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on behalf of
the EWC team*

Work Package 5
Package of policy
recommendations for the
assessment, implementation and
operation of TWC schemes



EuroWhiteCert
PROJECT

Task Report Work Package 5

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Project description

The EuroWhiteCert project will support the conceptual and technical development of tradable white certificates systems covering energy savings and energy efficiency. In order to promote the introduction of such systems in the ecologically and economically most beneficial way at the European level, recommendations will be made for handling the interactions of white certificates and their possible integration with other existing and planned tradable certificate and permit systems (such as green certificates, cogeneration certificates), with other policy tools for sustainable energy, as well as with the EU ETS and the JI and CDM schemes.

The project involves a critical evaluation of the experiences with already established certificate schemes in the energy sector and explores the practical implementation of a white certificate scheme by developing a uniform measurement and verification methodology, certifying existing projects, identifying a set of alternative market participants and by eliciting voluntary demand among these.

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1. Introduction

The **overall purpose of the EuroWhiteCert project** (hereafter EWC) was to clarify and give indications about what are the key institutional and market conditions under which Tradable White Certificate (TWC) schemes can efficiently and effectively operate, both in terms of the appropriate policy context as well as operational design and implementation. This project aims at supporting the conceptual and technical development of TWC schemes, and it also addresses the underlying policy question of whether this market-based approach is actually justified.

This material presents a **synthesis of the package of policy recommendations** developed under the EWC project.¹ Building upon early experience, theoretical analyses, stakeholder observations and simulation studies under the EWC project, it is concluded that the analysis and performance of TWC schemes is quite country- or context-specific, with a variety of institutional and market factors influencing (or being influenced by) their performance. Therefore, while this set of policy recommendations attempts to cover many specific aspects, it is of high importance to bear in mind that it is not possible to draw generic policy recommendations applicable for multiple purposes. The policy recommendations attempt to address a variety of institutional and market conditions that are –or might be– critical for the successful assessment, implementation and operation of TWC schemes. The following assessment criteria have been used to guide the elaboration of this set of policy recommendation:

- economic efficiency
- energy/environmental effectiveness
- political feasibility
- administrative burden
- transaction costs

These criteria, and thus the policy recommendations, attempt to ensure a balance between theoretical and practical aspects when assessing, implementing and operating TWC schemes. This summary of policy recommendations aims at guiding such a policy decision-making process. In all, this set of policy recommendations should be taken as a first step towards the general assessment and implementation of TWC schemes.

The policy recommendations presented herein address three **main target groups**. These include policy makers (national and EU level) in charge of the evaluation and design of TWC schemes; authorities responsible for their operation, administration and enforcement of TWC schemes; and obliged and eligible parties participating in TWC schemes. This package of recommendations is intended to guide stakeholders in the analysis, design, and implementation aspects of TWC schemes; as well as the potential interaction/integration of TWC schemes with other policy instruments. Before presenting the package of policy recommendations, stakeholders should bear in mind a crucial set of initial policy recommendations.

Justify the implementation of a TWC scheme. It has been found that the rationale for implementing TWC schemes has shown two different tracks. At the macro level, the set of policy objectives embedded in TWC schemes is clear, well accepted and support the implementation of TWC (e.g., atmospheric pollution, security of energy supply, development of energy service markets, etc.). On the contrary, it has not been clear why and how a given TWC was finally chosen and designed instead of an alternative policy instrument in certain countries. The actual design and implementation process of a TWC scheme is a complicated task, and theoretical benefits of TWC schemes must not underestimate the challenges to get these schemes to work effectively. Policy makers will have to develop their own evaluation frameworks in order to support the policy decision process needed to justify whether a TWC scheme is, or is not, a plausible policy choice. Since a proper introduction of a TWC scheme requires careful setting of baselines and targets, it is essential to improve and complete the required data sets (e.g., energy efficiency potentials) in all EU Members States interested in TWC schemes.

¹ For a full description of these policy recommendations, see Mundaca and Neij (2007).



