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The purpose of EV charging IDs and the role and need for IDRO and IDRR

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Colophon

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1. Introduction - Purpose of this report

This report explains the need for unique identifiers in an open and interconnected EV charging market, and the role of ID Registration Organisations (IDROs) in managing them.

There are many ways to identify a charge point. Likewise, authorizing EV drivers to charge and ensuring that EV drivers get accurate tariff information and a controllable invoice can be achieved in several ways. However, in an open market that facilitates roaming, large amounts of market players can take on CPO (Charge Point Operator) or MSP (Mobility Service Provider) roles. To support roaming and for offering reliable and user-friendly services to the market, players have to rely on harmonised and automated data exchange. Such interaction requires agreements and rules on the format and usage of unique IDs for market players, charge points and the contracts with EV-drivers. Equally important is a trusted entity that manages the core of these IDs: the MSP ID and the CPO ID.

This report describes:

- History of IDs and the management of it.
- Role of IDs in the emobility sector.
- Usage and syntax of IDs by Charge Point Operators (CPOs) and Mobility Service Providers (MSPs)
- Obligations in the Alternative Fuels Infrastructure Regulation (EU) 2023/1804 (AFIR)
- ID Registration Organisations (IDRO)
    - What is it ?
    - Role in the context of the market
    - Role in relation to the AFIR
- ID Registration Repository
    - What is it ?
    - Relation to the IDRO

Finally the gaps in regulation are described that should be covered to ensure IDs and IDROs can fully fulfil their potential in supporting an open EV market and smooth user experience.

2. History

In November 2013 a group of app. 20 organisations in the emobility market setup the eMobility ICT Interoperability Innovation organisation (eMI3). The goal was to support an open accessible EV market by supporting standards and collaboration between parties. In 2015 eMI3 released its first standard specification, setting its vision for interoperability in the electric vehicle (EV) market by enabling interoperability across EV products and services. Focused on presenting the EV market place with a first set of industry agreed standardised use cases and business objects. These first standards included a standard way of defining unique IDs for EV driver contracts and individual charge points.

eMI3 stopped in 2023 and heritage is taken over by the EVRoaming Foundation.

During the years, these IDs became crucial for a good functioning market but eMI3 was not the right organisation to manage these. It did not have the right authority and operational possibilities to maintain the definition and to manage the registration of IDs for companies. To ‘solve’ this, the European Commission, with support of eMI3, in 2018 started the Programme Support Action (PSA) on Data collection related to recharging/refuelling points for alternative fuels and the unique identification codes related to e-Mobility actors. This resulted in the Project: ID and Data Collection for Sustainable fuels in Europe (IDACS), with 15 participating member states* . Part of the PSA was to setup ID Registration Organisations to issue and manage the IDs. Within IDACS, the participating

member states agreed a set of rules on the format and functioning of the IDs and the IDRO. The concept of the IDRO was taken over in the EU Alternative Fuels Infrastructure Regulation (EU) 2023/1804 (AFIR) (recital 70 and art 20.1), which is referring to the IDACS project outcomes. All IDROs together formed the ID Registration Repository[1] (IDRR) and became responsible for maintaining the syntax of the IDs.

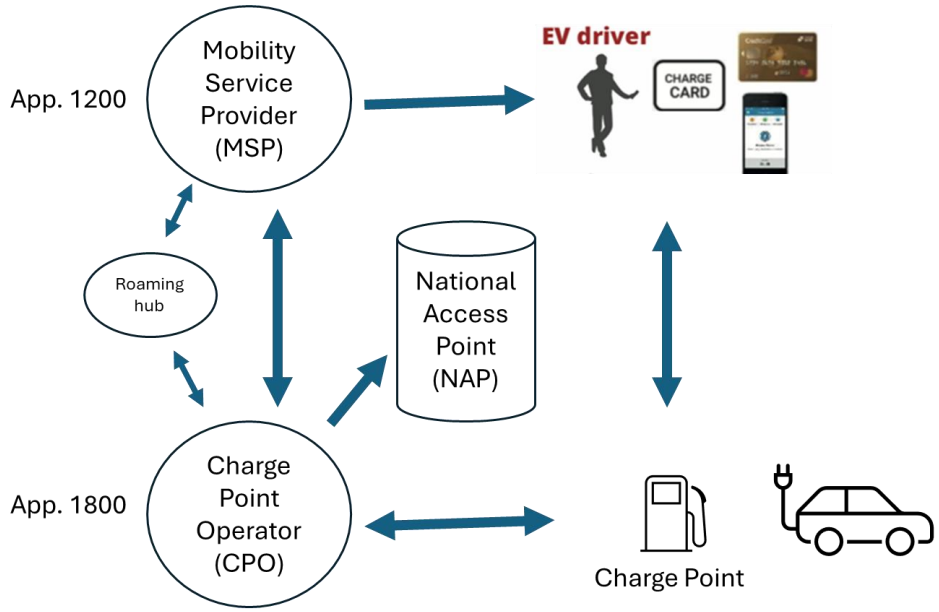
* Initial supporting member states: Belgium, Luxembourg, Netherlands, Spain, Austria, Czech Republic, Slovenia, Poland, Portugal, Germany, Croatia, Lithuania, France, Greece, Hungary, and non-member state United Kingdom

