

## IMPLEMENTING DOMESTIC TRADEABLE PERMITS: RECENT DEVELOPMENTS AND FUTURE CHALLENGES

### EXECUTIVE SUMMARY

***Significant developments in the use of domestic tradeable permits have occurred in the last few years.***

Tradeable or transferable permits (TPs) are increasingly recognised as a cost-effective and flexibly policy instrument for pollution control and natural resources management. Initially, they were considered a policy tool whose applications were limited to only certain sectors, such as air pollution management and fisheries. However, over the last few years, there have been significant developments in the use of domestic TPs, across a broader range of environmental issues.

***This book reviews ex post evaluations of earlier TP schemes, and assesses new applications of TPs.***

This publication presents the proceedings of an OECD workshop on domestic TPs held in September 2001 in Paris. It provides analyses of recent developments in the use of TPs in new areas including: climate change, renewable energy, transport, solid waste management, and water resources management. It reviews key elements of *ex post* evaluations of earlier TP schemes, identifies key challenges in the design and use of TP systems, highlights issues regarding the use of TPs in policy mixes, and attempts to link the past lessons to further research needs.

***While approaches used in ex post evaluations of TP schemes vary...***

*Ex post* evaluations remain a difficult exercise, particularly when the information necessary for the evaluations is not identified up-front when a new TP programme is launched or collected throughout its implementation. Existing *ex post* evaluations vary significantly in methodology and approach as well as institutional context, i.e. depending on whether they are carried out or commissioned by the agency responsible for the TP scheme itself or as independent academic research. This book reviews *ex post* evaluations of the first generation of TP programmes, such as the US Regional Clean Air Incentives Market (RECLAIM), sulphur trading under the Acid Rain programme, and VOC emission trading programmes in the US.

***... there are some key criteria that can be applied to all.***

The most important criteria for *ex post* evaluations of TP schemes include: (i) the environmental effectiveness of the scheme; (ii) the dissemination of prices (i.e. marginal abatement costs) through the market; (iii) the ability and willingness of participants to take advantage of the opportunity to trade or transfer allowances/credits; (iv) the magnitude of transaction and administrative costs; (v) the extent to which market power is a problem; and (vi) the adaptability and sustainability of the TP programme under changing realities.

***Recently there have been notable developments in domestic GHG emissions trading in OECD countries...***

Climate change is one policy area where there have been notable developments recently in TP schemes. Many OECD countries are considering the development and adoption of domestic greenhouse gas (GHG) emissions trading schemes, although they often differ in sector coverage and basic design characteristics. Some are at a more advanced stage than others. Thus, Denmark and the UK already have such schemes in place, while Sweden and Norway plan to introduce their own schemes in the next few years. Meanwhile, the European Commission envisages an EU-wide GHG emissions trading programme that will start in 2005. The domestic GHG emissions trading schemes emerging are being carefully considered in the context of overall policy mixes, as they are being introduced to complement, replace, or remain closely integrated with other policy instruments such as voluntary agreements, energy or carbon taxes, and

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technology standards. For example, the UK emissions trading scheme is closely linked in its architecture to the Climate Change Levy, Climate Change Agreements, as well as incentive subsidies.

*...and also in the use of TPs to promote renewable energy.*

A number of OECD countries have set minimum quotas for the amount of electricity that needs to be generated from renewable energy sources as a share of total electricity produced. Certificates are issued for those meeting the targets. Power companies must redeem these Tradeable Renewable Energy Certificates (TRECs) with the regulator, in order to prove their compliance. Thus, they can either invest themselves in the development of renewable energy, or simply buy excess TRECs from others who have overachieved their targets. These systems substitute or supplement earlier mechanisms that have proven either too costly or not efficient as a means to promote technological progress and market penetration of renewable energy. This publication explores a number of key questions that arise from the development of TRECs:

- Are TRECs the most cost-effective tool for promoting renewable energy development?
- What are the considerations for potentially integrating domestic TREC schemes to allow international transactions?
- Should TRECs be made tradeable in GHG emission trading schemes, as they also contribute to reduction in GHG emissions?

