



**Asia-Pacific  
Economic Cooperation**

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

Kunming, China  
2-3 August 2004

**Session 7: Energy Efficiency  
Procurement Practices**

# Harnessing the Power of Europe's Public Purse €12 billion is just the start!

Nils Borg, Borg & Co  
APEC symposium  
Kunming, 2-3 August 2004



- Two-year European study completed 2003
- PROST– public Procurement of Energy Saving Technologies in Europe
- Expanded to a more general “energy efficiency in the public sector” (buildings and products)
- Energy Service Directive (proposed) mentions public procurement
- Green procurement is becoming an issue for local, regional and national governments – make it energy efficient!

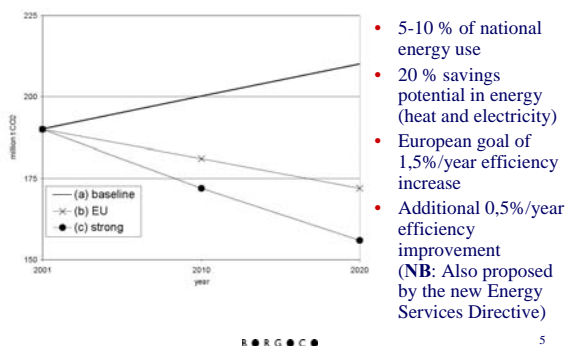
## We looked at Europe and beyond

17 (+2) countries studied

Countries covered in detail	Also in the synthesis	Countries studied
Austria (EU)	Japan (non-EU)	Estonia (NEW member)
Finland (EU)	Switzerland (non-EU)	Greece (EU)
France (EU)	UK (EU)	Hungary (NEW member)
Italy (EU)	USA (non-EU)	Ireland (EU)
Germany (EU)		Slovakia (NEW member)
Netherlands (EU)		Korea (non-EU, very limited)
Poland (NEW member)		Belgium (EU, very limited)
Sweden (EU)		

## Why bother about the public sector and its energy use?

## Fulfilling the Kyoto commitment

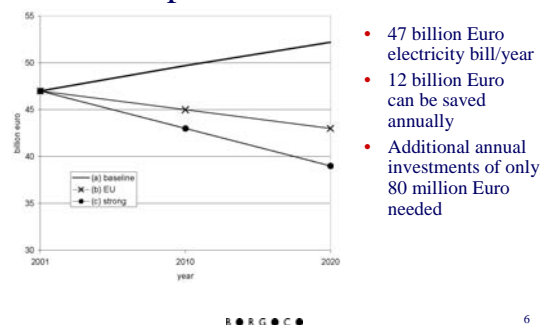


- 5-10 % of national energy use
- 20 % savings potential in energy (heat and electricity)
- European goal of 1,5%/year efficiency increase
- Additional 0,5%/year efficiency improvement (NB: Also proposed by the new Energy Services Directive)

E • R • G • C • C •

5

## 12 billion Euro/year – in the public sector alone!



- 47 billion Euro electricity bill/year
- 12 billion Euro can be saved annually
- Additional annual investments of only 80 million Euro needed

E • R • G • C • C •

6

## The opportunity for wider market transformation

- Computers are an example
- Difficult to change consumer purchasing behaviour (of these products) with labels and information.
- 13% of public sector electric savings could come from IT equipment
- 600 000 PCs purchased every year by the European public sector, or 12 million computers in 20 years
- They are worth ~1 billion Euro/year
- ...so, common criteria would help to create one “virtual buyer”
- **It works!** Compare with the US example! (IW stand by)

E • R • G • C • C •

7

## Summing up the “therefores”

- The government should lead the way “leadership by example”
- MARKET TRANSFORMATION OPPORTUNITY
- Public sector has a large share of total procurement.
- KYOTO COMMITMENT
- Large savings potential
- SAVE MONEY:
- Efficient use of resources: taxpayer’s money - in effect OUR money

E • R • G • C • C •

8

## Why isn't this happening?

"It is not allowed,  
I must buy the cheapest product"

**WRONG**

**It is OK to buy best value for money!**

E • R • G • C •

9

## It is happening now

- We found "islands" of good examples
  - Danish A-Club and public sector commitments
  - UK has ambitious policy
  - A number of municipalities:
    - (e.g., City of **Pori, Finland**, cities in **Germany, France**)
    - **Sundsvall (Sweden)** - replaced all street lighting
  - Also good energy management examples
    - **Germany, Sweden, Finland, France, Italy**

E • R • G • C •

10

## When is it working?

- Political leadership is strong and clear
- Committed staff
- Budgetary routines that allow investment
- Public procurement legislation was understood.

