USAID FROM THE AMERICAN PEOPLE | Regulatory and Energy Assistance

Draft Report

Role of the DSO as Neutral Retail Market Facilitator

Technical Assistance to BiH Regulators and Power Utilities through the USAID Regulatory Energy Assistance Project

Bonn, 15 May 2013

Prepared by:

Dr. Daniel Grote and Peter Fischer
KEMA Consulting GmbH.

For the

Bosnia and Herzegovina (BiH) Regulatory and Energy Assistance Project (REAP)
USAID Contract No. EPP-I-00-03-00004-00, Task Order 5
Implemented by Advanced Engineering Associates International, Inc.

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USAID OD AMERIČKOG NARODA | Asistencija regulativi i reformi energetskog sektora

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On behalf of USAID Regulatory Energy Assistance Project (REAP) in Bosnia and Herzegovina

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MANAGEMENT SUMMARY

The three Bosnia and Herzegovina (BiH) energy regulators together with the USAID Regulatory Energy Assistance Project (REAP) and the Electric Power Sector stakeholders identified several gaps in the legal and regulatory framework of Bosnia and Herzegovina for the successful functioning of the electricity retail market. This is particularly important as the date of full retail market opening is very close – January 1, 2015. To fill these gaps and to define the distribution system operator's (DSO's) role as the neutral retail market facilitator gaps USAID REAP has contracted DNV KEMA to provide Short Term Technical Assistance (STTA) addressing the following main tasks:

- Definition of the roles and processes to be defined for a well-functioning electricity retail market, taking into account the European best practice and the specific situation in BiH,
- Gap analysis of existing legislation and codes in BiH that describe the DSO's roles and processes,
- Draft missing processes and definition of the DSO's role on the retail market.

Since DSOs affiliated to a vertically integrated utility that is also active in the supply of electricity to end-users and existing/incumbent suppliers have strong incentives to obstruct the switching of customers to a different supplier, several issues and processes need to be defined, including a clear distinction of the responsibilities and tasks of the supplier and the DSO, to facilitate and enable a functioning competitive retail market. In line with the European practice we propose to define the following areas relevant for the DSO's role on the retail market and to assign the following responsibilities to DSOs and suppliers:[1]

- Customer contact and information – supplier acts as main point of contact, DSO to be addressed for grid-related questions / information
- Customer contract – minimum of contracts for the customer, one connection contract (with DSO) and one supply contract (with retail supplier)
- Dispute settlement – supplier handles customer complaints
- Third party access to data – the supplier provides access to commercial data, the DSO to technical data
- Information exchange – necessary information is provided to all market players in an efficient, non-discriminatory manner
- Customer connection and disconnection – responsibility of the DSO
- Supplier of last resort, default supplier – definition of a clear processes, DSO checks
- Customer switching – supplier is responsible for the process, DSO checks

[1] Please note that the processes related to metering as well as balancing and settlement – which are also relevant in this context – are addressed in two separate DNV KEMA reports and are therefore not further addresses within this report.

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- Metering – responsibility of the DSO
- Billing – supplier invoices customer, DSO charges network fees to supplier

Within the existing *legal* and *regulatory framework* of Bosnia and Herzegovina many necessary processes are currently not yet defined in a level of detail required for the development of competitive retail markets. For the development of a functioning retail market it has proven quite successful throughout Europe to describe the specific tasks of the DSO and the supplier(s) in the electricity retail market and to precisely define procedures (or steps), timeframes and the extent of the data to be exchanged between the supplier and the DSO.

This report provides the draft proposals for processes and role descriptions that define the specific procedures to be applied by the DSO (and the supplier(s)) for the processes of customer connection and disconnection, supplier switching, default supplier and supplier of last resort, information sharing and invoicing. Each process is described by a detailed graphical representation as well as by a written explanation of the different steps and responsibilities of the respective market actors.

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1 INTRODUCTION AND PROJECT OBJECTIVES

The three Bosnia and Herzegovina (BiH) energy regulators assembled the Market Working Group, comprised of their representatives plus the Regulatory Energy Assistance Project (REAP), to address various issues concerning the development of the BiH retail electricity market. As part of this effort, the Market Working Group also formed a "Case Study" Working Subgroup to review the relevant primary and secondary legislation and operational rules from the viewpoint of a supplier and eligible customer to determine what gaps in the laws and regulations might impede their ability to enter into a competitive retail electricity supply contract. In their assessment of the most significant issues affecting market functioning several gaps for the successful functioning of the electricity market have been identified in the legal and regulatory framework.

