

# Environmental Impact Reduction by Broadband Services

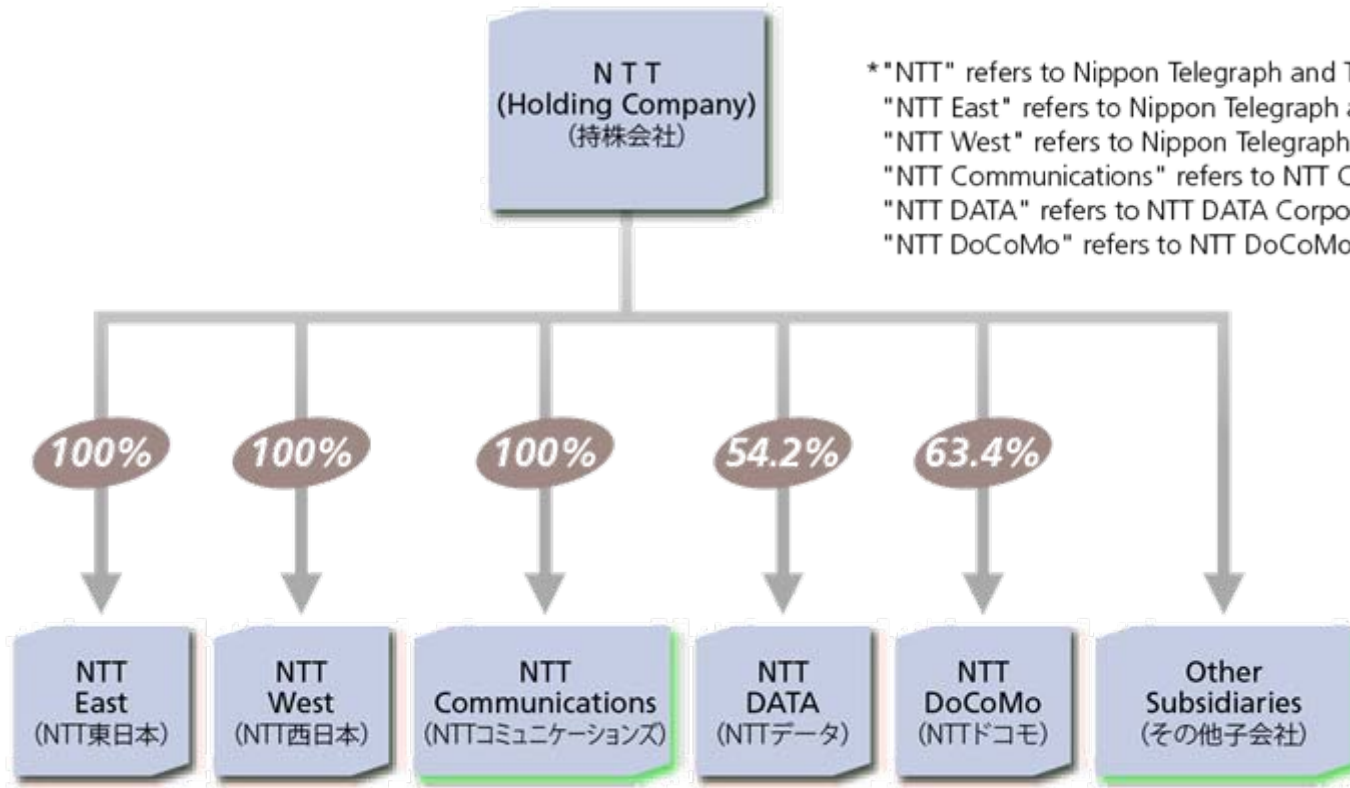
**Mr. Hiromichi SHINOHARA**

**NTT Information Sharing Laboratory Group  
Associate Senior Vice President Executive Director**

**16 April 2008**

# NTT is ...

**NTT Group comprises NTT (the holding company) and 515 subsidiaries and affiliates. The group's principal business activities are communications: regional, long-distance and international, mobile, and data communications.**