Perform ex-ante and ex-post assessments. As mentioned above, results indicate that the performance of TWC schemes is rather case- and/or country-specific. Countries that are planning to implement TWC schemes should carry out thorough evaluations.² Ex-ante assessments should capture different design options of TWC schemes, but also additional and alternative policy instruments for energy efficiency. It is highly recommended to use a combination of quantitative and qualitative research methods in ex-ante assessments. Continuous ex-post assessments are recommended for implemented TWC schemes. As an outcome, these studies serve as a basis to make the necessary corrections to the scheme to enhance its performance.

2. Policy recommendations related to economic efficiency

Do not overestimate the theoretical benefits of TWC schemes. Stakeholders must not overestimate theoretical benefits of TWC, in particular those addressing the theoretical efficiency of the market. Although modelling studies do provide useful insights in many respects and should be used to support the policy decision making process, they must be taken with due caution. Market barriers and imperfections (sometimes very difficult to replicate in modelling exercises) to increase energy efficiency also have an influence on the performance of TWC markets. The theoretical efficiency of TWC scheme depends on institutional and market conditions that need to be carefully analysed and managed. The economic efficiency (both static and dynamic) of a TWC scheme also depends on energy efficiency potentials which need to be carefully estimated.

Provide and ensure flexibility with due consideration to trade-offs. The central argument for implementing TWC schemes (or any tradable certificate scheme) relies on the least-cost compliance by means of high flexibility. Five types of “flexibility” are identified: 1) the range of eligible measures that obliged parties can use to achieve their target, 2) the eligible sectors to be used for achieving the mandatory target, 3) the given time-horizon alternatives to meet the target, 4) the possibility to allow eligible parties to participate in the scheme, and 5) trading as such (addressed below separately). Policy makers have to be aware of the multiple trade-offs that are embedded when dealing with these “flexibilities”. A proper balance between high efficiency-effectiveness and low administrative burden and transaction costs has to be found.

Consider the “to-trade-or-not-to-trade” dilemma and co-benefits of non-trading. The fifth type of flexibility in a TWC scheme is quite straightforward: trading as such. Stakeholders must remember that the trading component aims at facilitating least-cost compliance and thus enhancing the scheme’s efficiency to meet a mandatory energy saving target. Therefore, trading is certainly relevant but not an objective *per se* of TWC schemes. However, as indicated by simulation studies and the experience in Great Britain, branding and customer loyalty have been identified as a significant co-benefit of non-trading (Adnot et. al, 2007; Mundaca, 2006b). Ambitious target goals and thus scarcity of TWC (i.e., used up cost-effective potentials) will also influence the trading activity. Long-term policy objectives help market players to, among others issues, factor the costs and benefits of TWC schemes into their commercial plans and develop adequate marketing strategies compatible with this new market scenario.

Strengthen market liquidity. Pre-conditions for a TWC scheme to be economically efficient include: scarcity (i.e., higher levels of ambition over time), “flexibilities” (see above), well informed market actors, and market liquidity. The latter is driven by many design elements and market factors. For a TWC market to be sufficiently liquid, there must be a large number of buyers and sellers; market information readily available and transparent; high trading volume; low transaction costs, and minimum regulatory barriers to trade.

Expect very limited (or no demand at all) of TWC outside the eligible market framework. Some observers and stakeholders have speculated about a potential demand of TWC from parties outside the eligible framework given by TWC schemes. Research conducted under this project reveals that it is very unlikely that this type demand will emerge. It is suggested that policy makers better concentrate their efforts to increase the liquidity of the TWC scheme market (see above) within its eligible parties.

² For further information on evaluation, please see Neij and Mundaca (2007).



Consider the structure of energy markets. The structure of the energy markets needs to be carefully analysed, in particular those markets addressing end-use sectors and energy carriers that are eligible under TWC schemes. For instance, electricity and gas markets can have significant influence on the effectiveness of TWC schemes and on distribution of the net benefits. Due to the fact that energy tariffs are being used as a mechanism to recover the investment costs incurred by obliged parties, due revision is needed in order to ensure that those mechanisms do not pose any risk to end-users to be overcharged. Authorities should also consider that potential obliged parties might have no direct access in eligible end-use sectors, adding political and technical hurdles that influence the efficiency of TWC markets.