3. Purpose of IDs in the emobility market

The European emobility market is an open and connected market. This means that all kind of parties can join easily and can connect to each other to exchange data for enabling access to charging infrastructure. Connections between parties are done via open standards/protocols that exchange data in standard ways. This makes it easy and relatively cheap for parties to connect to each other. Additionally, such data exchange enables advanced charging services such as user interaction, smart charging and dynamic pricing.

Market overview

To understand the need and usage of IDs, the link between a few relevant roles in the market must be understood. Enclosed overview shows a simplified view of the connections between CPOs, MSPs, EV driver and Charge point.



1: Simplified view of EV Charging CPO and MSP connections

MSP = Mobility Service Provider (also shown as eMSP), who offers charging subscriptions via app and or RFID card to the EV driver.

[1] Currently hosted by the Benelux IDRO and available via www.emobility-idrr.eu

CPO = Charge Point Operator who operates the charger and ensures the physical access for the EV driver to the charger.

An organization can fulfill both MSP and CPO roles, but that is not always the case.

In Europe we have app 1800 CPOs and 1200 mobility service providers. They all connect to each other to give the EV driver access to the chargers and to make charger data accessible on maps. This creates a big European connected roaming network. Market parties connect to each other directly or via a roaming hub that supports multiple connections. There are many parties who act as roaming hub, i.e. by using their platform you can directly connect to many other CPO's and/or MSPs.

Following AFIR, CPOs must also share charging point data through the National Access Points (NAP).

The purpose of the NAPs is that information of all public accessible charge points in Europe is accessible for other parties to use, in a B2B situation e.g. information about location, availability, status, Ad Hoc tariffs, facilities, etc. It includes static and dynamic data of charge points. This information should be correct, reliable and can be used by companies to inform EV drivers about available charging services. Other potential users are governments, knowledge institutes or cross sectoral start-ups that want to develop new insights or (data) services.

3.1 IDs

To ensure that EV drivers can find the charge points, get access to it and get the right invoice, IDs are needed to identify charge points and to authorize the EV driver at the charge point.

IDs are needed for good functioning of the eco-system:

- For the drivers the charge point ID must be unique to connect the charging action to the right charge point. They need to be able to identify and find a charge point.
- The CPO must be able to identify through a unique ID from which MSP the EV driver is coming from, to check if the EV driver is authorized to charge.
- The MSP need the unique ID of a charge point to know the tariff and to use that to create an own EV driver tariff and share that with the EV driver
- The MSP uses the unique ID of a charge point to identify it and share it on the invoice of the EV driver. That way the EV driver knows to which charge point the charge detail record on the invoice refers to. And both the MSP and EV driver can verify if the transaction took place.
- The MSP needs a contract ID for the EV driver that is referring to the right MSP.
- The unique ID of the charging point needs to be shared through the NAP and can be used to differentiate the charge points
- If unique IDs are not used, it is possible that the same ID is used for different MSPs and CPO. EV drivers can get invoices from CPOs and charge points they never used, and invoices can be send to EV drivers who never charged at a certain location.

There are two types of IDs:

- EMA ID – EMobility Account ID: this is the ID from the MSP with a unique EV driver number – it contains the ID of the MSP (MSP ID)
- EVSE ID – Electric Vehicle Supply Equipment ID: this is the ID from the CPO with a unique number for the charge point managed by that CPO – it contains the ID of the CPO (CPO ID)

First the purposes of the IDs are described in 3.2 and 3.3, followed by the AFIR obligations in 3.4 and the usage of it in 3.5. In paragraph 3.6 the format and syntax of the IDs is described.

3.2 EMA ID

EV drivers charge with RFID token or MSP app at charge points that are operated by different operators. The operator must know to which MSP the driver belongs to, to be able to send invoice information to the right party. So the driver must have a unique ID connected to the MSP.

