

A European Tracking System for Electricity (E-TRACK)

Overview on the status of the project

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(Austria, Hungary, Slovakia, Slovenia)
Vienna, 12 January 2007

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

Some highlights and recent developments

- E-TRACK project receives attention by major stakeholders
- 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

A European Tracking System for Electricity (E-TRACK)

Revised Tracking Options

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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

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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

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

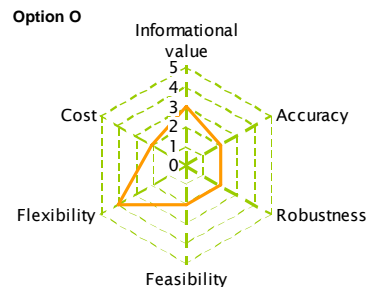
- Trade of attributes **can not be de-linked** from contracts for physical delivery of electricity
- **Explicit tracking** is mandatory except for electricity of unknown origin (best available information)
- Implicit tracking includes an internal **power exchange mix** and (uncorrected) **production 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

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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



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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

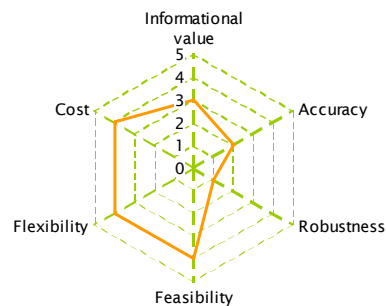
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Tracking Option A: "Ex post contract tracking" (2)

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

Option A



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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, env. 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

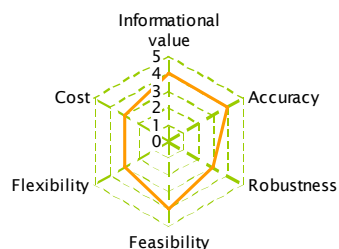
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Tracking Option B: "Voluntary certificate system plus residual mix" (2)

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



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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, envir. 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)

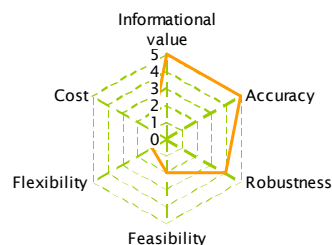
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Tracking Option C: "Ambitious certificate system" (2)

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



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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 |

A European Tracking System for Electricity (E-TRACK)

Proposal for the Tracking Standard (Part 1)

Herbert Ritter (AEA)

Third Consultation Workshop
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Vienna, 12 January 2007

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 reduced to the extent necessary, 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.

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Explicit vs. Implicit Tracking

- Explicit
 - Use of certificates 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.

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Explicit Tracking

Working with registries

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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?

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Schemes & Domains (2)

- Within each domain, certificates for explicit tracking can be issued, transferred and redeemed (certificate life cycle).
- 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.

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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 |
| |

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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.

Certificate-based Approach: Aspects of Using Certificates

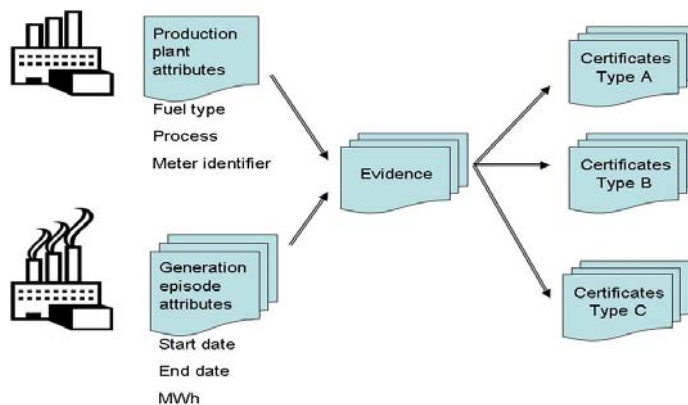
- Generation attributes are separated from the energy.
 - Can be traded independently
 - No adverse impact on commodity energy trading
 - No electrical connection necessary between producer and consumer (but not clear whether such certificates should be acceptable for disclosure)
 - Very similar to carbon trading in many ways
- If required, certificates can also be used for contract tracking
 - Electricity contracts would then include agreement on the transfer of certificates between the parties of the contract
- Ownership is certain at any point in time
 - Independently verifiable