As a consequence REAP together with the Bosnian regulatory authorities and the Electric Power Sector stakeholders identified the need to define the DSO's role as a neutral retail market facilitator and to describe the processes and roles of the DSO in regard to the retail electricity market. The gaps in the rules and guidelines regarding these topics and absence of described processes are considered to be strong impediments for the development of well-functioning electricity retail markets. This is important as the date of full retail market opening is very close – January 1, 2015.

To fill these gaps REAP has contracted DNV KEMA to provide Short Term Technical Assistance (STTA) on issues related to the DSO role as the retail market facilitator. In particular, assistance has been requested on the roles, responsibilities and information exchanges of the distribution system operator (DSO) in relation to the retail market. This assistance consists of three main tasks:

- Definition of the roles and processes to be defined for a well-functioning electricity retail market, taking into account the European best practice and the specific situation in BiH
- Gap analysis of existing legislation and codes in BiH that describe the DSO's roles and processes
- Draft missing processes and definition of the DSO's role on the retail market

Retail market processes should be simple and reliable and include the definition of responsibilities, timeframes, data requirements and formats to ensure that all market players can exchange critical information efficiently and swiftly in a non-discriminatory manner. The availability of such information allows customers to seek products or services that best suit their needs, while suppliers are able to invoice their customers and develop and offer new products and services. Also procedures need to be in place to ensure a continuous energy supply to the customer where the customer is moving in or out of a place, switching the supplier or not is able to pay its bill.

This report is therefore structured as follows. The next chapter provides an overview on the general role of the DSO in facilitating the development of a well-functioning competitive retail market. Chapter 2 starts with an explanation on why and how retail market processes need to be defined (2.1) and a description of the general task and responsibilities of DSOs and suppliers and differentiates them as

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regards their specific roles in the retail market (2.2). In addition the chapter outlines the provisions on retail market processes specified in the relevant EU legislation (2.3). A key focus of chapter 2 is a detailed overview on the different processes that need to be defined for a well-functioning retail market (on the DSO side) and provides an overview on the approaches currently applied in the EU Member States (2.4).

Chapter 3 assesses the current procedures specified in the existing legislation and codes for Bosnia and Herzegovina on any missing roles and processes as regards the DSO as a neutral retail market facilitator.

The following chapter 4 presents our draft proposal for processes and role descriptions that define the specific procedures to be applied by the DSO (and the supplier(s)) for the processes of customer connection and disconnection, supplier switching, default supplier and supplier of last resort, information sharing and invoicing. Preceding this description we provide a general outline of the requirements or objectives to be applied for the definition of retail market processes.

This report closes (chapter 5) with conclusions and recommendations for the implementation of the proposed process descriptions.

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2 ROLE OF THE DSO IN THE RETAIL MARKET

2.1 Retail market competition and unbundling requirements for DSOs

Traditionally, all business areas in the electricity sector, such as electricity generation, transmission, distribution and the supply of electricity to end-users, have been regarded as natural monopolies not subject to competition. Consequently all business areas have usually been carried out by a single vertically integrated entity holding that is also the (regional) monopoly in the supply of electricity to end-users. However, only the network business is generally regarded as characterised by the economic properties of a natural monopoly[2], while other business areas of the electricity sector (such as electricity generation and the supply of electricity to end-users) are commonly regarded as potentially competitive services.

Within the European Union the electricity sector has accordingly been liberalised and steps been defined in the EU legislation (Directive 96/92/EC and Directive 2003/54/EC) to open-up the end-user markets for competition. According to these Directives all EU Member States had to establish full retail market competition and free choice of supplier for all customer groups in the electricity sector by July 2007 at the latest.[3] For the Contracting Parties of the Energy Community similar requirements to open the electricity market to non-household customers by January 2008 and for all other customers by January 2015 have been specified. The same requirements and timeframes are also determined in the respective electricity laws of Bosnia and Herzegovina.[4] As of today non-household customers are able to choose their electricity supplier freely while household customers will have the opportunity to do so by January 2015 in Bosnia and Herzegovina. To enable effective competition in the supply of electricity to end-users a number of changes in the role and processes of the distribution network operator (DSO) will have to be implemented.

