

# Approach to Gas Business

- In response to the result of gas system reform including full deregulation of gas retail market on April 2017, TEPCO group will further expand its gas business.
- Concretely, we will expand retail sales of gas before calorific value adjustment and city gas for industrial complex area as well as prepare for gas sales for household use.

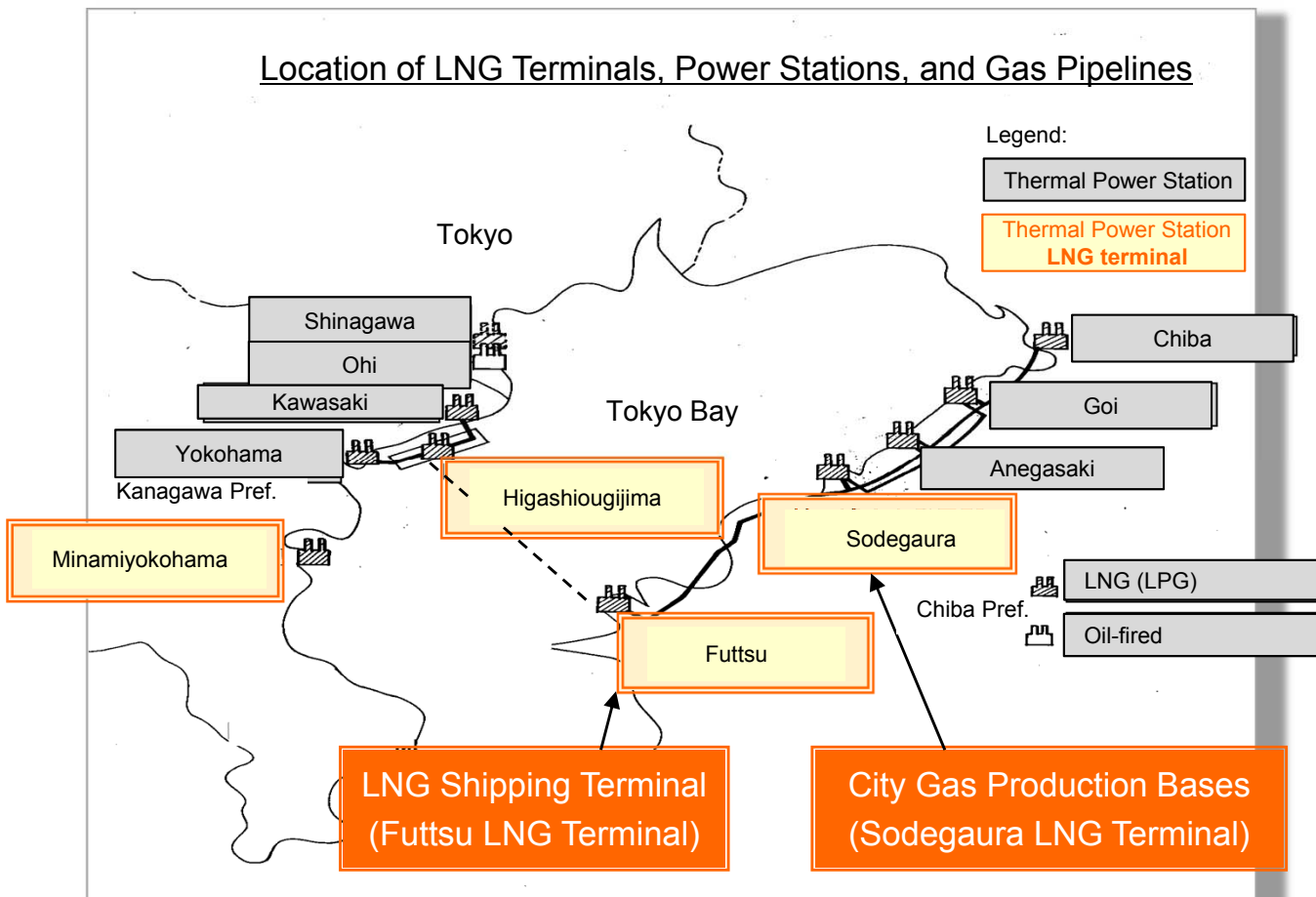
**April 15, 2016**

**Tokyo Electric Power Company Holdings, Incorporated**

# 1-1. Current Status of Gas Business ~ Infrastructure for Gas Business

- Gas business has been operated based on the infrastructure where 25 million-ton-a-year LNG have been purchased for thermal power generation for securing constant gas procurement and gas pipeline connecting LNG terminals and thermal power stations have been deployed.