3. Policy recommendations related to energy/environmental effectiveness

Set ambitious, gradual and reachable energy saving/efficiency target. A critical pre-condition for a TWC scheme to be effective is the establishment of mandatory energy saving/efficiency targets. Ambitious but reachable targets should be set, with the level of (un)certainly and negotiation climate playing a key role for their final acceptance. Once the target is set, it automatically becomes the benchmark for evaluating how effective the scheme is in energy and environmental terms. TWC schemes require careful setting of baselines and estimation of energy efficiency potentials.

Design functioning coverage for fuels and technologies. Current TWC schemes cover a wide range of fuels, in particular the French TWC scheme. Nevertheless, TWC schemes with large coverage have to be weighted against the administrative burden and transaction costs that this scenario imposes on authorities and market actors. When it comes to eligible measures, a very similar line of argument can be used when addressing them. A broad portfolio of eligible measures is preferred in order to ensure greater cost-effective options for high energy/environmental effectiveness. However, careful consideration must be given to the administrative burden and generation of transaction costs that this situation holds (e.g. measurement and verification, M&V, approaches)

Develop clear and enforceable non-compliance frameworks. The effectiveness relies, among other design elements, on non-compliance rules and effective enforcement. For instance non-compliance penalties in the form of “ceiling price” operate under the logic that they must be set high enough so obliged parties prefer to avoid it and comply with their individual targets. Together with specific penalties for non-compliance, the achievement of energy and/or environmental goals also relies on its enforcement mechanisms. It entails not only the due penalties but also the legal rules and effective M&V approaches. Altogether they have to send clear signals to obliged parties that non-compliance does not pay off.

Ensure synergies and avoid overlaps within the portfolio of policy instruments targeting energy efficiency. Policy instruments do not work isolated so it is necessary to analyse the interaction with other policy instruments in order to identify synergies and avoid overlaps. For instance modelling findings strongly indicate that high effectiveness of informative policy instruments is needed. It is also relevant to consider how the additionality of measures implemented under TWC schemes can be ensured if a variety of policy instruments exists. Overlaps can exist, but a constant review process would allow them to exist only temporarily. As energy efficiency is a moving target and targeted by multiple policy instruments, periodical update of the reference scenario needs to be done.

If integration is properly justified allow one-way fungibility between TWC schemes and the EU-ETS combined with a set-aside quota. The interaction between the EU-ETS and TWC is a rather challenging and complex scenario. It is then suggested to keep these markets separated for some time to come. If justified, early findings indicate that a one-way fungibility is a linking option worth to be considered when pulling together TWC scheme and the EU-ETS. This option entails transfer of TWCs into the EU-ETS scheme but not the other way around. It also is recommended that a one-way fungibility should be combined with a set-aside quota. This is with the purpose to reduce the impact of price volatility on the amount of energy efficiency measures entering the EU-ETS. This would involve that a certain share of total EU-ETS allowances could be kept by the EU-ETS administrator and dedicated to certified CO₂ emission reductions from end-use energy efficiency and renewable energy (Bertoldi and Rezessy, 2005; Gaudioso, 2006).



Avoid double counting with TWC schemes and the EU-ETS by focusing on non-electricity savings and non-EU ETS sectors. The potential interaction/integration between the two schemes triggers the issue of double counting when electricity savings are considered. Double counting thus involves meeting both targets artificially. This in turn distorts the effectiveness of these two markets as well as their environmental integrity. Double counting can be largely avoided if no coverage overlaps exist in terms of obliged/eligible actors, eligible end-use sectors, and eligible fuels.

In relation to the potential interaction between Tradable Green Certificate (TGC) and TWC schemes, set absolute TGC targets. Policy makers have to be aware that a TWC target lowers the ambition level of a TGC target and thus its intended energy/environmental effectiveness. This is simply because TGC targets are mostly set in relative terms (i.e., relative to electricity supply or to final electricity consumption as set in the RES-E Directive 2001/77) and TWC targets are set in absolute terms relative to consumption (either primary or final consumption). By achieving high levels of effectiveness, TWC schemes can decrease the demand and thus prices on the TGC market, thereby putting investments in renewable energy plants at risk (Langniss and Klink, 2006).