This can be compared with IBAN bank IDs. Like with IBANs an EMA ID is build up by the country code, a reference to the organisation (MSP), and a number that identifies the specific account. In banking this is the bank account and in electromobility this is a numerical code that identifies the specific contract between the MSP and the driver.

3.3 EVSE ID

The ID of a charge point as agreed within eMI3 and IDACS consist of a country code and code of the CPO followed by a unique number within that CPO system. Through this code CPOs and their charge points have unique IDs. In situations where the charge point is not owned by a CPO (for instance by the local municipality), the IDs might belong to the owner of these charge points i.e. the municipality and not the CPO; this makes it possible to change from CPO without need to change all IDs. In these cases the CPO adopt these IDs for the period they manage/operate the charge points.

3.4 AFIR obligation

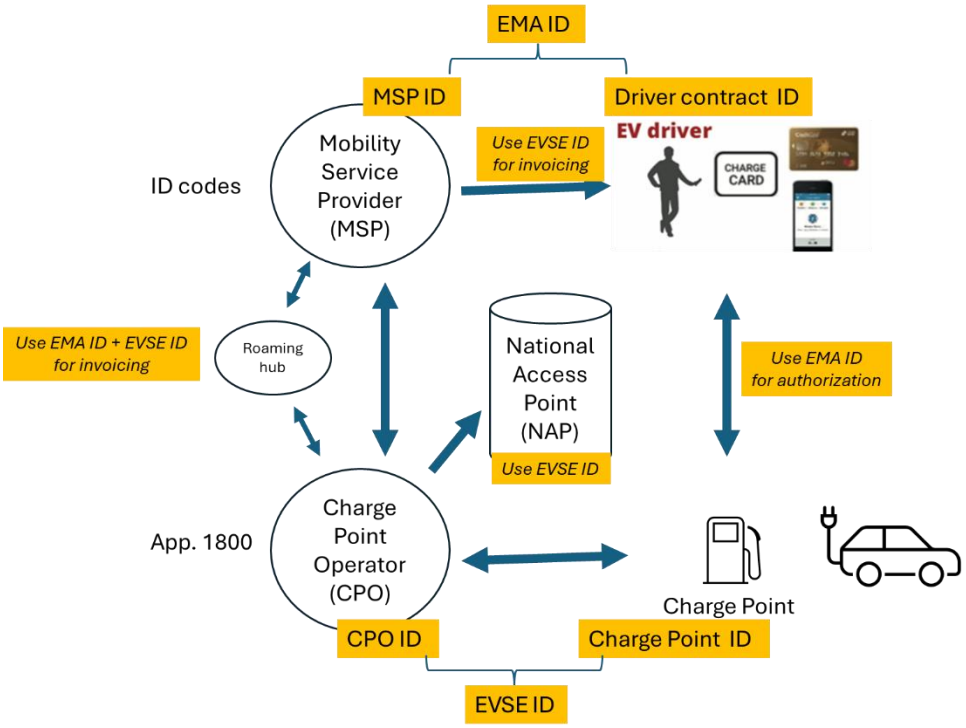
The AFIR describes in recital 70 and article 20.1 that IDROs must be setup to identify at least CPOs and MSPs, however it does not set specific rules on IDs or the setup of an IDRO

Article 20.2.b is demanding the ID codes for the operator (CPO) to be publicly available.

If a company only exploits charging stations for use by a closed user group, than an ID is not needed, as they are not accessible by others and the data does not need to be shared with the NAPs.

3.5 Usage of the IDs

EVSE IDs and EMA IDs are used in the **market** to identify the CPO and its managed charge points and to identify the MSP and the EV driver charging contracts it manages. See also the figure below.



2: Usage of IDs

The CPO ID (which is part of the EVSE ID) together with the charge point ID form the EVSE ID and are used physically at charge point to be able to identify them visually, which can be needed e.g. for maintenance or help desk support.

In line with the AFIR, the delegated act 2025/671 and 2025/1912, operators of public accessible charge points must provide information about these charge points, including charge point ID code, which is described in the annex of the 2025/1912 as follows:

“Unique ID of the charge point, which includes the unique ID code of the recharging point operator issued by the IDRO (ID Registration Organisation). It supports the identification, including for billing and booking purposes, of the charge point within a charge station.”

This information is part of a set of static and dynamic data from charge points, that is shared via the National Access Points.