Location of LNG Terminals, Power Stations, and Gas Pipelines



Length of Gas Pipeline

Keiyo area	Futtsu~Chiba	App. 51km
	Sodegaura~Goi	App.23km
Keihin area	Higashiougijima~Kawasaki	App.4km
	Higashiougijima~Yokohama	App.6km
Across Tokyo Bay	Futtsu~Higashiougijima	App.20km

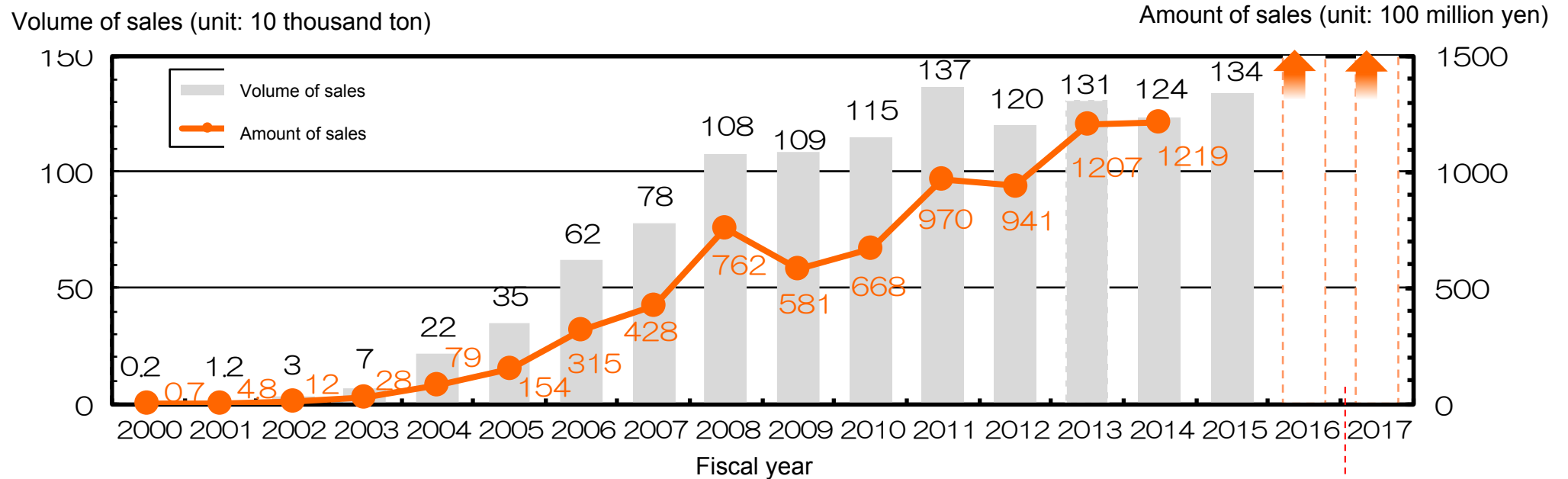
Total App.103km

Outline of LNG Terminals

Terminal name	Outline
Futtsu LNG terminal [Shintomi, Futtsu, Chiba Pref.]	Berth 2 units Tank capacity (10 units) 1.11MkL LNG 0.516M ton equivalent
Sodegaura LNG terminal (Share with Tokyo Gas) [Nakasode, Sodegaura, Chiba Pref.]	Berth 3 units Tank capacity (18 units) 1.06MkL LNG 0.493M ton equivalent (our company)
Higashiougijima LNG terminal [Kawasaki-ku, Kawasaki, Kanagawa Pref.]	Berth1unit Tank capacity (9 units) 0.54MkL LNG 0.251M ton equivalent
Negishi LNG terminal (Share with Tokyo Gas) [Isogo-ku, Yokohama, Kanagawa Pref.]	Berth1unit Tank capacity (4 units) 0.14MkL LNG 0.065M ton equivalent (our company)

