

Making Sustainable Energy Tradable and Visible for Consumers

A European Tracking System for Electricity

Christof Timpe, Öko-Institut, Germany

34th Congress of Euroheat & Power

Venice, 25-26 May 2009

Supported by

Intelligent Energy  **Europe**

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

E-TRACK II – A European Tracking System for Electricity

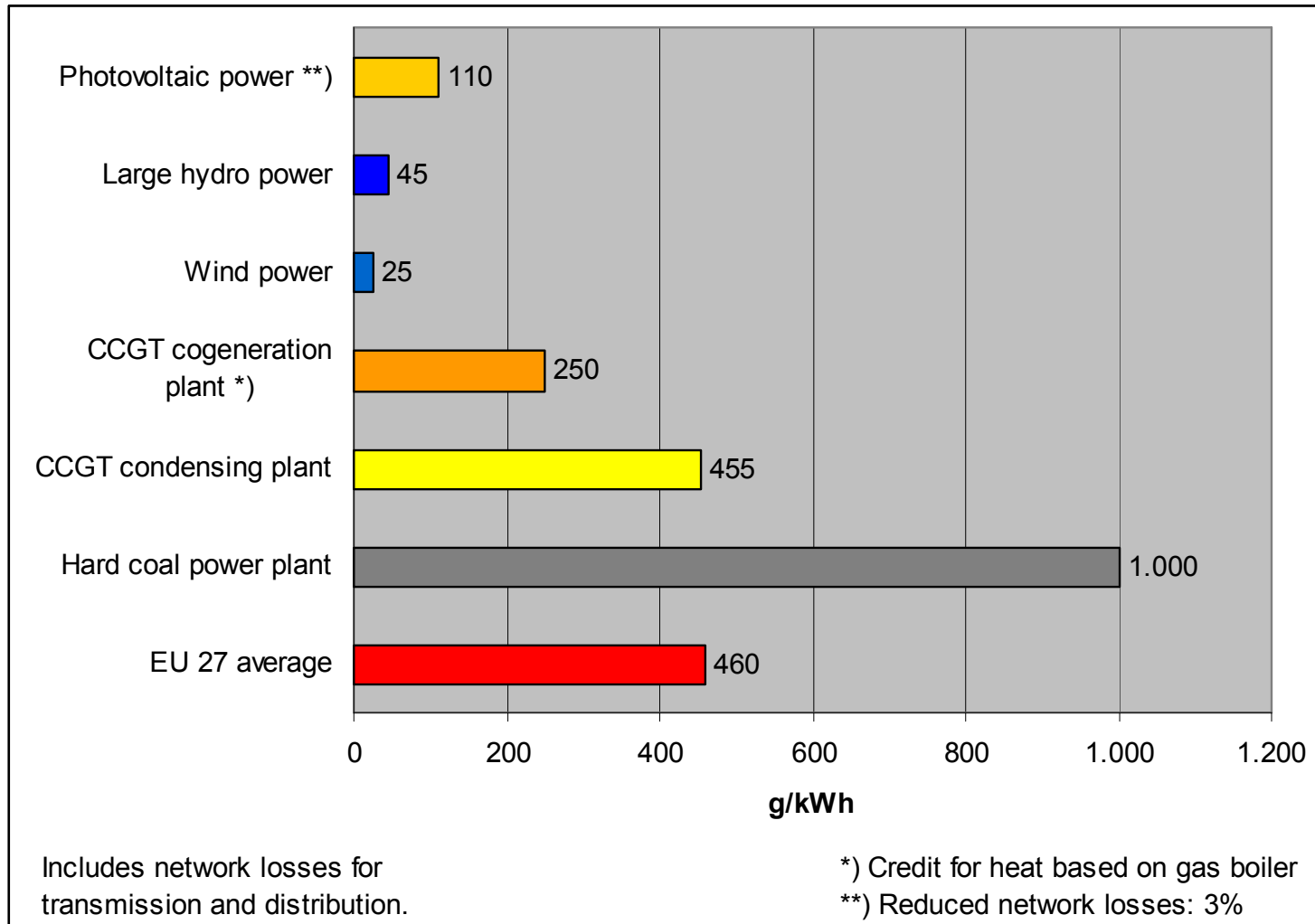
Overview

- Electricity Disclosure and the consumer perspective
- What is tracking of electricity?
- The European Energy Certificate System EECS
- How to do tracking: Guarantees of Origin and Residual Mix
- Status of implementation of tracking policies in EU
- E-TRACK Recommendations to Member States

Why certify electricity?

