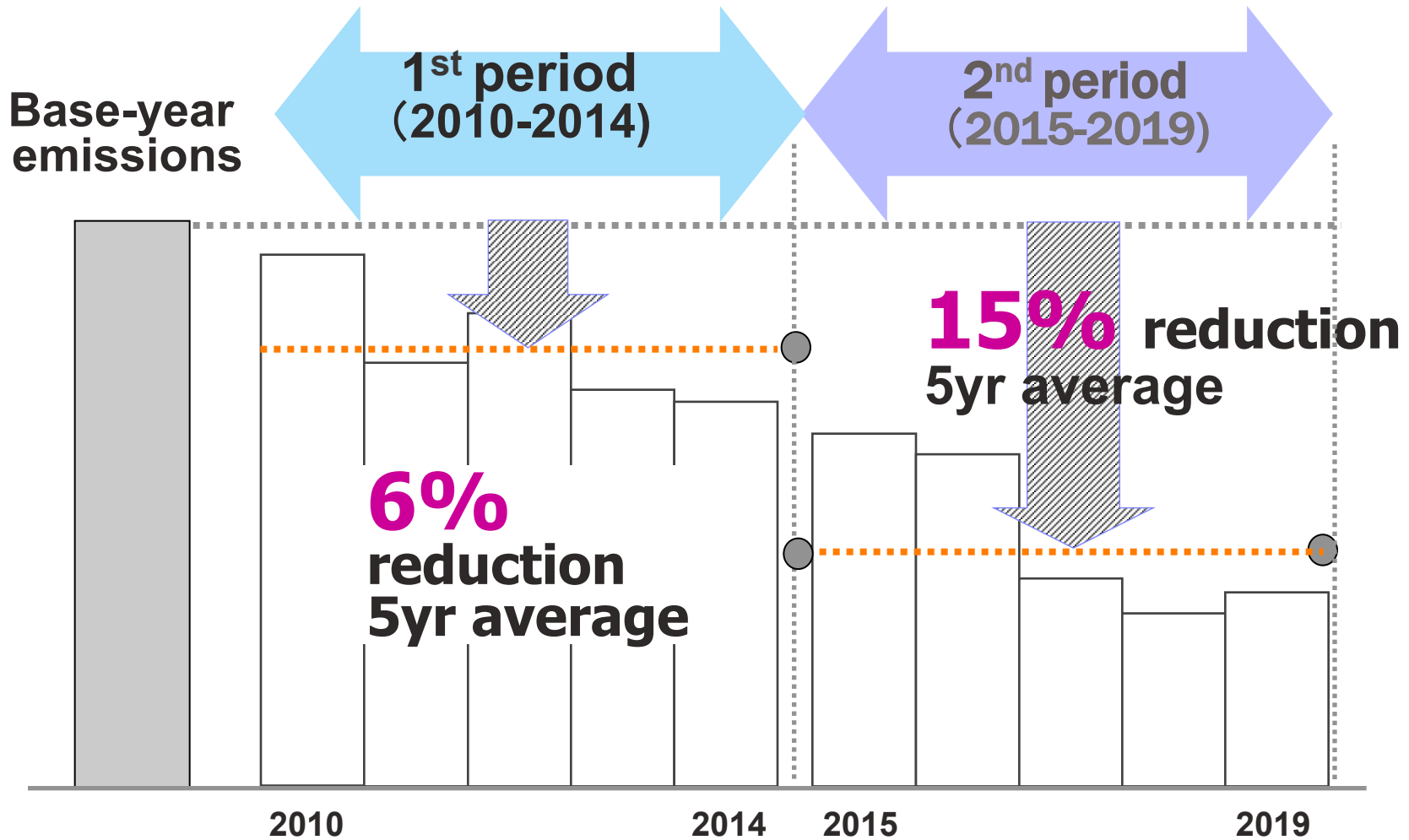
# Tokyo Carbon Dioxide Footprint

Total CO<sub>2</sub> Emissions: **59** million tonnes (FY2010)



# Cap Setting

**A Compliance Period: 5 years**





## 4. What we learned: Important factors

Three misunderstandings for energy efficiency

Key factors for success



# Need to break **misunderstandings** on building **energy efficiency**

## **Typical complaints from building owners**

- 1. We have already done a lot!**
- 2. We know our buildings well; there's nothing else we can do!**
- 3. It's costly to retrofit. We can not afford it!**