*The transport sector is rich in opportunities for both upstream and downstream application of TPs.*

A number of different approaches for applying domestic TPs exist in the transport sector. Successful examples range from upstream applications for fuels, to downstream applications to vehicles themselves. The phase-out of lead in gasoline was cost-effectively accomplished in the US by obligating refineries to gradually-decreasing maximum lead content targets, allowing them to actively trade the credits for exceeding such targets. Meanwhile, the zero-emission vehicle (ZEV) programme, an “averaging” tradeable permit scheme targeting auto manufacturers in California, encourages them to improve emission rates and fuel efficiency of the vehicles they produce, but with mixed results. In Europe, the “Ecopoint” programme in Austria has successfully proven that it is possible to design and implement a domestic TP scheme for mobile non-point sources, in this case freight trucks, defying the conventional wisdom that TPs are better reserved for large point-sources of emissions. In France, potential applications of decentralised TP systems are being explored in the transport sector, as social and political resistance to further increases in fuel taxes remains strong.

*Domestic TPs are starting to be used as an alternative policy tool in solid waste management...*

Solid waste management represents the latest potential area for the use of domestic TPs in environmental management. While there are not as yet many examples, two applications of TPs in solid waste management have been developed in the UK. The government introduced the Packaging Regulations, obligating producers and users of packaging materials to meet minimum recycling targets. This accidentally gave birth to an active market for trading Packaging Waste Recovery Notes, although it was not originally envisaged as a TP scheme when the new regulation was introduced. The second example is an official scheme currently being developed by the UK government to set decreasing caps on the quantity of biodegradable municipal waste allowed to be landfilled, in light of the EU Landfill Directive. Thus, in principle, municipalities would have the incentive to reduce generation of biodegradable wastes to stay within the limit allowed by permit holdings, through measures such as composting.

*... and have been used in*

The TP concept has been used in water resources management in a few OECD countries, both in the form of water pollution allowances and water abstraction rights. This publication provides a review of existing schemes of both types from water-stressed

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***water resources management in a few OECD countries.***

regions of Australia, the US, Spain and Mexico. More so than for other areas of environmental management such as air pollution control, the use of TPs for water resources management has faced the challenge of social acceptability. At the same time, TPs provide an opportunity to serve as an efficient tool for allocating water among competing demands, and for reducing water pollution cost-effectively. Key lessons that emerge from existing experience include:

- Water rights trading can be facilitated when it is de-linked from land ownership;
- Temporary or seasonal trades in water rights are more frequent than permanent trades;
- the potential for trades in pollution allowances between point sources and non-point sources (e.g. agricultural run-offs) need to be further explored;
- water cannot simply be defined as a private good, and its treatment as a homogeneous tradeable commodity can face social resistance; and
- trading schemes need to be adapted to existing local institutional frameworks for water management.

However, the use of TPs in water management remains a subject of increasing interest, as well as concern and controversy.

***Lessons from past experiences highlight three key areas for further research: ex post evaluations...***

The publication concludes that, in light of these recent developments in the wider application of TPs, it is important to reflect on and draw lessons from existing experiences through *ex post* evaluations. Certain aspects of *ex post* evaluations of TP schemes merit further work, including: (i) methods for defining counterfactuals/baselines; (ii) clarification on the different types of administrative and transaction costs; (iii) how the efficiency of TP markets should be appraised; (iv) understanding of the institutional dimension of evaluation, e.g. who carries out the study, influences the quality of the evaluation, etc; and (v) the cost of evaluation and access to information.

***...the use of TPs in broader policy mixes...***

Domestic TP schemes are never implemented in isolation from other policy tools, such as technology standards, taxes, and voluntary approaches. Further work is needed on the role of TPs in these policy mixes. Some key issues to explore include: (i) how to determine target agents for TPs and those for other policy tools; (ii) complementarities and possible conflicts with other policy instruments (especially technology standards – are they obstacles to realising the economic efficiency of TPs?); and (iii) possible efficiency and equity distortions resulting from co-existence of multiple instruments (e.g. combining TPs and taxes and/or voluntary agreements).

***...and the integration of domestic TP schemes with regional and international schemes.***

Especially in the context of climate change policies, the introduction of domestic emissions trading schemes may eventually require the harmonisation of rules when the EU-wide programme and the international emissions trading scheme under the Kyoto Protocol are launched. Which design aspects of domestic schemes need to be harmonised? Similar questions potentially apply to EU directives related to solid waste management and domestic TP schemes.

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