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
 - After use, that evidence is no longer eligible

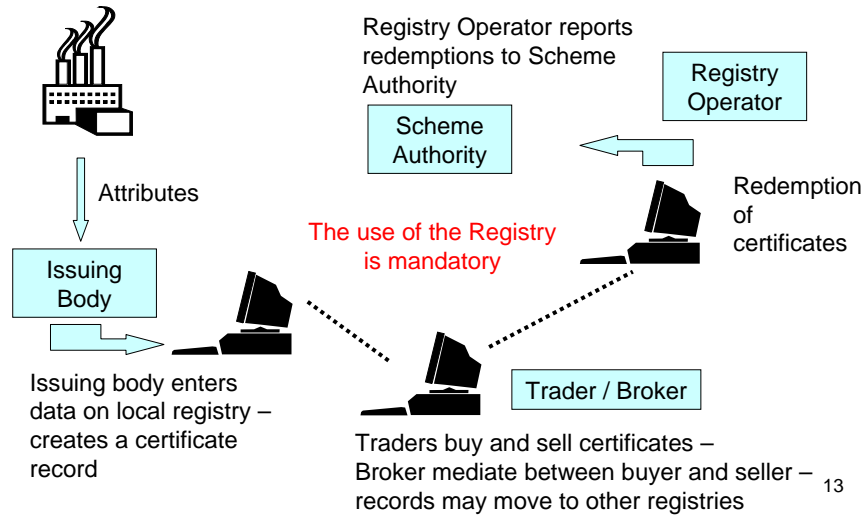
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Overall Concept



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Lifecycle of Certificates



Data Collection Requirements

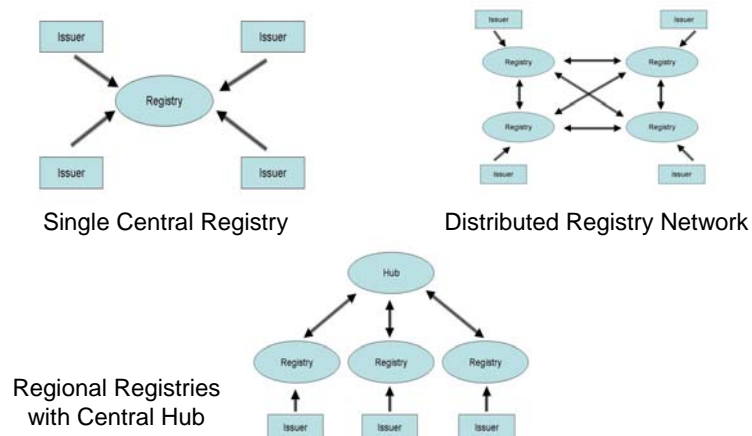
- A production plant must register with an issuing body for the domain in which the plant is located
- Production data must only be presented to the tracking system at one entry point
- Data collected must be verified by an independent organisation
- The metering data should be such that auxiliary generator 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)

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Registry Infrastructures



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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

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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

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**A European Tracking System for Electricity
(E-TRACK)**

**Proposal for the Tracking Standard
(Part 2)**

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Vienna, 12 January 2007

Implicit Tracking

Determining and using default values for disclosure

Aspects of Using Implicit Tracking

- An implicit tracking option will be required in any comprehensive tracking system
 - Provides a default set of attributes for disclosure
 - Should only be used if no explicit tracking information is available (Best Available Information approach)
- Little or no infrastructure needed
- Potentially inexpensive – but has hidden costs
- Offers no differentiation between retailers, therefore does not support EU policy objectives related to disclosure
- Prone to double counting if the default value is not determined as a Residual Mix
- Can take a long time to collate information