In relation to the potential interaction/integration between TGC and TWC schemes, keep both schemes separated and avoid double counting. It is recommended to keep both schemes separated. Integration of both markets would dilute the desired policy targets. Cost savings by introducing TWC into TGC markets can be realised at the expense of fewer renewable energy technologies (RET) deployment (Langniss and Klink, 2006). In particular, less RET would be supported if TWC –having a lower market value than TGC- were allowed to be traded into the TGC market. The problem of double counting arises when RET are considered in both schemes (Langniss and Klink, 2006; Oikonomou, 2004). Again, this can undermine the energy/environmental integrity of both schemes, decreasing their level of effectiveness. The most concise way to avoid this situation is that the eligibility of RET technologies for TGC and TWC should be strictly separated (Langniss and Klink, 2006).

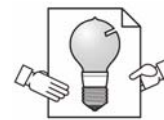
If an EU-wide TWC is justified, careful attention has to be given to the target setting. A uniform target for all EU Member States would cause appreciable differences in TWC price levels between countries, unless one entire EU market would be created. A common EU-wide saving target can be introduced and apportioned nationally amongst obliged parties (e.g., through market share, number of customers). A multi-country TWC market may need supplementary rules (e.g., a minimum domestic share of 50%) to reach a more balanced distribution of the several kinds of co-benefits entailed by a TWC scheme.

4. Policy recommendations related to *political feasibility*

Do not overestimate the political feasibility of TWC schemes. If a TWC scheme is a plausible policy choice for a given country, the key political challenge is to find ways to implement TWC schemes in the most acceptable manner. Clear operational and regulatory frameworks must be developed. Policy makers should be prepared to discuss and negotiate design elements and the institutional framework with obliged parties. Continuous dialogue and debate should be encouraged.

If an EU-wide TWC is evaluated, do consider its potential distributional effects. If considering a TWC scheme to be potentially implemented, it is crucial to consider how cost and co-benefits are to be distributed, in particular if one thinks about an EU-wide TWC scheme. While modelling work indicates that the cost-effective achievement of the indicative target of the Energy End-use Efficiency and Energy Services (EEE&ES) Directive can be done by means of an EU-wide TWC scheme, opposition to this policy option can arise at the national level due to the potential transfer of welfare resulting from distributional socio-economic issues (Mundaca, 2006a).

Ensure long-term policy goals and political commitment. If justified, the creation of TWC schemes should be seen as a long-term policy goal, not like one off burst policy effort. Strong political commitment is necessary to give certainty over regulatory and market issues so stakeholders can effectively develop and/or adjust their strategies. A secured long-term policy horizon will help market players to, among others issues, factor the costs and benefits of TWC schemes into their investment and commercial plans (e.g., branding); develop adequate marketing strategies compatible with other informative policy instruments; and encourage technological development capable of coping with higher ambition levels.



Design scheme to keep low administrative burden and transaction costs. Many design elements influence the administrative burden and also the nature and scale of transaction costs. By far, the most relevant elements are the number of obliged parties, number of eligible technologies, number of eligible sectors, number of energy carriers, and M&V approaches. The larger and/or complex these elements become, the higher the administration and enforcement costs of the scheme get. This in turn will negatively affect its political acceptability. Many trade-offs exist indeed in terms of liquidity, M&V, enforcement, and market related transaction costs.

Keep on aiming for harmonized and compatible policy objectives. Increasing energy efficiency involves several policy objectives, including cost-effective energy supply; higher environmental soundness; higher energy system reliability; secure and sustainable of energy supply; higher competitiveness; and employment. Policy and decision makers should continue aiming at defining compatible energy and environmental policy objectives.

Facilitate dialogue between policy initiatives. With some TWC schemes already implemented, stakeholders have a unique opportunity to closely scrutinize institutional and market conditions affecting the performance of TWC schemes. For instance, TWC schemes could be developed upon existing policy initiatives so one can take advantages of on-going learning processes and human and institutional capacities. Energy efficiency and TWC schemes involve a completely new commercial scenario for energy suppliers. For instance in Great Britain, the scheme was built upon the Energy Efficiency Standards of Performance programme (EESoP) that ran from 1994 until 2002.

