

Linking Policy Instruments for the Post 2012 Era: Joint Implementation and White Certificates as a Hybrid Scheme

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Background

Recent trends in climate change and energy policies tend to support market-oriented schemes due to their high efficiency and market acceptance. Within the context of the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC), several energy and climate policy instruments have evolved. Nowadays, policy preparations are ongoing for future climate and energy policy regimes. At the level of the UN a new climate policy regime is planned for the period after the Kyoto Protocol (i.e., after 2012) and recently, the European Council adopted ambitious climate and energy policies for the short to medium term. As part of the increasingly integrated treatment of climate and energy issues, new instruments are being proposed in several countries, which both address energy efficiency and renewable energy targets, and climate change issues. As these instruments are designed and implemented in an already policy crowded environment, complementary, competitive or self-exclusive interactions take place. With a view to policy design it is crucial that different policy regimes are compatible with each other. On the one hand limited compatibility of instrument could negatively affect the achievement of energy and climate policy targets, while, on the other hand, a well-designed mix of policy instruments could create synergy effects which could lower the costs of meeting targets and objectives. This could play a vital role in climate policy negotiations for a post-2012 regime.

Energy efficiency is one of the core policies in most countries' GHG abatement targets. One instrument for energy efficiency improvement that could play a role in the post-Kyoto era is that of White Certificates (WhC), which has been implemented in the UK, Italy, and France, while other countries are considering it (e.g., the Netherlands). Its basic idea is that specific energy saving targets set for energy suppliers or distributors must be fulfilled by implementing energy efficiency measures towards their clients within a specific time frame. Such fulfilment is acknowledged by means of (white) certificates. Energy suppliers or distributors that save more energy than their targets can sell their surpluses as energy efficiency equivalents in the form of WhC to suppliers/distributors that cannot fulfill their targets. In the EU context, WhC are also supported in the EU Directive on the promotion of efficiency in energy end-use and energy services (2006): "the Commission considers this to be a possible next step in a few years time and may then come forward with a proposal based on the experiences in some Member States currently developing and implementing such certification schemes". In this Directive, a non-binding 9% energy efficiency improvement spread over 9 years is suggested. Furthermore, the EU Action Plan for energy efficiency sets much higher targets at the level of 20% energy efficiency improvement by 2020, almost 390 Mtoe (million tonnes of oil equivalent) saved, given the existing potentials for such actions (2006).

A typical market-based instrument used for climate policy is the concept of Joint Implementation (JI), which has been at the centre of climate policy making since its inclusion in the UNFCCC in 1992. The basic idea of JI is that industrialized countries can achieve their greenhouse gas (GHG) emission reduction commitments partly via emission reduction projects on the territory of other countries where marginal abatement costs are relatively low. Originally, JI was meant to be included in the Kyoto Protocol to enable project-based co-operation on GHG emission reduction among industrialised countries. As a result of Kyoto Protocol negotiations, this type of co-operation was extended towards projects between industrialised and developing countries. The latter is arranged under the Clean Development Mechanism (CDM). What the precise role of JI and the CDM will look like in a future climate policy regime is still unclear, but based on the several scientific and policy proposals for a post-2012 climate regime it is likely that this type of market-based instrument will continue to play a role in climate policy making.

Little attention has been paid to how JI's potential could be enhanced if it were combined with other policy mechanisms which envisage trading a product (credit, certificate) that is directly or indirectly comparable to the reduction of a ton CO₂-equivalent (such as energy efficiency). In case of WhC and JI, both mechanisms are basically comparable because they share the same policy targets (energy efficiency improvements and GHG emission reduction). They may even imply that JI credits might be convertible into WhC. Although it should be

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noted that there is no blueprint in policymaking in linking different policy instruments, still some general guidelines and methods can be employed for this.

This article explores possibilities to integrate WhC and JI into one policy instrument. The example is particularly interesting, next to the fact that they represent energy and climate policy instruments, respectively, because WhC is part of mandatory scheme whereas JI is an example of a voluntary policy. Such a hybrid scheme could be an interesting candidate for mitigating a fragment of emissions originating from end-use sectors (e.g., transport, buildings) and achieving energy efficiency improvement. An in-depth analysis of this hybrid scheme can be found in Oikonomou and van der Gaast (2007)¹, where it has been illustrated for possible WhC/JI activities in the built environment.

Interactions of White Certificates with Joint Implementation

Interactions between WhC and JI can be classified according to: their scope (level of governance and policy context), interacting function (trading, time sequencing), and degree of integration (fungibility or stand-alone measures). In Table 1 we present different interactions between WhC and JI, as well as a proposed integrated scheme based on: regional impact (national or international), the objectives addressed (same or different policy context), timing of start and end of each policy (sequencing), and conversion of their trading commodities (separation, one way and double fungibility).

Types of interaction	WhC	JI	WhC/JI
National (horizontal)	✓		✓
International (vertical)		✓	
Same policy context (internal)	✓	✓	✓
Different policy context (external)			
Sequencing			
Trading	✓	✓	✓
Separation (stand-alone measures)			
One way fungibility	✓	✓	✓
Double fungibility			

*Table 1
Interactions of White Certificates with Joint Implementation and a Hybrid Scheme*

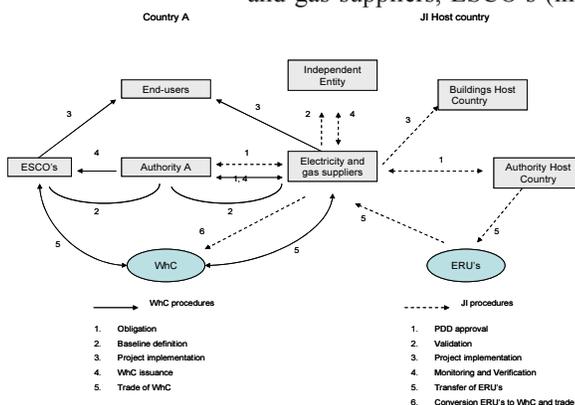
We can deduce from Table 1 that an integrated WhC/JI scheme for energy efficiency projects in the built environment can be complementary, provided that JI credits are fungible with WhC. Furthermore, since both instruments refer to the same policy context, they could have a common design in terms of target setting and could both be used as a trading mechanism. This would imply, for instance, that JI emission reduction units (expressed in tonnes CO₂) could be converted into WhC under a pre-specified conversion rate.

