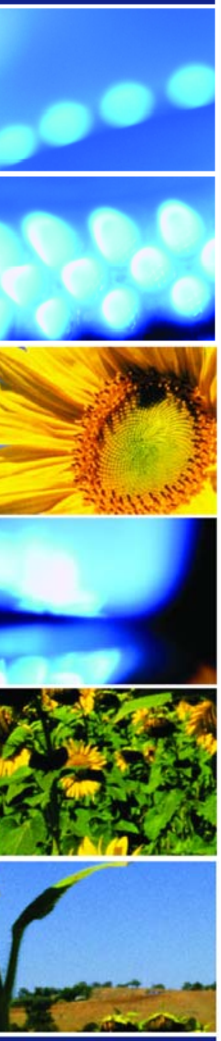


REALISE FORUM
Three Years of Green Certificates: Are They Out of the Infancy Phase?
15-16 December 2005

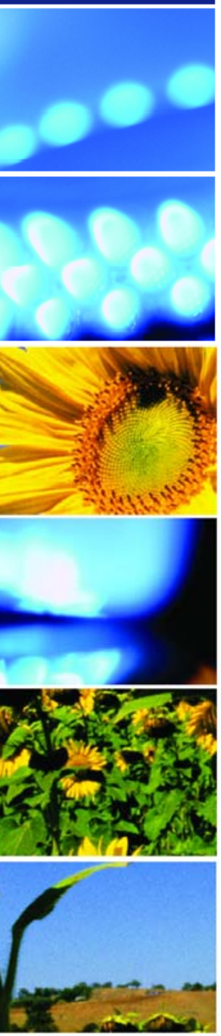
Three Years of ROCs in the UK

Fiona Santokie
Head of Renewables Markets Europe
Natsource Europe Ltd

Content of presentation

- Natsource – our experience in the UK Renewables Markets
- Overview of the Renewables Obligation (RO) policy
- Market Prices and liquidity:
  - how prices are formed
  - what has impacted market prices and liquidity
- The good and the bad of the RO!
- Looking forward…..

Natsource at a Glance



Natsource's Global Offices

- **Europe**
  - London
- **Asia**
  - Tokyo
- **North America**
  - Calgary
  - New York
  - Ottawa
  - Washington, D.C

Corporate Focus

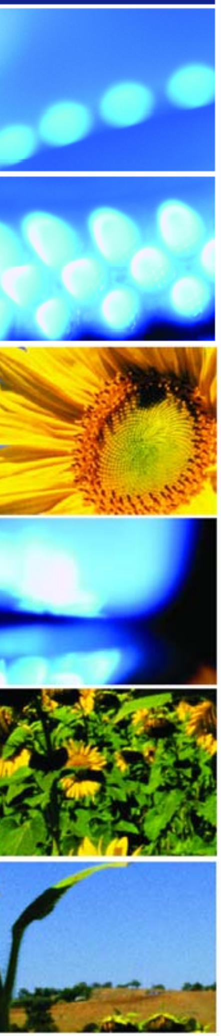
- Emissions Markets
- Renewable Energy Markets

Three Business Units

- Asset Management Services
- Transactional Services
- Advisory & Research Services

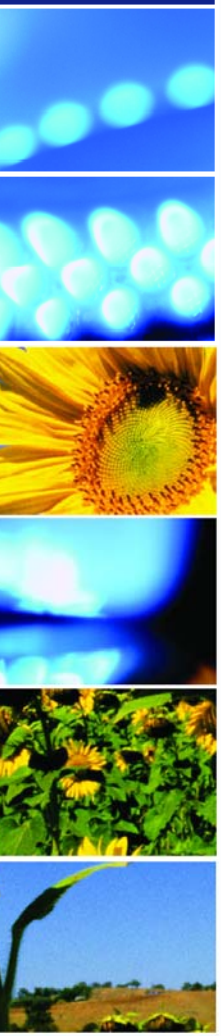
Natsource Experience in UK Renewable Energy Markets

- Been involved in the UK Renewable Energy Market prior to the RO coming into force (April 2002).
- ROCs: Have executed significant volumes of both:
  - Standalone ROCs: i.e. pure certificate trading.
  - Bundled Transactions: i.e. ROCs + physical electricity + LECs + grid benefits. From 1 to 10 year contracts out until 2013. Recently received bids out until 2017. All major technologies: wind, hydro, landfill and sewage gas, co-firing.
- LECs: Since summer last year we have traded over 5TWh of Levy Exemption Certificates (LECs) from both CHP and Renewable Energy Sources and from many countries across Europe



