

Third consultation workshop on electricity tracking

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Outline for the consultation workshop

1. Introduction
2. Status of the project
3. Revised tracking options
4. Proposal for the tracking standard (non-technical specifications)
5. Proposal for the tracking standard (technical specifications)
6. Cost assessment
7. Outlook
8. Feedback

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Energy research Centre of the Netherlands

1. Introduction

- 2. Status of the project
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- 4. Proposal for the tracking standard (non-techn.)
- 5. Proposal for the tracking standard (techn.)
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1. Introduction

Are there any comments to the minutes from the last workshop?



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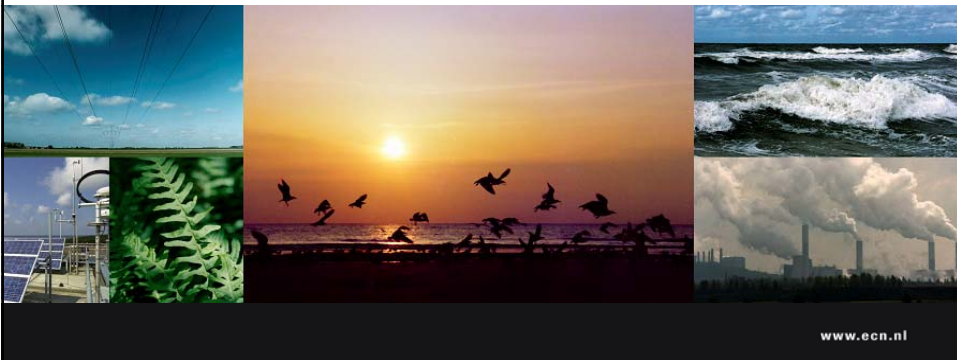


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- 2. Status of the project
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2. Status of the project



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Project objectives

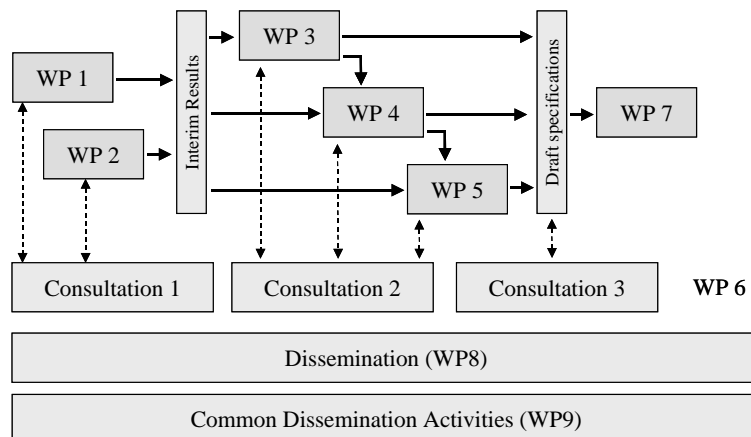
Overall goal of the project

- To draft a **harmonised standard** for tracking electricity generation attributes in Europe

Additional project objectives

- To cover **all relevant tracking requirements** which are imposed by European and national policies (disclosure, guarantees of origin, support schemes, Green Power etc.)
- To **support cross-border trade** of electricity and generation attributes
- To **avoid multiple counting** of electricity attributes (e.g. from renewable energy sources)
- To simplify **verification** of tracking procedures

Logical project structure



Project schedule (revised)

Project phases	Inception							Draft design							Review							Dissemination								
Duration of the project (in months)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Calendar year	2005							2006							2007															
WP 1: Analysis of existing allocation schemes	■	■	■	■	■	■																								
WP 2: Analysis of the framework conditions for tracking	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
WP 3: Non-technical specifications								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
WP 4: Technical specifications																	■	■	■	■	■	■	■	■						
WP 5: Cost Assessment																														
WP 6: Consultation Process																														
WP 7: Finalisation of system specifications																														
WP 8: Dissemination																														
WP 9: Common Dissemination Activities																														
Project Coordination																														
Project meetings		RO																												
Consultation workshops		x																												
Project Conference																														
Advisory Group																														

Some highlights and recent developments

E-TRACK project receives attention by major stakeholders

- European Commission is interested in findings
- E-TRACK has supported decision-making by governments in several countries (e.g. in the Nordic area)

- The next challenge is the implementation of the Guarantee of Origin for **high-efficient CHP** by Member States (due ~ June 2007)

- Commission focuses on harmonised implementation, EECS system as reference
- E-TRACK can give guidance on how to do this

3. Revised tracking options



Scenarios as a tool for a structured analysis of options for tracking systems

- The analysis in WP 3, WP 4 and WP 5 is based on a number of scenarios (“Options”) on how tracking could be implemented
- The scenario tool provides a structured and harmonised basis for the discussion of tracking options
- The scenarios assume the implementation of **one co-ordinated tracking system** in one or several countries (“E-TRACK bubble”)
- “Exports” and “imports” refer to the interaction with countries or regions with different types of tracking schemes
- A first set of options presented in the 2nd Consultation Round and the respective evaluation was revised and extended based on the feedback by stakeholders

Major descriptors for the scenarios

General features of tracking scheme

- Use of explicit tracking
- Use of registries
- Use & type of statistical averages (implicit tracking)
- Handling of electricity without known attributes

Tracked information

- Energy sources
- Environmental indicators
- Support

Uses of tracking

- Inclusion of GO
- Disclosure
- Support schemes (facilitation of support or transparency only)
- RES-E target accounting