- In a competitive electricity market, consumers become increasingly interested in how their electricity was produced.
 - A European market for green power has already been established and is growing fast.
 - Will CHP electricity have a share in this market?
- Sustainable electricity generation benefits from support mechanisms, priority system access and priority dispatch.
 - EU has defined a 20% target for energy from RES by 2020
 - Member States are required to assess their potentials for high-efficient cogeneration.
 - Member States operate support policies for RES and CHP.
- **The origin of electricity does matter!**

Typical CO2 Emission Values of Power Generation



Electricity Disclosure – An EU-wide requirement

National Power

The fuel mix for the year 1 April 2007 to 31 March 2008 is shown below.

Fuel Mix

	National Power	UK average
coal	38.0%	33.0%
natural gas	46.0%	43.5%
nuclear	11.0%	16.1%
renewable	3.0%	5.5%
other	2.0%	1.9%
CO ₂ emissions*	0.543	0.480
nuclear waste**	0.0015	0.0015



National Power



UK Average

*CO₂ emissions are in kg/kWh;

**nuclear waste relates to high-level waste in g/kWh.

- All retailers of electricity are required to disclose their energy mix on an annual basis (Art 3(6) of Directive 2004/54/EC).
- This includes:
 - The fuel mix
 - Average CO₂ emissions and nuclear waste
- High Efficiency CHP can reduce CO₂ emissions to be disclosed.
- The share of High Efficiency CHP can be disclosed as well.