To prevent electricity distribution and transmission operators from abusing their monopoly power, sector specific regulation is required. This includes regulatory measures to ensure that the network operators charge "fair" cost-reflective network charges, operate efficiently, provide an "adequate" quality of supply and provide equal and non-discriminatory access to their networks to all sector participants. The retail supply business of the electricity sector on the other hand, that is the supply or sale

[2] In economics natural monopolies are generally defined by large sunk costs and economies of scale and scope, which – if both are present – generate stable market power for incumbent companies.

[3] Except for Estonia, which has been granted a derogation from full implementation of the Directive 2003/54/EC until 2013.

[4] Law on Electricity in the Federation of BIH and the Law on Electricity in the Republic of Srpska, as well as SERC Decision on scope, conditions and time schedule of electricity market opening in Bosnia and Herzegovina.

of electricity to end-users – as well as other competitive services such as electricity generation – should generally be subject to the general competition and consumer protection laws.[5]

In order to achieve well-functioning retail markets special attention needs to be given to those cases where monopoly and competitive business areas of the electricity sector are integrated within a single company. In that case the distribution network business unit or subsidiary of the utility has strong incentives to discriminate other suppliers that compete with the retail supply unit or subsidiary of the utility the distribution network operator (DSO) also belongs to. Furthermore the utility has strong incentives to shift costs from its units or subsidiaries operating in competitive market segments to its distribution business unit or subsidiary – whose revenues are determined by the regulatory agency in the price control review – in order to gain a competitive advantage for its operations in the retail market. To avoid such discriminatory behaviour detailed unbundling requirements have been specified in the EU Directives[6] that regulate the allocation of costs (accounting unbundling), the handling of information (information unbundling) and the interaction of personnel and the daily operations (functional unbundling) between the distribution business unit and other units or entities of the vertically integrated utility, as well as the legal status of the entity carrying out the distribution business (legal unbundling). Within EU Member States all DSOs with more than 100,000 connected customers need to apply all types of unbundling, for DSOs with less customers only accounting and informational unbundling apply.[7] By decision of the Ministerial Council of the Energy Community those requirements had also to be implemented in Bosnia and Herzegovina by 1st of July 2007.

The following two figures show the traditional situation of a vertically integrated company, who integrates all business areas within a single company, and the unbundling situation, where competitive business areas (such as electricity generation and retail supply) are organised in separate business units or companies independent from the monopolistic business areas of transmission and distribution.

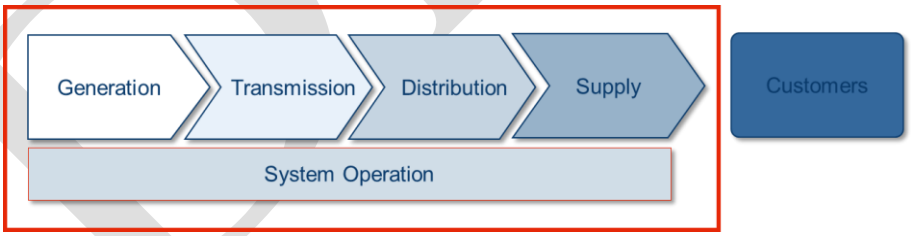

Figure 1: Integration of all business areas within a single company (vertical integration)

[5] This may require sector specific consumer protection provisions as specified in the "Measures on consumer protection" in Annex I of Directive 2009/72/EC. See also section 2.3 of this report.

[6] Directive 96/92/EC, Directive 2003/54/EC and Directive 2009/72/EC.

[7] If a holding company controls more than one DSO, and the cumulative number of connected customers of all DSOs exceeds 100,000, then all must be fully unbundled, irrespective of their individual size.