Reliability and verification measures

- Redemption
- Independent verification

Selection process

- Discussion and rough evaluation of a larger number of scenarios
- Pre-Selection of three scenarios and refinement
- Development of a first draft recommendation
- Consultation on first draft recommendation
- **Revision and extension** of scenarios and evaluations
 - All systems are assumed to be mandatory
 - New: Option 0 (contract based system)
 - Cost as separate assessment criterion
- **Definition** of a Draft E-TRACK Standard providing for a minimum level of both individual quality and harmonisation of different tracking systems
- Consultation on draft E-TRACK Standard
- Finalisation of the E-TRACK Standard

Rough numeric assessment including sub-criteria

Criterion	Option O	Option A	Option B	Option C
Sub-Aspect	Contract	Ex post	Certificates + RM	Ambitious Certificates
Informational value	3	3	4	5
product differentiation/distinction of products	0	0	+	+
generally usable for support and target accounting	-	-	0	+
Accuracy	2	2	4	5
avoiding multiple counting	0	-	+	+
correct data input	-	0	+	+
Robustness	2	1	3	4
resistance against distortions (intended or unintended by market actors)	-	-	0	+
Feasibility	2	4	4	2
accordance to regulatory and legislative framework	+	+	+	-
accordance to market principles	-	+	+	-
effects on liquidity of markets	-	+	+	+
fair participation of all market players	0	0	0	-
Cost	2	4	3	1
Cost for implementation	+	+	0	-
Cost for operation	-	0	0	-
Flexibility	4	4	3	1
ability to adapt to different national or regional frameworks	+	+	+	-
ability to adapt to changes over time	+	+	0	0

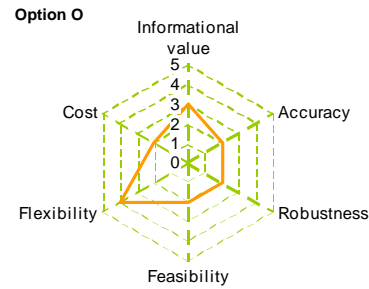
NEW: Tracking Option 0: “Contract based system“ (1)

- Trade of attributes **can not be de-linked** from contracts for physical delivery of electricity
- **Explicit tracking** is mandatory except for electricity of unknown origin (best available information)
- Implicit tracking includes an internal **power exchange mix** and (uncorrected) **production statistics**
- **GO** not integrated in the tracking scheme, **certificates** are no essential aspect of the tracking option
- Basic level of **standardisation** (definition of energy clusters, production period, etc.)
- **Selective verification** by the regulator

Tracking Option 0: “Contract based system“ (2)

Evaluation

- Likely to increase complexity and to reduce liquidity of electricity markets
- Trading on exchanges not much affected (exch. mix)
- Provides useful information (close to electricity market)
- Uncorrected production statistics result in double counting
- Cost vary depending on the level of verification
- Flexible



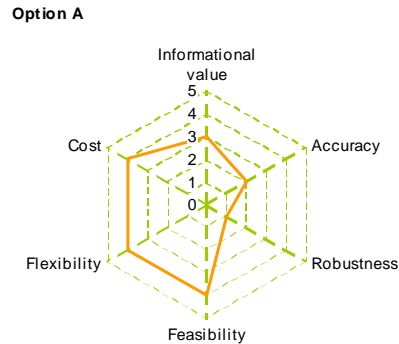
Tracking Option A: "Ex post contract tracking“ (1)

- Attributes are allocated mainly based on the [net electricity trading activity](#) between market participants
- The allocation requires an [iterative, ex-post calculation](#) procedure, which approximates the “ideal” figures
- Power purchased from exchanges and undisclosed imports will be assigned with default data ([production statistics](#))
- [Other tracking options](#) (contracts with attributes and certificates, in parallel to the main scheme) required for specific products
- Energy sources are not standardised
- GO not integrated in the tracking scheme

Tracking Option A: "Ex post contract tracking" (2)

Evaluation

- Ex post contract tracking is in between of explicit and implicit
- System is very flexible, cost could be low
- Fits well with markets, but acceptance not clear
- Coexistence of tracking options (GO, certificates, ...)
- Statistics limited, however no residual mix
- Verification can be difficult



Tracking Option B: "Voluntary certificate system plus residual mix" (1)

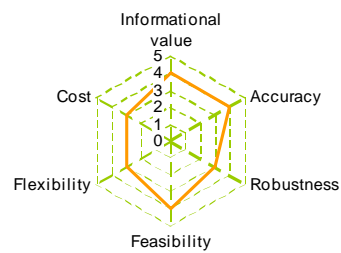
- Explicit tracking based on [certificates](#), mandatory for RES-E and HE-CHP, optional for all other generation
- Implicit tracking based on [regional residual mixes](#); [caps](#) on the use of residual might be introduced
- Undisclosed imports: use exporters' residual mix (if available)
- Exports must be disclosed and registered (residual possible)
- Energy sources standardised, environmental indicators included
- [GO fully integrated](#) in the tracking scheme, RES-E targets can be verified based on tracking results
- The whole system is [mandatory only for RES-E and HE-CHP](#) (other options exist), redemption of certificates required
- Support for RES-E and HE-CHP can be independent from tracking certificates

Tracking Option B: "Voluntary certificate system plus residual mix" (2)

Evaluation

- Within the system, accuracy and robustness are high (RES-E, CHP)
- Informational value depends on market share of the residual mix
- Feasibility and flexibility relatively high
- Support certificates might confuse markets
- Availability of other tracking options reduces overall accuracy and robustness
- This option could be an interim stage towards a more comprehensive system depending on market development and needs

Option B



Tracking Option C: "Ambitious certificate system" (1)

