



Energy Efficiency Certificate Trading

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Objectives

- **To provide a brief overview of certificate trading as a policy instrument**
 - ◆ **How does it work? Why does it work?**
- **Advantages and disadvantages of certificate trading schemes**
- **Key issues in planning and implementing schemes**



Trading certificates – how will that save the world?

- Heart of certificate trading is not trading, it's the certificate
 - ◆ the certificate represents one unit of a 'public' good





Trading certificates – how will that save the world?

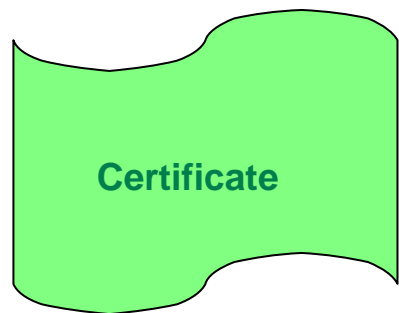
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Trading certificates – how will that save the world?

- Heart of certificate trading is not trading, it's the certificate
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= 1 tonne CO₂ avoided



A little bit of theory...

- **Certificate schemes work by creating a property right to a public good**
 - ◆ rests on standard externality principles (Pareto, 1930s)
- **Certain things that we need and care about (“the commons”, or “public goods”) just don’t fit well into market economies**
 - ◆ where private ownership is what underpins the creation of wealth
- **We don’t want to throw out the enormous benefits of market economies...**
 - ◆ ...so can we make “the commons” fit into this market framework instead?

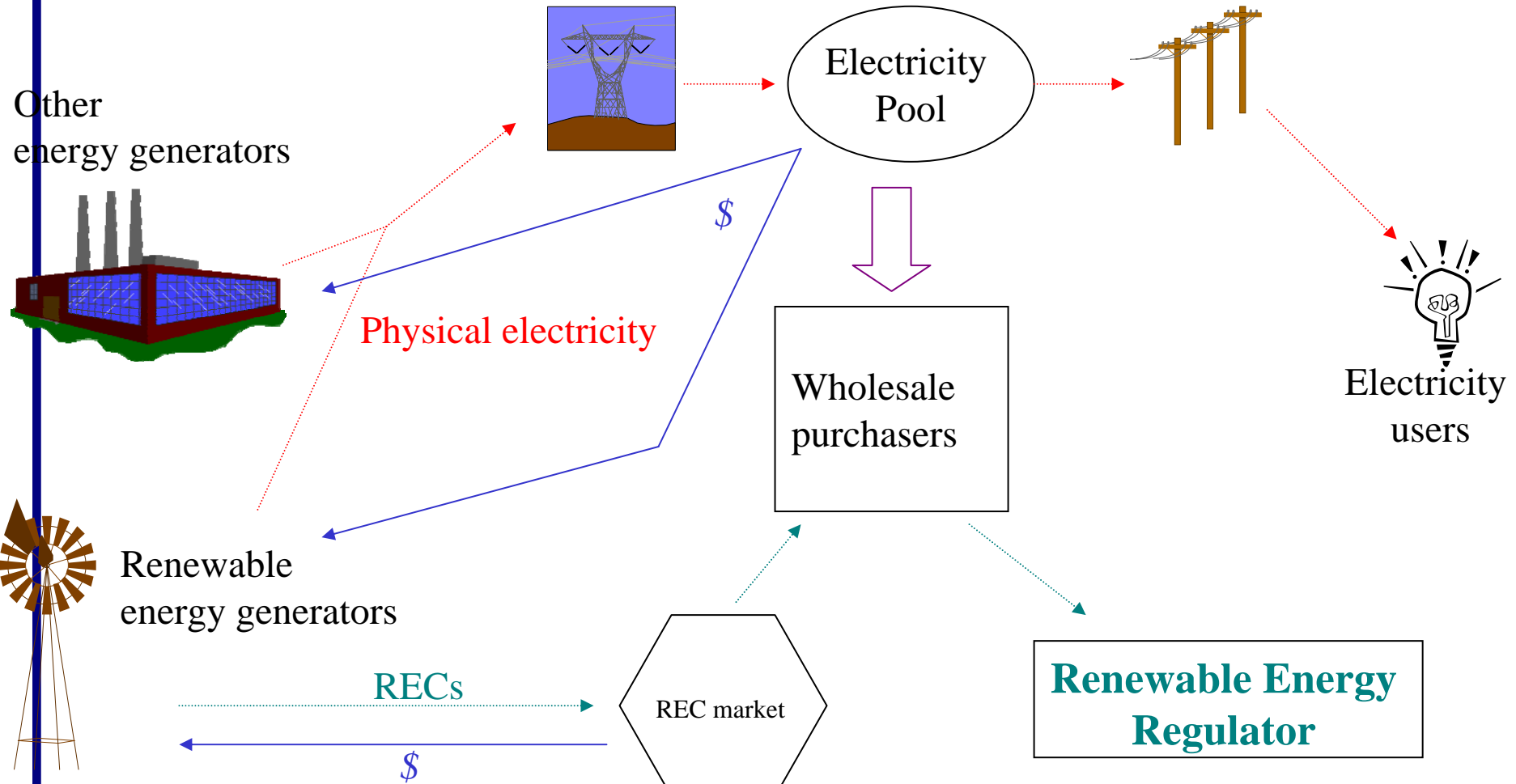


A little bit of theory...

