STX Services

Environmental Brokerage

Amsterdam, July 2014

Max van Meer - Managing Director STX Services

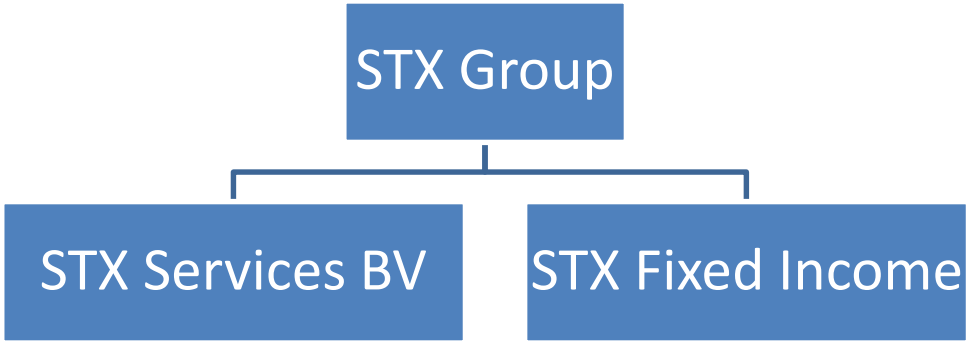
STX Services | Agenda

- Introduction to STX Services

- Feed-in tariffs versus market based mechanisms
- Examples European target compliance certificate systems

- Production versus consumption
- The (voluntary) consumption market

- Questions and answers



STX Group

- 60 employees
- 20 nationalities
- 1.250 active customers

STX Services

- Renewable Energy
- Biofuel
- Carbon
- CSO
- Energy Efficiency

STX Fixed Income

- Bonds
- Loans
- Cash

STX Services | Renewable Energy Sources (RES) Directive

Increase % bio fuel used in transport sector

Products STX: blending obligation ticket, physical biofuel, feedstock

Reduce carbon emissions in heavy industry

Products STX: EUA, CER, AAU, VER

Increase use of renewable energy

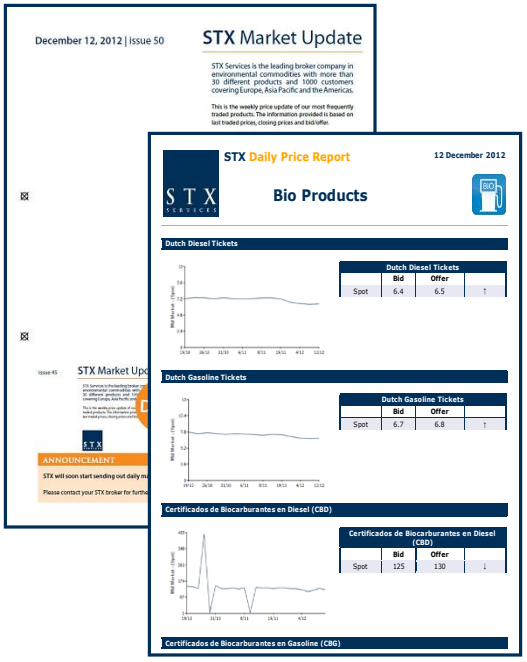
Products STX: compliance certificates in UK, BE, IT, PL, SE/NO and international GoO

Decrease energy consumption (Energy Efficiency)

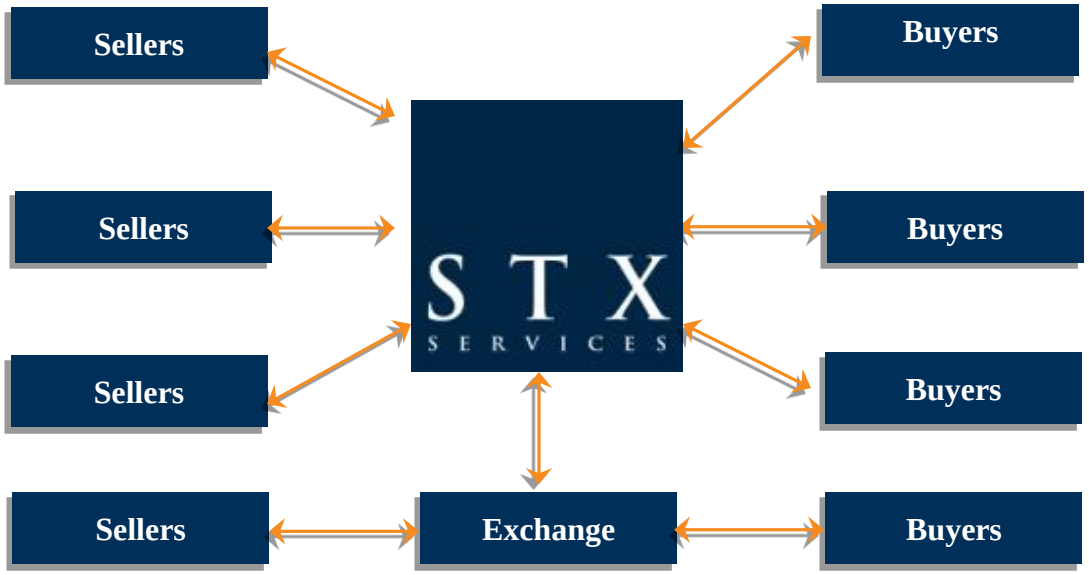
Products STX: Italian CB, French CEE, Polish white certs