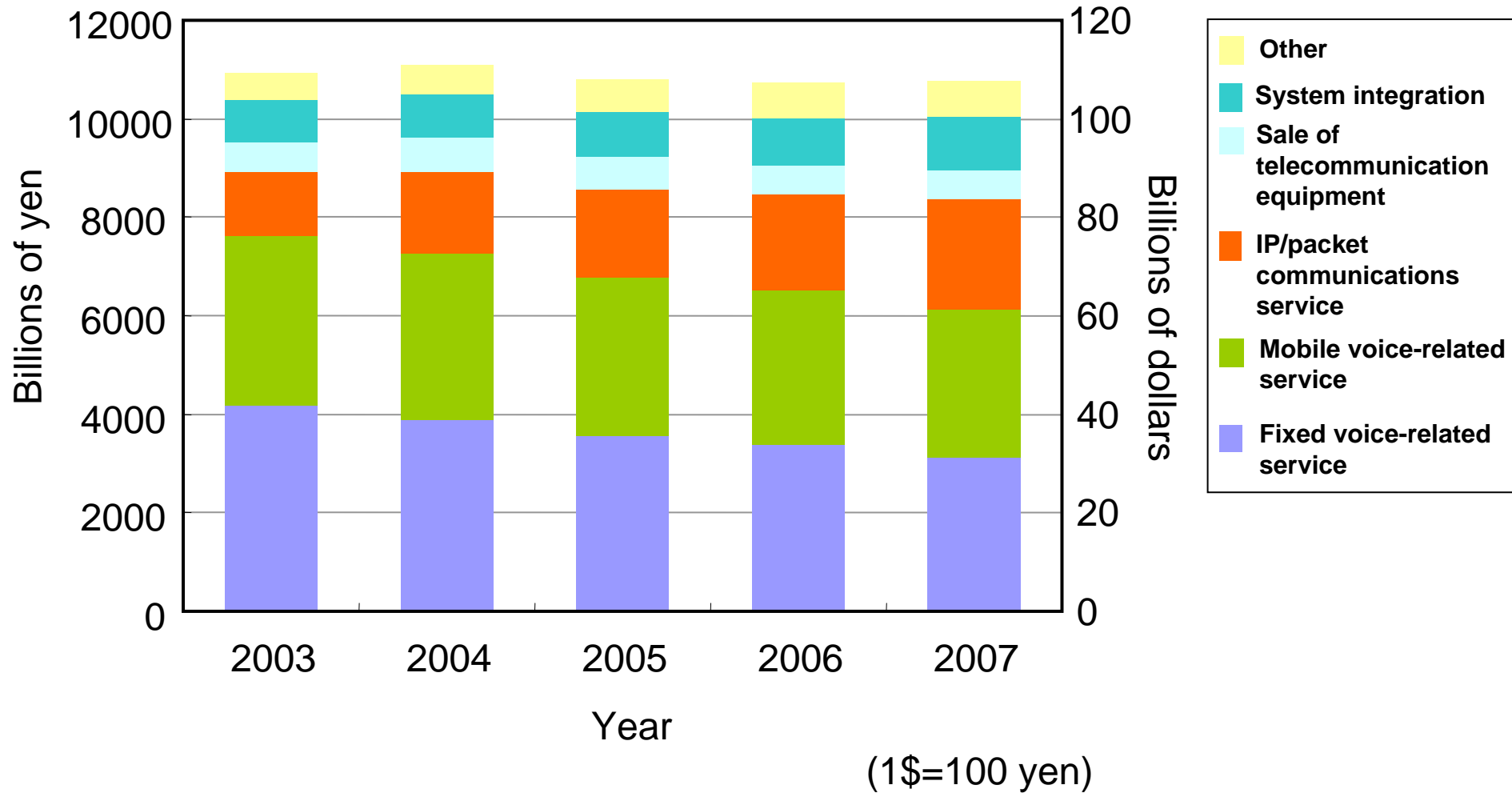


\*"NTT" refers to Nippon Telegraph and Telephone Corporation.  
"NTT East" refers to Nippon Telegraph and Telephone East Corporation.  
"NTT West" refers to Nippon Telegraph and Telephone West Corporation.  
"NTT Communications" refers to NTT Communications Corporation.  
"NTT DATA" refers to NTT DATA Corporation.  
"NTT DoCoMo" refers to NTT DoCoMo, Inc..