The IDs from the MSPs are used on the tokens held by EV drivers. This can be physical cards equipped with a RFID chip, or digital tokens in apps. The owner of that token must have an unique ID, much like the need for an unique IBAN bank card number. CPOs use the code to verify via the MSP if a user is indeed a customer of the MSP and is allowed to charge. MSP use the EVSE coding for invoicing the EV driver and for sharing information about the charge point and charge session status.

To streamline the use of unique IDs the participants in the IDACS project made several additional agreements, of which the following ones are the most fundamental.:

- The issued ID syntaxes are only meant to identify parties, charge stations and EV driver contracts. IDs should NOT be used for other purposes like taxes.
- A CPO or MSP must have at least an ID with a country code from the country where their main office is located. Companies may have several IDs, which is often done for

administrative purposes. IDs can be used in different countries e.g. a charge point ID with country code BE can be located in other countries. The country code refers to the CPO and not to the charge point location.

- A CPO and MSP that are different companies can have the same ID, because they must 'only' be unique within their role.

3.6 Format/Syntax of the IDs

In the earlier mentioned IDACS project, the format of the IDs was agreed between the participating member states. The format is in line with the earlier eMI3 format. This resulted in the following format:

Issued by:	ID Registation Organisations (IDRO)				Emobility Provider			
Description	Country	Seperator	EMP	Seperator	Type	Contract ID instance	Seperator	Check digit
Example	AT	"-"	EVB	"-"	C	12A23GHI	"-"	3
Explanation	2 characters (alphanumeric) [ISO 3166-1 alpha-2]{2}	**optional** [-]{1}	3 characters (alphanumeric) [A-Z;0-9]{3}	optional [-]{1}	1 character type identifier (alphanumeric) [A-Z]{1}	8 characters (alphanumeric) [A-Z;a-z;0-9]{8}	**optional** [-]{1}	**Optional** calculated check digit [0-9]{1}
	part one				part two			

Issued by:	ID Registation Organisations (IDRO)				Charge point operator / unit	
Description	Country	Seperator	CPO or LOC	Seperator	Type	Charge point ID
Example	FR	"*"	EDF	"*"	E	2542AX8769
Explanation	2 characters (alphanumeric) [ISO 3166-1 alpha-] {2}	**optional** [*]{1}	3 characters (alphanumeric) [A-Z;0-9]{3}	**optional** [*]{1}	1 character type identifier E for EVSE or P for Pool or S for Station (alphanumeric) [A-Z]{1}	Up to 30 characters (alphanumeric) [A-Z;a-z;0-9]{max 30}
	part one				part two	

= optional, but strong advice not to use it between IT systems and only for visibility
= optional, and used for helpdesk or internal MSP checks. Usage up to MSP
= obliged to use (non optional) at least on EVSE level and Contract level
= obliged to use

3: ID formats

Only part one needs to be issued and managed by the IDROs. Part two is up to the MSPs and CPOs. More information about the details of the format can be found in the IDACS document: 20191126 ID Format D1_1_1 and D1_1_2 v1_2[2].

3.7 Usage of IDs in protocols

The CPO and MSP IDs (as part of the EVSE and EMA IDs) are used in different data exchange protocols. Protocols are used globally and do not enforce a certain format, as that is up to the implementers and depends on local agreements and regulations. Different regions in the world can agree on different formats. The protocols must support that.

In Europe and beyond, the OCPI protocol is the most broadly applied protocol to support roaming, data exchange between market parties and data sharing with the NAPs. In the documentation of the OCPI protocol it is advised to use the format explained in this document (3: ID formats) as it is the

[2] All IDACS deliverables can be found here: www.emobility-idrr.eu

only known and widely used format. However, protocol users are not enforced to use this format, as mentioned above.

Having harmonised data exchange for roaming and NAPs through protocols like OCPI and harmonised format for unique CPO and MSP codes would support a well-functioning open market and reinforce each other's effectiveness.

4 Market vs National bodies

The purpose of having unique IDs is to support and enable a good functioning open market for EV charging. If this is the purpose, the question arises why national bodies should be involved in it?

There are several reasons for this:

- Public goals and tasks
    - There is a public interest to have accessible EV charging infrastructure and an open competitive market. Accessibility and free competition are facilitated by unique ID issuing.
    - For a smooth EU wide cross border charging experience, it is of public interest that these IDs are effectively managed.
    - Additionally many governments own public accessible charging stations. Unique and reliable IDs allow these charging stations to be found (through NAPs) and can be accessed either through ad-hoc payment or a subscription that may include roaming. National Access Points that contain charging point data require that each charge point is unique identified.
    - A public IDRO can manage ID's without lower risks of negative impact on a level playing field for ID registration and management.
- No alternative
    - The market is large and diverse. With numerous MSPs and CPOs it will be difficult to find agreement between them about ID management. Waiting for the market to manage it by themselves in a harmonised way across Europe will take too much time. The Benelux IDRO has proven that IDs can be managed in a cost-effective way.