E • R • G • C •

11

## Danish A-Club

- Set up in 1999 by the Danish Electricity Saving Trust
- Name "borrowed" from the EU energy label
- Purpose: To make it simple, secure and cheap primarily for government organisations to buy energy efficient.
- A number of tools are offered:
  - Network
  - Support
  - Specifications
  - Special offers
- Four-year commitment to follow two-page guideline: (GEEA, A/A+ rated appliances)

E • R • G • C •

12

## www.a-klubben.dk

- 190 member organisations
  - 9 central government ministries/agencies (20%)
  - 7 County administrations (54%)
  - 71 municipalities (26%)
  - Public housing companies
  - Private companies
- = 20% of Danish public sector electricity use
- New services and tools for systems have been developed
  - Lighting
  - HVAC
  - Server rooms
  - Electricity consumption feedback systems

E • R • G • C •

13

## Use existing tools and databases!

- A-club is good example:
- GEEA label almost invisible. But database is used
- EU label (but is mandatory label)
- Homespeed for appliances is can be linked to public purchasing regimes.
- Energy Star (For IT and office equipment only in EU)

E • R • G • C •

14

## What's in the public building toolbox?

### BUILDINGS (Components and systems)

- Concrete recommendations, specific levels
- LCC analysis vs purchase guidelines (Simplify!)
- Minimum building performance standards (kWh/year/m<sup>2</sup>, etc)
- Building component purchase recommendations
  - 13 products
  - Detailed prototype fact sheets for windows and ballasts



E • R • G • C •

15

## What's in the public product purchasing toolbox?

### ENERGY USING PRODUCTS (APPLIANCES AND CARS)

- LCC analysis vs. purchase guidelines (Make it simple!)
- Product lists and recommended levels
  - cold and wet appliances
  - ITC equipment
  - lighting
  - cars

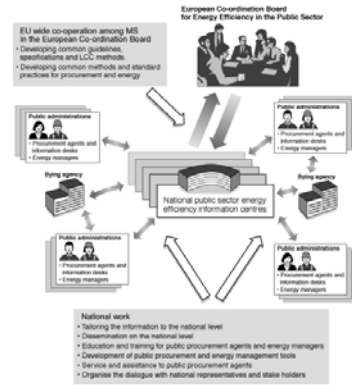


E • R • G • C •

16

## Creating a European structure

- Setting policy targets
- Define **common** criteria and specifications for products
- Define **common** criteria and specifications for buildings
- Creating a structure where this can happen
  - Advice
  - Develop guidelines
  - Coordinating efforts
- Bring in national buying agencies into the system



## A Directive will not be ready now, so what can we do meanwhile?

- Move forward on local or national level
- Voluntary co-ordination programmes can start now (to develop common criteria)!!!
- Some barriers can be removed by local decisions
- The government shall provide leadership by example
- Use existing work (databases etc)

### Leadership by example :

- European authorities shall do what they ask other agencies to do. (especially European Commission).

The full PROST report can be found at:

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

(see library and links)

## Government Energy Management and Voluntary Approaches: Energy Star and Other Market Transformation Programs



Susan Wickwire, U.S. EPA  
 International Symposium on the Implementation  
 of Government Energy Management Programs  
 Kunming, China  
 3 August 2004



## Presentation Overview

- Background on Energy Star and other Voluntary Programs
- Why These Programs Work
- Coordination of Voluntary Programs and Public Sector Energy Management
- Lessons Learned

*Voluntary Approaches and Government Energy Management*

## ENERGY STAR- A Comprehensive Program

- Joint program - EPA and the Department of Energy
- Started small and expanded
- Covers over 40 products (e.g. refrigerators, DVD players) as well as new homes and a range of building types
- Requires substantial resources to manage complex program
- Label provides a common national "platform" used by state and local governments, utilities, etc. - use their own resources to promote the program
- Has become global symbol of EE