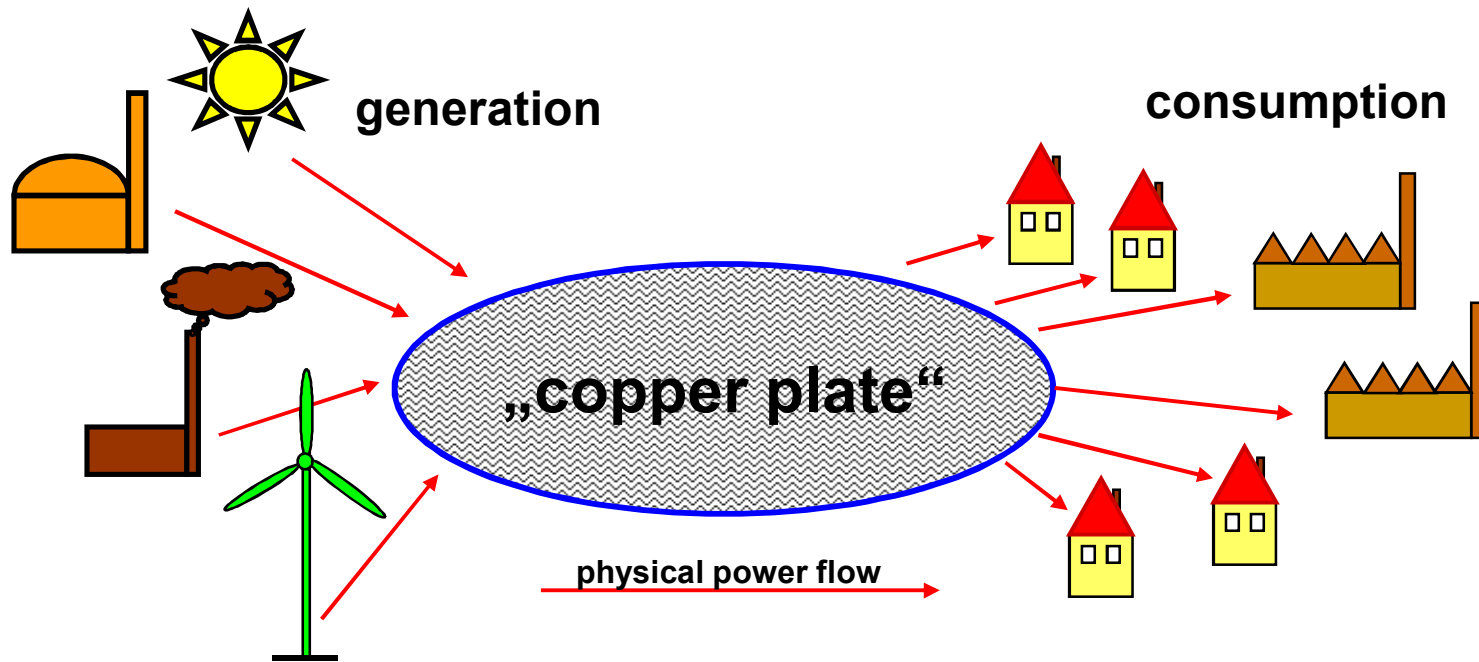
Source: www.electricityinfo.org

The consumer perspective

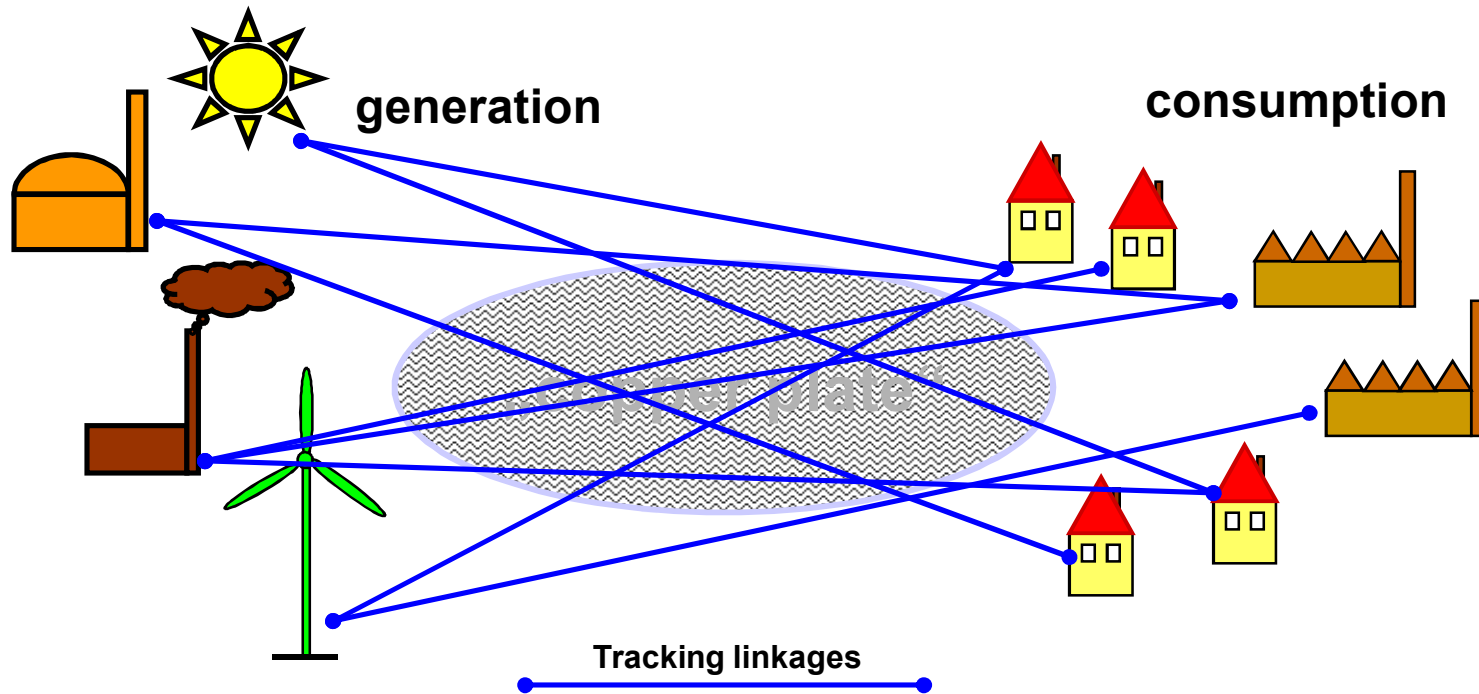


- Disclosure is meant to enable informed choices by consumers
 - Supplier mix information
 - Specific products (optional)
- Currently, there is a focus on green energy, but this might change in the future
- Interest in disclosure is related to level of competition and awareness in each country.
- In order to determine the fuel mix and emissions, a tracking system is required.