**4. Lessons**

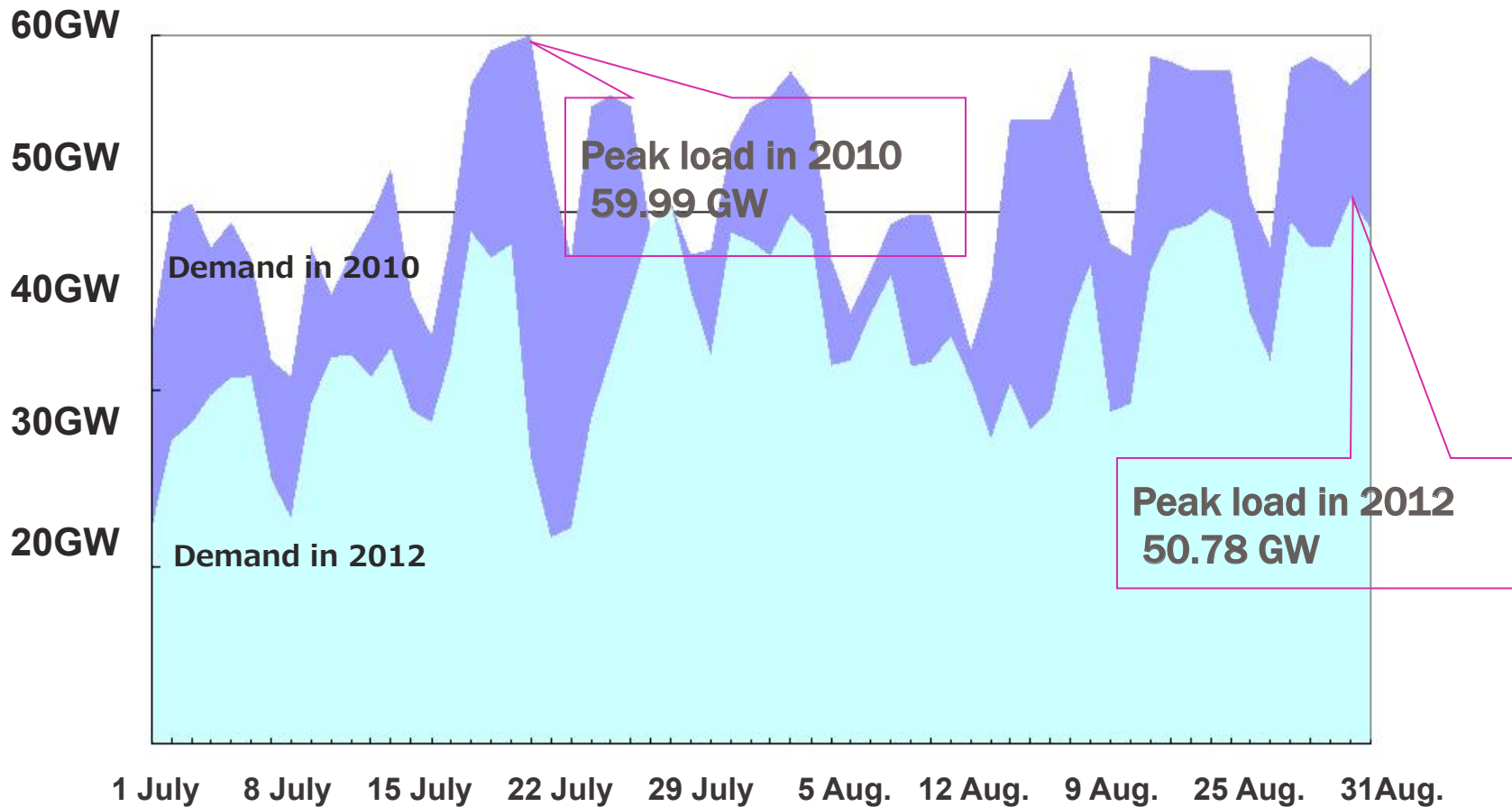
# Preparedness for the Power Crisis

1. Already did energy audits
2. Already have action plans
3. Already have communication