*Voluntary Approaches and Government Energy Management*

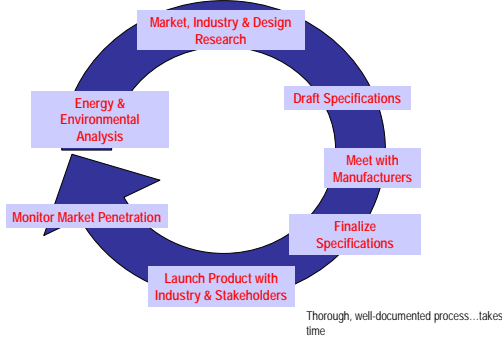
## ENERGY STAR Labeled Products - Some Examples

- CFLs / residential light fixtures
- Commercial refrigerators and freezers
- Consumer electronics
- Exit signs
- Heating and cooling equipment
- Household appliances
- Office equipment
- Roof products
- Traffic signals
- Transformers
- Windows, doors, skylights



*Voluntary Approaches and Government Energy Management*

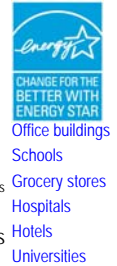
## Product Development Cycle



*Voluntary Approaches and Government Energy Management*

## Energy Performance Benchmarking Is a New Cornerstone for Efficiency

- National building energy rating system ('99)
  - Overcomes major market gap :
    - Can't manage what can't be measured
    - Now have system like mpg for cars: scale of 1 to 100
    - Measures how key building systems work together
- Great success in short time
  - 19,000 buildings benchmarked
    - 19% of office building space benchmarked
    - 18% schools; 20% supermarkets; 33% hospitals; and 5% of hotels
  - 1,400 buildings labeled for excellence
- Used to mark leadership and in market transactions
  - Leasing



*Voluntary Approaches and Government Energy Management*

## ENERGY STAR Now a Broad EE Platform

- Sizable results in 2003
  - Offset more than 20 million kW of peak demand (~20 million homes)
  - Prevented GHG emissions of 27.8 MMTCE (102 Tg. CO2 Eq.) (Over 18 million automobiles)
  - Prevented emissions of nitrogen oxides (NOx) of 175,000 tons
  - Reduced energy consumption by 115 billion kWh, providing net savings to consumers and businesses of \$9 billion on energy bills
- Overall
  - 1 billion products purchased
  - 200,000 new homes constructed
  - 19,000 commercial buildings benchmarked
- Results are growing -- goal is to double by 2010

*Voluntary Approaches and Government Energy Management*

## ENERGY STAR's Effectiveness - Makes Efficiency Easy for Consumers

- Turns energy efficiency into real products and services
- National definitions for efficient products, homes, and buildings
- Provides objective, clear information
- Very high brand recognition among public (56% nationally)

*Voluntary Approaches and Government Energy Management*



## ENERGY STAR's Effectiveness - Benefits to Manufacturers

- Offers Clear National Specification
- Offers Competitive Advantages
- Marketing Tools and Financing
- Demonstrates Corporate Stewardship
- Meets Corporate Client Preferences
- Associates Company with Label
- EPA recognition of manufacturer efforts with annual awards

*Voluntary Approaches and Government Energy Management*

## ENERGY STAR's Effectiveness - Multiple Societal Benefits

- Environmental - can assess "co-benefits":
  - GHG reductions
  - Air pollutants
- Economic - for every \$1 in Federal Funds:
  - Savings to businesses and consumers of more than \$75 on their energy bills
  - Creation of more than \$15 in private sector investment
  - The addition of over \$60 into the economy

*Voluntary Approaches and Government Energy Management*

## Examples of Other Voluntary Programs

- **Combined Heat and Power Partnership**
  - Assisting CHP projects across industry ( assisted 58 projects totaling over 850 MW)
  - Providing permitting guidance and regulatory innovation outreach to recognize efficiency of CHP
- **Green Power Partnership**
  - Lowers transactions costs and increases value of buying renewable energy
  - Over 230 Partners have committed to buy over 1 billion kWh of new renewable energy

*Voluntary Approaches and Government Energy Management*

## Benefits of Coordinated Programs

- Key components of energy technology market transformation - each valuable on its own merits
- Can complement and support each other
- Realize program efficiencies - common specifications, tools, training programs
- Effectiveness - Combined incentives = market penetration and competition = lower cost = more rapid market transformation
- Stakeholder interest – simpler for manufacturers, greater incentive to participate
- Government budget, economic, environmental benefits

*Voluntary Approaches and Government Energy Management*

## And Some Costs...

- Requires effort to ensure institutional coordination - Environment, Energy, Finance ministries, etc.
- Different levels of government involved
- Can slow implementation