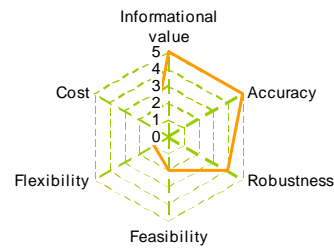
- Fully **mandatory certificate system** for all types of generation
- **Residual mix** only allowed for **limited** purposes, e.g. losses (calculated from unused certificates on a European level)
- **GO fully integrated** in the tracking scheme, RES-E targets can be verified based on tracking results
- Single **European certificate registry**
- Exports and imports should be associated with attributes
- Energy sources standardised, environmental indicators and full information on support included
- System is **mandatory for disclosure**, no other tracking options
- Support for RES-E and HE-CHP can be included in tracking system (separate allocation procedure possible)

Tracking Option C: "Ambitious certificate system" (2)

Evaluation

- Comprehensive and exclusive tracking system
- High share of explicit tracking
- Mandatory redemption of certificates
- Robustness slightly reduced due to option for a separate support allocation mechanism
- Very strict system strongly reduces feasibility (e.g. automatic issuing of certificates)
- Advanced system has only very limited flexibility

Option C



Rough numeric assessment including sub-criteria

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correct data input	-	0	+	+
Robustness	2	1	3	4
resistance against distortions (intended or unintended by market actors)	-	-	0	+
Feasibility	2	4	4	2
accordance to regulatory and legislative framework	+	+	+	-
accordance to market principles	-	+	+	-
effects on liquidity of markets	-	+	+	+
fair participation of all market players	0	0	0	-
Cost	2	4	3	1
Cost for implementation	+	+	0	-
Cost for operation	-	0	0	-
Flexibility	4	4	3	1
ability to adapt to different national or regional frameworks	+	+	+	-
ability to adapt to changes over time	+	+	0	0

4. Proposal for the Tracking Standard (Non-Technical Specifications)



Lessons from the discussion on tracking options

- Contract tracking and de-linked tracking can be combined, as long as the proper accounting of attributes is ensured.
- Any tracking system should feature explicit and implicit tracking.
- The **share of implicit tracking** should be **minimised**, because it does not support differentiation in the market with regard to attributes.
- **Explicit tracking** should be **based on registries**, which allow the ownership of attributes to be tracked.
- **Guarantees of Origin** for RES-E and CHP should be **integrated** into the explicit tracking mechanism.
- Inter-registry transfers should be provided by a centralised hub.
- Implicit tracking should be based on a Residual Mix.

Tracking standard vs. tracking systems

- The second round of consultations has discussed certain tracking **systems**, which could be implemented in a country.
- Different from this, the project is developing a **standard** for tracking electricity in Europe, which will be able to accommodate a variety of individual tracking systems.
 - This approach follows the **subsidiarity** principle.
 - The term “standard” is not (yet) implying a formal standard under CEN or Cenelec rules.
- The use of any tracking systems outside of the standard can lead to multiple counting and should be avoided.

Schemes & Domains (1)

- A **scheme** represents a certain policy for which results of tracking can be used, e.g. disclosure, a certain support system, or RES-E target accounting.
- A **domain** consists of a geographical area (e.g. a Member State) and one or several schemes.
 - E.g. Disclosure in Austria
- A domain is set up by one or several Scheme Authorities, which also appoint the Issuing Body and other actors.
 - E.g. a ministry responsible for disclosure
- The relationship of different schemes and between schemes and the tracking system must be clarified.
 - E.g. how is supported RES-E generation allocated to final suppliers for purposes of disclosure?

Schemes & Domains (2)

- Within each domain, certificates for explicit tracking can be issued, transferred and redeemed.
- Based on the Tracking Standard, certificates can also be transferred to other registries (e.g. the same scheme in another country), and can be redeemed there.
- **Specific regulations** for Disclosure:
 - Disclosure domains also provide for a residual mix procedure.
 - Disclosure statements must be based on a sufficient number of redeemed certificates, or the residual mix.

Certificates & Registries (1)

- Certificates carry the **evidence** of electricity generation (usually 1 MWh), and the related attributes and scheme associations.
- Certificates can be issued based on plant accreditation and meter readings.
- **Registries** track the existence and ownership of certificates.
- Certificates can be redeemed in order to realise their value.

Certificate

Cert No. XYZ123

Face Value: 1 MWh

Scheme associations:
Disclosure

Energy Source: Coal

CO2 Emissions: 890 g/kWh

Nuclear waste: 0 µg/kWh

Plant code: XYZ

....

Certificates & Registries (2)

- Guarantees of Origin are **integrated** in the certificate system.
 - The qualification of a certificate as GO is recorded as one of the attributes.
 - A biomass CHP plant, which is eligible for GO both for RES-E and HE-CHP, will receive certificates with attributes for both types of GO.

Residual Mix Calculation (1)

- Explicit tracking should be used for disclosure where possible (best available information).
 - Redeemed disclosure certificates must be used for disclosure (or returned in time to the residual)
- The Residual Mix must be used if no explicit tracking information is available.
- On an annual basis, all disclosure registries calculate the **attributes** and **volume** of the Residual Mix for their domain, which is used as a **default value** for implicit tracking.
- As a start, the Residual Mix is calculated for a single country or a group of countries.
 - Following the further integration of electricity markets, the Residual Mix should ultimately be calculated as one mix for all countries participating in the E-TRACK standard

Residual Mix Calculation (2)

- In many countries, the calculation of the Residual Mix must take into account the effects of “independent reliable tracking systems”.
 - These allocate electricity generation attributes to final consumers for purposes of disclosure, but
 - Are independent from the certificates handled by the E-TRACK registries

Typical examples for independent reliable tracking systems are support systems for RES-E, which allocate the attributes of supported RES-E generation to final consumers (e.g. the German feed-in system).