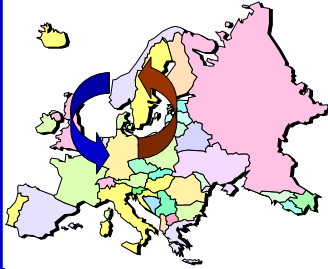
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Implicit Allocation Procedure Requirements

- 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 attributes and a **volume**
- Residual mix can be calculated:
 - On a national basis
 - For a region
 - For the whole of the EU and treaty states, including CH
- All countries within the area of the residual mix must use a common approach and timing

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Example of Residual Mix Issue



- Norway sells all its hydro attributes to Germany (but does not export physical energy)
- 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
 - Scale up the Norwegian residual?
 - Overestimates the other attributes
 - Import a residual from within Nordic area?
 - Same problem on higher level
 - Import the residual from Germany?
 - Possible, but similar relations to other countries exist as well
- Germany has more attributes than physical consumption. What should happen in Germany?
 - ... (similar discussion)

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Residual Mix Calculation (1)

- Explicit tracking should be used for disclosure where possible.
 - 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.

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Residual Mix Calculation (2)

- In some 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.)

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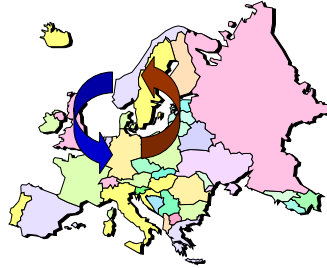
Residual Mix Calculation (3)

- 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): Finalisation of meter readings and issuing
 - Time (X+Y): Deadline for transfers and redemptions
 - Time (X+Y+Z): Publication of Residual Mix
- [Is such a deadline for transfers and redemptions acceptable?](#)

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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.



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Residual Mix Calculation (5)

The Residual Mix should be 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

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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.

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Controlling the Process

Governance Issues

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Roles within each Domain

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

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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.

- In addition to the rules within the Domain, a Governance Model on the European level is required as well.

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Governance Models for the European Level (1)

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

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Governance Models for the European Level (2): 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

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Governance Models for the European Level (3): 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

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Governance Models for the European Level (4): 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?

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Governance Models for the European Level (5): Independent Grouping with a Code of Practice

- Similar to current Association of Issuing Bodies (AIB)
 - Members are the Issuing Bodies from individual Domains
- Recognised by European Commission and governments
 - Relationship with national Regulators must be clarified
 - Periodic EC audit?
 - Funding must be secured
- Maintains Code of Practice
 - Audits of the activities of Issuing Bodies

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Governance Models for the European Level (6)

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

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A European Tracking System for Electricity (E-TRACK)

Cost Assessment

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Content

- Aims of Cost-Benefit Analysis
- 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 Cost-Benefit Analysis

- 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)

- The analysis is based on
 - experiences of operators of tracking systems
 - discussions with parties probably being involved in implementation and operation of a tracking system
 - desktop research

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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, ...)

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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

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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

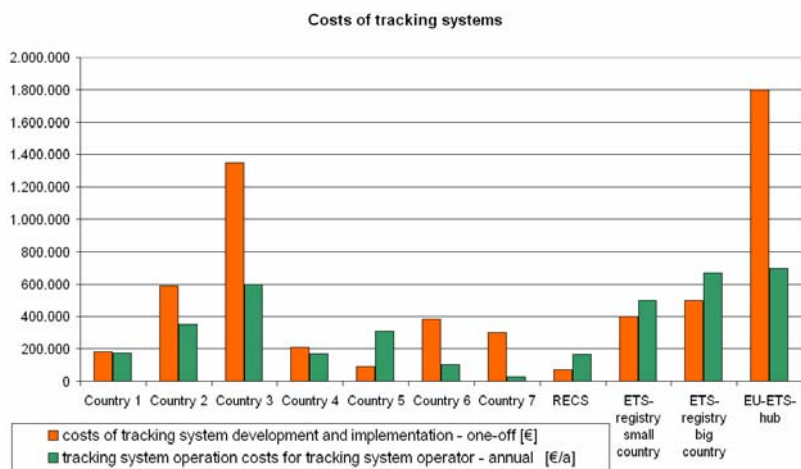
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Gathering of cost information