STX SERVICES

- Small, medium and large companies in Europe are confronted with Environmental Regulation
- Environmental markets not core activity
- They need to stay informed on changing regulation
- They need to be comfortable that they trade Environmental Certificates at competitive prices
- They need a reliable partner that can provide independent market information (transparency) and market access (liquidity)



STX, as an independent player in the market, provides daily market information to help customers time their trading decision.



When customers decide to enter into a trade, STX provides market Access to over 1.250 OTC market participants and exchanges to ensure optimal pricing

STX Services | Customer base

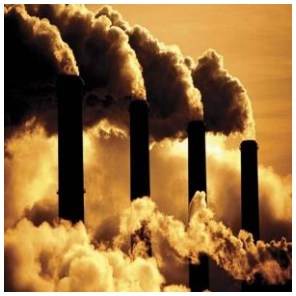
STX Services | Agenda

- Introduction to STX Services

- **Feed-in tariffs versus market based mechanisms**
- **European target compliance certificate systems**

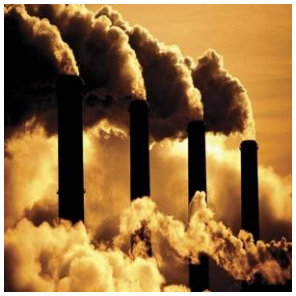
- Production versus consumption
- The (voluntary) consumption market
-
- Questions and answers

The physical electricity market in EU



- Goal: stimulate green energy generation
- Green tech not competitive yet
- Two financial incentives
  - Make fossil generation more expensive (CO_2)
  - Subsidize green generation → how?

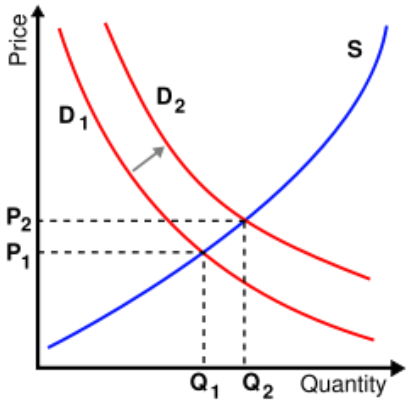
Two main support systems in EU

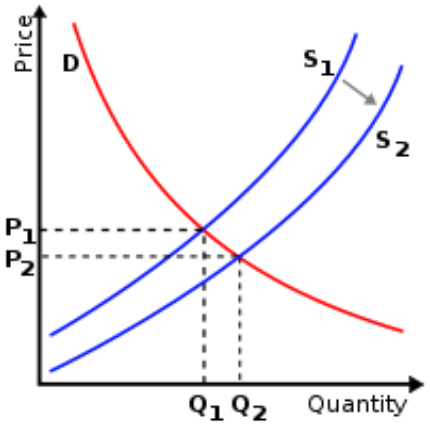


- Feed-in tariff and subsidies: fixed price for fixed term
  (Germany, France, Spain, Netherlands and others)
  - Advantage: secure investor environment
  - Dis-advantage: risk of wind fall profits and no government intervention possible anymore
- Market based mechanism, based on certificate system
  (7 countries: UK, BE, IT, SE, NO, PL, RO)
  - Advantage: market mechanism stimulates competition (and lower costs to society)
  - Dis-advantage: Governments design suboptimal systems that require intervention. Uncertain investor return.