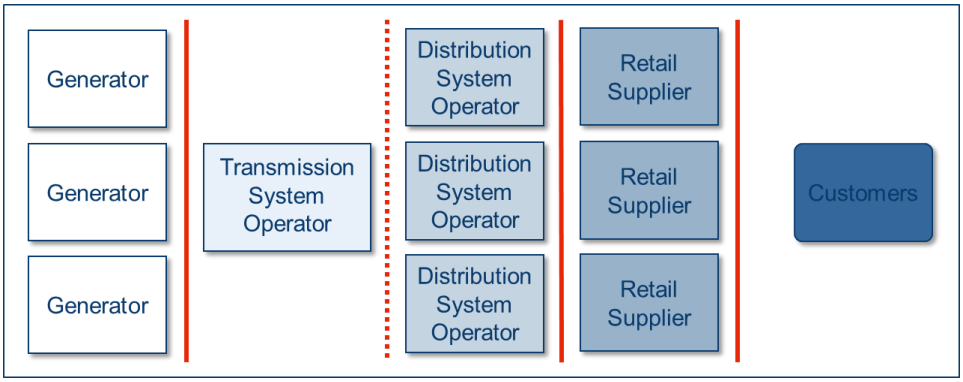

Figure 2: Separation of the roles of DSO and supplier after unbundling

In the context of this report the effective unbundling of the distribution and supply business of vertically integrated utilities is of particular importance. In essence it requires the DSO to treat the supply business unit or entity of the holding the DSO belongs to in the same way as any other supplier operating in the market. This includes in particular the handling of information. Since the DSO is in charge of the metering processes and of the connection of customers to the grid it obtains a lot of data that could potentially be used for the supply activities of the supply business unit or entity. The affiliated supplier could for example directly approach customers with switching intentions (indicated to the DSO) with improved offers. Or the affiliated DSO could delay the provision of customer data needed by the new supplier for the customer switching process. With the introduction of smart metering and smart grids the role of the DSO as the central data hub in the electricity market is expected to increase even further in the future. To establish competitive retail markets, it is therefore of crucial importance that appropriate rules and procedures are in place that guarantee that the DSO provides the same level of information to all market participants without advantages for the supply unit of the vertically integrated utility the DSO is a part of. To achieve this, the EU Directives specify that

- different IT systems are to be kept for distribution data (with the DSO) and supply data (with the supplier),
- any commercially sensitive information obtained by the DSO in the course of carrying out its business is to be preserved (especially not disclosed to other business units of its company),[8] and
- any commercially advantageous information is to be made available to all market participants in a non-discriminatory manner.

Besides these general unbundling requirements, it has proven quite successful throughout Europe to describe the specific tasks of the DSO and the supplier(s) in the electricity retail market and to precisely define the procedures, timeframes and extent for the data to be exchanged between the supplier and

[8] See ERGEG „Guidelines for Good Practice on Functional and Informational Unbundling for Distribution System Operators – Ref:C06-CUB-12-04b" for an overview on what kind of data should be regarded as commercially sensitive information.

the DSO. This is particularly relevant for those processes such as customer switching that involve both the DSO and the supplier.

2.2 General description of the role of a DSO

2.2.1 General tasks and responsibilities of DSO and supplier

Whereas the activities of distribution and supply have traditionally been conducted by a single company or business unit, both activities are now to be strictly separated (unbundled) into a regulated distribution network operator and a (retail) supplier delivering electricity to end-users (as described above) on a competitive market. Consequently the task and responsibilities of the DSO as well as (retail) supplier have to be clearly distinguished.

As described in Article 25 of EU Directive 2009/72/EC the **DSO** has general responsibilities regarding his role as a grid operator and grid access provider. The DSO has to **operate, maintain and develop the grid** under economic conditions to ensure the **long-term ability** of the system. Moreover, the DSO is responsible for regional **grid access and grid stability**, the **integration of renewables** at the distribution level and (often) for regional load balancing. Finally the DSO is responsible for the **covering of energy losses and reserve capacity** in the system. The DSO needs to establish and **publish the terms and conditions**, including rules and network connection and access **tariffs**, in a non-discriminatory and cost-reflective way. In the majority of European countries – as is also the case in Bosnia and Herzegovina – the DSO is also responsible for **installing**, **operating** and **reading** the **meters**. The role of the DSO is clearly to be distinguished from the role of the supplier. In particular the DSO should only be in touch with the end-users as regards the metering processes, the connection or disconnection of the customers to the grid, the physical delivery of electricity and in the cases of (planned) outages due to maintenance or construction work. As the party responsible for the metering process and of customer (dis)connection, the DSO has also the task of operating and maintaining a database with connection and metering point relevant data and providing discrimination free access to this data for all market participants.[9]