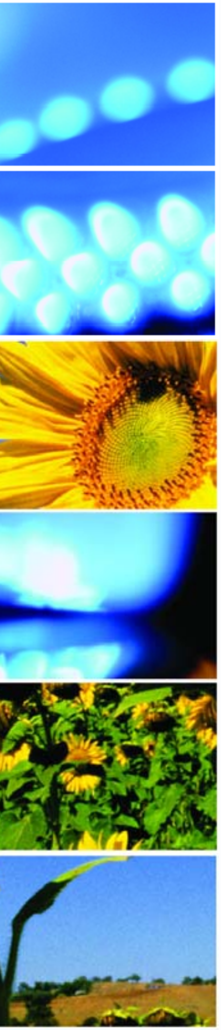
The UK Renewables Obligation (RO)

- Started 1st April 2002. Government has committed to the RO being in force until March 2027.
- Compliance periods run from 1st April to 31st March the following year. Suppliers must hand in compliance reports in September.
- Targets mandatory for licensed electricity suppliers:
  - CP1 = 3% of sales by March 2003
  - CP4 = 5.5% (~17.7TWh) by March 2006
  - CP9 = 10.4% (~33.6TWh) by March 2011
  - Targets were extended this year to 15.4% by March 2016.



The UK Renewables Obligation (RO)

- Suppliers can meet their RO target by either:
  - Submitting Renewables Obligation Certificates (ROCs). 1 ROC is issued to 1MWh of eligible generation
  - Paying the “buy-out” for every MWh they fall short of the target. In CP1 buy-out price = £30. This rises annually with retail price index and now = £32.33.
- ROCs can be banked for only 1 year, and suppliers can only meet 25% of their quota target with banked ROCs.



What Makes up the ROC Price?

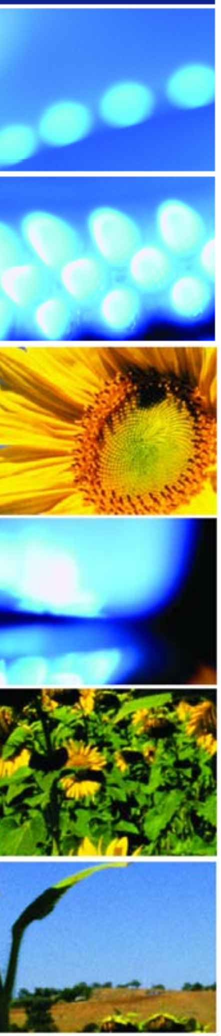
- All buy-out payments are pooled together to form the Buy-out Fund. The buy-out fund is proportionally redistributed back to suppliers for every ROC submitted for compliance. This is known as the Recycle Payment.
- Theoretical ROC recycle payment:

$$\frac{\text{shortfall in the market (MWh) x buyout}}{\text{no. of ROCs submitted for compliance}}$$

For 1st period, target was 9.27TWh and shortfall was 3.71TWh. Theoretical recycle payment:

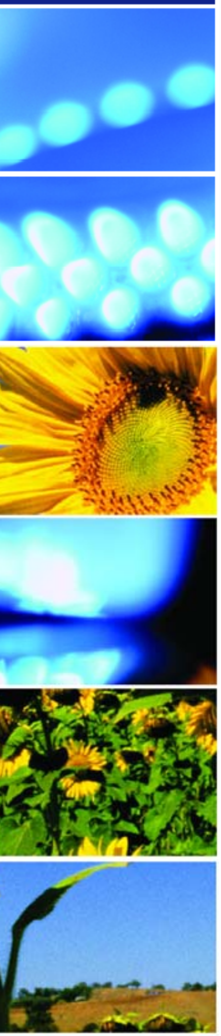
$$= \frac{3.71\text{TWh x £30}}{5.56\text{TWh}} = £20$$

- Average traded prices for CP1 = £47 - £48 i.e. above penalty level because of anticipated recycle payments.



Pricing: what influences the ROC price?

- Recycle payment is dependent on:
  - Volume of renewable energy generated, i.e. the more ROCs generated the lower the recycle value
  - The size of the RO target, i.e. the volume of electricity sales in the UK
  - All suppliers paying their share of the buy-out fund….but what happens if they cannot pay?....