% Ownership 持分比率

As of March 31, 2007  
2007年3月31日時点

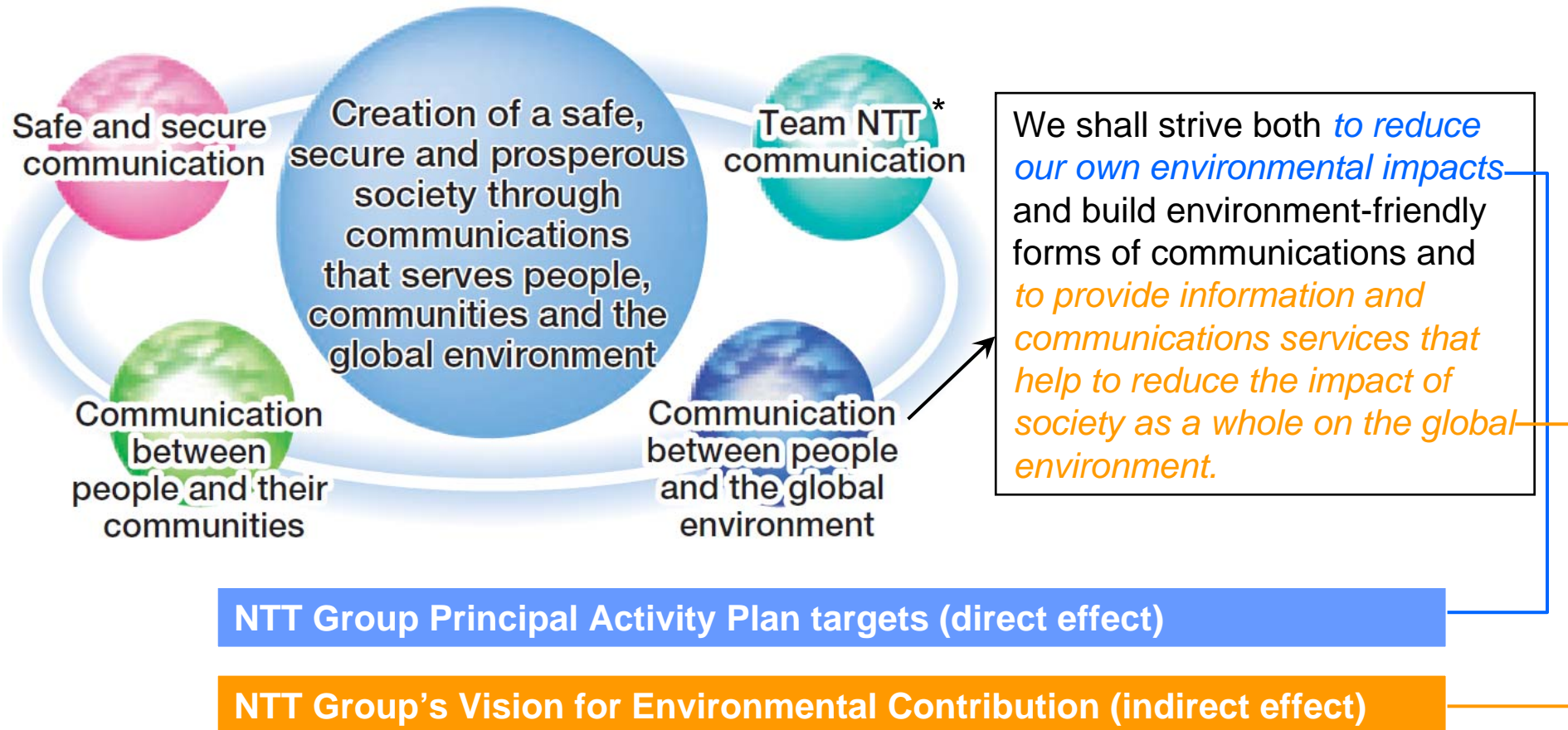
# Operating Revenue



# NTT Group CSR Charter

## Our commitment

As a leader of the information and telecommunications industry, the NTT Group is committed to providing reliable, high-quality services that contribute to the creation of a safe, secure, and prosperous society through communications that serve people, communities, and the global environment.



