Introduction to and first experiences of Green Electricity Certificates in Sweden

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Workshop on ‘National or international systems for White Certificates – What can we learn from Tradeable Green Certificates?’

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Outline

• Background
• Purpose
• How does it work?
• Market development
• First experiences
Why a green electricity certificate system?

- Fulfillment of RES-e
- Replacement of different investment schemes
- A robust system independent of the state budget
- Potentially cost effective and neutral to different technologies
The overall objective is to generate new green electricity

- The target/ambition: 10 TWh new green electricity by 2010 (compared to the level of 2002)

- Underlying objectives:
  - creating stable trading conditions
  - making it possible to internationalize
  - prevent disturbances in the electricity market
  - encourage technical development and cost efficiency
  - encourage construction of new production facilities
How does the system work?

Supply

Producers of green electricity

Market

Market place

Brokers/Traders

Demand

Suppliers of electricity

End-users with quota obligation

Support & Control

Svenska Kraftnät

Swedish Energy Agency
Supply of renewable electricity
Quota obligation

Year

Quota obligation %

2003 2004 2005 2006 2007 2008 2009 2010

Quota obligation %
The system has in fact generated new renewable electricity ...

- Production of green electricity 11.5 TWh (March 2005)
- Increased production, switch to renewable fuels, smaller investments in existing plants
- Cheapest/easiest measures = cost effective
Certificates issued

(million certificates, aggregated)

Hydro [18%]  Wind [8%]  Bio [74%]
...but limited investments in new production capacity

- The life-span of the system to short (quotas until 2010)

- Government is expected to announce longer life-span and higher ambition (quotas until 2030?)

- Some large investments has been announced (off-shore wind, pulp&pulp)
Certificate prices

- Black: w. delivery until march 2004
- Blue: w. delivery until march 2005
- Red: w. delivery until march 2006
- Green: w. delivery until march 2007
End-user prices and supplier margins

Variable Consumer Price

US cents/kWh (incl. VAT)

Q2/03 Q3/03 Q4/03 Q1/04 Q2/04 Q3/04 Q4/04 Q1/05

Max Min Mean

Margin (%)

N = 35 35

Certificates Electricity

Swedish Energy Agency
Summary
– lessons learnt (1/2)

- The system has worked technically well
- The market players have adopted to the new system – a market has been developed

- Increase of RES-E in existing plants (bio)
- Surplus of certificates

- Few new investments
- Life-span of the system to short (quotas until 2010)
Summary
– lessons learnt  (2/2)

• Quota obligation fee has set the certificate price – not the margin-price for RES-E

• High transactional costs

• Situation of the consumer weak

• Situation for non-commercial RE-E → technological development?
Thanks!

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