STX SERVICES

Market based mechanisms





- Target is leading: artificial shift of demand or supply curve as targets (quantity) are leading
- Artificial shift can be subsidies, quota obligation with minimum price and / or fine price
- The market will create competition and reduce cost of the system

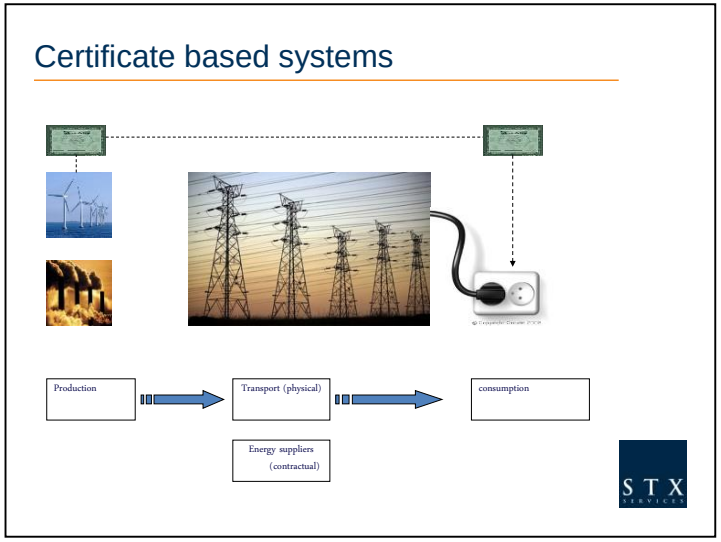
STX SERVICES

Certificate based systems

Production → Transport (physical) → Consumption

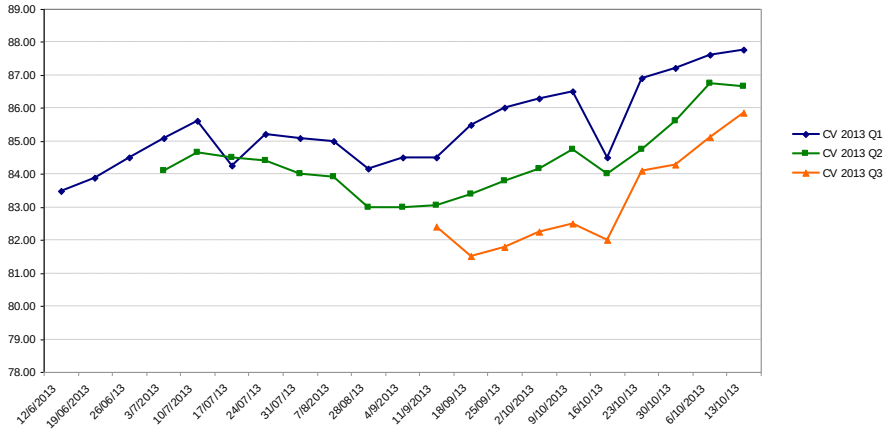
Energy suppliers (contractual)

Certificate based support systems



- The basics:
  - The electricity generator receives one (or more) certificates per 1 MWh produced
  - Energy suppliers have an obligation to buy certificates for x% of their total energy supply
  - If energy suppliers fail to comply, they have to pay a fine per MWh short (maximum price)
  - Energy producers can sell both the physical electricity and the certificate in the market
  - In some systems the government will set a guaranteed price
  - 7 Countries: UK, BE, IT, SE, NO, PO, RO

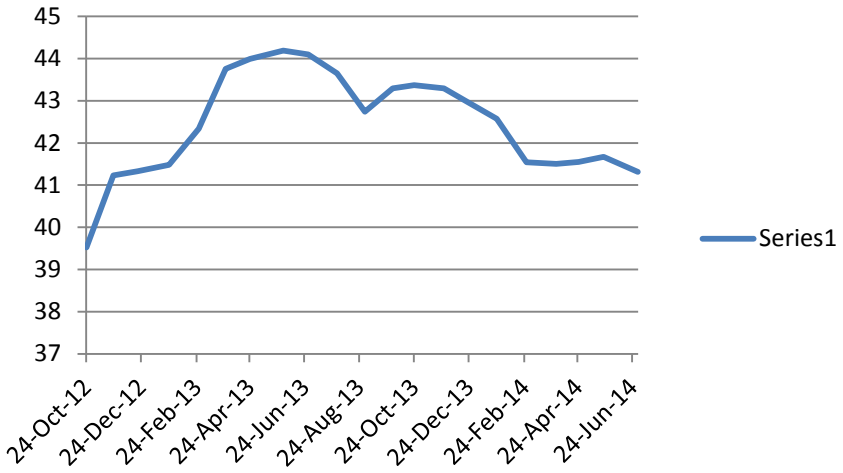
Example Italy – Certificate Verdi



- Energy producers and energy importers have to buy green certificates (7,5% in 2013)
- Government sets buy back price:
  EUR 180,- minus AEP
- Buy back price to be paid in JUL
- Price drivers:
  - AEP
  - Interest rate
- If electricity price is high → CV value is low