\* Team NTT comprises all NTT Group employees, including temporary employees, contract employees, employees of our corporate partners, and also former employees who endorse the NTT Group's CSR activities.

# Environmental impact of NTT Group

## INPUT

### Consumption

Electricity: 8.51 billion kWh

Virgin pulp: 290,000 t

Fuel: 47,000 kl

Gas: 74.64 million m<sup>3</sup>

Water: 14.52 million m<sup>3</sup>

NTT Group  
businesses

## OUTPUT

### Emissions/waste

CO<sub>2</sub>: 3,776,000 t

Final disposal: 32,000 t

To be recycled: 635,000 t

FY 2006

# NTT Group's Principal Activity Plan targets (by 2010)

## Prevention of global warming

By 2010, achieve the following reductions in CO<sub>2</sub> emissions per unit compared with 1990 levels:

Total for telecommunications carriers: Reduction of at least **35%** per subscriber. Telecommunications carriers: NTT East, NTT West, NTT Communications, and NTT DoCoMo

Total for solutions companies: Reduction of at least **25%** per unit sale. Solutions companies: NTT DATA, NTT COMWARE, NTT Facilities, etc.

## Waste reduction

Reduce amount of final disposal waste to no more than **15%** of 1990 levels. (This target has been achieved, as of fiscal 2005.)

## Reduction in paper use

Reduce consumption of virgin pulp to **80%** or less of 1990 levels. (This target has been achieved, as of fiscal 2004.)

# Initiatives to prevent global warming (1)

## Initiatives to reduce power consumption

Reducing CO<sub>2</sub> emissions through Total Power Revolution (TPR) campaign, which cut electricity consumption by 124 million kWh (BAU) in 2006.

- To promote R&D regarding power-saving of ICT systems
- To promote energy management schemes for the 4000 buildings that NTT occupies throughout Japan
- To deploy energy-efficient electrical devices and air conditioning equipment and switching
- To use power-saving DC power supplies for broadband equipment such as servers and routers
- To use clean energy systems such as solar and wind power

# Initiatives to prevent global warming (2)

## Initiatives to reduce environmental impacts in logistical and sales operations

- NTT Group shipped 5830 tons of goods using transportation modes with low CO<sub>2</sub> emissions, like rail and ferry services, in 2006.
- NTT Group had a total of 603 low-emission vehicles, including 387 hybrid cars and 216 cars that run on natural gas, in 2006.

