



**Asia-Pacific
Economic Cooperation**

**APEC SYMPOSIUM
ON THE IMPLEMENTATION OF GOVERNMENT
ENERGY EFFICIENCY PROGRAMS**

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**Session 8: Energy Efficiency
Procurement Practices (cont'd)**

Public Procurement System for Energy Saving Commodities

AUG 2004



1. Present Energy Situation of the Korea
2. Relevant Law and Regulation of High Efficiency Energy Product for Purchase
3. Multi Estimation Program of Public Procurement Service
4. GePS Development
5. Function of GePS

※GePS: Government e-Procurement System



A. Present Income Condition

- 97% of national energy for income dependence
 - World 4th largest oil importing country (73% coming from Middle East)
 - Annual import value for energy : USD 38 billion (21% of total import value)
 - 10th largest energy consumption country in the world
 - Daily oil consumption volume : 2,090,000 barrel

B. Extension of Independent Supply

- long-term basis attending foreign countries' exploitation of energy resources project



- Independence development (Y2003 → Y2010)
 - Oils : 3.1% → 10%
 - Gas : 3.4% → 30%
 - (East Sea gas deposit : 5 million tons/ USD 1.2 billion Income effects)
- Foreign countries resource development
 - Myanmar (deposit : 0.8 ~ 1.2 hundred million tons)
 - Enduring Caspian Sea gas development
 - Introduction route and price negotiation of Irukeucheukeu gas

C. Governmental Energy Policy

- People-government combination forum」 operation
 - Civic group and expert participation
 - Opinion reflection of people
 - Continuance possibility development committee's policy



1. Present Energy Situation of the Korea



- Nuclear energy development facilities emphasis application

- Fair and competitive energy base furtherance

D. New and Renewable Energy Supply Plan

- Supply target: 3%(2003) → 5%(2011)



New and Renewable Energy Supply Plan by Field



(Unit: 1,000 toe)

Field	Y2003		Y2006		Y2011	
	Amounts of Supply	Rate(%)	Amounts of Supply	Rate(%)	Amounts of Supply	Rate(%)
Solar heat	41	0.93	102	1.45	318	2.39
Bio energy	197	4.43	495	7.07	1,050	7.87
Waste energy	3,080	69.2	5,050	72.13	7,540	56.54
Solar photovoltaics	2.7	0.06	22	0.31	341	2.56
Wind force	13	0.29	126	1.8	1,311	9.83
Small Hydroelectric power	50	1.12	111	1.59	446	3.34
Fuel cell	-	-	0.4	0.01	147	1.10
Earth heat	0.8	0.02	12	0.17	161	1.21
Ocean energy	-	-	0.7	0.01	432	3.24
Hydrogen	-	-	-	-	1.3	0.01
Use to Coal	-	-	-	-	375	2.81
Sum	3,385	76.05	5,919	84.54	12,122	90.9
Hydroelectric power	1,066	23.95	1,082	15.45	1,213	9.1
Total	4,451	100.0	7,001	100.0	13,335	100.0
Rate of New and Renewable energy	2.06		3.0		5.0	



2. Purchase Relevant Law and Regulation of High Effectiveness Energy Product



A. Relevant law

- Act on the Contracts to Which the State is a Party and enforcement decree of the Act on the Contracts to Which the State is a Party
- Act on the promotion of saving and recycling of resources

B. Governmental Purchase standard

- Public official shall determine the participant in the tender according to not only the price but also the quality
- Standard detail operation of "Multi-estimation"
- Standard purchase operation system of consumption product





3. Multi-Estimation Program of Public Procurement Service





A. Sorts of energy consumption product



- high efficiency energy products(30 Kinds)
 - Certification System
 - ※ Electric motor, Fluorescent lamp, Gas-fired boiler, Pump, Transformer, Thermo Regulator, Ventilation fan etc.
- Efficiency management products(15 Kinds)
 - Indicate efficiency grade
 - ※ Washing Machine, Light bulb, Dish washers, Electric rice cooker, Vacuum cleaner etc.
- Energy saving products(17 Kinds) → "e-Mark" grant
 - ※ Computer, Monitor, Printer, Facsimile, Copying machine, Scanner, TV, Microwave oven, etc.

