
White Certificates

- What can Denmark learn from other countries?

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What can Denmark learn from others?

- Task for the Danish Energy Authority:
 - Foreign experiences – Italy, France, United Kingdom and others
 - What qualities in the existing Danish system should be maintained? How should a Danish system for white certificates be formed if it were to be established?

Energy savings are overlooked

- Barriers to end-use energy efficiency
 - Price
 - Many small projects with each its start up costs
 - The supply of energy savings services is limited
 - Drive
 - Typically long way from will to action among consumers
 - The focus of the consumers is primarily on investment costs
- Wishes
 - Price
 - Exploitation of the possibilities for “economies of scale” (lower price per savings)
 - Larger supply of energy savings services and greater price competition
 - Drive
 - Strongly motivated initiator
 - Actor with focus on economic profitability (=recognition of value)

Other political agendas

- IT
 - Greater security of supply (large import from France, blackouts in 2003)
- UK
 - Alleviation of fuel poverty
 - Increased living standards (better health)
- FR
 - Smoother transition for the consumers to market prices for energy

The concept in brief

- Main argument for WC
 - Can create initiative and economic efficiency
- Concept
 - An authority places an obligation on someone to realise a certain amount of energy savings
 - A procedure which defines "a unit of energy savings"
 - A procedure for covering costs

Alternatives to WC

- Taxation of energy consumption (levy)
 - Pro – Discourages consumption (and creates means for savings), no free-riders
 - Contra – Competitiveness of Danish companies is deteriorated, limited initiative, politically sensitive redistribution issue
- Creation of an energy savings fund
 - Pro – Variation in applications' profile and innovation possible
 - Contra – Central selection and control, limited initiative
- Individual quotas for energy consumption (similar to placing WC obligation on consumers)
 - Pro – Baseline estimates are unnecessary
 - Contra – Determination of consumption levels