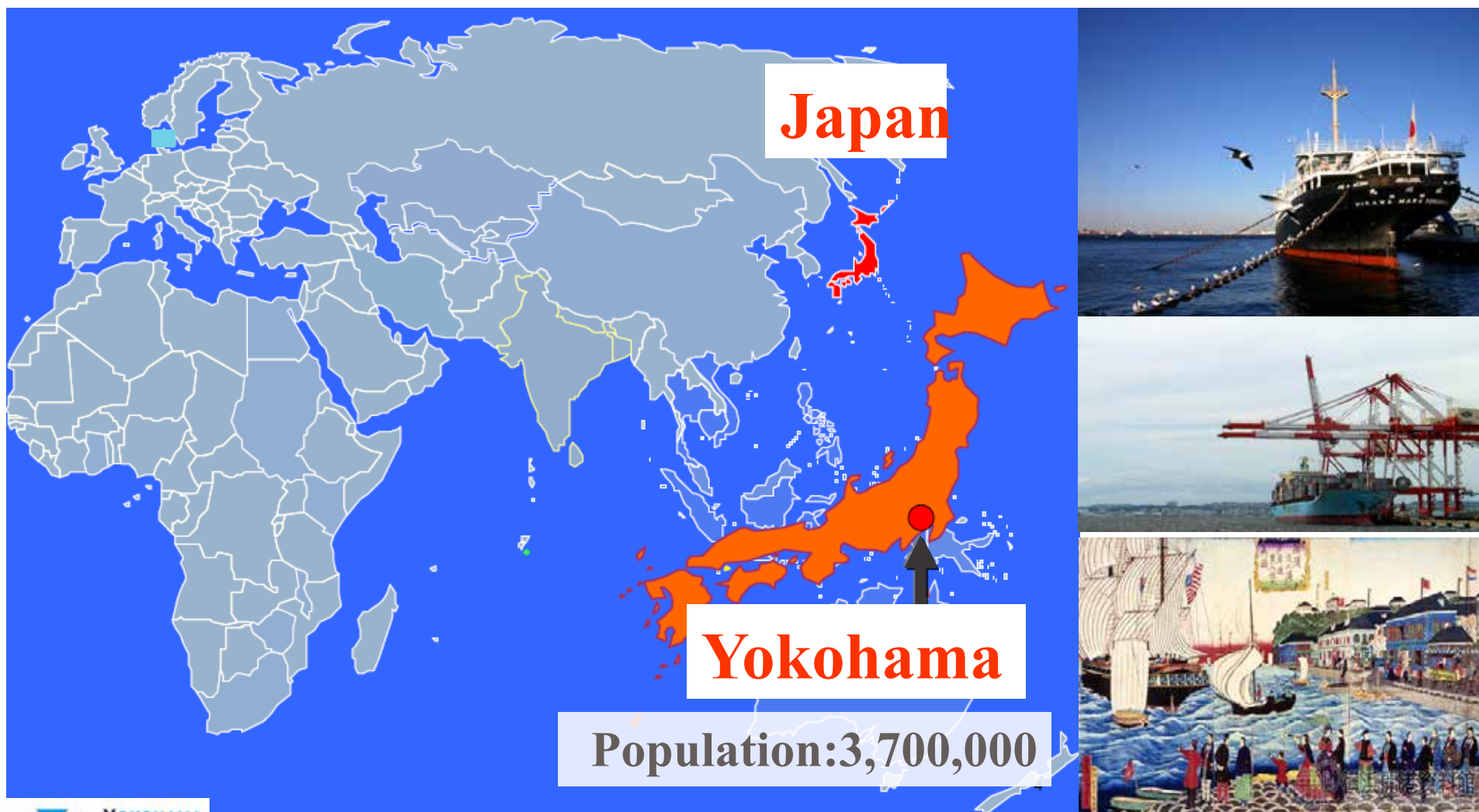


# Overcoming the Power Crisis after the Fukushima accident

Peak Power Consumption (from 1 July to 31 Aug.)