## Establishing and maintaining environmental management systems

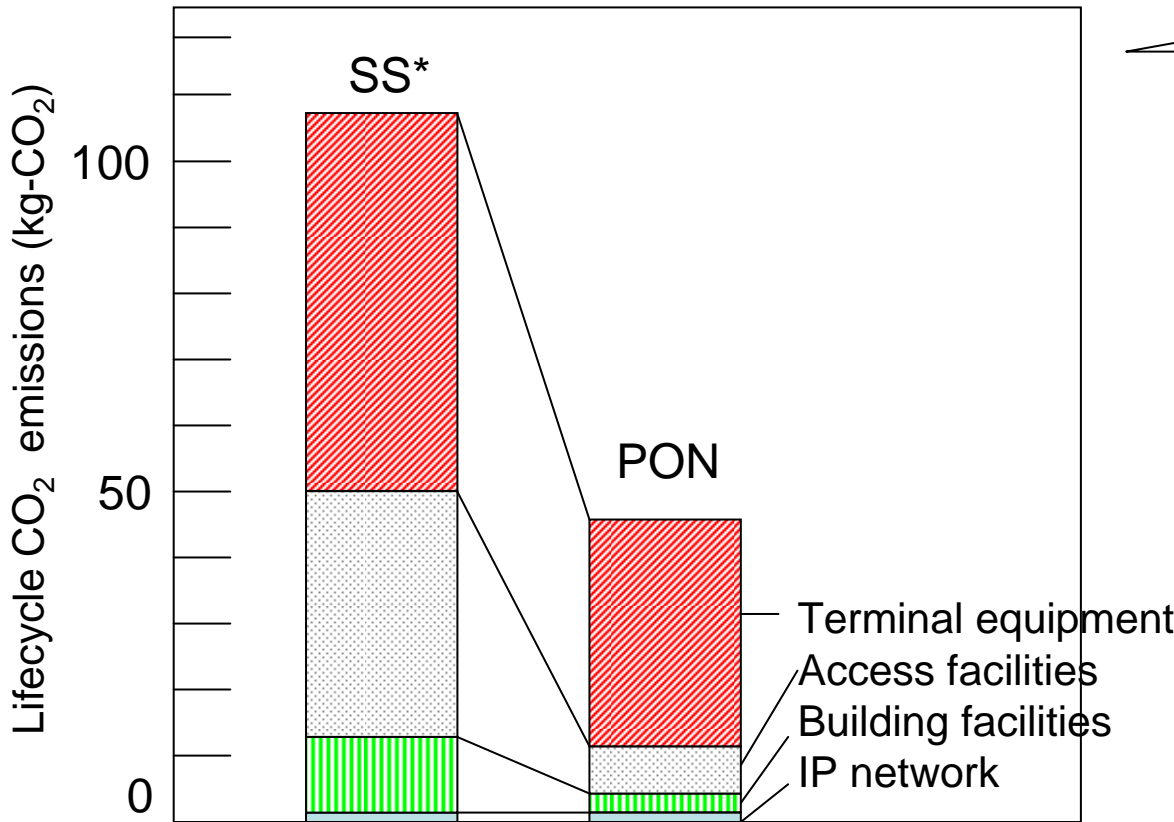
## Environmental solutions and efforts to reduce the environmental impact of NTT Group products and services

## Urban heat island mitigation

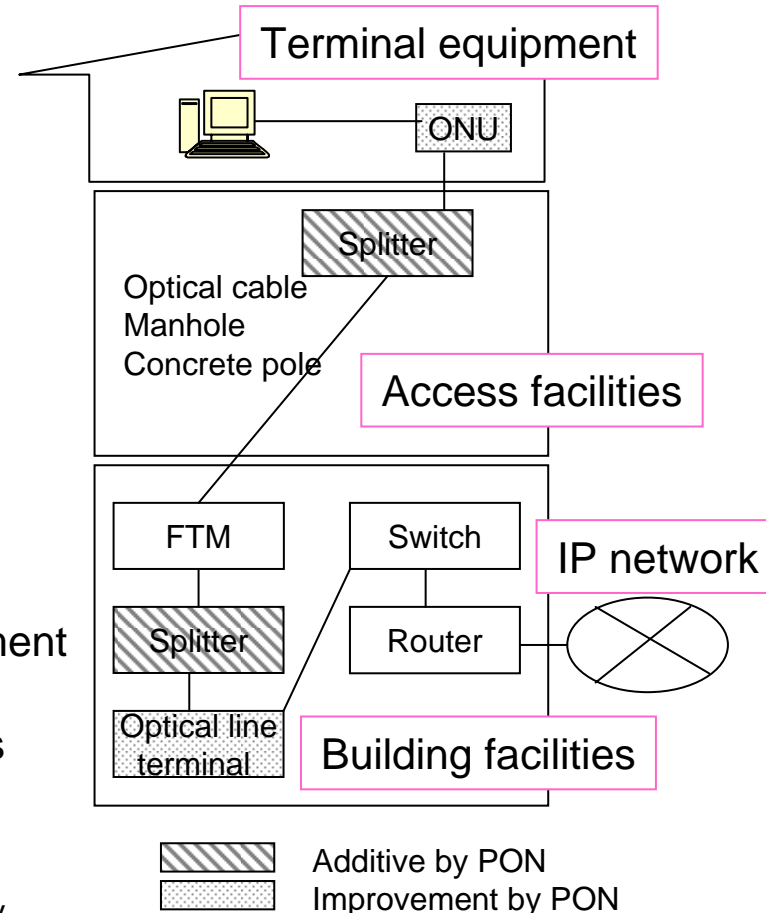


# CO<sub>2</sub> reduction effect of Internet connection service with PON (passive optical network) system

CO<sub>2</sub> reduction of 57% by sharing an optical fiber



Conditions: PC used for 1 h and one ONU used for 24 h in a day  
 CO<sub>2</sub> emissions of a subscriber in metropolitan area during a year  
 \*: Single Star



# NTT Group Vision for Environmental Contribution

The NTT Group is helping to reduce the environmental impacts of its customers and society as a whole by developing and disseminating ubiquitous broadband-based ICT services that promote positive changes in lifestyles and business models.