The AFIR defines the need to have it managed by national bodies as follows: "It is crucial that all actors in the electric mobility sector can interact easily through digital means to provide the best service quality to end users. Such interaction requires unique identifiers for the actors in the value chain. To that end, all Member States should establish an Identification Registration Organisation ('IDRO') for issuing and managing unique identification ('ID') codes to identify, as a minimum, operators of recharging points and mobility service providers.".

A comparison can be made with the number plates of vehicles. In theory it might be possible that the market would manage this. Because of the public interest of having an unique and reliable registration of numberplates, this is managed by national bodies.

5 ID Registration Organisations and ID Registration Repository

The AFIR (recital 70) requires that all member states should establish an Identification Registration Organisation (IDRO). The AFIR also mentions the exchange of emobility codes and verification of uniqueness via a potential future common Identification Registration Repository. This IDRR already exist in a simplified form as a result of the IDACS project, that the AFIR is also referring to.

5.1 ID Registration Organisation (IDRO)

As part of the Alternative Fuels Infrastructure Regulation (EU) 2023/1804 the member states agreed that each European country must have an ID management organization. This is called the ID Registration Organisation (IDRO).

The main task of these IDROs is:

- "Issuing and managing unique identification ('ID') codes to identify, as a minimum, operators of recharging points and mobility service providers. Each IDRO should collect information on e-mobility ID codes that are already in use in its Member State, issue new e-mobility ID codes, where needed, to recharging point operators (CPOs) and mobility service providers (MSPs) under an Union-wide common agreed logic in which e-mobility ID codes are formatted." (AFIR, recital 70)
- The agreed logic in which e-mobility ID codes are formatted is part of the tasks of the IDRR.

The above task in short means that the IDRO should issue ID syntaxes and manage a list of CPOs and a list of MSPs with their ID syntax that consist of the two character country code that IDRO belongs to and a three character company code.

Although the issuing and management of IDs are national responsibilities, countries can work together in implementation e.g. the BeNeLux IDRO is managing IDs from Belgium, The Netherlands and Luxembourg.

Detailed description of how to organize and manage IDROs is described in the deliverables of the IDACS project.

5.2 IDRO vs ID Registration Repository (IDRR)

As each country must have an IDRO, there will be 27 IDROs. Physical offices and management bodies might be less as countries can work together. Not every country and IDRO has the same knowledge or perspective on the market. The IDROs are operating in and for an international market, where the same rules should apply for all parties that require and ID. Maintaining the ID format/syntax can only be done by a central organisation. This requires central coordination and data sharing between the IDROs. Without that it can result in:

- Each IDRO setting up their own rules for ID registration, changes, removals, etc.
- For the market this means that they might have to deal with different rules and ways of working in each country.
- Knowing if a party is registered somewhere would require checks in each IDRO individually.
- No overview of where the different IDROs can be found.
- No knowledge sharing and sharing experiences between IDROs.
- No central ownership of the format/syntax of the IDs.

To gain the benefits of a central coordinating organisation an ID Registration Repository needs to be installed, as has been confirmed through the AFIR. The IDRR harmonises IDRO practices, combines knowledge and experience and facilitates market access by creating one portal to the different individual IDROs. The IDRR should also take the ownership of the ID format/syntax where changes should only be made when there is a need from the market and consensus about the changes in the market.

To ensure the connection between the IDRO's and the IDRR and to adequately represent the expertise and interest of all IDRO's, in the IDACS project it was agreed that the IDRR should be governed by a steering committee with representation from all IDRO's.

Maintaining the format of the ID codes should be part of the responsibilities of the IDRR, as it is an European used format and should be used everywhere with the same format. Because of that, maintaining the format cannot be part of individual IDRO's on member state level. It must be taken into account that changing a format/syntax of IDs has huge impact on the EV market as they are used between parties, EV drivers, and in the data sharing protocols. Each modification should be done in good coordination with the market, preferable between IDRO's within the IDRR.