# 1-2. Current Status of Gas Business ~ Transition of Gas Sales

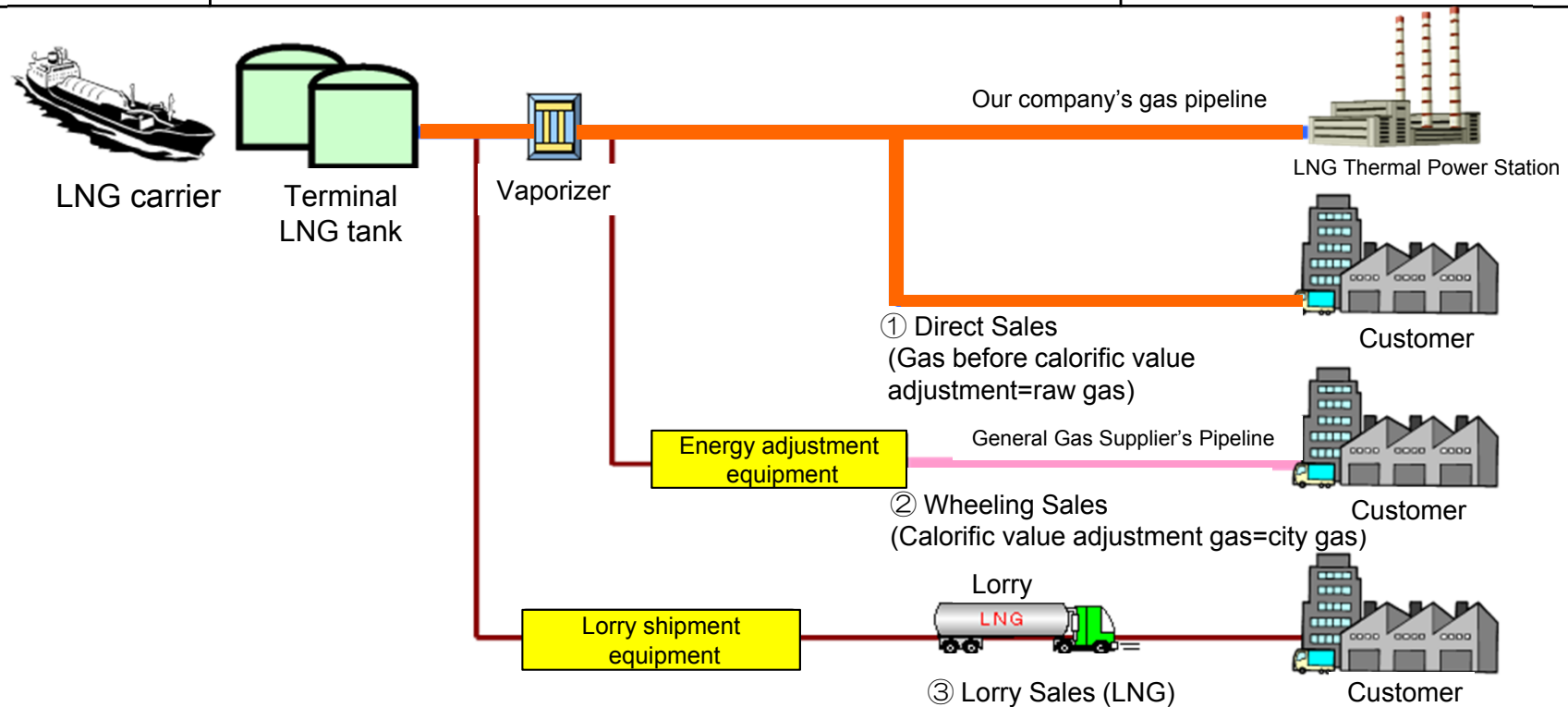
- In the area of gas business, we have expanded our business platform centering on direct sales utilizing “gas before calorific value adjustment” which does not require energy adjustment for power generation for industrial complex area and energy demand from it in line with the progress of electricity and gas business reforms.
- Since FY2008, we have sold more than 1 million-ton-a-year gas. In FY2015, we sold 1.34 million tons of gas.