What is “tracking of electricity attributes”?



What is “tracking of electricity attributes”?



Definition of “tracking”:

- Create unambiguous links between power plants and electricity sold to final consumers
- Transfer information about power generation attributes to consumers or other parties (e.g. regulators, governments)

Schemes which use tracking of electricity attributes

Three potential “uses” of tracking:

- **Disclosure** of information towards final consumers
Includes Green Power and other specific products, and can support quality labelling of such products.
- Verification of compliance with quantitative **targets**
E.g. renewable energy targets for 2010 and 2020.
- Management of **public support** for RES-E and CHP-E
E.g. feed-in systems or quota obligations.

**These tracking requirements must be coordinated!
(Adequate policy design)**

Which tracking systems are already there?

- European Energy Certificate System (EECS), including RECS
- National implementations of Guarantees of Origin for RES-E and for high-efficient cogeneration (CHP)
- National support schemes with relation to tracking, e.g.
 - Certificate-based support systems (quotas)
 - Feed-in systems with pro-rata allocation of attributes
- National accounting systems for disclosure
- Company-based accounting systems for disclosure
- Private green power quality labels

**These tracking systems must be coordinated!
(Adequate management of information)**

European Energy Certificate System (EECS)

- EECS is a single system for several types of certificate
 - Obligatory: RES-GO, CHP-GO
 - Voluntary: RECS and disclosure certificates
- 15 EU countries + NO + CH are participating in EECS, including all government-appointed issuers of electronic transferable GO from mainland Europe
- EECS activity in 2008

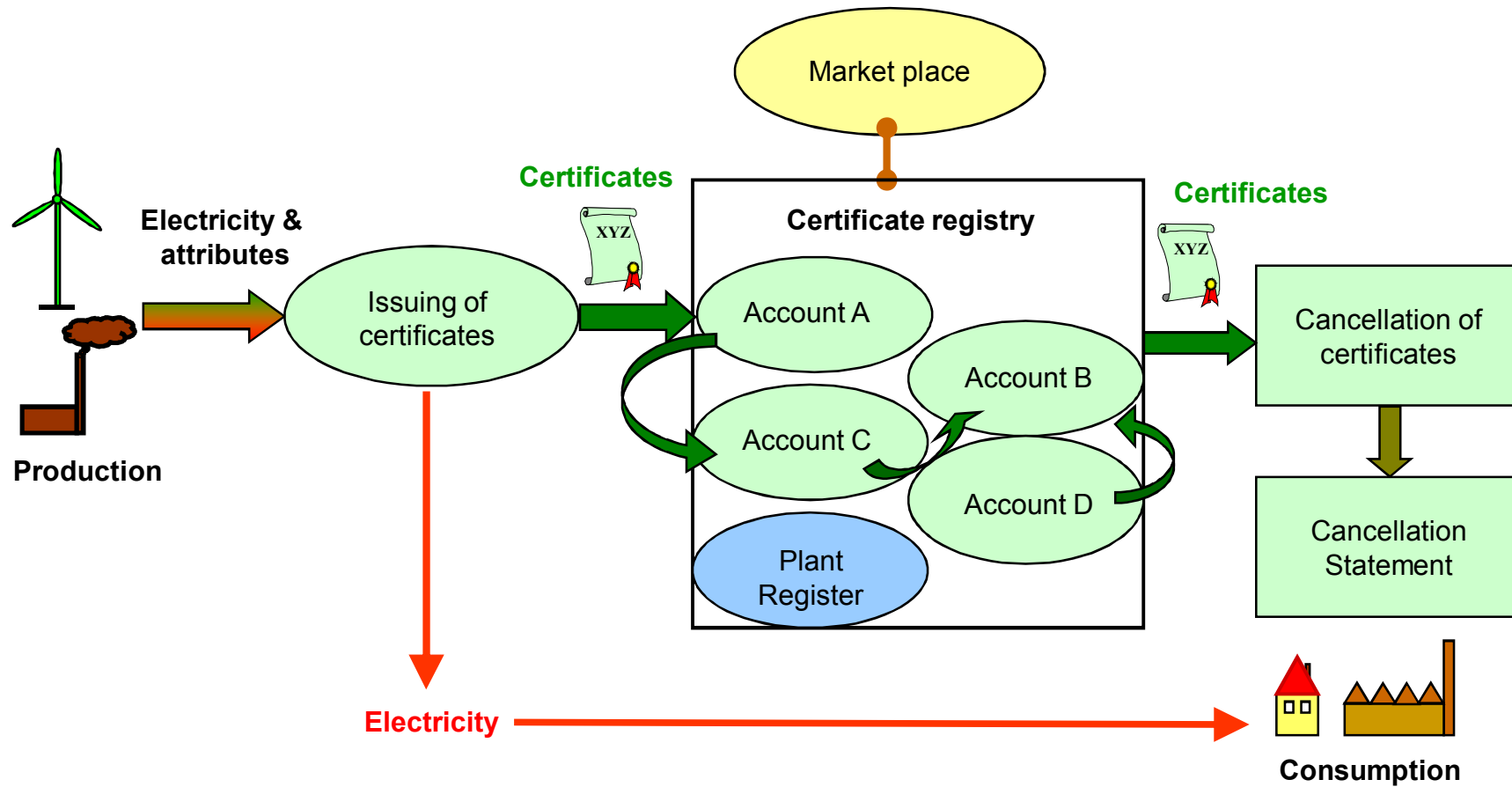
Issuing:	175 TWh
Cross-border transfer:	80 TWh
Cancellation:	111 TWh
- More information:
www.aib-net.org