5.3 Agreed set of rules for managing IDs

The IDACS project agreed and described the following set of rules for submitting and managing the IDs by the IDROs:

1. *MSP's and CPO's and/or location owners can request an ID when they have a proven legal entity. A legal entity is defined as a natural or legal person. A location owner is defined as the entity who owns the charging stations to be identified with the ID. In order to ensure a unique ID per charging point and for EV charging contracts the ID Registration*
2. *Organization must request the applicant of an ID to specify:*
    a. *In case of location owner who request the ID: The identity and contact address of the location owner of these charging stations.*
    b. *In case of CPO who request the ID: The identity and contact address of the CPO which operates the Charging Station.*
    c. *In case of MSP who request the ID: The identity and contact address of the MSP who supplies EV charging contracts.*
3. *A natural or legal person shall request its first ID in the country where they are legally based.*
4. *A natural or legal person that requests an ID may be legally based in a different country than where the ID is requested.*
5. *EVSE IDs (IDs for charge points) can be used in other countries, as it is only an identifier. Any laws or regulations that might be applicable can be based on the country location of an EVSE and should not be based on the country code.*
6. *A natural or legal person can request several IDs.*
7. *Companies that are both MSP and CPO need 2 IDs: a provider ID for the MSP role and the identification of EV Driver contracts and an operator ID for the CPO role to identify charge points. This can be the same string of characters, as the different purpose of the code is specified via the 'Type character' in the codes. That string of characters must remain unique*

to the company. An identical ID cannot be given to one EMP and another CPO belonging to different organizations.

8. *An ID Registration Organisation may ask a cost covering fee to supply and maintain the codes; this can be a one-time fee and/or yearly fee. ID Registration Organisations are free to do this as long as it is clearly mentioned to the applicant of an ID.*
9. *Provider ID and Operator ID are only valid when published on the website of the ID Registration Organisation website. Other IDs may not be used.*
10. *If an ID code is not used for 12 months or more, the code will be released.*
11. *An ID code cannot be sold or transferred to third parties.*

It is important that all IDROs use the same set of rules, as the IDs are used between parties and in different countries. Different rules will raise complexity and cost for market parties and finally also for EV drivers.

6. Gaps in regulation

The IDRO's and IDRR play a crucial role in the registration and management of the IDs and also in maintaining the format/syntax of the IDs. The setup and organisation of IDRO's was agreed as part of the IDACS PSA project, that consisted of 15 of the 27 member states of the European Union. During the implementation of IDACS, a number of IDROs – such as the BENELUX IDRO – were established in line with the agreed set of rules.

Although the AFIR refers to IDACS as a starting point for the establishment of an IDRO, it does not subscribe detailed requirements with regard to the purpose and setup of an IDRO. This has allowed uncertainty about the purpose of IDRO's and rules for IDRO practice.

The IDRR as described in the AFIR equally leaves room for interpretation with regards to its purpose and functioning. A good functional IDRR should have a legal bases with good governance, steering committee and operational capabilities as secretariat to actively support both IDROs and the market with guidance how to use IDs, direct overview of all IDRO including setting the common ways of working and it should take the responsibility for maintaining the ID format/syntax.

Recital 70 of the AFIR does promote issuing further guidance on the IDROs and IDRR "The Commission should issue technical guidance on the set up of such organisations, drawing on the outcome of IDACS."

This technical guidance is currently missing for both IDRO's and the IDRR and is needed for ensuring that all parties use the same rules and that CPOs and MSPs can use IDs everywhere in Europe in the same way. The ground works has already been done in IDACS. This would be the best starting point for a joint guidance on IDRO and IDRR purpose, functioning and rules.

The documents from the IDACS project are the basis of most IDROs and the current informal IDRR documents are not publicly available and do not have a formal status. It is advised to rewrite the IDACS documentation to change it from project documentation to a set of Rules and Regulations and Information how to use IDs and how IDROs and the IDRR should work. The IDACS documents are currently hard to find online.

An additional gap to consider is that while it is obligatory for a member state to have an IDRO, there is no direct obligation for CPOs or MSPs to register themselves at IDROs. Only indirectly, through the

need to share charging point IDs through the NAPs, are CPOs required to have a registration. For MSPs there is no direct nor indirect obligation for registration.

In the current legislation and by the IDACS agreed set of rules, the IDROs only manage the IDs for CPOs and MSPs. The National Access Points (NAPs) connect to the CPOs for collecting the location data, but can formally not request an ID at and IDRO. An ID for NAPs should be considered for a good connection between the CPOs as supplier of the data and with other parties who use the NAP data. This should be solved in legislation and in rules of the IDRO.