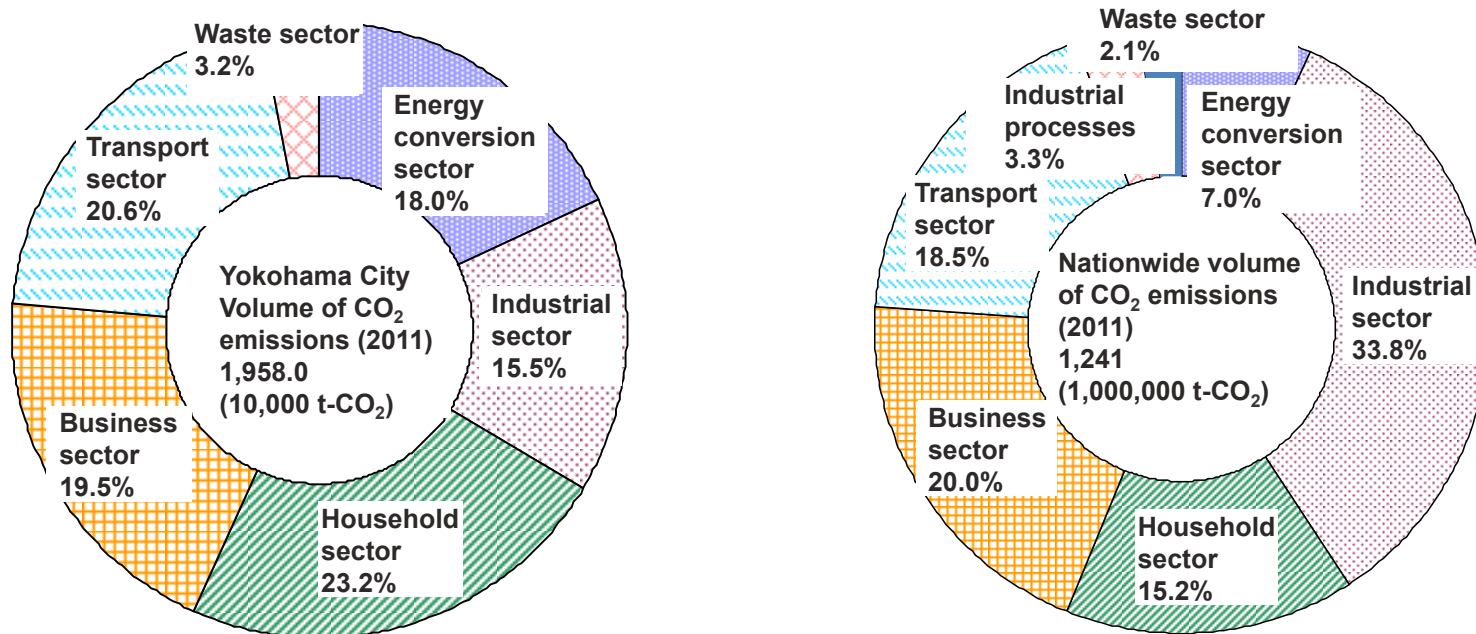
# Overview of Yokohama





# Volume of Greenhouse Gas Emissions

## Sector-separate CO<sub>2</sub> Emissions in Yokohama City and Nationwide

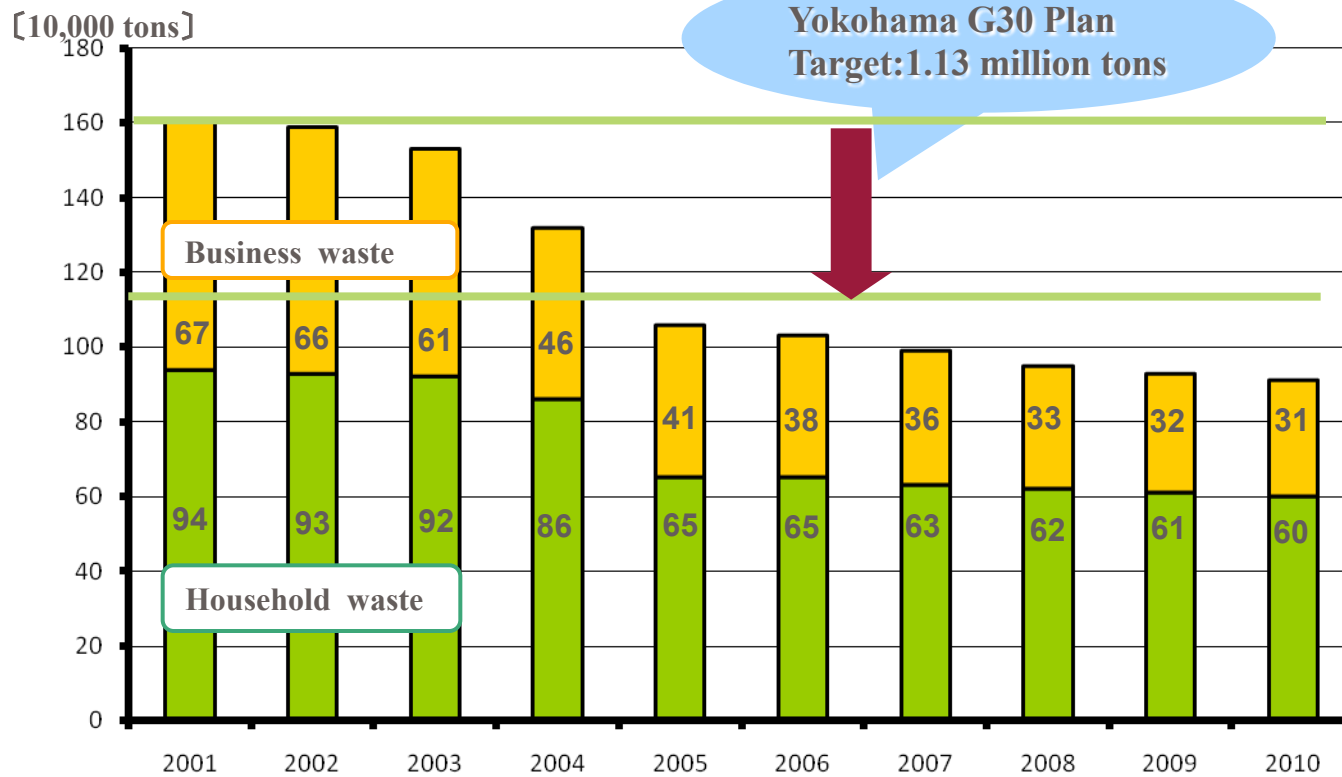


- The graph for nationwide emissions was prepared based on the Ministry of Environment press release on greenhouse gas emissions (definite values) for fiscal 2011.
- The carbon dioxide emission factor for electric power is the actual emission factor.