5. Policy recommendations related to *administrative burden*

Develop a clear but simple institutional framework. In order to keep a low level of administrative burden, simple but clearly defined operational and regulatory frameworks are crucial when designing TWC schemes. This is certainly a key challenge for authorities. Without hampering the environmental/energy integrity of the scheme, a simplified enforcement system can ease the burden for the authorities. Additionality must prevent eligible parties from free-riding, meaning that those energy efficiency measures that would have been implemented in the absence of the TWC scheme must not be considered additional. Policy makers need to bear in mind that a clear and simple institutional framework cannot only reduced the administrative burden for the authorities but also for eligible parties. The administrative burden for eligible parties is an important source of transaction costs.

Be aware of the trade-offs when designing the “flexibility” of TWC schemes. The central theoretical argument for implementing TWC schemes is the concept of flexibility. A greater TWC scheme coverage is desired because of higher effectiveness and efficiency; however, a large coverage can also lead to high burden of administration and enforcement. The most relevant elements are the number of obliged parties, eligible technologies, eligible sectors, energy carriers, and M&V approaches. Associated and growing complexities due larger coverage make more unbearable the administration and enforcement of TWC scheme, including its regulatory framework. If the coverage of the TWC scheme is too broad, the risks of overlapping with other policy instruments increase.

Develop an ex-ante M&V approach to measures for which their performance is well understood. Whenever possible, an ex-ante M&V approach appears to be a cost-effective way of accrediting energy efficiency measures (Adnot et al., 2006). This approach entails simplified estimations; savings and thus baselines are agreed in advance; there is limited provision of documentation, and reduced monitoring and certification procedures. It applies to measures for which the performance is well known, however, there is an inherent level of uncertainty. An ex-ante approach, also called “deemed saving” or “default” approach, requires no field measurement and work effectively for energy saving measures for which technical performance are well understood. For “proven” technologies, energy savings granted beforehand should be applicable. Reference scenarios and baselines must be kept updated

Establish a *hybrid* M&V approach. A hybrid method is a combination of an ex-ante and an ex-post M&V approach. It can be more accurate than a pure ex-ante methodology (with updated reference scenarios or baselines), without the financial burden of a full ex-post approach (Adnot et al., 2006). To avoid a large increase in the M&V costs, only the smallest and uncertain part of energy savings realised through saving



measures implemented can be analysed through an ex-post methodology. The most predictable or certain part of savings realised must be evaluated through an ex-ante approach. This kind of approach requires the pre-approval of the proposed methodology.

If an EU-wide TWC is justified, harmonize institutional frameworks. Looking at current designs and thus coverage of TWC schemes, the harmonization of TWC schemes appears as a long, challenging and bumpy road for policy makers and stakeholders. National registration systems must be synchronized to avoid double counting. The feasibility of a common market operator should be analysed. Before creating an EU-wide TWC scheme common methods for the calculation of energy consumption, energy efficiencies, and energy savings need to be developed. The harmonization of M&V approaches should not be underestimated. To some extent, the EEE&ES Directive already encourages a common understanding and development of some of these aspects.³

6. Policy recommendations related to *transaction costs*

Ensure high effectiveness of informative policy instruments. Based on early experience, the lack of awareness and apathy among end-users have been identified as critical obstacles behind the search for information, an important source of transaction costs (TCs) (Mundaca, 2006b). Raising awareness among end-users can play a significant role to reduce transaction costs upstream in the life cycle of TWC. Information campaigns, educational and/or information centres, eco-labelling schemes, etc., need to be analysed and/or properly implemented and linked to possibilities and strategies provided by obliged parties. For instance, energy certificates (or labels) generated under the Energy Performance Building Directive offer an interesting opportunity to reduce TCs related to customer finding. The energy rating could provide links to obligated parties in a TWC scheme who are searching for customers willing to implement eligible measures.