Initially, JI was expected to have a big potential in Central and Eastern Europe due to their relatively inefficient energy supply and consumption systems and relatively low investment costs. In the meantime, however, most of these countries have become EU Member States and consequently have had to upgrade their energy and environmental standards to EU levels. In addition, the largest CO₂ emitters in these countries have now become part of the EU emissions trading scheme (ETS). Consequently, the main remaining JI potential in Central and Eastern Europe nowadays seems to be in those sectors that are not covered by the ETS and where energy performance improvements are feasible beyond the EU standards (Acquis Communautaire) (Van der Gaast 2005)².

Hybrid Policy

Departing from the current situation of WhC and JI mechanisms, we demonstrate in Fig. 1 a hybrid scheme of WhC and JI: the WhC scheme is implemented domestically in Country A and JI projects (Track-I)³ for energy efficiency improvement take place in other countries. Basic players are electricity and gas suppliers, ESCO's (including other market participants that can implement energy efficiency projects), end users in country A, and end users in the JI host country (building owners, tenants, or users). Institutional players are authorities in both countries and an independent entity for JI, while two trading platforms exist, one for ERU's and one for WhC.

Initially, authorities from country A assign energy efficiency targets to electricity and gas suppliers, who, for their compliance, face three options: implement energy saving projects focused on domestic end-users, purchase WhC, and implement energy saving projects in a JI host country. The eventual choice depends on marginal costs and timing of delivery of each option, since costs per specific technology differ from country to country and WhC and JI credits may not be delivered at the same time (i.e., ERU's could either be contracted through a forward contract with future delivery after realisation of the emission reduction, or transferred



*Figure 1
Market Functioning Under a Hybrid Scheme*

on a spot-market basis when realized).

If suppliers opt for fulfilling their obligations through domestic actions (with country A end users), they present their envisaged energy savings from projects to country A's authorities and, if approved, they can implement the projects. Subsequently, they receive WhC, which they can use for their compliance or sell to other parties. ESCO's and other market participants can also implement energy saving projects, following the same procedure as suppliers, but with a main difference that they do not have commitments and would only participate on a voluntary basis; they would be able to sell their realized energy efficiency gains in the WhC market.

When electricity and gas suppliers opt for a JI energy saving project in e.g., built environment, they must follow the project preparation and implementation procedures of the Kyoto Protocol. When the project is approved, electricity and gas suppliers in collaboration with domestic or host country ESCO's and other market parties can proceed with project implementation. After an agreed period, an accredited independent entity verifies the actual GHG emission reductions (or energy use improvement of the building) on the basis of which the host country's authorities can issue emission reduction units (ERU's) to the partners. These units compensate for the energy efficiency improvement not taking place in country A as the project is carried out in host country. Electricity and gas suppliers can hence import ERU's and convert them to WhC under a conversion rate (which would have to be a good reflection of the difference between investing in energy efficiency improvement domestically -in terms of WhC - or in a foreign country where the investment costs are lower -through JI).

Assessment

Based on an ex-ante theoretical assessment, a hybrid WhC/JI scheme could be an effective contribution to climate and energy policy making. First, it offers geographical investment flexibility so that energy suppliers can choose an investment in another country where marginal investment costs are relatively low. Second, in the host countries, innovation will be stimulated and energy security of supply enhanced with the transfer of new energy technologies through JI projects. Nonetheless, effects on innovation are rather difficult to estimate since (local and foreign) market demand, competitiveness between technologies, existing energy saving potential, and transaction costs will determine the overall situation. Third, the underlying legally-binding target in the investor country implies a stronger guarantee that energy efficiency targets be met.

It should be noted though that the system would imply transaction costs, which could increase with a more complex design of the system. Oikonomou and van der Gaast (2007) provide suggestions for standardisation of procedures to reduce transaction costs and increase system transparency. Finally, such a hybrid scheme would be compatible with energy market liberalization trends and would increase the competitiveness of specific 'cleaner' technologies.

This paper has shown the fundamentals of a hybrid system, so that political considerations have been left out for now. Such illustrative examples can serve as food for thought for policymakers when facing the options of introducing new policy instruments in the post-Kyoto era. An overall outcome can be that interactions matter and sometimes, under several preconditions, an interesting option is to examine linking existing instruments that address similar targets.

Footnotes

¹ Oikonomou, V. and van der Gaast, W., 2007, Integrating Joint Implementation projects for energy efficiency on the built environment with White Certificates in the Netherlands, *Journal of Mitigation and Adaptation Strategies for Global Change*, Springer Netherlands, ISSN 1381-2386 (Print) 1573-1596 (Online).

² Van der Gaast, W. 2005, Baseline standardization in JI Track-I and Green Investment Schemes. In: JI Track-I workshop, Prague, Czech Republic.

³ JI Track-I refers to the simplified accounting procedures included in the Marrakech Accords (2001) which Annex I Parties may apply if they meet minimum system requirements in terms of GHG inventories, National Communications, etc. The main simplification under Track-I is that Parties may bilaterally agree on JI projects and the GHG accounting procedures, without validation and verification involvement of accredited third party entities.