In terms of separate sectors, Yokohama City shows higher emissions from the household sector but lower emissions from the industrial sector compared to the nationwide figures.

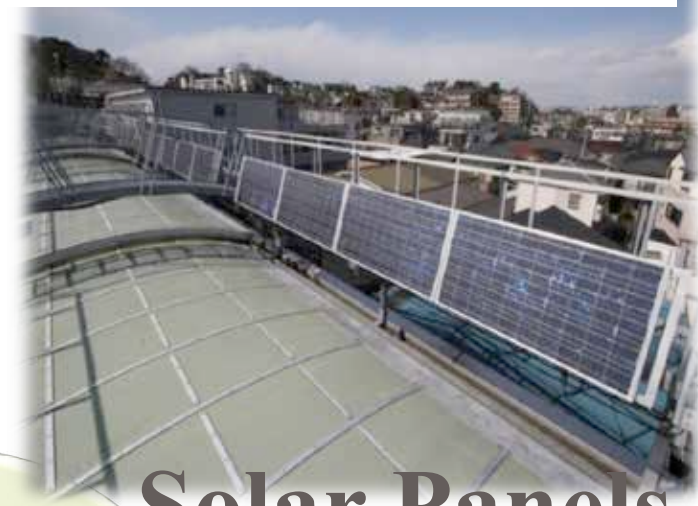
- 1. Sector-separate Initiatives**
  - (1) Household Sector**
  - (2) Business, Industrial and Energy Conversion Sectors**
  - (3) Transport Sector**
  - (4) Renewable Energy**
- 2. Yokohama Smart City Project**
- 3. Future City**
- 4. Future Global Warming Countermeasures**