# 1-3. Gas Business and Current Status ~Styles of Gas Sales

- Currently, gas are sold via following three styles depending on area and usage.
- 90% or more of gas sales are direct sales and become an important basis for gas business.

① Direct Sales	Evaporate LNG received for thermal power generation and sell it to customers as “gas before calorific value adjustment” using gas pipeline	In the vicinity of gas pipeline Mainly for large-scale factory
② Wheeling Sales	Make energy adjustment of evaporated gas and sell it as city gas 13A using general has suppliers’ (city gas companies’) pipelines	City gas companies’ supply area For multiple purposes
③ Lorry Sales	Sell LNG using lorry	Outside city gas companies’ supply area For multiple purposes



## 2-1. Gas System Reform ~Main Issues in Gas System Reform

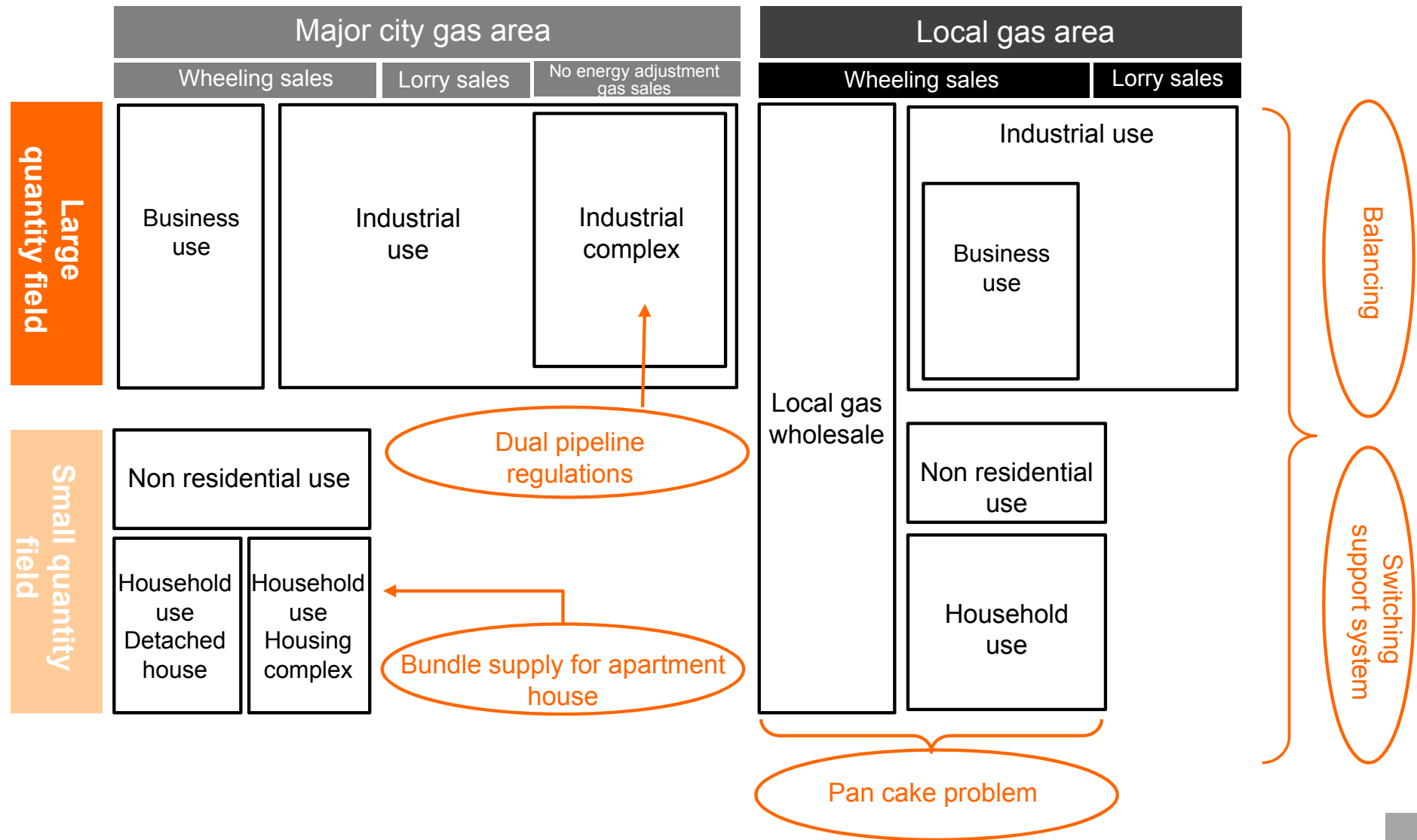
- In Gas System Reform subcommittee, system design for preparing an environment for full deregulation of retail market has been progressing.
- The date of enforcement of full deregulation of retail business falls on April 1<sup>st</sup>, 2017. Detailed discussion for implementation has been made.