- But “pure” public goods are rare...
 - ◆ saved energy has an economic value, as does renewable electricity and, often, avoided CO2
 - they are “mixed” public and private goods
 - or they are public good *attributes* of private goods
- ...the *extent* of the public good attribute is – at the end of the day – determined *socially*
 - ◆ despite estimation techniques, it is neither scientifically discoverable nor fixed over time
 - ◆ rather it reflects the outcome of a *political* process (agreement, conflict and/or negotiation)
 - eg, Kyoto Protocol



A real-world example: REC trading in Australia





How do certificates acquire value?

- A) obligation/regulation:
 - ◆ a government can create a legal obligation to buy or acquire certificates (eg, for renewables in Australia, efficiency in UK and Italy)
 - to prove that a policy target has been met
- B) voluntary initiative:
 - ◆ someone may “market” certificates as a discretionary or ‘superior’ good (eg, RECs in Europe)
 - this relies on the buyer being persuaded that the certificate is in fact delivering a public good outcome that they value
 - ie, the *credibility* of the certificate (and its creator/regulator) is key



Why use tradeable certificate schemes?

- Tradeability = economic efficiency
...well...
- Within the confines of the scheme, tradeability in principle enables least cost solutions to be created to solve the given problem
 - ◆ While the “certification” process guarantees that the (agreed amount of) public good is delivered
- But the economic efficiency of the scheme depends upon a host of factors, notably:
 - ◆ Is the target technology- (or solution-) specific and what costs can these solutions generate (relative to others)?
 - ◆ How many “solution providers” are able to compete to create (and how many parties are required or asked to buy) certificates?
 - ◆ How is the market organised? Is it genuinely contestable? Is there sufficient volume to facilitate risk management?



Footnote (for sticklers)

- Highest economic efficiency is not the same thing as least economic cost!
 - ◆ You can lower economic costs (in the short term at least) by having no scheme at all, or at least a lower target
 - ◆ However, given a (political) agreement that a real public good is at stake, it can be shown that overall economic welfare is maximised when the most *efficient* policy solution is used
 - this is a *prima facie* rationale for at least considering tradeable certificate schemes in the policy formulation process



Why *NOT* use tradeable certificate schemes?

- Tradeability = transactions costs
...well...
- Given the need to create, meter, monitor, register, certify, trade and acquit certificates - that may number in the millions - there is at least a risk of high transactions and compliance costs!
- But (recalling the footnote) what matters is whether these schemes can achieve *a given policy target* with higher or lower economic costs than other policy approaches (ie, with higher or lower *economic efficiency*)
 - ◆ whereas the political debate inevitably focuses on costs *with a tradeable certificates scheme* versus costs *without a scheme or any alternative solution either!*



Why *NOT* use tradeable certificate schemes?

- In reality, the transactions and compliance costs will depend upon a host of factors, notably:
 - ◆ Is the target technology- (or solution-) specific and what costs can these solutions generate (relative to others)?
 - ◆ How many “solution providers” are able to compete to create (and how many parties are required or asked to buy) certificates?
 - ◆ How is the market organised? Is it genuinely contestable? Is there sufficient volume to facilitate risk management?
 - (seen these before?)
- Another advantage for some, disadvantage for others may be the ‘accountability factor’
 - ◆ Certificate trading schemes (like taxes) clearly attach ‘accountability’ for an issue to a defined group in society
 - Demanding a high standard of consensus on underlying issues
 - Or else high standards of resistance to political pressure!



Advantages and disadvantages

- To make some personal observations, tradeable certificate schemes might be the best instrument when:
 - ◆ There are many solutions (technologies/approaches/resources/regions) available, or potentially available, to enable compliance
 - ◆ The number of parties having to actually trade (participate) is not too high (if there are higher number of market participants, some “aggregation mechanisms” might be needed)
 - ◆ There is volume in the certificate market – ie, a sufficient number of arms-lengths’ trades are taking place for real price discovery and to facilitate the creation of derivatives markets for risk management
 - ◆ The underlying “commodity” is able to be well-defined and verified (the credibility factor)
 - ◆ It is necessary (eg, because of environmental risk) or advantageous to specify a *quantitative* policy outcome
 - ◆ There is a sufficient degree of political consensus in the market-place defined by the scheme (ie, international is challenging without – or with! – international agreements and when countries may be competitors in technology/product markets)



Advantages and disadvantages

- When these conditions are not present, there might be cause to ask whether an alternative instrument would be either more effective, or efficient, or both
- By contrast tradeable certificate schemes (for energy efficiency) may be less effective, or more costly:
 - ◆ than labelling, MEPS, building codes, etc, at affecting the behaviour of mass audiences at low cost (particularly transaction/compliance costs)
 - ◆ than voluntary agreements – where it is clear that voluntary agreement can really deliver the same outcome – typically only true in highly concentrated industries and in the presence of a “credible threat”
 - ◆ than taxes when there is very high uncertainty (and/or no political consensus) about the size of a quantitative target
 - ◆ than subsidies or other more targeted schemes at delivering solution-specific outcomes (support for specific industries or technologies, for example) if that is required politically



Some key design issues

- **Is the social/political consensus about the problem strong enough to allow a certificate scheme to succeed?**
 - ◆ If not, many alternatives might be easier (but not necessarily more efficient or effective)
- **Can an efficient and contestable market be created?**
 - ◆ Number of parties neither too high nor too low?
 - ◆ The “solutions” market is widely contestable and promotes innovation?
 - ◆ The credibility of the certificate can be guaranteed (at reasonable cost)?
- **What is the commodity being traded, and how widely?**
 - ◆ Is it efficiency, renewables or carbon?
 - ◆ How do different schemes relate to each other, across national borders and different (but overlapping) policy targets?