The **supplier** has the general responsibility for all activities related to the **sale**, including resale, **of electricity to customers**. In this role the supplier purchases electricity on the wholesale market or directly from the generators and sells this electricity – in competition, as a supplier of last resort or as a default supplier – to its end-users. This includes the design of different **end-user tariff models** and products (such as specific tariffs for the provision of electricity from renewable energy sources only), carrying out the **billing** processes and activities related to the **switching** of customers and the **acquisition of new customers**. The supplier is therefore in regular exchange with its current and potential new customers through marketing and sponsoring activities as well as through specific customer service centres.

[9] This data can be either exchanged directly and bilaterally or through a central data hub.

It has been stated in many reports[10] that an insufficient separation of the roles of the DSO and the incumbent supplier – who is generally affiliated to the DSO – provides a major obstacle to the development of well-functioning electricity retail markets. Directive 2009/72/EC therefore requires – in addition to the unbundling provisions described above – from DSOs (that are part of a vertically integrated undertaking with more than 100,000 connected customers) to conduct a separate communication and branding policy for its DSO, in order to establish a separate identity for the supply and the distribution branch.

2.2.2 Differentiation of DSO and other market participants

In addition to DSO and supplier other market roles can be distinguished from the DSO, such as the transmission system operator (TSO) or the Balance Responsibility Party (BRP).

The TSO is responsible for operating, maintaining and, if necessary, developing the transmission system and for ensuring the long-term ability of the system to meet reasonable demand through investment planning. The operation of the transmission system includes granting and managing non-discriminatory third-party access to the transmission network, as well as the tasks of system operation and balancing, including managing the exchange with other interconnected systems. In Bosnia and Herzegovina the role of the TSO is split between the Electricity Transmission Company (Transco) responsible for transmission, maintenance and construction and the Independent System Operator (ISO) responsible for management and control of the transmission network, as well as directing, scheduling and coordinating maintenance, planning and development of the transmission network. As part of its role to operate, maintain and develop the distribution network, the DSO needs to be in constant communication by electronic exchange of data with the Transco and the ISO.

In addition the Harmonised Electricity Market Role Model of ENTSO-E also defines the role of the balance responsible party (BRP), responsible for balancing supply and demand within a balancing area. Since quantities contracted by the (retail) supplier to supply electricity to end-users can significantly deviate from the quantities actually consumed by end-users, specific balancing and settlement procedures need to be in place. The role of the BRP is generally performed by a (retail) supplier or by an energy trader.

Through its role in the metering process the DSO also measures and collects the necessary data to ensure the balancing and settlement process. Where consumption is not measured real-time or on actual 15-minute values, groups of Standard Load Curves (SLC's) have to be defined reflecting the actual course of consumption for the different groups of consumers (e.g. household, heating, small enterprises). Within the balancing process the calculation method, the type of the time series a DSO has to ap-

[10] See for example the European Commission's 2007 report "DG Competition report on energy sector inquiry"

ply in order to calculate the load curve for a supplier, and the specific procedures to be applied for the data exchange between the DSO and the BRP need to be defined.[11]

Depending on the retail market scheme the DSO has several obligations in regard to balance and settlement; usually this includes:

- Registering suppliers to respective metering points (customers)
- Register suppliers to respective BRP in DSO network
- Process metering data and submit to suppliers, BRP and Settlement responsible (ISO and Market Operator)
- Calculate and report load profile shares in its network and/or submit data to BRP, ISO/MO
- Calculate the final profiled consumption in its network and/or submit data to BRP,ISO/MO

2.2.3 Tasks and responsibilities of the DSO in relation to the retail market

Effective exchange of information between the market actors is crucial for the functioning of competitive retail markets. DSOs can play a key role by facilitating transparent and non-discriminatory access to network and customer information. Since the DSO itself is not active in the competitive market he is in a position to act as a **neutral market facilitator**. In this role the DSO ensures a **fair level playing field** without preferential treatment of related companies. Given that the DSOs provide **access to the network and to customer and metering information for all market participants** they play a key role in facilitating commercial activities of other market participants in a competitive market. That includes managing metering, offering demand response services, providing information to market players in a timely, efficient and non-discriminatory manner and supporting the process of changing supplier, while at the same time safeguarding customers' privacy and data confidentiality. Taking the role as information hub the DSO supports **reliable and swift market processes**. The DSO takes the responsibility of meter reading and to provide access for other market participants (especially suppliers) to the consumption database.