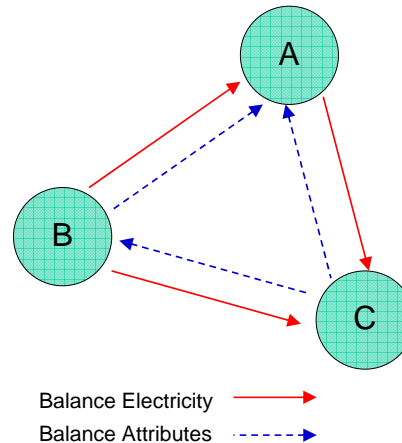
(Existing private tracking initiatives should be integrated in the E-TRACK tracking systems.)

Residual Mix Calculation (3)

- The Residual Mix must take into account those attributes which are allocated based on redeemed certificates.
- At the same time it is important to maintain the integrity of the accounting periods for disclosure (the calendar year).
- The Residual Mix should be available for disclosure purposes as soon as possible after the end of the calendar year.
- In order to fulfil these requirements, the lifetime of disclosure certificates relating to a certain calendar year must be limited to a period before the publication of the Residual Mix:
 - Time (X months): Finalisation of meter readings and issuing
 - Time (X+Y months): Deadline for transfers and redemptions
 - Time (X+Y+Z months): Publication of Residual Mix
- Is such a deadline for transfers and redemptions acceptable?

Residual Mix Calculation (4)

- The calculation of the Residual Mix must take into account the balances of **cross-border exchanges** of physical electricity and of attributes.
- The objective is to calculate a Residual Mix, which has a volume equivalent to the **difference** between physical delivery in a given year and the volume of attributes available from explicit tracking.
- In order to do so, some compensations between countries with excess and shortages of attributes are necessary.



Residual Mix Calculation (5)

The Residual Mix is calculated in two steps:

1. Calculation of the Preliminary Internal Residual Mix for each Residual Mix Area

- Attributes of all electricity generation
- +/- attributes from im/exported disclosure certificates
- attributes from redeemed disclosure certificates
- attributes allocated by independent reliable tracking systems
- = **Preliminary Internal Residual Mix**

Total of attributes available:

Redeemed disclosure certificates + allocation by independent reliable tracking systems + Preliminary Internal Residual Mix

Residual Mix Calculation (6)

2. Calculation of the final Residual Mix for each RM Area

- Each Residual Mix Area compares the volume of total electricity delivered to final consumers with the volume of all attributes available in the RM Area.
- Those RM Areas with more attributes than electricity delivered send their surplus in a joint European Residual Mix.

In those RM Areas, the final Residual Mix is equivalent to the Preliminary Internal Residual Mix.

- This European Residual Mix is used to “fill up” the deficits in the other RM Areas.

In these RM Areas, the final Residual Mix is the total of the Preliminary Internal Residual Mix and the fill-up from the European Residual Mix.

Governance and Independence of Actors

- The Scheme Authority represents the highest governance level and appoints the Issuing Body.
- The Issuing Body (and its agents) must be independent from market players and must not have own interest in the market.
- Each Domain will lay down rules for the participation of market players in the design and development of the Domain rules.

(The European level of governance is addressed as part of the technical specifications.)

5. Proposal for the Tracking Standard (Technical Specifications)



Outline

- Approach to develop on from the scenarios
- The E-TRACK Standard
- Explicit tracking requirements
- Implicit tracking requirements
- Controlling the processes

Components of the E-Track Standard

- What evidence should be tracked
 - Some definition of data structures
- Where to get the data
 - Much of it is already recorded somewhere
- How to collect the data
 - Consistency and efficiency
- Management of data
 - Maintenance of data integrity
- Using the data
 - Procedures for deriving compliance positions
- Controlling the process
 - Governance arrangements

Explicit vs. Implicit Tracking

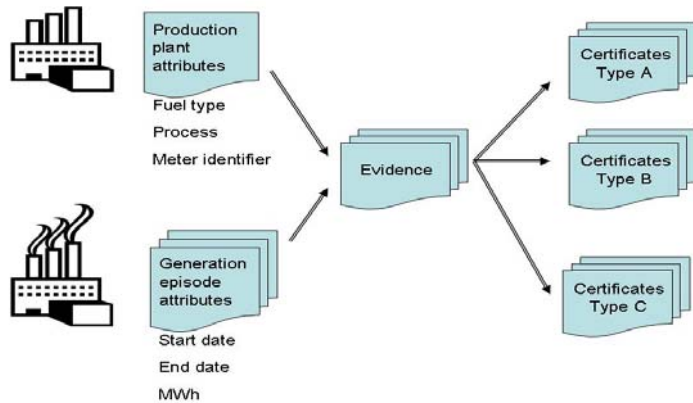
- Explicit
 - Use of certificates, declarations or contract-based methods, such that the ownership and status of attributes can be specifically identified at any point in time.
- Implicit
 - Retrospective allocation using production averages and statistics.
- Explicit evidence is to be used wherever feasible and practical.
- Implicit information should be used only where explicit evidence is unavailable or impractical.