Aim for transaction cost accounting. It is surely difficult to provide generalized recommendations for obliged parties in this subject simply because they know their own organizations much better than anybody else. However, it is argued that a simple but formal internal mechanism for keeping track of TCs (sources and related costs) can be useful for obliged parties in order to better manage the situation and reduce TCs within their reach. With better information systems potential solutions at the organizational level could be found to reduce the burden of TCs (e.g., improve related internal communication, fast track for internal approval procedures). A future operational framework of TWC scheme could also give guidance to obliged and eligible parties by providing a list with the most common sources of TCs.

Establish and maintain information clearinghouse, build trading platform and design standardized trading contracts. A crucial (pre)condition for a well functioning TWC market is that actors are well informed about the operation and development of the TWC scheme. Reliable and transparent information is an essential component of a well functioning TWC scheme. The implementation of a clearinghouse to provide information about traded prices, volumes and parties (both spot and bilateral), should be considered. This information platform should also be used to keep market actors updated and well informed about the dynamics of the TWC market and its regulatory framework. In addition, the establishment of an electronic trading platform can reduce TCs by setting the place where potential buyers and sellers can meet regularly at any time, allowing bids and bilateral trading as well. Both the clearinghouse and a trading platform will also enhance transparency of the scheme. The development of standardized contracts (or at least standardizing key contractual provisions) can reduce TCs related to legal services and perceived liability risks when trading.

Develop a clear but simple institutional framework that reduces the administrative burden for market actors. Policy makers need to bear in mind that a clear and simple institutional framework also should aim at reducing the administrative burden for eligible parties. This is because the administrative burden for eligible parties can become a significant source of transaction costs. Authorities can develop a number of measures in the institutional framework that will reduce transaction costs for market actors. For

³ For instance Annex IV of the Directive explicitly addresses the development of a harmonized bottom-up model to measure energy savings before 1 January 2008.



instance, allow bundling of energy efficiency measures, develop an ex-ante M&V approach whenever feasible, and adopt streamlined procedures and a common information channel.

Allow bundling of eligible energy efficiency measures. Bundling or pooling of similar measures arises as straightforward strategy. This means that a project developer can group together several projects and/or develop similar projects in order to reduce the financial burden of potentially fixed TCs can generate. For instance, the adoption of this strategy in the institutional framework of TWC schemes can reduce the burden of TCs related to contract negotiation, baseline development and M&V activities, if needed. This strategy can significantly reduce the administrative burden for eligible parties like ESCOs. For instance the domestic sector may offer little attractiveness on an individual-measure basis. However if project bundling is allowed, the number of measures and larger volume of savings can trigger a more active participation of ESCOs or other eligible parties in the residential sector.

Develop an ex-ante M&V approach whenever feasible. When the certification of energy savings is required, the utilization of an ex-ante approach as a mechanism to reduce TCs related to M&V activities should be analysed accordingly. Due to the fact that there is handful set of measures for which the technical performance is relatively well understood, the British scheme allows energy savings to be granted beforehand so there is no requirement for ex-post M&V as such. This approach has reduced the administrative burden for the authority and eligible parties. The Italian schemes also entail this approach. Despite the uncertainties that can arise from it, it has been largely argued that the robustness and reliability of M&V approach has to be balanced with simplicity and cost-effectiveness. The suitability of this approach is heavily related to the knowledge about baselines and performance of measures. As energy efficiency is a moving target, the assumptions, baselines and methods included in this approach need to be carefully scrutinized and reviewed/updated periodically.

Adopt streamlined procedures. The development of the institutional framework of any TWC scheme has direct impact on the administrative burden that both authorities and eligible actors face. As mentioned before, a clear but simple framework must aim, inter alia, at reducing the administrative burden (as another source of TCs) that eligible parties have to bear. Whenever possible, authorities should design streamlined procedures that can help obliged and eligible parties, to reduce related TCs (e.g., a fast track or simplified modalities for small-scale measures). Streamlined procedures must counteract any lengthy approval procedure. These actions should help these parties to standardize internal courses of actions. Certainly, the implementation of this strategy must not hamper the integrity and performance of TWC schemes.

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