2.3 Requirements from EU-Directive's affecting retail market processes

While European as well as national electricity market legislation does primarily focus on the regulated business areas of transmission and distribution and the tasks of the regulatory agencies, also a few requirements relevant for electricity retail market procedures have been specified within the European legislation (Directive 2009-72-EC). When designing electricity retail market processes particularly the following conditions defined in the EU Directive have to be taken into account:

[11] Further details of the balance and settlement process are defined in a separate DNV KEMA report and are therefore not further addressed within this report.

- Member States shall ensure that: … where a customer, while respecting contractual conditions, wishes to change supplier, the change is effected by the operator(s) concerned **within three weeks**; and customers are entitled to receive **all relevant consumption data**. [Article 3(5)]
- Member States shall … define the concept of **vulnerable customers**, which may refer to energy poverty and, inter alia, to the **prohibition of disconnection** of electricity to such customers in critical times. [Article 3(7)]
- **Customers** should benefit from transparent, simple and inexpensive procedures for dealing with their **complaints** by their electricity service provider. In addition **out-of-court dispute settlements** procedures shall be specified that enable disputes to be settled fairly and promptly, preferably **within three months**, with provision, where warranted, for a system of reimbursement and/or compensation [ANNEX1 (1) f].
- Customers … have at their disposal their consumption data, and shall be able to, by explicit agreement and free of charge, give any registered supply undertaking access to its metering data. The party responsible for data management shall be obliged to give those data to the undertaking. **Member States shall define a format for the data and a procedure for suppliers and consumers to have access to the data**. No additional costs shall be charged to the consumer for that service [ANNEX1 (1) h].
- Customers … are properly informed of **actual electricity consumption** and costs frequently enough to enable them to regulate their own electricity consumption. That information shall be given by using **a sufficient time frame**, which takes account of the capability of customer's metering equipment and the electricity product in question. Due account shall be taken of the cost-efficiency of such measures. No additional costs shall be charged to the consumer for that service [ANNEX1 (1) i].
- Customers … receive a final closure account following any change of electricity supplier **no later than six weeks** after the change of supplier has taken place [ANNEX1 (1) j].

2.4 Processes to be defined for a competitive retail market

Retail market processes should be simple and reliable and include the definition of responsibilities, timeframes, data requirements and formats to ensure that all market players can exchange critical information efficiently and swiftly in a non-discriminatory manner. The availability of such information allows customers to seek products or services that best suit their needs, while suppliers are able to invoice their customers and develop and offer new products and services. Also procedures need to be in place to ensure a continuous energy supply to the customer in the case the customer is moving in or out of a place, switching the supplier or not being able to pay its bill.

Table 1 gives an overview on the relevant processes that have to be defined to achieve a well-functioning, competitive retail market. The table summarizes the main tasks and responsibilities of the DSO and the supplier.

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Issue	Tasks/ Responsibilities	
	Supplier	**DSO**
Customer Contact / Information	Main point of contact	Grid-related questions (incl. interruption of supply and technical aspects of connection and metering)
Customer Contract	Single contract-model (customer only has a contract with supplier)	Dual contract-model (customer has also a contract with DSO, e.g. as regards connection and/or metering)
Dispute settlement	Handling of customer complaints	---
Third party access to data	Responsible for commercial data	Responsible for technical and metering data
Information exchange	Provision of information to market players in a timely, efficient and non-discriminatory manner	
Customer connection / disconnection	---	Responsibility of the DSO
Supplier of last resort (SoLR) / default supplier	DSO notifies SoLR or default supplier	
Customer switching	Process between old and new supplier	*Check and notification only*
Moving in/out of customer	Process between customer and supplier	*Check and notification only*
Metering	*Uses metering information for billing process*	Asset owner, responsible for meter reading, estimation, processing and validation of metering data
Billing	Responsible for billing process (Single invoice for supply of electricity and use of network fees)	*DSO charges to and receives network fees from supplier*
Balancing and Settlement	---	Responsibility to calculate the reconciled energy and report relevant data to the balancing responsible party