Reduction target for 2010

Reductions in CO<sub>2</sub> emissions as a result of ICT services

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CO<sub>2</sub> emissions from providing ICT services

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Reduction in CO<sub>2</sub> emissions of 10 million tons

# CO<sub>2</sub> reduction effect of broadband services

## *Evaluated broadband services provided by NTT Group*

- **FLET'S ADSL** is an Internet connection service with flat-rate monthly charges using an ADSL (asymmetric digital subscriber line) line.
- **B FLET'S** is an Internet connection service with flat-rate monthly charges using an optical fiber cable (FTTH).
- **FOMA** is a W-CDMA-based 3G mobile communication service (W-CDMA: wideband code division multiple access).

## *Evaluation method*

**Step 1** We determined the ICT services and actions used in Japan and also assumed the conventional services and actions to achieve the same objectives without using the broadband services.

**Step 2** We surveyed the average usage condition of each broadband service by sending questionnaires to users.

**Step 3** Based on the survey results, we assessed lifecycle CO<sub>2</sub> emissions for ICT and conventional services and actions over a single line or access channel during a one-year period.

# ICT services/actions using broadband services and conventional ones

## B FLET'S, FLET'S ADSL and FOMA (16 services)

ICT services/actions	Conventional services/actions
Email	Mail letters
Receive information by e-magazines and e-newsletters	Subscribe to newspapers
Web pages, bulletin boards, chatting, blogging	Purchase magazines at store
Quizzes, prizes, questionnaire replies	Mail postcards
Internet auction	Exchange goods in person
Internet shopping	Mail-order

⋮

⋮

## B FLET'S and FLET'S ADSL only (3 services)

ICT services/actions	Conventional services/actions
Download music	Purchase CDs at store
Download movies	Purchase DVDs at store

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## FOMA only (3 services)

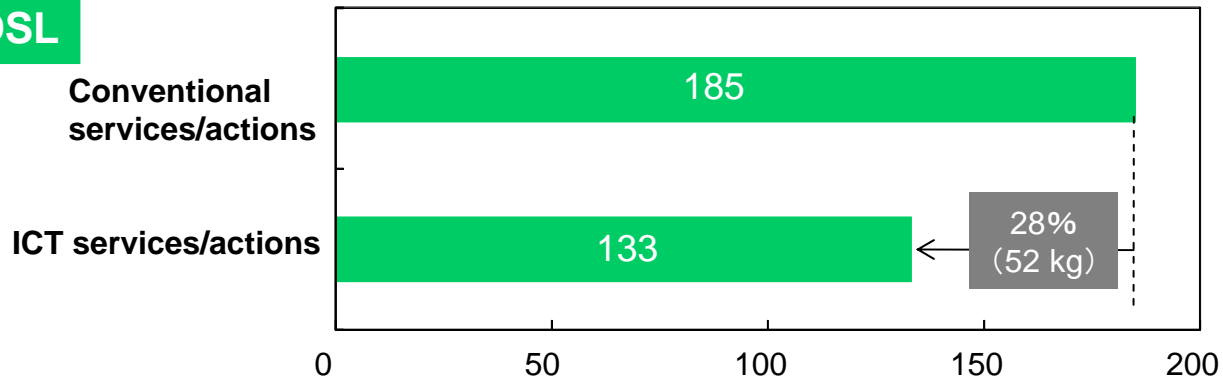
ICT services/actions	Conventional services/actions
Download ring tones	Purchase CDs at store
Retrieve maps and location information	Purchase maps at store