TXU and its effect on the RO

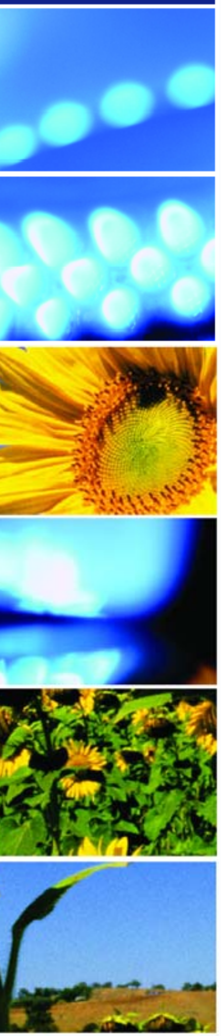
- TXU was one of the largest electricity suppliers in the UK the year they went into administration
- TXU went out of business during CP2 but just before suppliers submitted their compliance reports for CP1. TXU failed to pay their 23.6m share into the buy-out fund for
- This lowered the anticipated recycle value for CP1 by approximately 4

History of Standalone ROC Market

- Prices have been reasonably stable since the RO started in April 2002 within average range of 46 – 49.
- At the very beginning of CP1 prices were 35 – 40 due to lack of understanding of the system, but very few trades occurred at these low prices.
- Highest traded price was 53.
- Liquidity was highest in first year of the RO as traders speculating were in the ROCs market.
- After the failure of TXU to pay their share of buy-out, prices temporarily dropped by approximately 10 and market became very illiquid.
- Speculators are no longer in the ROC market and now trades are purely by suppliers for compliance. Liquidity has dropped and now trades occur on average every couple weeks in standalone ROC market.

Bundled Transactions

- CP1 – Flat prices per MWh of generation was traded, i.e. 5 year contract at fixed price of 60 per MWh…this type of structure is no longer available since the TXU incident.
- Now guaranteed floor price offered by very few players of 50-55 per MWh which is guaranteed regardless of policy changes. This is needed as banks do not accept the risk of the RO. All longterm contracts now share the risk of the recycle payment between the generator and supplier:
  - 90% buy-out + 75% recycle value
  - 100% buy-out + 100% recycle value – fixed fee



The Bad

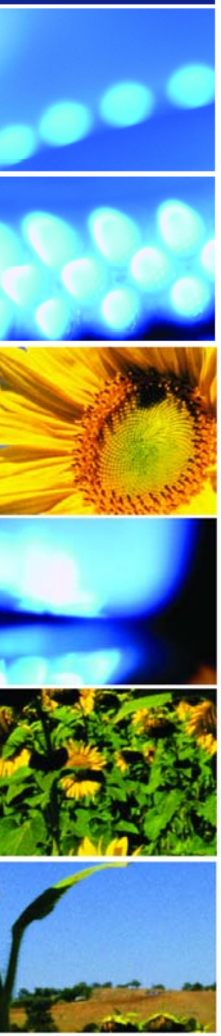
- Complex to understand – there has been a number of changes to better the RO, and although this does make the system more robust and efficient it takes a lot of reading to cover all the
- Negative policy with the recycle mechanism
- Does not encourage the more expensive technologies and so additional measures are being sought outside of the RO to give the support needed.

The Good

- Facilities are being built in the most economic sites – the RO is achieving new build in the most economic way thanks to a competitive market – this cannot be achieved with a standard feed in tariff…the aim of the RO is slowly being achieved.
- Fine tuning of the RO is happening – making the system even more efficient.
- Therefore the share of Renewable Energy in the UK is increasing but at a lower cost to the end consumers in comparison to some countries with feed in tariffs.

Looking forward

- A number of changes have been implemented this year (CP4), mainly:
  - Extension of the quota targets out to 15.4% by 2016. This gives investors security that the RO will exist in 10 years and that the target is rising therefore keeping up the ROC price
  - Mutualisation starts this year to minimise the impact of any further shortfalls in the buy-out fund. The mechanism spreads the cost of any future shortfalls in the buy-out fund throughout the market so that the impact on prices is minimised.
- The aim of both these ammendments to the policy is to have long term stability for new projects, therefore encouraging new build in the UK.



Contact / More Information

Thank you for your attention!

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