*Voluntary Approaches and Government Energy Management*

## Energy Star and Government Energy Management - Making Practical Linkages

- Product specifications – can go either direction
- Tools and training – benchmarking, financial analysis, energy management systems
- Stakeholder processes – manufacturers, technical institutions
- Increased incentives for product improvement, market penetration, cost reduction

*Voluntary Approaches and Government Energy Management*

## ENERGY STAR and the Federal Energy Management Program (FEMP)

- FEMP recommends that ES products be purchased for labeled product categories where appropriate
- For many product categories for which ES labels are not available, FEMP has own EE “product energy efficiency recommendation”
- When ENERGY STAR is adding new product categories that are that are not already labeled but that are covered by FEMP, will review the FEMP recommendations when starting to develop own
- FEMP has adopted U.S. EPA's energy performance rating system for buildings

*Voluntary Approaches and Government Energy Management*

## ENERGY STAR in Federal Buildings

- The Executive Order (E.O.) 13123 requires:
  - All U.S. government agencies must use the U.S. EPA's energy performance rating for buildings
  - Government buildings must achieve a score of 75 or better where cost-effective
- The ENERGY STAR rating uses a 1 to 100 scale to compare energy performance to similar buildings, normalizing for climate, weather, and building characteristics
- When selecting leased facilities, E.O. gives preference to buildings scoring at least 75
- New construction of government buildings can require at least a 75 score that is maintained over time

*Voluntary Approaches and Government Energy Management*

## ENERGY STAR at the State & Local Levels

- Many state and regional programs incorporate voluntary programs
  - Procurement of ENERGY STAR products
  - ENERGY STAR Buildings
- For example,
  - California Title 20 -- makes ENERGY STAR a mandatory minimum
  - New York Energy \$mart - promotes ENERGY STAR products
  - Seattle City Light - public utility endorsement

*Voluntary Approaches and Government Energy Management*

## Role of Other Voluntary Programs

- State, local and federal Agencies cooperate with CHP Partnership, non-CO2 greenhouse gases, DOE's Motor Challenge and other voluntary programs
- Green Power Partnership
  - Voluntary program definitions/specifications used by FEMP
  - U.S. Defense Dept is one of the largest buyers of green power in the U.S.; also U.S. EPA, U.S. Park Service, USDA, NASA and other federal Agencies
  - Includes states of New Jersey, Maryland, Illinois and Utah
  - Includes cities of Chicago, Portland (OR), and San Diego

*Voluntary Approaches and Government Energy Management*

## Lessons Learned

- **Well designed and managed Government-sponsored programs can be a powerful tool for promoting EE, environmental improvement and economic growth**
  - Programs – voluntary or public sector - require substantial up-front resources to be successful (in terms of program management and incentives for consumers and manufacturers)
  - Investment pays for itself many times over in savings and in program efficiency and effectiveness
  - Coordination of programs, agencies and stakeholders takes time and staff resources
- **Set ambitious goals but start with manageable scale**
  - Pilot programs very helpful (e.g., EPA Green Lights, then computers, scaled up over time to over 40 product categories currently)
- **Public sector includes provincial and local government**
  - Also key partners in voluntary programs

*Voluntary Approaches and Government Energy Management*

## Lessons Learned (cont.)

- **Programs must pay attention to non-energy performance attributes**
  - Consumers (private or government) tend to be skeptics of green products and do not want to trade functionality for environmentally sound products
- **Make participation easy/painless**
  - Many technology fixes have been invisible to the consumer
  - Simple messages, education, outreach and training are very important
- **Cooperation and harmonization can have great benefits**
  - On a regional and sometimes global scale depending on product markets, manufacturers, etc.
  - Testing procedures, specifications, outreach/training materials, tools
  - For both voluntary and public sector programs

*Voluntary Approaches and Government Energy Management*

## Role of APEC EE Expert Group

- Promote information sharing, e.g., ESIS website
- Sponsor conferences and meetings to encourage the exchange of experiences and to develop best practices
- Facilitate coordination/harmonization of programs within the region

*Voluntary Approaches and Government Energy Management*

## Thank You for Your Attention !

Susan Wickwire, US EPA  
Phone: 001-202-343-9155  
Fax: 001-202-343-2337  
Email: [wickwire.susan@epa.gov](mailto:wickwire.susan@epa.gov)  
[www.epa.gov](http://www.epa.gov)  
[www.energystar.gov](http://www.energystar.gov)

*Voluntary Approaches and Government Energy Management*