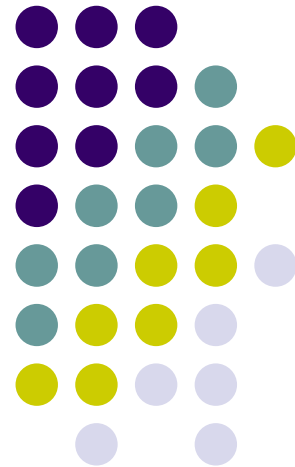
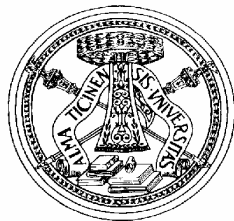


Green, White and Brown Certificates working together: the Italian Experience

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Pavia*



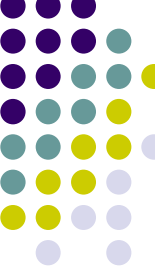
Tradable certificates

Advantages

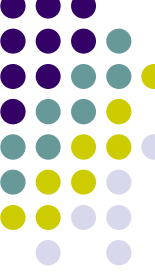
- Effectiveness
- Economic efficiency
- Flexibility (→ Dynamic efficiency)
- Control of distributive effects

Pitfalls

- Transaction costs
- Administrative costs

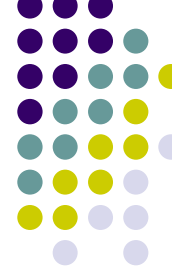


Tradable Green Certificates (l.d. N.79/99)

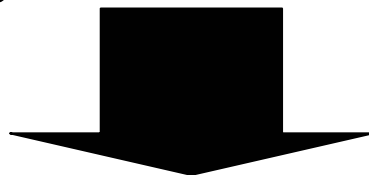


- Obligated parties: importers and producers of non renewable energy
- Obligation: to cover a given proportion of their sales with energy coming from renewable energy generation plants
- The GSE issues a TGC for each 50 MWh produced in the first 8 years to plants certified
 - ↳ 12 years in the case of plants fed by biomass and wastes
- Penalty: 1,5 times the price of TGCs they lack to achieve the target

Tradable Green Certificates: pitfalls 1

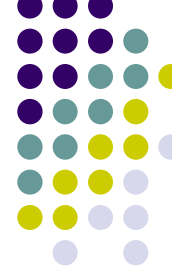


- Costs are shifted on sale energy prices (with an indirect impact on electricity energy tariffs and a possible rent to exempted categories)
- Coexistence of TGC with feed-in tariff system (CIP/6) till 2015: plants keeping the CIP/6 support can't gain TGCs; the corresponding TGCs are property of the GSE
- The GSE sells its own certificates at a price equal to the average of the premiums paid to renewable electricity under the CIP/6 that year



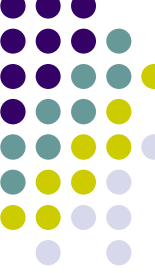
IMPLICIT CEILING

Green certificates targets and their attainment



Year	Renewable energy obligation (%)	% of TGCs covered by private operators	% of TGCs covered by the GSE	Supply price of GSE
2002	2	27,5	72,5	82 euro/MWh
2003	2	42,9	57,1	84 euro/MWh
2004	2,35	74,3	25,7	97 euro/MWh
2005	2,70	99,3	0,7	108 euro/MWh
2006	3,05	91,7	8,3	

Tradable Green Certificates: pitfalls 2

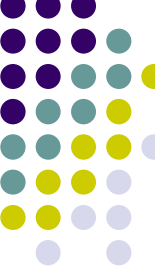


- Lack of long term commitment
- Administrative and political complications
 - **local opposition to new plants**
- Development of least cost solutions at the expenses of more advanced technologies that must be promoted with other supporting schemes

White certificates



- Two Decrees in July 2004, one for the electricity distribution sector and the other one for natural gas
- Quantitative binding targets to be achieved in the period 2005-2009
- Obligated parties: electricity and gas distributors serving more than 100.000 final costumers
- At least half of the target is to be achieved via a reduction of electricity and gas end use consumptions
- Energy savings are “cumulative” till a maximum of 5 years



White certificates: participants

- The obliged distributors of gas and electricity
- The ESCOs that offer to reduce a client's energy cost, often by taking a share of such reduced costs as repayment for installing the energy efficiency measure and its upgrades

White certificates: projects allowed

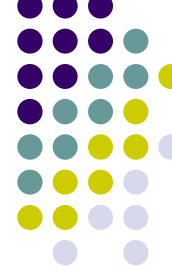
- All end use sectors are eligible
- The list of eligible projects is an “open list”
- There's a minimum size for projects

White certificates: types of certificates

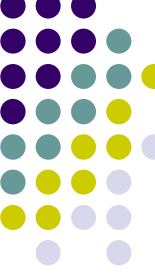
- Type I: electricity consumption
- Type II: gas consumption
- Type III: consumption of other fossil fuels