### 【Main Schedule related to System Reform】

	FY2014	FY2015	FY2016	FY2017	FY2018 and after
Electricity	▼ 2014.6.18 Promulgation of the Amendment to Electricity Business Act (2nd Phase)	▼ 2015.4 Establishment of broadly-based organizations (1st Stage)	▼ 2016.4~ Full deregulation of electricity retail market (2nd Stage)		▼ 2020.4~ Legal separation of power transmission and distribution sectors (3rd Stage)
	Toward full deregulation of retail market on April 2016, implement detailed system design and system development, etc.				
Gas		▼ 2015.6.17 Promulgation of the Amendment to Gas Business Act		▼ 2017.4.1 Full deregulation of gas retail sales	▼ 2022.4~ Legal separation of pipeline sectors
	Full deregulation process of gas business was one year behind electricity business		Full deregulation of gas retail market on April 2017 (Realization of fair competitive environment)		

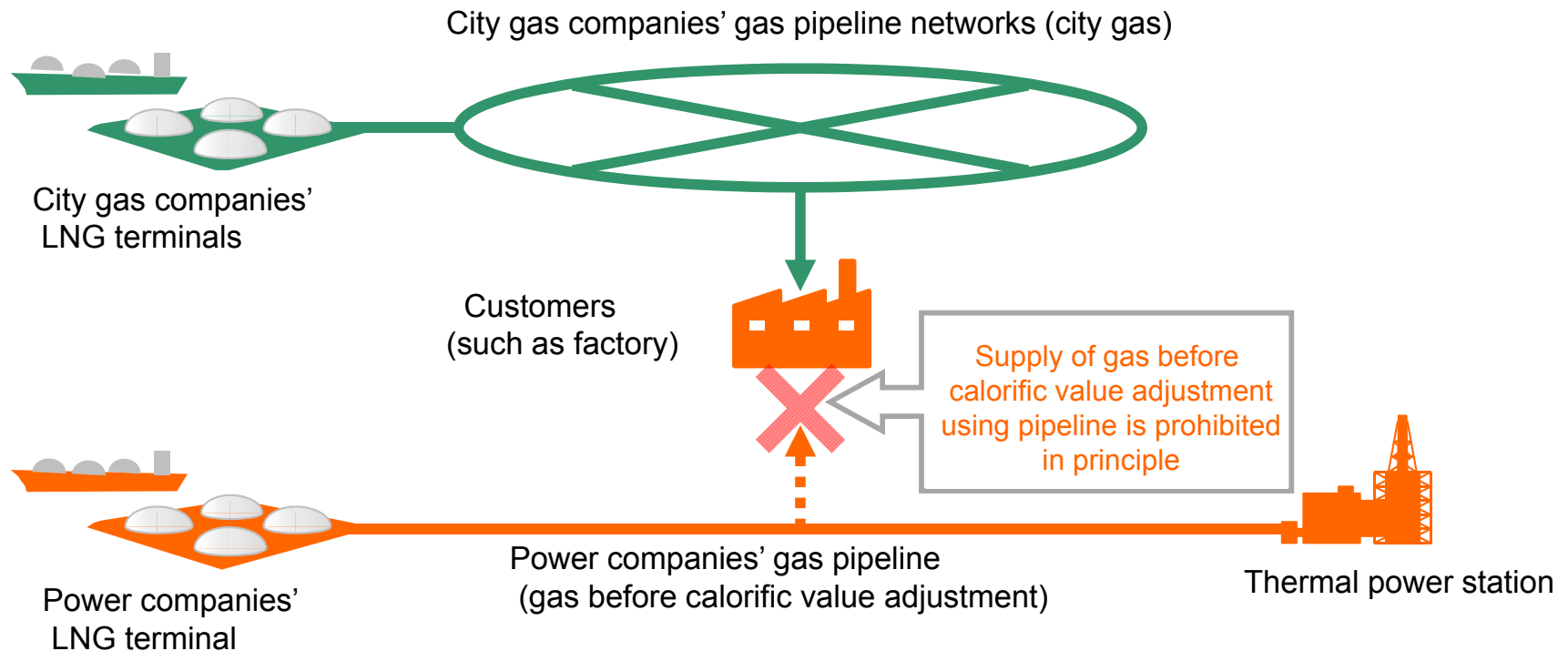
## 2-2. Gas System Reform ~Increasing Sales Potential Resulting from Gas System Reform