## Power of Yokohama Citizens



# Yokohama Green Growth Strategy

## FutureCity Initiative



Environmental Value

Low Carbon / Energy

Conserving / Water / Air

### Solar Panels

Creativity/Challenge

Super Aging Society

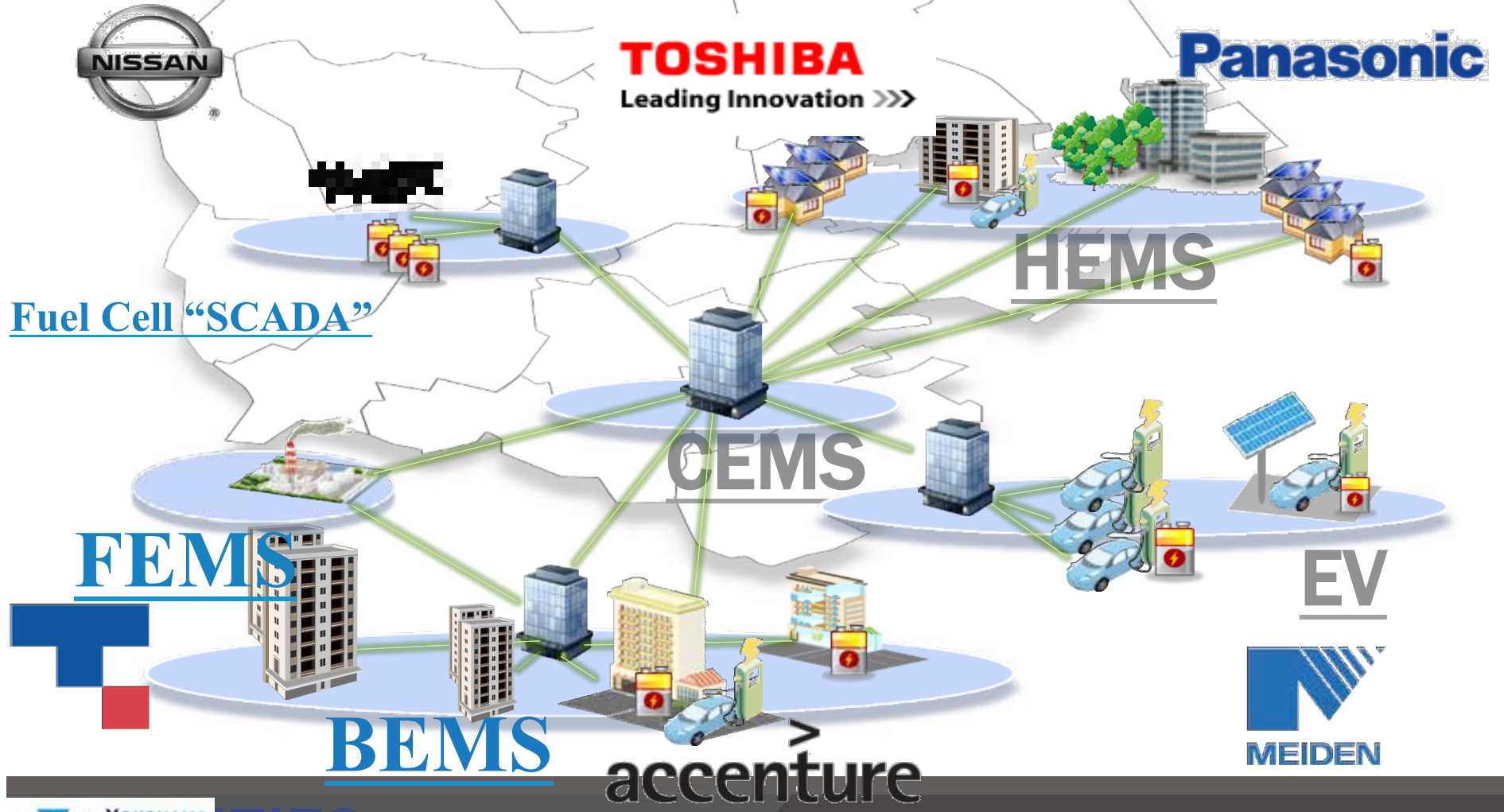
Economic Value

Social Value

# Yokohama Smart City Project



*Making Yokohama the World Leading Smart City*

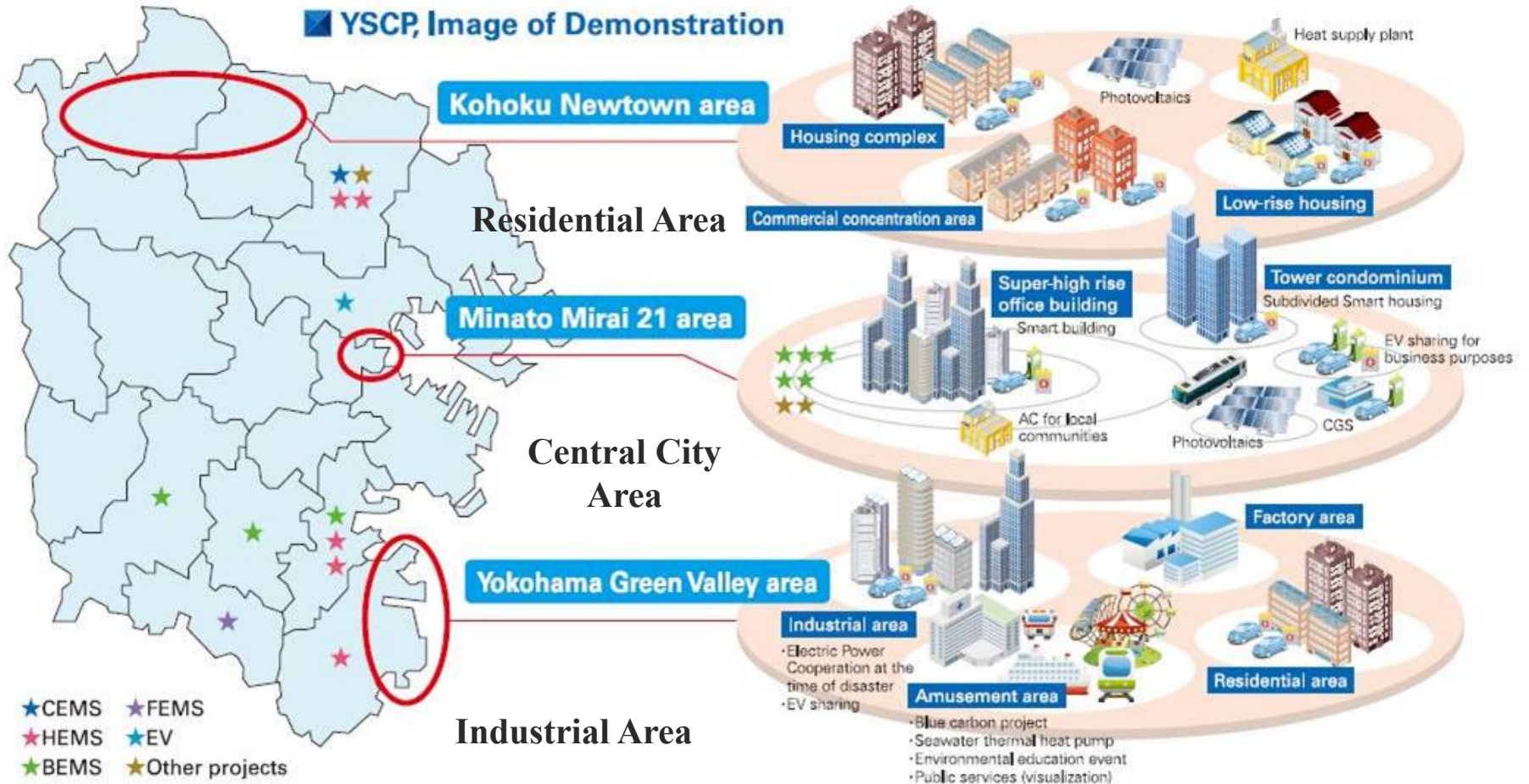


TIES

Target by 2014: PV27MW, 4,000 HEMS, 2,000 Electric Vehicles



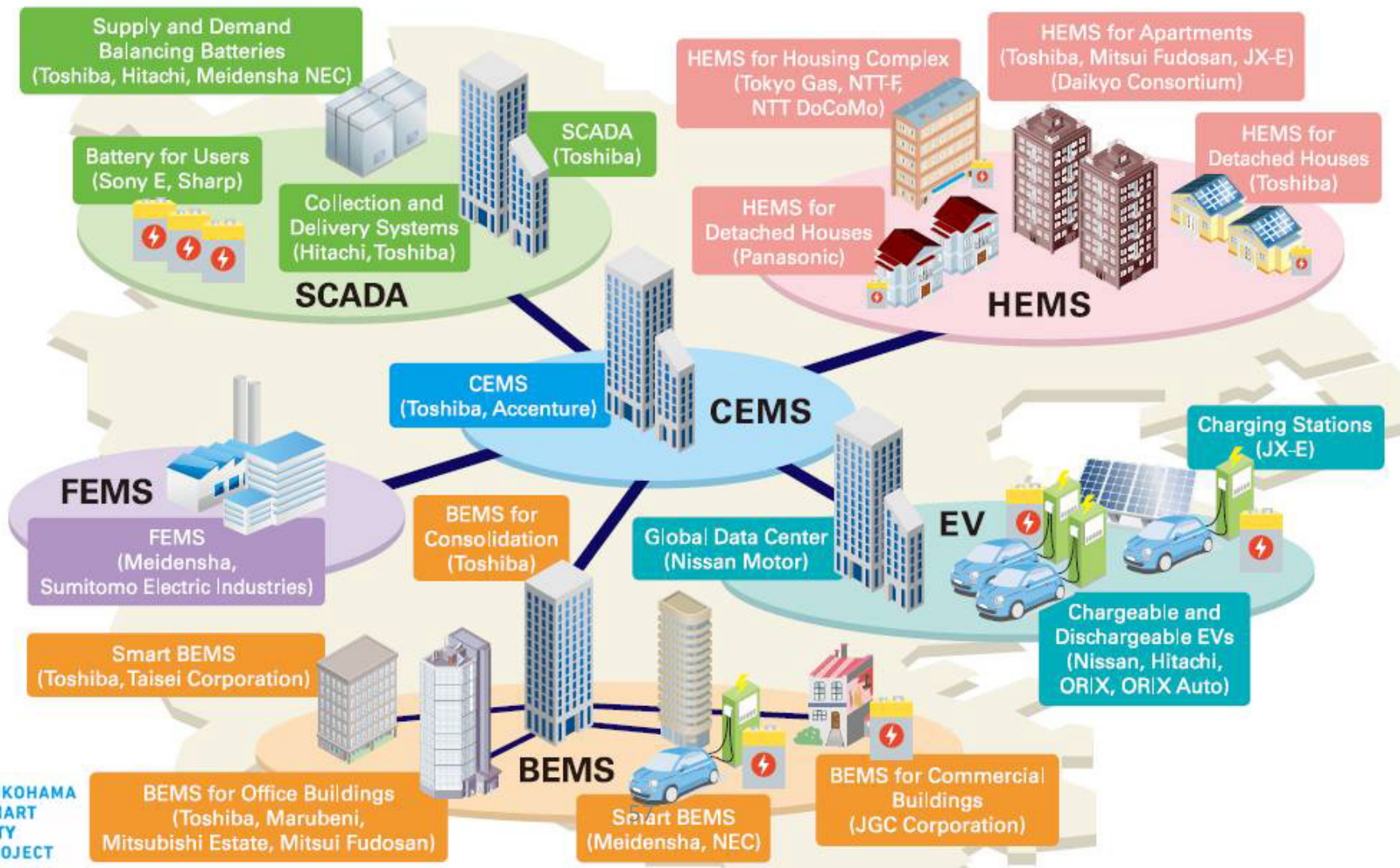
# Image of Yokohama Smart City Project



# Overview of demonstration experiments

(Energy management systems)

Target by the end of 2014 PV 27MW / HMS 4,000 units / EV 2,000 vehicles