White certificates: costs recovery

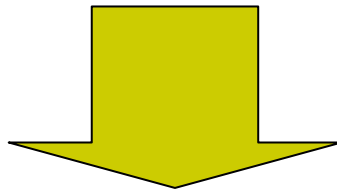
- Costs recovery allowed to type I and type II certificates
- The WhCs scheme grants obliged distributors 100 euro for every tep of energy saved
- This contribution entails a new charge in the tariff of 3 eurocent/kWh



White certificates: monitoring and control



- Standard saving factors approach
- Analytical approach
- An approach based on monitoring plants which must be submitted for pre-approval to the AEEG; energy savings are inferred through the direct measurement of energy consumptions

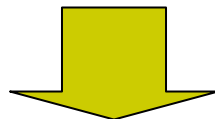


Growing levels of complexity

White certificates: pitfalls 1

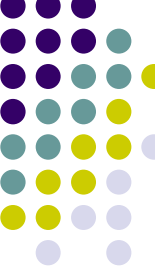


- The most commonly implemented projects concern improvements of lighting systems (the 70% of energy savings has been realized through the implementation of projects measured with a standardized method)
- An excess supply of certificates due to initial allocation of certificates and new entrants provisions
- Existence of an implicit ceiling
- During the first two years of the scheme, WhCs prices progressively decreased, not having been followed by any contribution adjustment



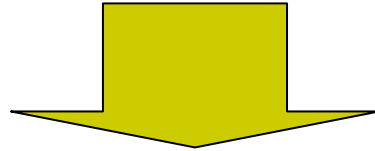
distributors could buy type I and type II certificates at the price of 32,89 euro and 82,24 euro respectively, receiving at the same time the 100 euro contribution

White certificates: **pitfalls 2**



The effects of this excessive contribution were:

- Extra profits for the obliged distributors
- Excessive charge in tariffs for final costumers

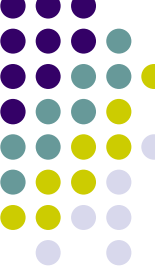


future challenges:

Two new types of contribution:

-46 euro/tep for type I certificates

-80 euro/tep for type II certificates



Emission permits

- While the EU experienced a generous allocation of permits, in the case of Italy there has been an under allocation of quotas
- BUT Italy, at the same time, has set aside for new entrants a great portion of the total amount of permits available

The linkage with Kyoto's flexible mechanisms and new entrants provisions have kept down the price of emission permits (increasing at the same time market liquidity)

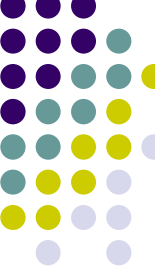
The problem of integration



Solutions:

- ▲ 1) The creation of one tradable certificates system at national level
- 2) The definition of independent international schemes for each type of certificate: WHC, TGC and EP.

The problem of integration: solution 1 ▲



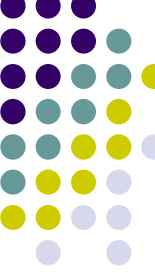
Including the carbon value in the certificates gained by the implementations of renewables or energy efficiency actions



thus the value of TGC and WhC could be seen as made up two parts: an energy benefit, tradable on national energy markets and a carbon benefit that will be traded at the international level.

Conclusions

the problem of integration: solution 2



- Tradable certificates require a well functioning public administration **to set targets**, to define exemptions and obliged quotas, to allot quotas, to monitor, verify, register, certify and trade certificates
- In the case of TGCs and WhCs schemes there's an implicit ceiling, which clashes with the logic of a truly market based instrument
- This ceilings should be removed in view of an effective and efficient market for WhCs and TGCs market as well

Conclusions

the problem of integration: solution 2 , WHCs

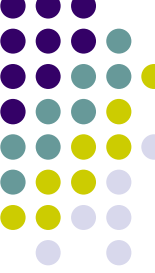


- WhC: to improve the role played by the regulatory authority setting standardized rules to account for energy savings
- WHC: different types of electric energy and gas markets at the EU level
- WhC: undesirable distributive effects

Conclusions

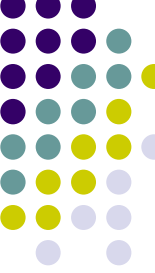
the problem of integration: solution 2 , EPs

- EP: to improve harmonization across different countries with regards to new entrants provisions and initial permits allocations
- EP: to take into account the emissions coming from internal production and, at the same time, the emissions coming from the consumption of goods produced abroad



Conclusions

the problem of integration: solution 2 , TGCs



- TGC: to wait for the end of the CIP/6 program, and to introduce specific supporting instruments for projects entailing high production costs
- TGC: to solve the problem of RES varying definitions across different countries
- TGC: to remove national specificity of supporting schemes