 **Present Purchase of the latest 3 Years** 



Unit : US\$1,000

	Y2001	Y2002	Y2003
Transformer	11,750	9,918	8,743
Generator	942	2,091	716
Motor and pump	6,247	4,357	12,067
Escalator	9,471	21,221	49,886
Elevator	801	2,734	570
Refrigerator	452	2,205	2,777
Blower	-	904	-
Boiler	806	193	696
Electricity room cooler	-	147	-
Humidifier	172	-	-
Total	30,639(1.38%)	43,753(1.65%)	75,377(2.47%)

-  **3. Multi Estimation Program of Public Procurement Service** 
- B. Operation Characteristic**
- Selection method of Products
 - Public Procurement Service request special Research that recommend high efficiency products
 - Need to Performance Data
 - Measuring factor: energy wear and tear expenses, operating time, efficiency etc.
 - Bidding form
 - All bidder who want the bidding must submit that lower part refers ; for example energy efficiency, energy wear and tear expenses, etc. about bidding commodities.
 - Warranty of product quality
 - Test result issued by institute
 - Bidders' estimate should be written with bidding price and quality level.

 **Calculation Factor According to Commodities** 

Commodities	Calculation Factor
Transformer	Electric power unit cost, Year operating hour, No-load year operating hour, Peak load , Rated capacity load factor and reverse load factor
Motor	Electric power unit cost, Year operating hour, Rated power
Pump	Electric power unit cost, Year operating hour, Liquid specific gravity, Discharge Volume, Total head
Boiler	Year operating hour, Evaporating volume per hour, Low calorific power, Water enthalpy, Steam enthalpy of using pressure, Fuel specific gravity
Refrigerator	Sales price per Kwh, Target Consumption amount per month

-  **3. Multi estimation program of Public Procurement service** 
- C. Problems and Improvements Plan**
- Problems
 - Low purchase activity
 - Only 1.38 ~2.47% of Total purchasing amount
 - Applied item is little
 - Not enough for low consumption commodities
 - Low Public information
 - Improvements Plan in the future
 - Extension of applicable commodities
 - Standard of commodities selection
 - Energy efficiency rate
 - Technical renovation
 - Using the public sector
 - Selection method
 - Test for standardization and submission of the test results
 - Public sector opinion



4. GePS Development

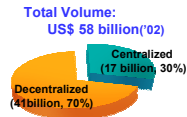


A. Overview of the Public Procurement

- Combines centralized and decentralized procurement systems

– **Centralized** : Procurement by central and local government agencies over a certain threshold must be assigned to PPS

– **Decentralized** : Procurement under the threshold and state-owned enterprises' procurement are conducted by themselves



- May use PPS' GePS for decentralized procurement

PPS is a centralized procurement agency that was organized in 1949 with total of 935 employees.

(PPS as a centralized procurement agency was organized in 1949 and 935 employees are working for the public procurement.)



4. GePS Development



B. Understanding of Public Procurement

- Importance of public procurement
 - Eases the burden of taxpayers' by reducing national budgets
 - Most of public expenditures are distributed by procurement
 - Sharply increasing public confidence through the transparent process
 - Eliminates common suspicions of corruption
 - Plays the role as a tool for fiscal policy
- Traditional characteristics of public procurement

Paper-oriented procedure

- excessive paperwork

Labor-intensive work

- frequent office visit

Complicated process

High cost

Low transparency

Low service quality



4. GePS Development



C. Need for Enhancing Performance of Public Procurement

- To respond for changing procurement environment



- E-Commerce ; the Best Way to Innovation

- To sharply increasing transparency and efficiency by online transactions
- To maximize(=optimize) the return on investment by using the one system
 - No need to establish another e-procurement system by each agency