Explicit Tracking Requirements

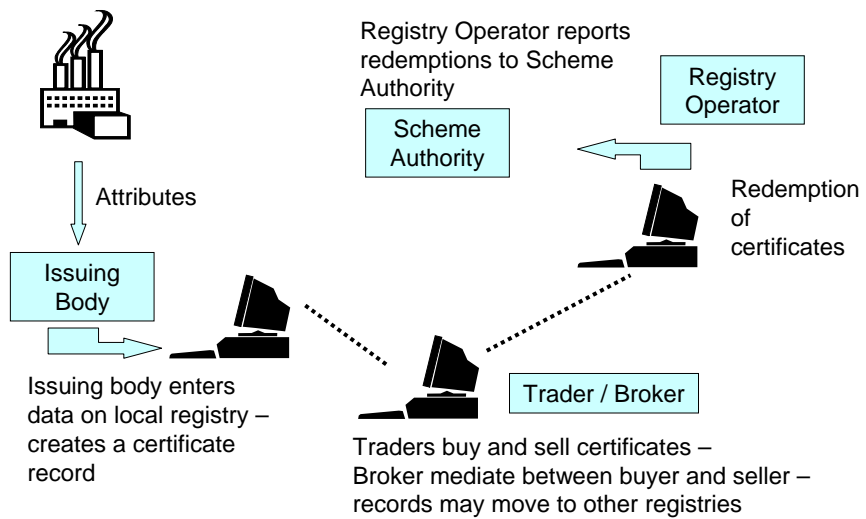
Principle of Uniqueness

- For **each use** evidence must:
 - Exist once and only once
 - Be owned exclusively
 - Be only used once
- For the E-TRACK standard this means:
 - Data is independently verified
 - Evidence relates to an event that actually happened
 - The tracking system must be secure
 - i.e. must not lose or create data itself
 - Upon use, that evidence is no longer eligible

Important Concepts



Lifecycle of Certificates



Certificate-based Approach: Aspects of Using Certificates

- Generation attributes are **separated** from the energy.
 - Can be traded **independently**
 - No adverse impact on commodity energy trading
 - No electrical connection necessary between producer and consumer
 - Very similar to carbon trading in many ways
- Ownership is certain at any point in time
 - Independently verifiable
- Supports true differentiation in the retail market
 - Real consumer choice
- Use of RES-E GO and CHP-GO are EU policy

E-Track Standard: Contract-based approach

- **No separation** of energy and attributes
- Advantages:
 - No selective marketing („cherry picking“)
 - Transaction costs potentially lower than certificate system
- Disadvantages:
 - Contract relationship between generator and retailer required, not through electricity exchange
 - Reducing liquidity of the electricity markets by separating generation types

Data Collection Requirements

- A production plant must register with an issuing body for the domain in which the plant is located
- Production data must only be presented to the tracking system at one entry point
- Data collected must be verified by an independent organisation
- The metering data should be such that auxiliary generator data and station consumption can be identified
- The attributes from multi-fuelled or multi-mode production devices should be allocated according to energy source factors calculated using the mass and calorific values of each fuel used
- Data collection should be automated wherever economic to do so

Data Collection - in practice

- Production plant attributes
 - Do not normally change much
 - Collected as part of the registration process
- Generation attributes
 - Metered electrical output
 - Real-time or system balancing information not required
 - Already collected by, or on behalf, of network operator
 - Often already automated
 - Often already verified for energy or use of system payments
 - Multiple fuel / multi-mode input data
 - Reported monthly
 - May already be done for other purposes (e.g. emissions)

Data Collection Issues

- Ownership of metering data
 - May not be released to the attribute tracking system
- Legislation
 - May prevent data being used for attribute tracking
- Communication
 - May require some link from energy market data collection system to the attribute tracking system
- Combining data
 - Existing reporting of different aspects for the same plant may not be on a consistent basis

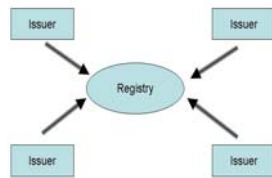
Sources and Availability of Data

- Data often already collected for other purposes
- differing level of detail often limitation
- duplication of work to be avoided, but may be not avoidable

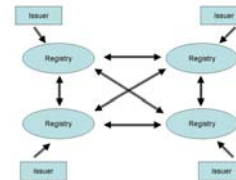
- Adaptation of systems for other purposes required
or:
- implementation of a new system with new interfaces

Registry Infrastructures

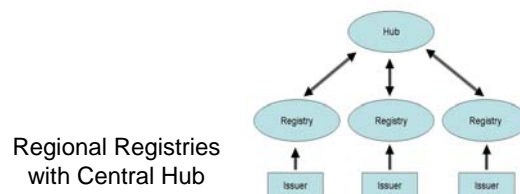
Registry is compulsory!



Single Central Registry



Distributed Registry Network



Regional Registries with Central Hub

Management of Data

- Certificates only exist electronically
- Independent operation of registries
- Regional registries linked by a central hub offers most flexibility
- A registry should provide transparency and support user assurance in the system and the accuracy of reported information
- Transfer between registries requires a common approach to identifiers in order to facilitate the infrastructure and to maintain uniqueness
- Transfers within the E-TRACK standard must be initiated by the seller, but do not need to be confirmed by the buyer prior to transfer
- For reasons of cost and availability, the transfer medium should be the Internet using a commonly available XML based file format

Compliance Procedure Requirements

- The tracking system should provide a **controlled environment** for participants to demonstrate their compliance with any obligation and to realise the value of their evidence
- Certificates should be transferred into an account holder's redemption account for that scheme
- Only the account holder can transfer certificates into his redemption account
 - Onus is on the participant to demonstrate compliance
- Redemption accounts should be within the country (or region) of the scheme authority
- Compliance is measured by the volume of certificates in a redemption account at the specified time and date
- On redemption, the certificates must be retired from circulation

Implicit Tracking Requirements

Mainly for Disclosure

Aspects of Using Implicit Tracking

- Little or no infrastructure needed
- Potentially inexpensive
 - But has hidden costs
- Offers no differentiation between retailers
- Does not support EU policy objectives
- Prone to double counting
- Cross border certificate trading already exists
- Can take a long time to collate information

Data Collection Issues

- Energy volumes must be compiled on an equivalent basis to:
 - Any explicitly tracked data being used in the same scheme
 - Any other domains from which evidence may be transferred in to the scheme
 - The compliance periods of the scheme
- Some double counting should be expected
 - Suspect areas need to be identified and quantified
- Information on 'unknown' sources i.e. interconnectors
- Must identify explicitly tracked attribute exports and imports