- Main discussion points in Gas System Reform Subcommittee are as follows.
- Under the System Reform for realizing fair competitive environment, we aim to achieve about 1M ton sales increase from present after 10 years.



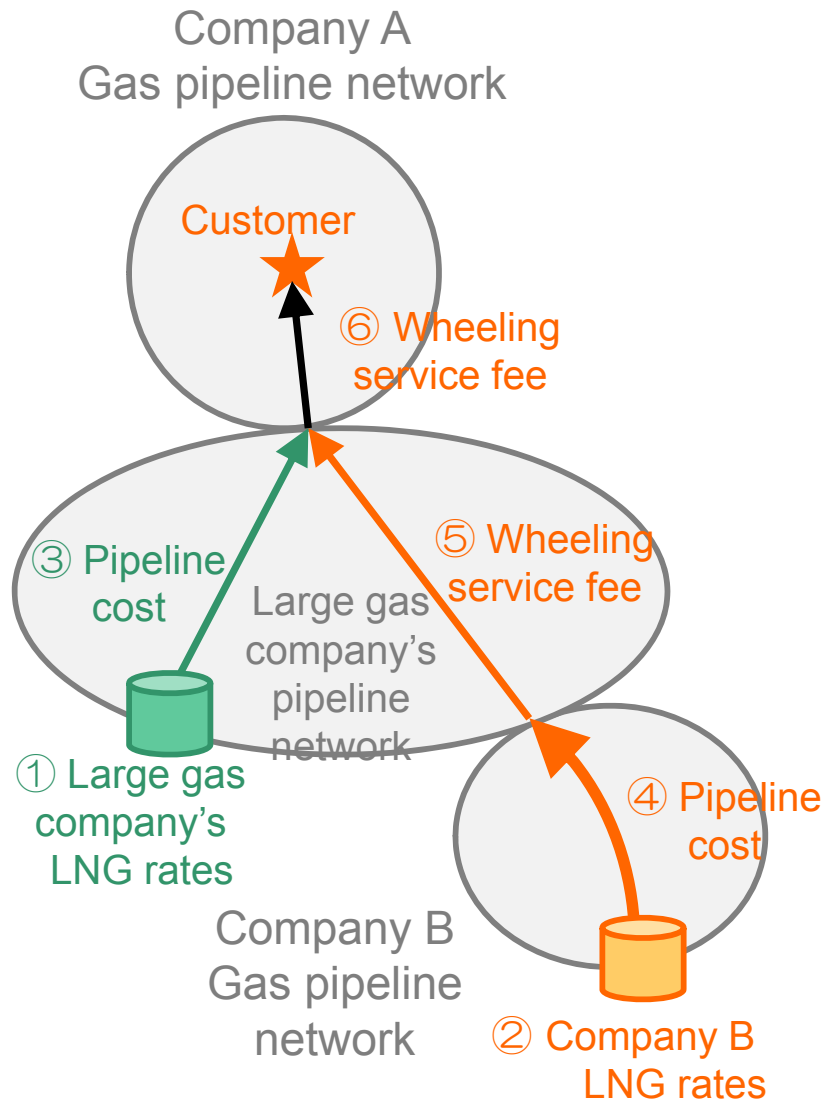
# (Reference) Dual Pipeline Regulations

- There is an expectation from customers such as large-scale factories of industrial complex who do not need calorific value adjustment for cost reduction by utilizing “gas before calorific value adjustment” which omits LPG addition process.
- However, under the current system, supply of “gas before calorific value adjustment” using pipeline in the sales area of city gas companies is not permitted in principle.
- This regulation is to be reviewed drastically, and if it is relaxed, as one of the measures for securing industrial competitiveness, we will be able to meet the expectations of customers who want to use inexpensive gas that does not need calorific value adjustment.



# (Reference) Pan Cake Problem

- Under current system, when gas is sold to the customers in distant sales area of another gas supplier, wheeling service fee is added for every crossing sales area.
- Through this reform, it is expected that the additional cost for wheeling charge will be borne by gas supplier in final demand. As a result, fair competition between newcomers and existing suppliers will be secured.



## Image of Gas Retail Price

### < Current status >

● Company B's gas retail price  
 $②+④+⑤+⑥$  ← Disadvantageous due to much wheeling service fee