- “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

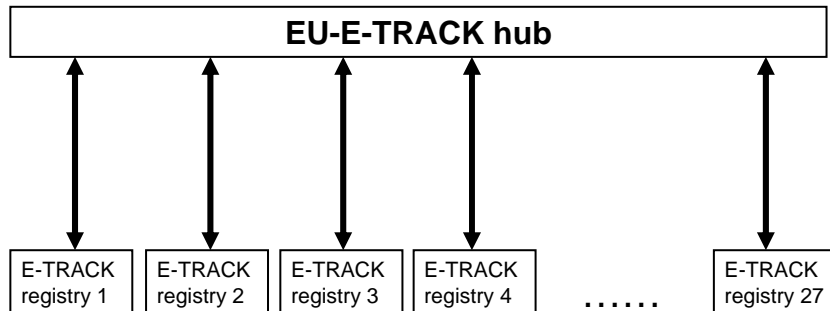
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Costs of existing systems/registries



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E-TRACK structure for cost assessment



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

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Implementation scenarios for the E-TRACK Standard

- 3 implementation scenarios have been developed:
 - **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
- **Aim: To assess the range of costs for a European Tracking standard.**

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Cost assessment procedure (1)

- 1) For each implementation scenario
 - the costs for development of one E-TRACK registry on a national level and
 - the operation 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.

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Cost assessment procedure (2)

- 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 |

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Cost assessment procedure (3)

- 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 |

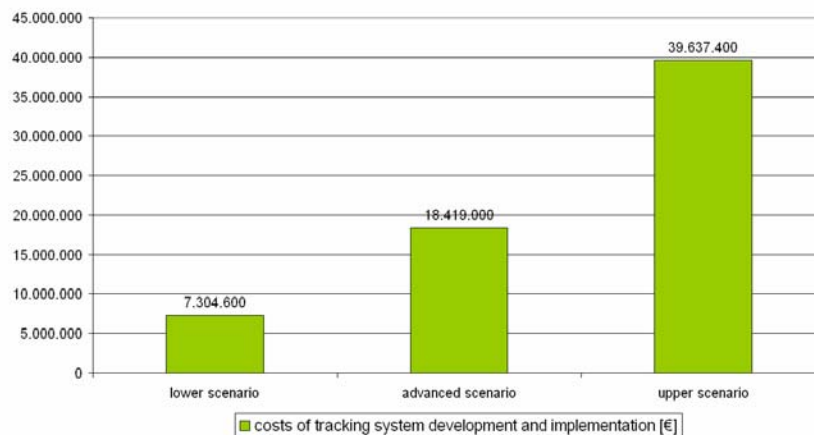
- 5) Assessment of annual costs for external market actors and users at the European level based on 2nd questionnaire information:

| | | 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 |

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European E-TRACK costs (results)

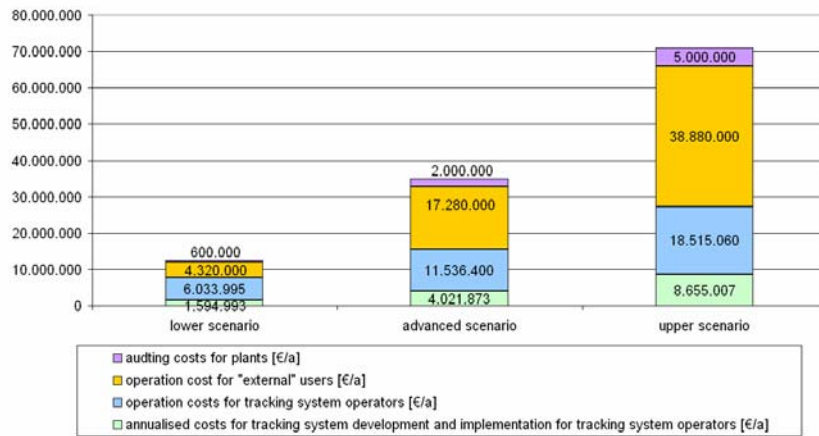
Total one-off costs of tracking system development and implementation in EU25+NO+CH [€]