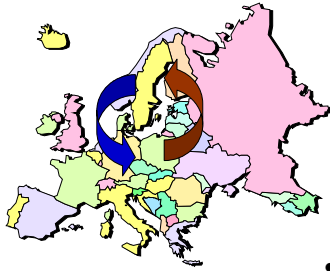
Allocation Procedure Requirements

- Allocation is of the **residual mix** of attributes
 - Not simply the national generation mix ratio
 - Calculated after all explicitly tracked claims have been removed
 - Residual mix has a volume
- Residual mix can be calculated:
 - Nationally
 - For a region
 - For the whole of the EU and treaty states
- All countries within the area of the residual mix must use a **common** approach and timing

Residual Mix Issues

- Residual mix has problems with imports and exports
 - Energy with unassigned attribute dependent on other residuals
 - Not significant where these are a relatively low volume
 - Almost impossible where large transitory energy volumes exist
- Residual mix volume must meet requirement
 - Scaling up is creating non-existent attributes

Example of Residual Mix Issue



- Norway sells all its hydro attributes to Germany
- Norway's residual has low volume and no hydro
- What should happen in Norway?
 - Ignore the export and declare hydro in Norway?
 - Double counting with Germany
 - Norway has already benefited from the sale
 - Import the residual from Germany?
 - Example: lignite
 - Import the residual from within Nordic area?
 - What if other countries did the same?
 - Is it meaningful to tell Norwegian consumers their energy source was not hydro?
- Is this just half the story?
 - Is this a market where value in Germany was higher than in Norway?

Addressing the Residual Mix Issue

- E-TRACK specifies a common approach
 - Reduces scope for inaccuracies
- E-TRACK recommends using explicit tracking where possible
 - Reduces the volume of implicitly tracked attribute
- Reducing the number of boundaries reduces the impact
 - Single E-TRACK residual mix gives the most accurate result
- Clearly a trade-off for results between being meaningful against expectation and accuracy and recognising the value in a market.

Controlling the Process

Governance

Governance Models

Four possible approaches:

- EU institution managed through Directive
- Series of bilateral agreements
- International requirement set by a standards organisation
- Voluntary independent grouping with a code of practice

EU Institution

- Management by Directive may be inappropriate
 - Too high level
 - Potentially insufficiently flexible
- Not all participants are EU Member States
- Could work in a similar manner to UNFCCC CDM Executive Board

Bilateral Agreements

- Very difficult to make work
 - Multiple agreements necessary
- Not consistent with EU
- Likely to be very inflexible
- Would need to establish a central organisation

Standards Organisation

- Could be implemented through a Directive
 - or be subscribed at national government or regulator level
- Standards organisations only maintain a standard
 - Quality Assurance bodies
 - Required to establish compliance
 - Required to accredit service providers
 - How would enforcement of the standard be carried out?

Independent Grouping with a Code of Practice

- Recognised by European Commission
 - Periodic EC audit?
- Supported by national regulators/governments
 - Relationship with Council of European Energy Regulators?
 - Relationship with Trade Associations?
 - Association of Issuing Bodies
- Maintains Code of Practice
 - Peer enforcement?
- Funding mechanism
- Voting rights
- Who should be members?

Roles

- Service providers
 - Issuing body
 - Accredited by the governance organisation
 - Appointed by scheme authorities
 - Registry operators
 - Accredited by the governance organisation
 - Appointed by scheme authorities
 - Accreditation bodies
 - Data collectors
 - Normally accredited under national law (e.g. TSO, DSO)
 - Audit and monitoring body

Governance Organisation

- No firm E-TRACK recommendation yet
- Preference for independent group with Code of Practice
- Open to suggestion as part of this consultation

6. Cost Assessment



Content

- aims of WP 5
- costs drivers
- costs of existing tracking systems based on registries
- calculation procedure and assumptions
- results: European E-TRACK costs
- recommendation for cost distribution
- list of benefits of a harmonized tracking scheme

Aims of WP5

- to develop a **cost assessment** based on discussions with potential implementers/operators/users of tracking systems
- to develop recommendations on the distribution of cost to the parties involved
- to assess the benefits of a harmonized tracking scheme (qualitative)
- analysis based on
 - experiences of operators of tracking systems
 - discussions with parties probably being involved in implementation and operation of a tracking system
 - desktop research

Cost drivers: system development and implementation

- setting up organisational structures
- composing detailed system specifications
- technical development (software for registry, ...)
- collection of data
- development of interfaces between national domains
- capacity building (market actors, users, ...)

Cost drivers: system maintenance

- governance of the overall system
- operation and maintenance of the system
 - hardware
 - software
 - data handling
- user support
- further development according to policy development and to lessons learned

Cost drivers: system operation

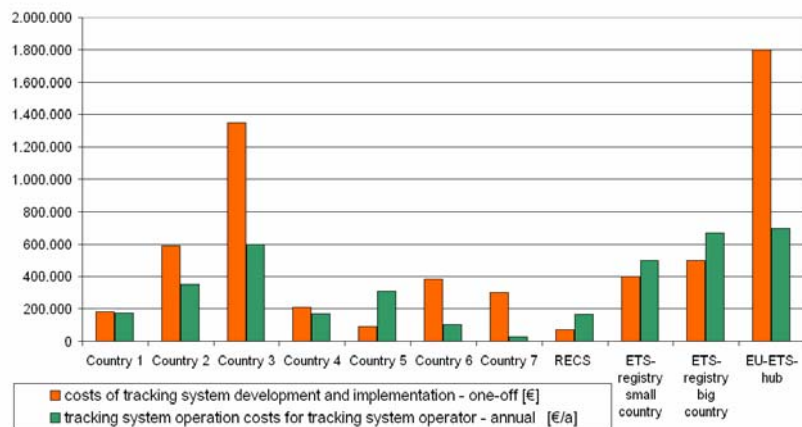
- issuing aspects
 - plant certification and auditing
 - verification
- transfer aspects
 - handling of information transfer (e.g. certificate transfers)
- usage and redemption aspects
 - conversion of data into format for final use (e.g. disclosure)
 - verification of output data
 - calculation of residual mix