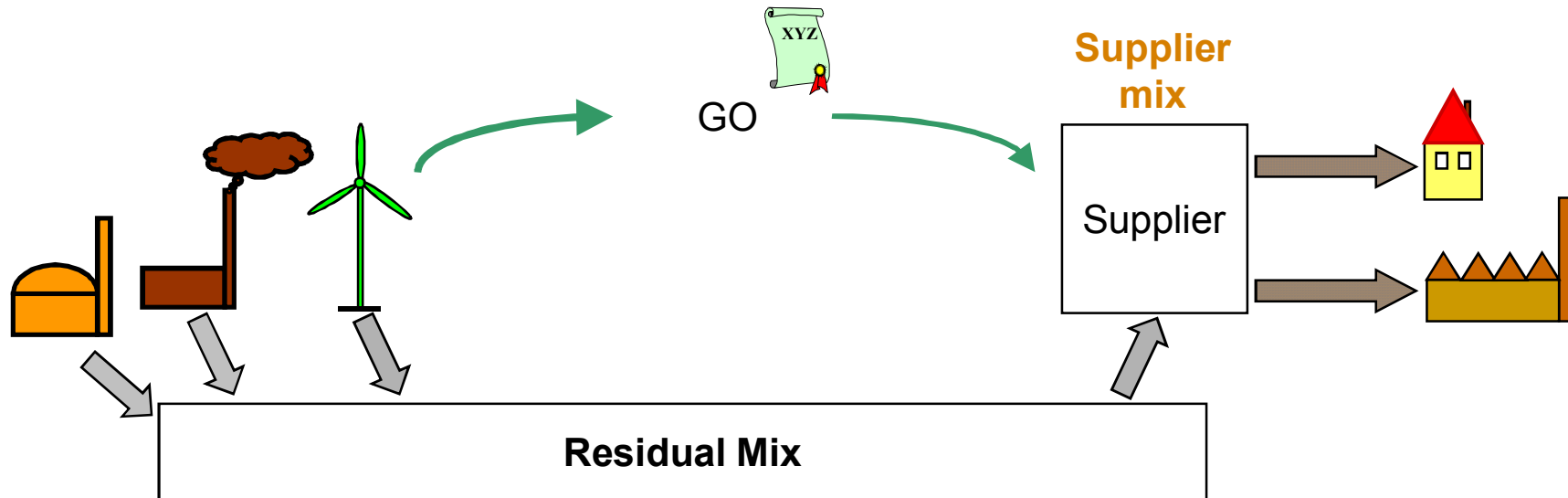
GO & RECS

RECS

Mechanisms of an Energy Certificate System

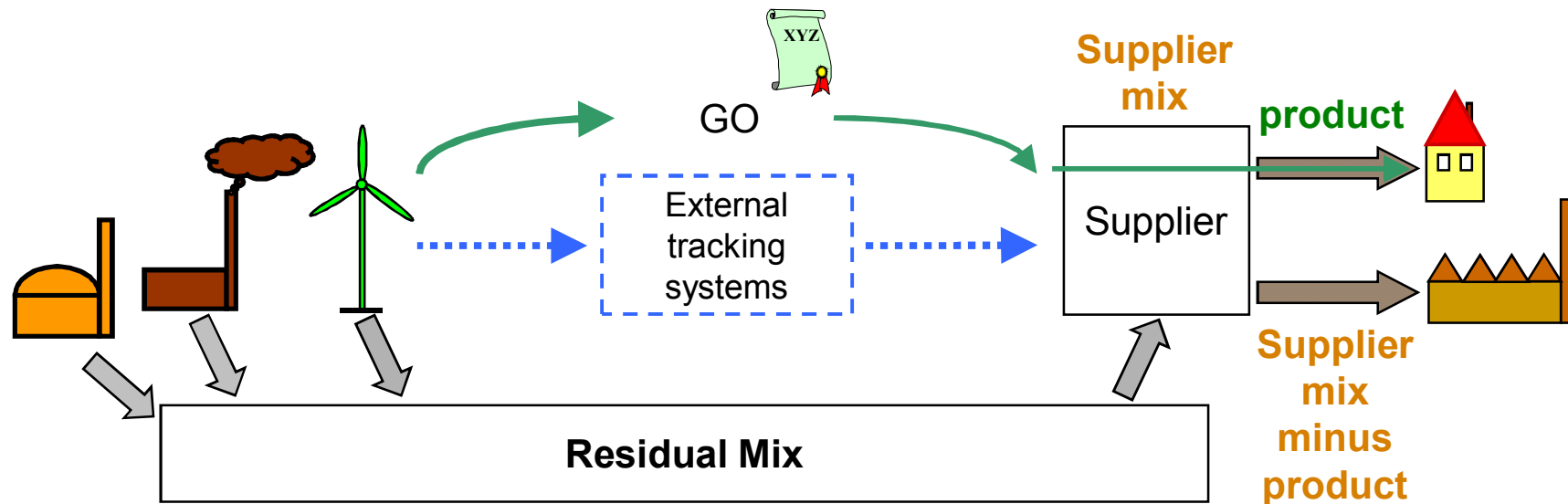


Tracking for disclosure (1/2)



- Producers and suppliers can choose between Guarantees of Origin and a default set of disclosure attributes. Both elements determine the supplier mix.
- In order to avoid multiple counting, the set of default attributes should be a Residual Mix rather than just uncorrected generation statistics.

Tracking for disclosure (2/2)



- Besides GO and the Residual Mix, there may be also other reliable allocation mechanisms, e.g. related to national support systems.
- Marketing of products should be based on cancelled GO.
- Non-product consumers receive the supplier mix minus the product attributes.

Calculation and Use of the Residual Mix

- Principle of calculating a Residual Mix in a certain region:
 - Attributes of all electricity generation
 - +/- Corrections for imports and exports
 - All attributes which have already been used
(e.g. cancelled certificates, feed-in systems etc.)

 - = Residual Mix

- Use of the Residual Mix
 - Disclosure must be based on a Residual Mix, if no attributes from explicit tracking (or similar) are available.
 - Uncorrected generation statistics are not acceptable.