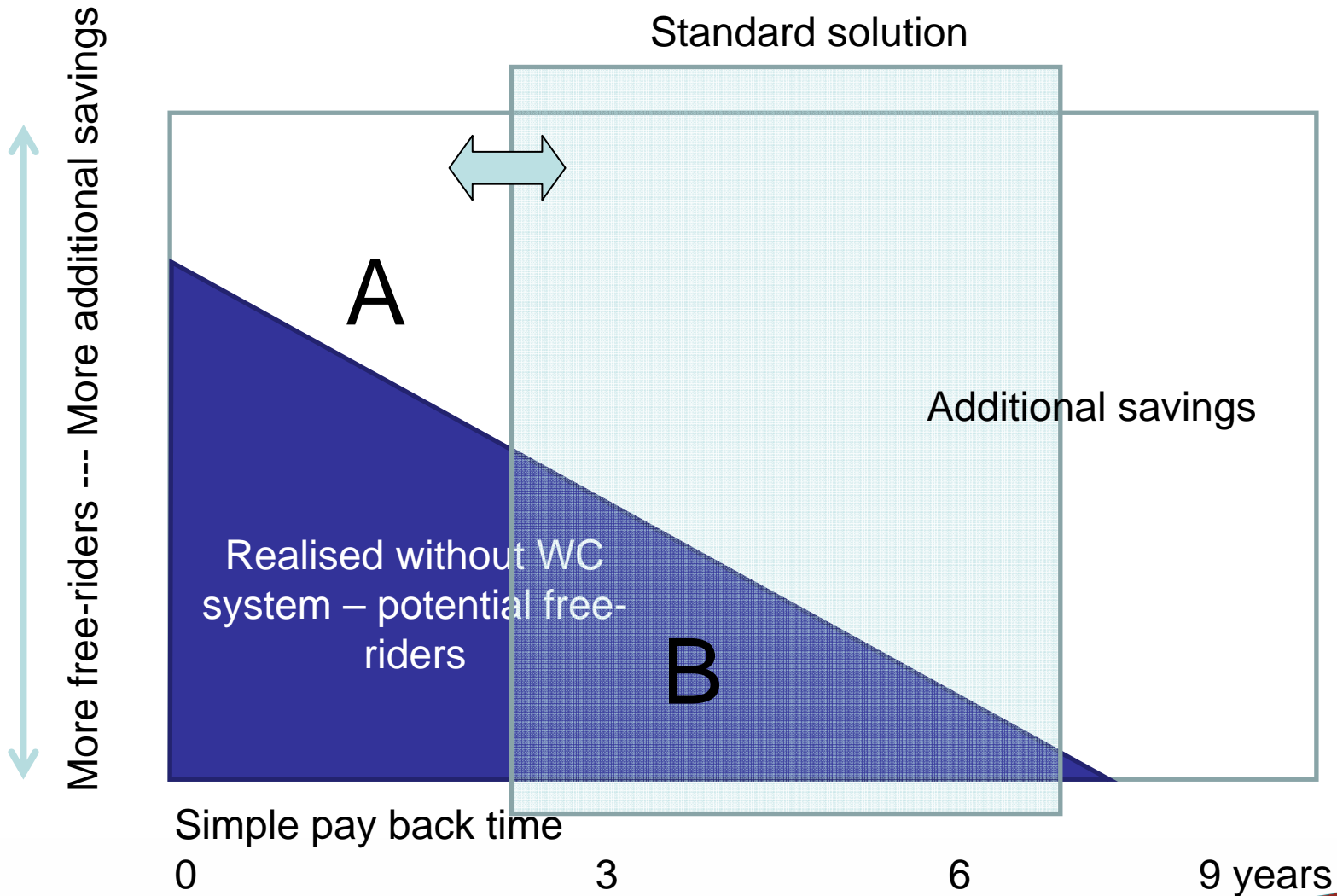
Other countries

- The Netherlands
 - Voluntary agreement with the energy companies – 30% savings in 200.000-300.000 households per year – argument: fewer free-riders and lower transaction costs
 - Aims to save 100 PJ (=28 TWh) in the period 2008-2020
- Poland
 - Introducing WC system – also savings in the energy supply system are allowed – argument: low public budgets

The parameters of the WC system

- Obligation (market size, energy type) and obliged parties (primary actors)
- Secondary actors with permission to trade
- Transaction costs, price setting (market place), financing (administration of system) and penalties
- Solutions (standard, customer specific) and consumer segments
- Approval of WC – including placement of risk – and verification
- Evaluation and adjustment
- Interaction with other mechanisms

Minimising free-riders



Formation d'un chauffeur de transport public routier à la conduite économique

1. Secteur d'application

Transport public routier de voyageurs (autobus et autocars de ligne).

2. Dénomination

Formation d'un chauffeur à la conduite économique lors d'une campagne menée sur un ou plusieurs réseaux de transports publics urbains ou interurbains.

3. Conditions pour la délivrance de certificats

La formation initiale, réalisée par une entreprise ou un organisme agréé, doit comporter :

- une partie théorique portant sur le fonctionnement du moteur et les principes de la conduite économique (anticipation, juste sollicitation de la mécanique) ;
- une partie pratique sur véhicule.

Les sessions de rappel doivent comporter la partie pratique, mais leur partie théorique pourra être allégée.

4. Durée de vie conventionnelle

1 an.

5. Montant des certificats en kWh cumac

Type de véhicule	Montant annuel en kWh cumac
Urbain (autobus)	3 000
Interurbain (autocar)	4 200

Example of
French
standard
solution

Standard CFL solution

CFL	1st year savings (kWh/year)	Life time savings (kWh)
FR	(33)	230
IT	66	330
UK	10	208
DK	18-77	(144-616)
Assumptions		
FR	4% discount rate, 7.5 years' life time	
IT	5 years' life time	
UK	3.5% discount rate, 16 years' life time. Corrected for heat displacement	
DK	5 sizes, 1,000 h/year, 8 years' life time	

Our main conclusions

- Advanced form of economic support in some form or other – free-rider issue
- Standard solutions dominate – Simple to administrate but imprecise
 - Apparently very attractive solutions can get all attention – In Italy CFLs
- It is possible to make the price visible
- Only a real exchange for WC in Italy (1/3 of total is traded there)
- It is not documented that a WC system is a more cost-effective mechanism than the alternatives
- WC system is not used alone but in conjunction with other mechanisms
- The systems are very national specific – Common EU system not realistic
- Savings in households dominate so far – greater cost-effectiveness in other segments?