4. GePS Development



D. Strategic Approach to Adopting e-Commerce

- To become a professional organization by differentiation
 - Transformed our organization with the use of IT
- Took initial steps for e-procurement
 - Started with PPS' own business (centralized procurement)
 - Exchanged e-documents by using EDI and opened e-mall (1997-1999)
 - Provided e-bidding and e-payment services (2000)
 - Facilitated e-Commerce in the entire public sector including decentralized procurement
- Initial operational capability : September 2002
 - GePS is a single window for public procurement which digitalized the entire processes from order to payment



5. Function of GePS



A. Single Window for Public Procurement

- **Single point-of-entry** for public procurement opportunities
 - All bids are legally required to be announced on GePS
 - Examples of bid information : end-user, project size, estimate cost, technical specification, and award criteria
- **Centralized business registration**
 - With just a one-time registration with GePS, businesses can participate in all government business opportunities
 - Repository of vendor data for the public sector



5. Function of GePS



B. Digitalized the Whole Procurement Cycle

- Automate end-to-end procurement process from requisition to payment

e-Bid	e-Mail	e-Contract	e-Payment
Bid documents preparation and posting	One stop shopping source – search products, compare price, submit P/O to vendor	Support electronic contract documents form	Submission of invoice
Invitation for bid	Buyers and sellers sign contract documents using digital signature	Buyers and sellers sign contract documents using digital signature	Electronic Payment Transfer
Secure submission and storage of bids	25,000 off-the-shelf products such as office supplies through framework contract	Storage of contract documents	Fast payment within 4 hours after receipt of invoice
Opening of bids		Submission of inspection request and inspection certificate	
Posting of award decision			



5. Function of GePS



C. Integrated and Shared Service

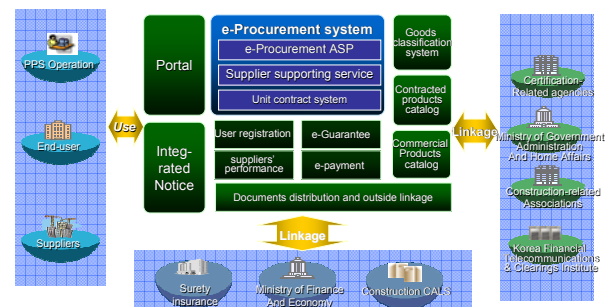
- Provides one-stop service by linking GePS with 53 external systems including :
 - Korea Financial Telecommunications & Clearings Institute for internet banking, National Finance Integrated System by Ministry of Finance and Economy for government financing, etc
 - 11 guaranteed corporations for warranty of transactions, 6 construction related associations for obtaining business credits, etc
- Provides e-procurement services for all public organizations
 - Joint use by all agencies from the central and local governments to state-owned enterprises by logging on to GePS



5. Function of GePS



D. Internal & External System Architecture





5. Function of GePS



E. Technology Base of GePS

Combination of Information Protection Technology and the new e-Commerce Model

- Adopting encryption technology based on public key infrastructure and digital signature
- Based on the world-wide standards of e-document (XML, SOAP, EBMS, etc)
- TSS (Time stamp service) and authentication



Demo : List of invitation for bids & Click on e-bid



The screenshot shows the '나라장터' (Government e-Procurement System) interface. A table lists various bid items with columns for item name, status, deadline, and bid opening date. A red callout box points to a 'Click Here for Bid Participation' link next to a bid entry.



Demo : Detailed information for each bid



The screenshot displays detailed information for a bid. A red callout box highlights the 'Deadline for participation, estimated costs, technical specification, award criteria, etc' section of the bid details.



Demo : Bid results on a real-time basis



The screenshot shows the '나라장터' interface displaying real-time bid results. A table lists participants and their proposed prices. A red callout box highlights the 'List of participants and price proposed' section.



Thank You!!

Chinese Government Efforts to Promote Energy Efficiency for End Use

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Why to promote energy efficiency for end use

Dual pressures

Energy security and environment pollution

- 1303 million tce energy consumption in 2000

Ranking 2nd in world in term of energy consumption and GHGs emission

- Severe environmental pollution and ecological crisis

Resource and Environment Standardization Institute

Why to promote energy efficiency for end use

Transformation of government function

- Switching from the management of energy consumption process to end-use energy consumption.
- Standards, information label and endorsement label are priority tools to enhance end-use energy efficiency.