STX SERVICES

Example UK – Renewable Obligation Certificates



- Energy suppliers have to buy UK ROCs (20% in 2013)
- Government sets buy out value (fine price for non-compliance)
- The total buy out value, is redistributed over the ROC holders (recycle value)
- The value of the ROC is fine price + expected recycle value
- If electricity price is high → ROC value remain the same. Total revenue for renewable energy producer higher

STX SERVICES

The market participants

Sellers:

- Large utilities
- Clean tech investors
- Large corporates in heavy industry with on site (green) production
- Aggregators that buy from small initiatives (like farmers with 2 wind mills)

Buyers are:

- Large utilities
- Energy suppliers (without own production)
- Large end consumers

Traders:

- Large utilities
- Energy traders (hardly any independent trading houses that focus on certificates)

STX SERVICES

Transaction drivers

- Sellers need long term agreements with fixed price for both electricity and certificates in order to secure bank financing
- Buyers hedge xx% of their forward supply book with green certs and want flexibility for spot contracts
- Producers like monthly payment, while buyers only need the certificates once per year (end of compliance year)
- Market access:
  - Most volumes are traded forward on OTC basis
  - Limited success for exchanges or other electronic platforms so far:
    - Only spot available
    - Forward clearing solutions not possible as there is no reliable reference price and many small to medium market participants
  - Price on exchanges do not match with OTC prices (price manipulation?)

STX SERVICES

Lessons learned….

- Governments design (imperfect) market based mechanisms. Adverse side effect: windfall profits or limited investment initiatives
- Uncertain regulatory framework results in freezing markets. This scares investors away. Changes are ok, uncertainty is not ok
- Liquidity can be low, so prices can make significant moves
- Minimum support level is needed (goal of system is to support new investments)
- How can governments support:
  - Clear regulation
  - Let the market do its work
  - Facilitate market access and liquidity

STX SERVICES

STX Services | Agenda

- Introduction to STX Services

- Feed-in tariffs versus market based mechanisms
- European target compliance certificate systems

- **Production versus consumption**
- **The (voluntary) consumption market**
-
- Questions and answers

Consumer choice

The corporate website taste test

- Pepsi or Coca?
- Should consumers have a choice?

STX SERVICES

Consumer choice

The corporate website taste test

- Pepsi or Coca?
- Should consumers have a choice?

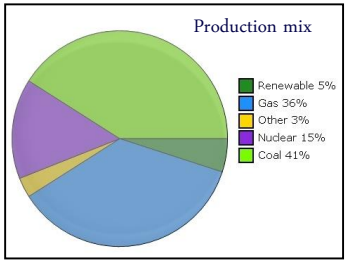
- Wind or Coal?
- Should consumers have a choice?

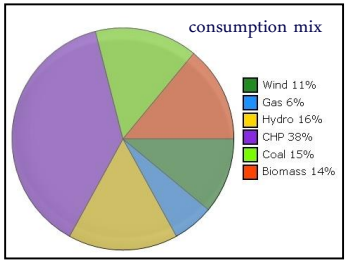
STX SERVICES

Production versus consumption

Production → Transport (physical) → consumption

Energy suppliers (contractual)