WP 5 – Gathering of cost information

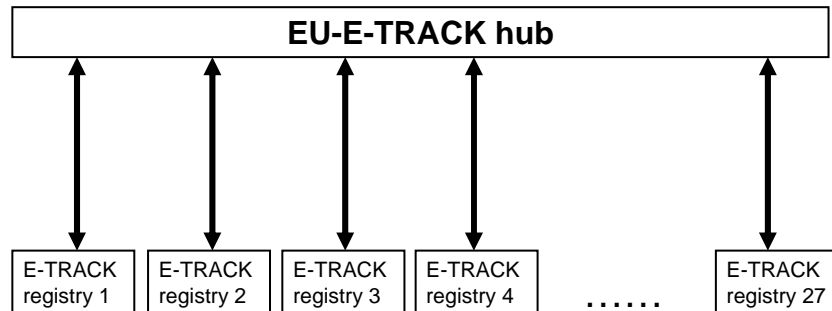
- “1st questionnaire” on costs addressing organisations that have experience with tracking systems/registries
- additional cost information collected: EU-Emission trading scheme (e.g. Central European ETS registry, national ETS registries); RECS
- “2nd questionnaire” on costs focusing on users of tracking systems/registries

WP 5 – Costs of existing systems/registries

Costs of tracking systems



WP 5 – E-TRACK structure for cost assessment



- 27 E-TRACK registries (EU 25+Norway+Switzerland; assumption one per country)
- EU-E-TRACK hub for attribute transfer from one E-Track registry to another

WP 5 – implementation scenarios for the E-TRACK Standard - I

- Based on the E-TRACK structure and the basic design criteria 3 implementation scenarios are developed:
 - lower scenario
 - advanced scenario
 - upper scenario
- **Aim: assess the maximum range of costs for the development and implementation and operation of an E-TRACK standard on a European level**

WP 5 – implementation scenarios for the E-TRACK Standard - II

- Lower scenario
 - linked to existing organisations and structures
 - there are already procedures in place which are coherent with procedures for electricity tracking: auditing procedures for RES-E and HE-CHP power plants (automated issuing at least for these two types of plants)
- Advanced scenario
 - represents an extension of the lower scenario
 - “new” organisations for the implementation and operation of the “local” tracking system have to be set up
 - partly integrated system: e.g. endorsement of RES-E support schemes
- Upper scenario
 - represents an extension of the advanced scenario
 - fully integrated system, e.g. to handle national RES-E support schemes
 - high requirements for reliability, accuracy and security

WP 5 – cost assessment procedure

- 1) For each implementation scenario
 - the costs for development of one E-TRACK registry on a national level and
 - the operational costs for the registry operator are assessed based on 1st questionnaire's results.
 - costs/investment for existing systems are not deducted in the scenarios

one tracking system		lower scenario	advanced scenario	upper scenario
costs of tracking system development and implementation	[€]	210.000	650.000	1.490.000
tracking system operation costs for tracking system operator	[€/a]	195.000	400.000	660.000

Costs for a single local tracking system in an average country according to different scenarios.

WP 5 – cost assessment procedure

- 2) Scaling up the costs to European level (27 registries) taking into consideration the different cost levels of countries.
- 3) Costs for the EU-E-Track-hub are assessed based on experiences of the central European Emission trading scheme registry
 - same hub-costs for all scenarios are assumed:

hub		lower scenario	advanced scenario	upper scenario
costs for tracking system development and implementation	[€]	2.000.000	2.000.000	2.000.000
tracking system operation costs for tracking system operator	[€/a]	800.000	800.000	800.000

WP 5 – cost assessment procedure

- 4) Assessment of annual costs for plant certification /auditing based on 2nd questionnaire information
 - assumption for all scenarios: 2000 plants/year are audited in Europe

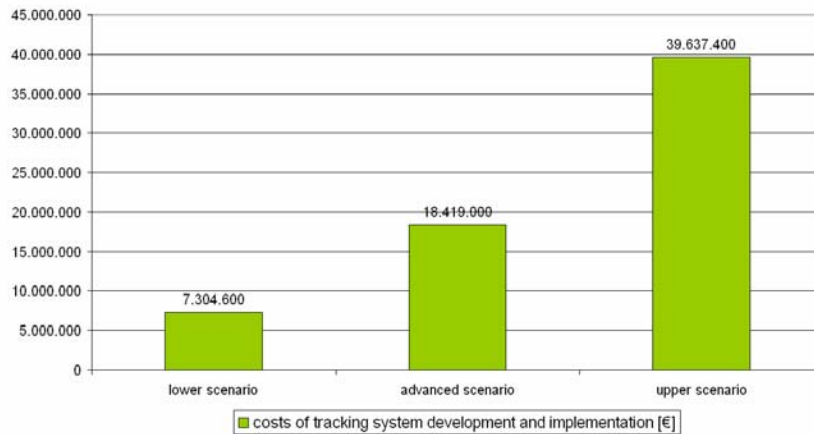
		lower scenario	advanced scenario	upper scenario
audited plants per anno		2.000	2.000	2.000
auditing costs per plant	[€/plant]	300	1.000	2.500

- 5) Assessment of annual costs for external market actors and users at the European level based on 2nd questionnaire information:

		lower scenario	advanced scenario	upper scenario
"external" users actively using the tracking system		600	1.200	1.800
operating expenses for one "external" user	[days/a]	12	24	36
labour costs for one external user	[€/day]	600	600	600