Table 1: Overview on the tasks and responsibilities of DSO and supplier to be defined in the retail market processes

Each of the above processes is further explained below and examples for the implementation of these processes in EU Member States as well as a recommendation for implementation are given. Please note that both the metering processes as well as the balancing and settlement processes are analysed and discussed in two separate reports and therefore not further assessed in detail in the following. Nonetheless clear, transparent, and non-discriminatory descriptions of both processes are equally crucial for the development of competitive electricity retail markets.

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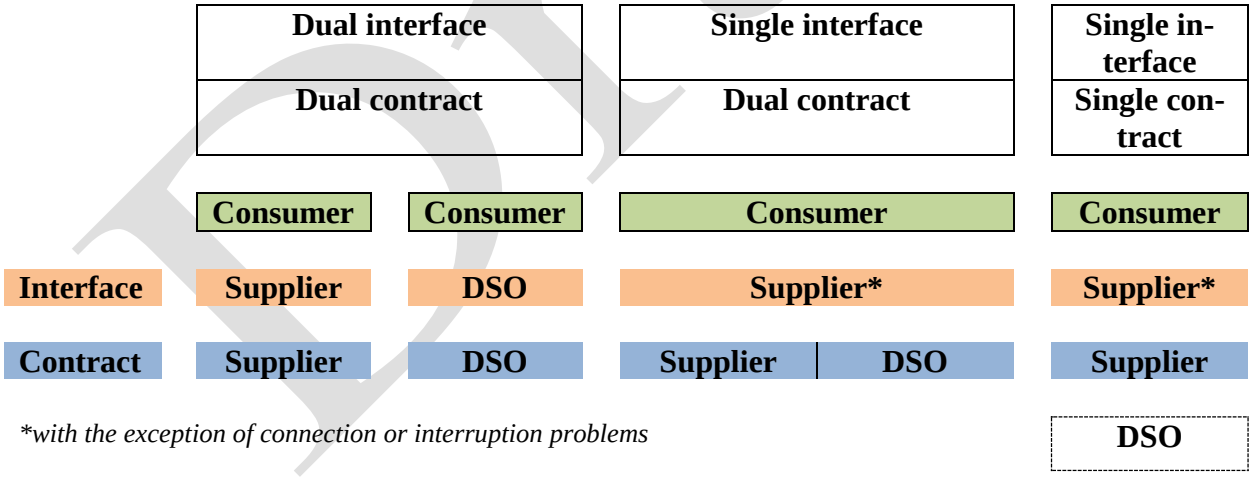
2.4.1 Customer contact, customer contract

In the majority of EU Member States the supplier is the main point of contact for the customers. The supplier can be addressed by the customer as regards billing, moving in/out, supplier switching and questions about consumption levels, tariff schemes or the fuel mix.

The DSO will be the contact point for customers in cases of planned or unplanned outages, technical issues related to the network, e.g. power quality, technical aspects of metering and metering devices or the connection of (new) customers. Further issues include the connection of (small scale) generators directly connected to the distribution network (distributed generation) and compensations for failing to meet specified standards of supply.

Most EU Member States do apply a single contract model, where the customer only has a contract with the supplier (and not the DSO). This does include the (retail) supply contract as well as the use of network (network access) contract In most cases – as described above – the supplier will also act as the single point-of-contact for the customer. In this case much of the communication would be only between the market actors without the customer being aware of this. For the customer this has the advantage that he only has to be in touch with one counterpart for all or the major part of the matters.

A minority of the EU Member States (for example FI, DK, SE)[12] has adopted a dual point-of-contact model (see also figure below), where customers are in contact with the supplier (e.g., supply contract) and the DSO (e.g., network access contract). In this case the customer is in direct contact with the supplier as well as with the DSO for specifically defined matters.