E-TRACK II – A European Tracking System for Electricity

Status of implementation of RE-GO (April 09)

	Behind	Unclear	Compliant	Advanced
EU-15	GR, LU, PT	IE	DE, FR, GB, IT, SE	AT, BE-Bxl, BE-Fla, BE-Wa, DK, ES, FI, NL
EU-12	BG, CY, CZ, HU, LV, MT, PL, RO		EE, LT, SK	SI
CH + NO				CH, NO
Summary	11	1	8	9

E-TRACK II – A European Tracking System for Electricity

Status of implementation of **CHP-GO** (April 09)

	Behind	Unclear	Compliant	Advanced
EU-15	BE-Bxl, DE, FI, GR,LU, PT, SE	IE	AT, BE-Fla, BE-Wa, DK, ES, FR, GB, IT, NL	
EU-12	BG, CY, HU, LV, MT, RO, SK		CZ, EE, LT, PL, SI	
CH + NO	CH, NO			
Summary	15 + BE-Bxl	1	12 + BE-Fla + BE-Wa	0

E-TRACK II – A European Tracking System for Electricity

Status of implementation of Disclosure (April 09)

	Behind	Unclear	Compliant	Advanced
EU-15	BE-Bxl, FR, GR, IT, LU		BE-Fla, BE-Wa, DE, DK, IE, PT, SE	AT, ES, FI GB, NL
EU-12	BG, CY, CZ, EE, HU, LT, LV, MT, PL, RO, SK			SI
CH + NO		CH	NO	
Summary	15 + BE-Bxl	1	6 + BE-Fla + BE-Wa	6

E-TRACK II – A European Tracking System for Electricity

Summary: Status of Tracking Policies in Europe

	RE-GO	CHP-GO	Disclosure		RE-GO	CHP-GO	Disclosure
AT	Advanced	Compliant	Advanced	IE	Unclear	Unclear	Compliant
BE-Bxl	Advanced	Behind	Behind	IT	Compliant	Compliant	Behind
BE-FI	Advanced	Compliant	Compliant	LT	Compliant	Compliant	Behind
BE-Wa	Advanced	Compliant	Compliant	LU	Behind	Behind	Behind
BG	Behind	Behind	Behind	LV	Behind	Behind	Behind
CY	Behind	Behind	Behind	MT	Behind	Behind	Behind
CZ	Behind	Compliant	Behind	NL	Advanced	Compliant	Advanced
DE	Compliant	Behind	Compliant	PL	Compliant	Compliant	Behind
DK	Advanced	Compliant	Compliant	PT	Behind	Behind	Compliant
EE	Compliant	Compliant	Behind	RO	Behind	Behind	Behind
ES	Advanced	Compliant	Advanced	SE	Compliant	Behind	Compliant
FI	Advanced	Behind	Advanced	SI	Advanced	Compliant	Advanced
FR	Compliant	Compliant	Behind	SK	Compliant	Behind	Behind
GB	Advanced	Compliant	Advanced				
GR	Behind	Behind	Behind	CH	Advanced	Behind	Unclear
HU	Behind	Behind	Behind	NO	Advanced	Behind	Compliant

Legend

Advanced	Compliant
Unclear	Behind

Typical E-TRACK Recommendations to Member States

- Develop or pass primary & secondary legislation on RE-GO, CHP-GO and disclosure.
- Avoid double counting in GO issuing.
- Establish GO as transferable electronic certificates (preferably within the EECS system).
- Allow for imports & exports of GO and keep track of issued, cancelled and imported / exported GO.
- Clarify how supported RES and CHP electricity is disclosed.
- Establish a proper residual mix instead of using uncorrected generation statistics.
- Reflect exports and imports in residual mix.

Summary

- The origin of electricity matters in the future
Renewables and Cogeneration can profit from support schemes and consumer preferences.
- Guarantees of Origin are designed to account for volumes of high-efficient cogeneration and renewable energy.
- The current implementation of tracking policies is not sufficient in many European countries.
Best practice implementation goes beyond the minimum requirements of the Directives.
- The E-TRACK project has developed recommendations how tracked information can be made more reliable.
This will give a higher market value to sustainable power.

Many thanks for your attention!

- **E-TRACK Project Website**
<http://www.e-track-project.org>
- **E-TRACK Final Conference**
Brussels, 26 June 2009 – **register now on the project website!**
- **Speaker & Project Coordinator**
Christof Timpe
Öko-Institut e.V., Germany
c.timpe@oeko.de
<http://www.oeko.de>