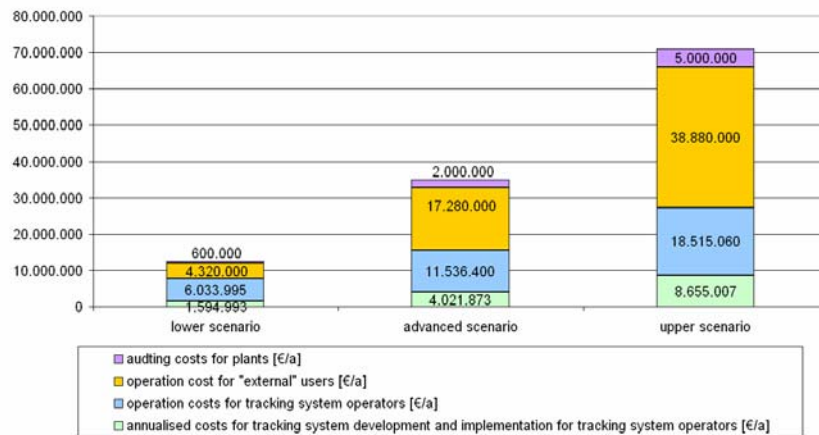
WP 5 – European E-TRACK costs (results)

Total one-off costs of tracking system development and implementation in EU25+NO+CH [€]



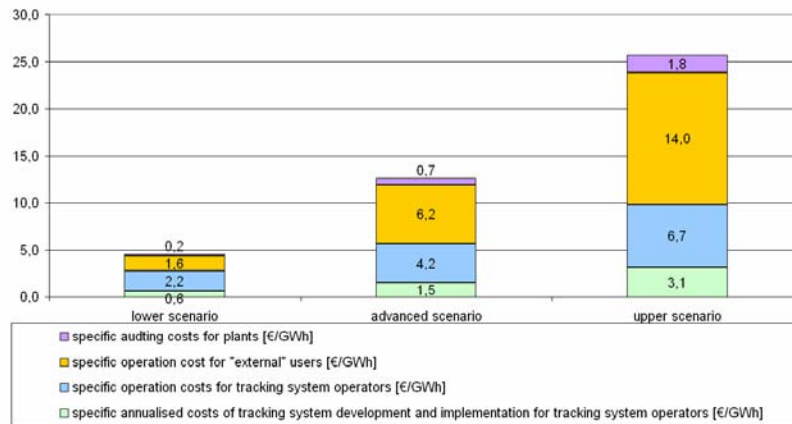
WP 5 – European E-TRACK costs (results)

Total annual operation costs for EU25+NO+CH [€/a]



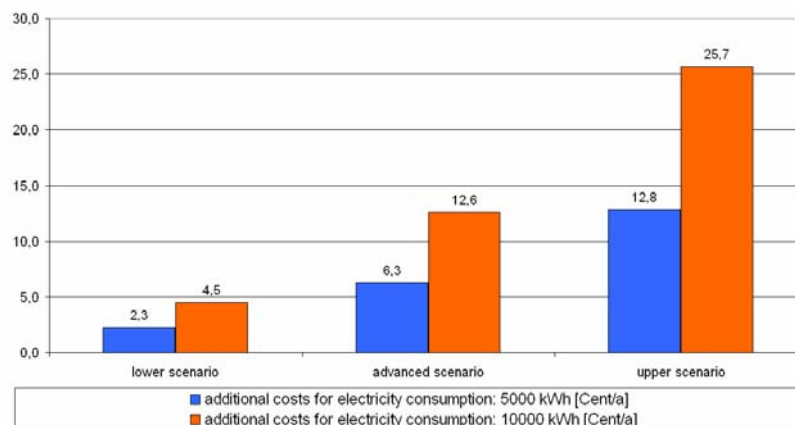
WP 5 – Specific European E-TRACK costs (results)

Specific total annual operation costs [€/GWh],
Basis: electricity consumption 2003 (EU 25+NO+CH)



WP 5 – Additional costs for consumers

Annual additional costs [Cent/a]



WP 5 – distribution of cost

- Recommendation: taking into account where the cost actually occurs and who receives the benefit:
 - costs related to the development/implementation and to the direct operation of the tracking system should be socialized through the electricity tariffs (consumer benefits by an increased market transparency)
 - costs for “external” users should be covered by themselves, (marketing benefits, fulfilling disclosure obligations, etc).
 - costs for auditing plants should be covered by the plant operator

WP 5 – benefits of an harmonised tracking scheme

- Descriptive and qualitative assessment based on the information given by the market actors
- List of benefits:
 - securing and forcing the attribute market for RES-E
 - increasing market transparency, delivering reliable and high quality information
 - supporting electricity disclosure and green power products
 - contributing to an active electricity product management
 - avoiding of double counting
 - potential synergies with internal accountancy systems and trading systems
 - automatic procedures, e.g. simple cross border exchange
 - synergies with existing support mechanisms
 - basis for new policy instruments

Project outlook

- Following the third round of consultations, the project team will finalise the proposed tracking standard.
- The final project conference will be in Brussels, on 9 March 2007.
 - A variety of dissemination activities will follow.
- Until the project termination, the team will follow the implementation of CHP-GO.
- A proposal for an E-TRACK phase 2 project has been submitted to the Commission, with a focus on:
 - CHP-GO
 - 12 new member states
 - Consumer requirementsA decision on this proposal is expected before summer 2007.

8. Feedback



Final questions to participants

- Do you think that the consultations were helpful for you?
- What did you like most?
- What could be improved?
- Would you be interested to participate in (one) E-TRACK 2 workshop?

The end

<http://www.e-track-project.org/>