# Optimization of Household Electricity Consumption



## HEMS (Home Energy Management System)



Efforts in detached houses

Efforts in Apartments



# Making Yokohama a City of Electric Vehicles



**New Mobility Concept**



**Not only means of transportation, but also function of storage battery**



**EV sharing in industrial area and shopping district**





# Lessons learned & Challenges for next step

## Development of a New Business Model and Job Creation



## Citizen Participation for Smart Lifestyle



## Contribution to Solving Urban Problems in Other Cities



# C40 is **LOOKING AHEAD**

Johannesburg to host 2014 Mayors Summit



# Prepare for 2014

**C40 Cities Mayors Summit: 4th-6th, 2014 in Johannesburg, South Africa**

**Climate Action in Megacities 2.0**

**C40 & Siemens Cities Climate Leadership Awards 2014**

Urban Transportation	Waste Management
Finance & Economic Development	Carbon Measurement & Planning
Green Energy	Sustain. Communities
Adaptation	Energy Efficiency Built Environment
Air Quality	Intelligent City Infrastructure


# Contact C40 :

---

**Yan Peng**  
**Regional Director East Asia**  
[ypeng@c40.org](mailto:ypeng@c40.org)

**C40**  
**CITIES**  
CLIMATE LEADERSHIP GROUP

[www.C40cities.org](http://www.C40cities.org)

 [@C40cities](https://twitter.com/C40cities)

 [C40 Cities](https://www.facebook.com/C40Cities)