⋮

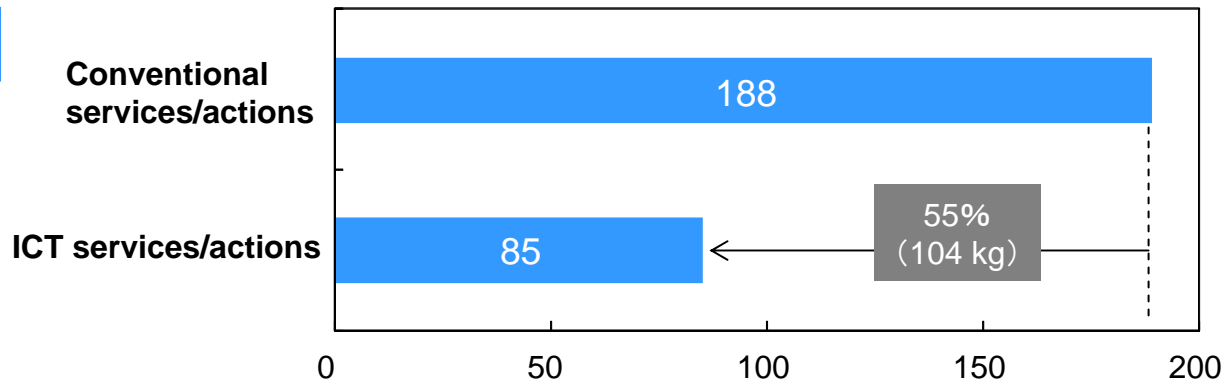
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# CO<sub>2</sub> reduction effect of broadband services