● Large gas company's retail price  
 $①+③+⑥$   
 Not seen due to combined price



### < After reform >

● Company B's gas retail price  
 $②+⑥$

● Large gas company's retail price  
 $①+⑥$

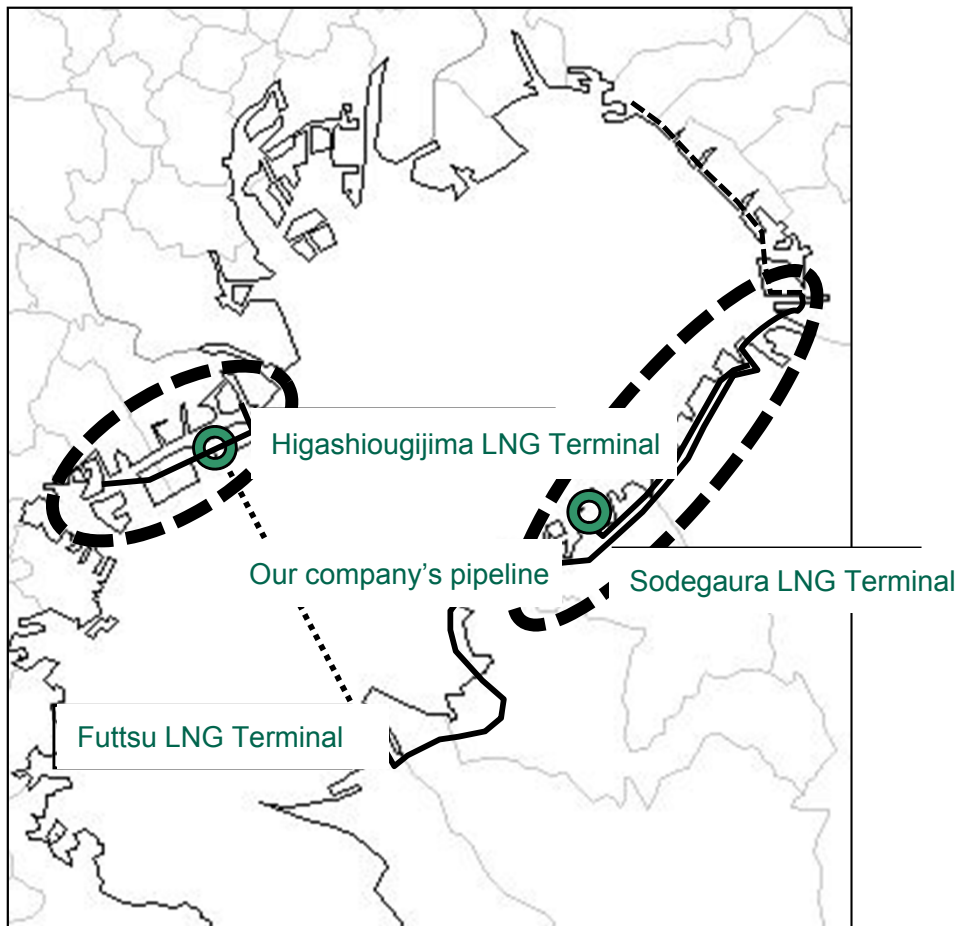
} Same competition condition

\* Cost of ③ • ④ • ⑤ are charged to Company A and borne by Company A as general burden of wheeling service fee (become part of ⑥)

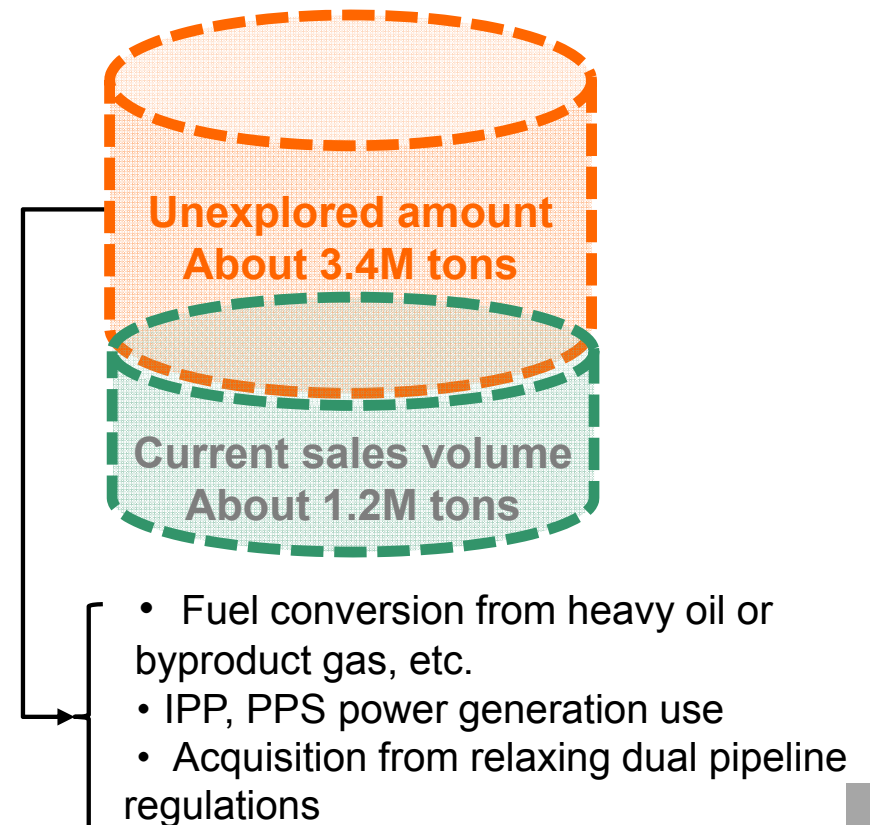


### 3-1. Vision for Gas Business Expansion ~ Expansion of Gas before Calorific Value Adjustment Sales

- The merits of gas before calorific value adjustment are “economic competitiveness” and “environmental friendliness”.
- Sales potentiality including fuel conversion from heavy oil, byproduct gas, or relaxing of dual pipeline regulations is estimated to 3.4 million tons.
- Among them, the potential from relaxing dual pipeline regulations is estimated to hundreds of thousand tons.



#### Sales potential of gas before calorific value adjustment



## 3-2. Vision for Gas Business Expansion ~ Sales to Household Use and Local Gas Companies

- Along with full deregulation and system reform, we have accelerated reviewing coverage expansion including wholesale to local gas companies and retail sales targeting household-use.
- Looking at April 2017 when full deregulation of gas retail market will begin, we would like to show detailed rate plan as soon as possible.