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Efforts from Chinese government

- To develop and enforce energy efficiency standards
- To promote energy conservation product's label
- To launch a new information label
- To conduct "green" procurement
- To promulgate energy conservation product lists
- To offer information, training and demonstration

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•The first phase: from 1989 to 1994

In 1989, the first round energy efficiency standards were developed. the 9 standards covered household appliance such as TV, fan, room air condition, refrigerator, washer.

key technical index is mandatory MEPS.

The principle of setting MEPS mainly depends on distribution of product's energy efficiency in market.

The major methodology is statistics.



•The second phase: from 1995 to 2001

The evaluation value for energy conservation was added to new product standards and revised standards for implementing voluntary endorse label.

Energy efficiency standards covered some lighting products.

Standards for room air condition and refrigerator were revised in 1999 and 2000, respectively.

The engineering and economic analysis was introduced in setting MEPS and evaluating value for energy conservation.



The third phase: from 2001 to present

The product list stretched to industry equipment such as heat pump, fan, motor and boiler, transformer and commercial product such as central air condition.

The energy efficiency categories were considered in the standards for information label scheme.

Conducting research on product's energy saving potential to identify priority candidate product for standards and label program.



In the past, when China set standards, the standards would take effect within a year of being issued (normally after half year).

As a result, when the standards are set, they need to be at levels that most manufacturers can meet, which results in only modest energy savings.

On the other hand, such standards can be revised fairly frequently. For example, China set a new refrigerator standard in 1999, and a revised standard was issued in 2003.

Reach standard is coming!

A "reach" standard is a more stringent standard that some manufacturers will have to stretch in order to reach it.

In exchange, manufacturers are generally given multiple years to reach such standards.

Thus, a reach standard provides manufacturers with a medium-term target that they have several years to achieve.

China has begun moving in this direction.

A new refrigerator standard was finalized. It includes a modest first standard (10% savings relative to the 1999 standard), to take effect in 2003, and then a more stringent second standard (an additional 10% savings) to take effect in 2007.

The reach standard approach is also being considered for other residential standards and will be stretched to lighting products and industrial equipment in the very near future.

•MEPS (mandatory)

—— to eliminate low efficiency products

• Evaluating values of energy conservation (voluntary)

——to implement energy efficiency endorsement label

• rating criteria (mandatory)

—— to implement energy information label.

Household appliances:

- Refrigerators
- Room air conditions
- cloth washing machines
- Electric irons
- Electric rice cookers
- Color TVs
- Electric fans
- Gas water heaters

Lists of energy efficiency Standards



lighting products

- Ballasts for tubular fluorescent lamps
- Double-capped fluorescent lamps for general lighting service
- Single-capped fluorescent lamps
- Self-ballasted fluorescent lamps for general lighting service
- High-pressure sodium lamps
- Magnetic ballast for high-pressure sodium lamps
- Metal-halide lamps (under development)
- Ballast for metal-halide lamps (under development)

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lists of energy efficiency Standards



industry and commercial equipment

- Small and medium three-phase asynchronous motors
- Displacement air compressors
- Industry fans
- Centrifugal pumps for fresh water
- Center air conditions (heat –pump) (under development)
- Unitary air conditioners (under development)
- Electric transformations (under development)
- Adaptors (under development)

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Endorsement label



China Certification of Energy Conservation Products (CECP) set up in 1998 is responsible for conducting energy conservation product certification



Resource and Environment Standardization Institute

Information label



To implement the label in a mandatory way under a new legislation which will be issued soon.

Covered products:

domestic appliances and Lighting products.

Refrigerators as the first product will be enforced to attach the label next year.

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Implementation Model:

- Manufactures self declaration
- + Manufactures report the energy efficiency data (test reports) to a government agency
- + Market supervision



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