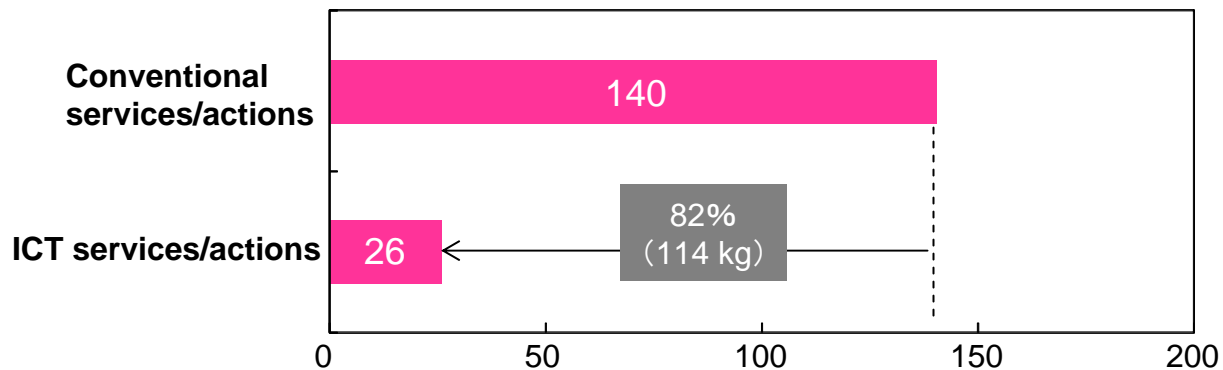
## FLET'S ADSL



## B FLET'S

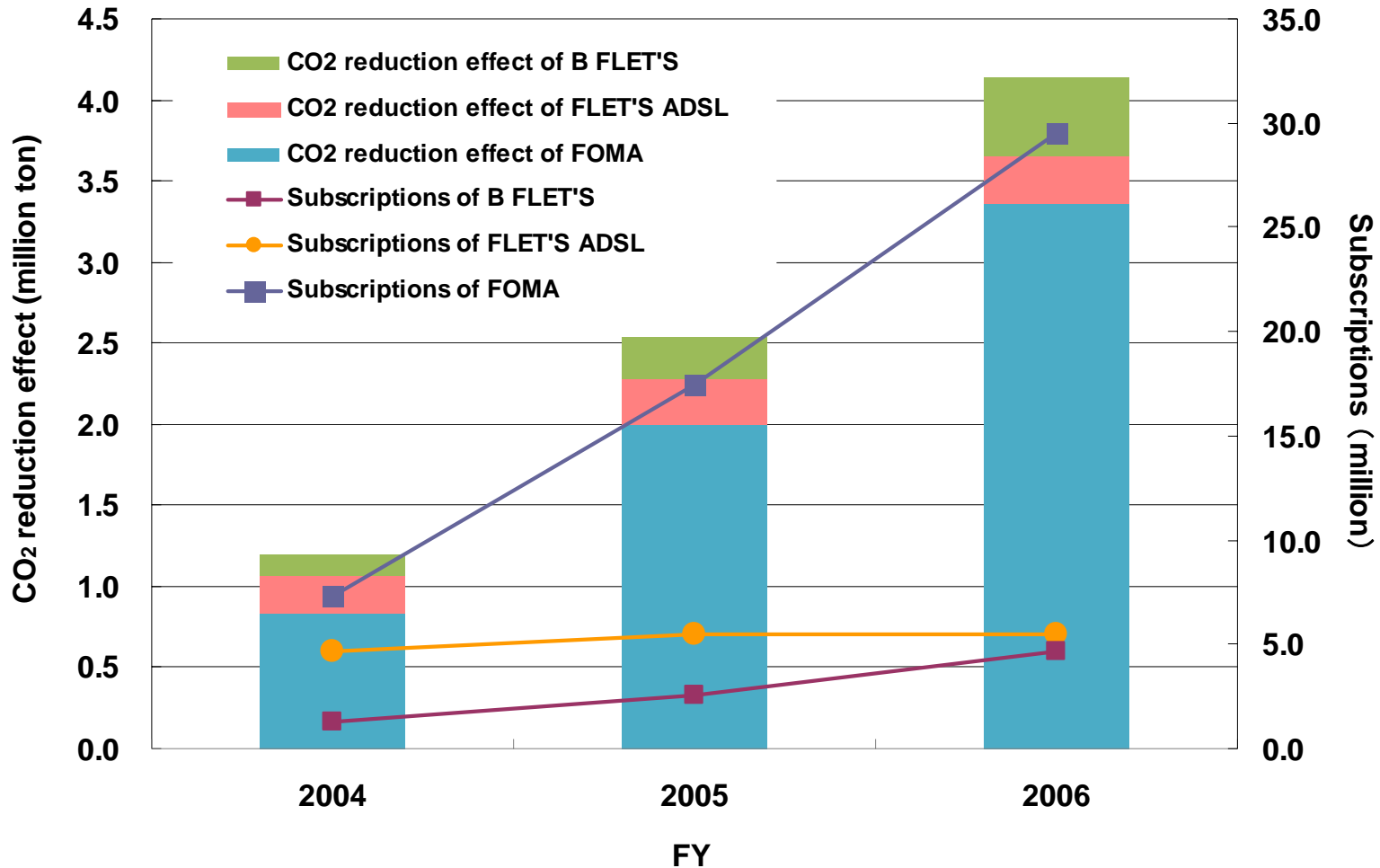


## FOMA



Lifecycle CO<sub>2</sub> emissions (kg-CO<sub>2</sub> per year)

# CO<sub>2</sub> reduction effect of the entire NTT Group



CO<sub>2</sub> reduction effect in 2006, 4.14 million tons, is larger than CO<sub>2</sub> emissions of the entire NTT Group, 3.78 million tons.

# Summary (1)

- Providing users with broadband and ubiquitous services can not only improve their convenience but also reduce energy consumption by making activities more efficient. On the other hand, both resources and energy are consumed in providing broadband and ubiquitous services.
- NTT promotes power consumption reduction with its total power revolution (TPR) activity etc. because NTT consumes a lot of electricity: 8.5 billion kWh.
- For FTTH (fiber to the home), the CO<sub>2</sub> emissions were decreased by a passive optical network (PON) system, in which multiple subscribers share an optical fiber.

# Summary (2)

- NTT contributed a CO<sub>2</sub> reduction of 4.14 million tons by providing users with broadband and ubiquitous services in 2006.
- To promote global warming countermeasures through the use of ICT worldwide, it is necessary to standardize the criteria used for determining the contribution by the use of ICT .
- In ITU, I would like to promote standardization of the criteria used for this calculation.