STX SERVICES

Guarantee of Origin

Voluntary market: Guarantees of Origin

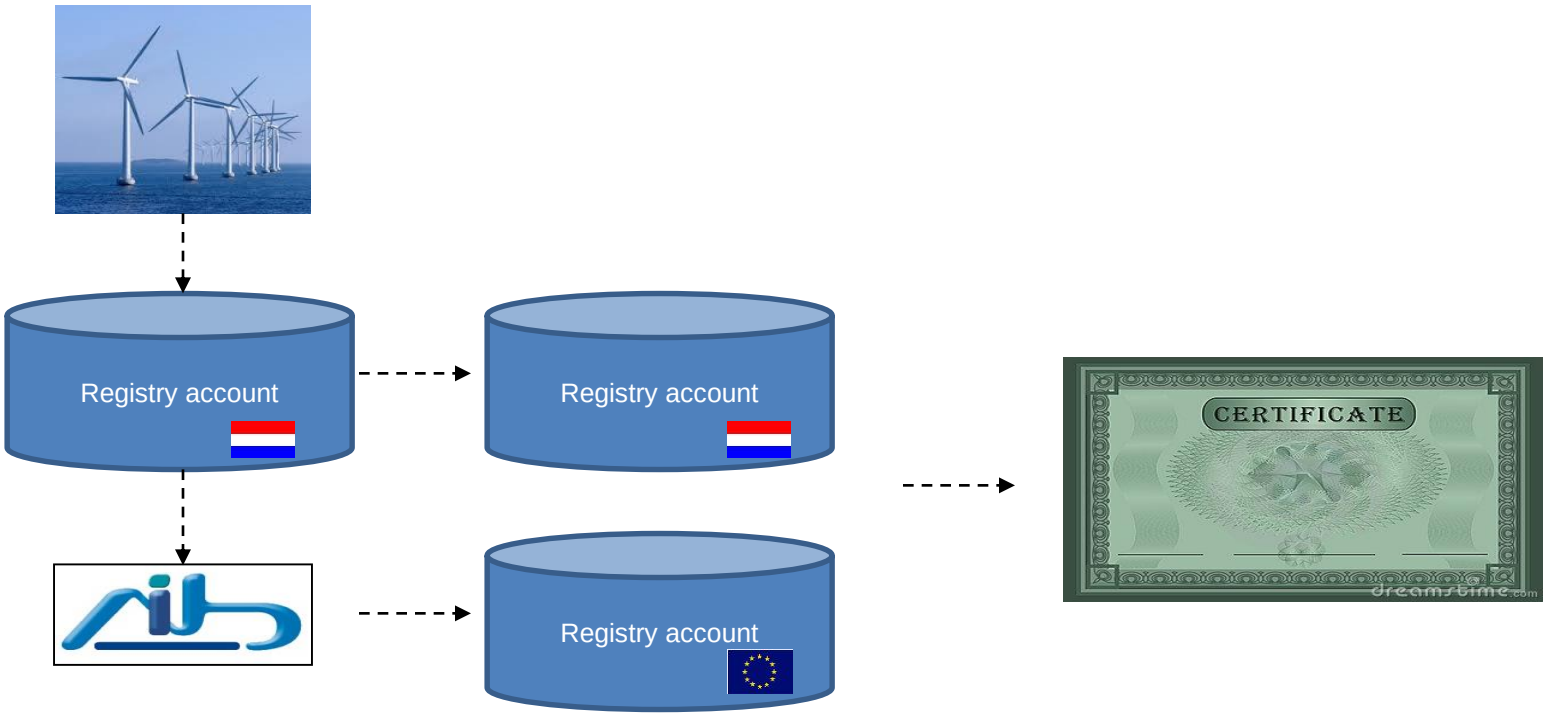
RES Directive 2009:

- Article 15.7
  "Where an electricity supplier is required to prove the share or quantity of energy from renewable sources in its energy mix for the purposes of Article 3(6) of Directive 2003/54/EC, it may do so by using its Guarantees of Origen."

- Article 15.7
  "Member States **shall** recognize Guarantees of Origen issued by other Member States in accordance with this Directive exclusively as proof of the elements referred to in paragraph 1 and paragraph 6(a) to (f). A Member State may refuse to recognize a Guarantee of Origen only when it has well-founded doubts about its accuracy, reliability or veracity. The Member State shall notify the Commission of such a refusal and its justification."

STX SERVICES

Guarantee of Origin



- Life cycle: Issuance, transfer or export, cancellation or expiration
- National transfers via (government appointed) national registry
- International AIB hub connects national registries

Guarantee of Origin

What factual claim can you make:

- Track your energy consumption to one specific source (according to RES Directive)
- Information on GoO: energy source, location, specific installation, type, capacity, support, start date, date and country of issuance etc
- Allocation of already existing production to consumers

STX Services | Buyers of GOO

- Energy suppliers offering green products
  - ‘Green and Cheap’ vs ‘Premium Green’
- Large corporates with Corporate Social Responsibility targets (CSR index)
- Government push for green
  - Extra credits fro green companies in government tenders
  - Municipalities buy directly

Price indications (no intrinsic value):

- Hydro traded between 5ct – 25ct
- Biomass traded between 10ct – 50ct
- Wind traded between 30ct – 1,50 EUR

Other crucial price driver:

- 12 month expiry (market either long or short)

Guarantee of Origin

What discussions do we see in the market?

- Additionality; does demand create more supply…?
- Sustainability criteria: should GOO contain information about protetcion of fish, birds, landscape etc.?
- Carbon claims: what claims can a consumer make regarding the carbon footprint?

STX Services | Agenda

Questions