Danish savings targets

- Energy savings action plan
 - Globalisation, growth and business development (competitive framework)
 - Security of supply (reduced reliance on fossil fuels)
 - Protection of the environment (in particular CO₂)
- Political agreement 10 June 2005
- Cost effectiveness and market oriented
- 7.5 PJ/year in 2006-2013 (=1.7% of end-use)
 - Now 2008-2013, 9.6 PJ/year
- No increase in economic framework
- Requirements
 - Network companies must prioritise savings in heating
 - Information on financing possibilities
 - Balanced effort in relation to consumer groups, end-uses and geographical area

Danish obligation

- Primary agents
 - District heat, natural gas, electricity network companies and oil companies (oil has voluntary target)
 - Obligation is based on market share (el 1.4, gas 0.5, oil 0.15, DH 0.9 PJ/year end use consumption) – increases from 3 PJ/year to 5.4 PJ/year from 2010 (additional 400-450 mill. DKK)
 - Max 35% lag a given year as of 2008
 - Free choice of energy type and area

Danish solutions

- All sectors except transport
 - End-use measures
 - Local technologies (solar heating, solar cells, heat pumps)
 - End consumer initiatives that bring savings in supply system (flexible el consumption, cooling of DH water)
- El correction factor 2.5
- Involvement requirement (additionality issue)
- 1st year savings only (however, short lived measures like annual boiler check take short life time into account in standard value)
- Types
 - Customer specific solutions
 - Standard solutions
 - Market and behaviour initiatives

Danish documentation requirements

- Storage for 5 years
- Joint documentation
 - Every half year TJ measure type per sector and energy type
 - Annually specific and standard solutions by end-use and sector
- Specific solutions
 - What measure and savings
 - Calculation method
 - Customer id
 - Implementer
- Standard values (installations and sales)
 - What measure
 - No. of installations/sales
 - Customer id
 - Implementer
 - Calculation if market and behaviour – description, baseline according to guide, no. realised
- Market and behaviour influence (no direct customer contact)
 - Only accepted if independent impact of reasonable duration
 - Guide for calculation

Danish verification and evaluation

- Annual samples – occasionally by independent evaluator
- If deemed necessary, cross cutting control by DEA to assess double counting
- Technical work group annually ...
 - Adjustment of guides
 - Establish and update standard values (forward)
 - Adjustment of documentation guidelines
 - Adjustment if relevant of rules for minimising double counting
- Evaluation of system ready end 2008
 - Methods
 - Impact of freedom of method
 - End-user satisfaction
 - Organisation
 - Relation to other mechanisms

To avoid double counting

- **Between obliged parties**
 - Specific and standard
 - Agreements, procedures, samples
 - Long term initiatives
 - Time limited agreement with customer reg. ownership
 - Market and behaviour initiatives
 - Agreements and prior guidelines and distribution key
- **With outsourced initiatives**
 - Agreements and prior guidelines and distribution key
- **Authority initiatives and obliged**
 - Full credit, authority will reduce its figures
- **EST and obliged**
 - Agreement on guidelines and distribution key

Danish energy savings

2006 and Q1-Q2 2007	Businesses	Households	Public sector	Total
(Electric) appliances	3%	2%	0%	5%
Lighting	4%	0%	4%	8%
Boilers, heat and ventilation systems	28%	9%	4%	42%
Building envelope (excl. windows)	1%	0%	0%	1%
Process energy	29%	0%	1%	30%
Pressurised air	4%	0%	0%	4%
Windows	0%	0%	0%	0%
Other	7%	1%	2%	10%
Total	77%	11%	12%	100%

In total 444 GWh

... put slightly differently

Reported for 2006 and Q1-Q2 2007

MWh	EI	DH	Gas	Oil	Total	Sum
11 largest companies	174.391	31.924	106.631	43.501	356.447	77%
40 other companies	78.386	3.852	13.653	8.002	103.893	23%
Total	252.777	35.776	120.284	51.503	460.340	100%
	55%	8%	26%	11%	100%	

Danish trade

- No formal trade
- However, contact between the end-users and energy companies and advisors will as of December 2007 be facilitated through a website hosted by Dansk Energi
- End-users may describe assistance wanted
- Energy companies and advisors may describe offers of assistance

- www.energisparkedmarkedet.dk

Our recommendations

- All consumer segments should be included – also transport
- The obligation should be placed on sales companies since their customers have the choice to leave
- Access for all to trade => increased competition with regard to price and ideas
- Open trading place (not necessarily an exchange) and price statistics => self control / control by competitors
- Standard solutions for all segments and thereby less distortion
- No discounting of savings, since the amount of CO₂ emitted does not have lesser value in the future
- Varied weighting of the different energy types so that CO₂ content is considered (district heating)
- 2-3 average life times of certificates/measures (1, 5, 8)
- Encourage innovation
- Ex-ante approval of WC
- Prepare adjustments and evaluations right from start

For more information:
www.ea-energianalyse.dk