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European E-TRACK costs (results)

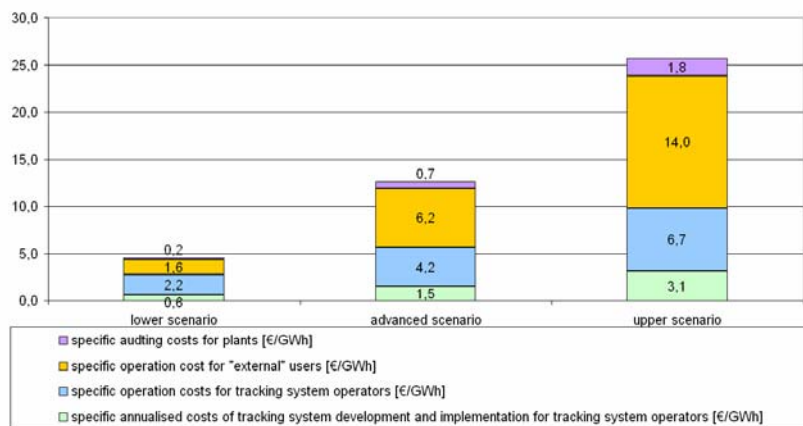
Total annual operation costs for EU25+NO+CH [€/a]



15

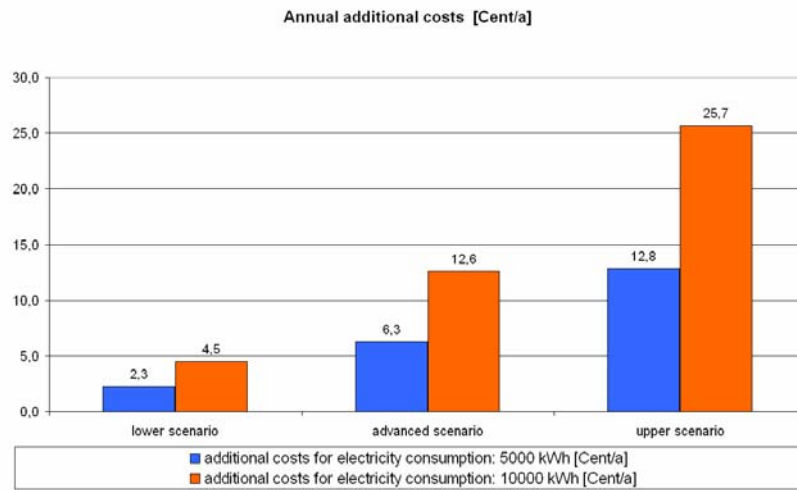
Specific European E-TRACK costs (results)

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



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Additional costs for consumers



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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

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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

A European Tracking System for Electricity (E-TRACK)

Outlook

Herbert Ritter (AEA)

Third Consultation Workshop
(Austria, Hungary, Slovakia, Slovenia)
Vienna, 12 January 2007

A European Tracking System for Electricity (E-TRACK)
Outlook

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 | ko | x | | | | x | | | | | | x | | | | | | x | | | | | | | | x | | | | |
| Consultation workshops | | | x | | | | | | | | (x) | | | | | | | x | | | | | | x | | | | | | |
| Project Conference | | | | | | | | | | | | | | | | | | | | | | | | | | | | x | | |
| Advisory Group | | x | | | | | | | | x | | | | | | | x | | | | | | | | | x | | | | |

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 2006.
 - 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 requirements

A decision on this proposal is expected before summer 2007. 3

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?