[12] See also: CEER (2011), Retail market design, with a focus on supplier switching and billing – Draft Guidelines of Good Practice

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Figure 3: Different EU contact and contract models

Besides the supply contract between the supplier and the customer three main contractual models can be identified as regards the use of network (network access) contract and the network connection contract in the EU Member States:

1. The connection contract is concluded between the DSO and the connection owner (usually the property owner), while the network service contract is concluded between the DSO and the supplier. (BE, NO, DK, CZ, DE, SK, GR)
2. Both the connection contract and the network service contract are concluded between the connection owner and the DSO. (FI, HU, SE, AT)
3. Both contracts are concluded between the DSO and the supplier, who acts on the customer's (connection owner's) behalf. (IT, FR, UK, ES)

The selection of the cont(r)act models determine the specification of the rules and processes in the market model.

In order to limit costs for customers, and also for DSOs and suppliers, <u>we suggest the application of either the single contract model or a limitation to the contract between the customer and the DSO to the connection to the grid in Bosnia and Herzegovina.</u>

2.4.2 Dispute settlement:

In cases of customer complaints procedures need to be in place, including an independent out-of court dispute resolution scheme. Responsibilities and the prime contact party for customer complaints depend on the chosen contact and contract model described in the previous section. In most cases the first instance of customer complaints should be handled consistently within a reasonable timeframe by the suppliers themselves.

In case a customer is not satisfied, he has several different options. Customers can:

- turn to an in-house company ombudsman, (FR);
- turn to an independent dispute settlement organization (NL);
- turn to a regulator with dispute settlement functions (IT, GR);
- turn to (free of charge) consumer advice services (FI).

Such independent persons or organisations can make recommendations on redress and proposals for compensation payments. This can provide a fair and cost-efficient mediation process in cases where the cost of referral to a court might be disproportionate to the harm and the appropriate level of compensation. Nonetheless both the consumer and the supplier still have the right to go to court if they don't agree with the proposed settlement.

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We suggest that an independent dispute settlement organisation in Bosnia and Herzegovina be set up, either directly attached to the regulatory authority or at least monitored by the regulatory authority.

2.4.3 Third party access to data

Access to data is essential to ensure the smooth functioning of the retail market. For instance, commercial data is needed for the switch of suppliers, for billing (invoicing) and provision of energy services, and for suppliers to make reliable product offers to customers. This implies that suppliers should have access to relevant information and their own customers' data on a non-discriminatory basis in order to be able to offer innovative products and services based on customer preferences.

At the same time, access to technical data is essential for operational control of the grid and to realize the benefits of smart metering and smart grids. DSOs should have an adequate view of the grid and of the contracts between suppliers and customers, in order to neutrally facilitate well-functioning retail markets by providing the necessary information to market players in a timely, efficient and non-discriminatory manner; while at the same time maintaining grid stability and allowing the integration of intermittent renewable energy sources into the power system.

It is therefore essential that suppliers have access to commercial data, while DSOs have access to the technical data necessary to manage the grid effectively. We suggest the application of similar responsibilities and access rights in Bosnia and Herzegovina.

2.4.4 Information exchange between market actors and customers

Efficient and effective data exchange between market actors needs be in place to ensure that both DSO and suppliers are able to conduct the various processes necessary for a competitive retail market. The DSO – responsible for the meter operation and reading – should provide the necessary information to all market players in a timely, efficient and non-discriminatory manner, while at the same time protecting customers' privacy and data confidentiality.

Such data exchange is critical for the success of an electricity retail market. To guarantee an optimal information exchange between DSOs, suppliers and customers, both consumption information and the 'relevant consumption point' data should be shared among relevant market players in a timely and efficient manner. Within EU Member States we can identify three different models through which information is exchanged between the metering operator (usually the DSO) and the supplier.

1. Most commonly information is exchanged directly and bilaterally; all market parties directly send one another standardized messages. This is the model currently applied in IT, NO, FI, ES, SE, DE, DN, FR, HU, GR.
2. Alternatively messages are sent to a central data hub, where messages are checked and then forwarded to the final addressee (CZ, NL).

3. Data hubs can also be organized as a central database where the exchanged data is not only checked, but also stored. This provides added value in the form of record keeping and data storing (UK).

Models 2 and 3 have the advantage that messages are sent to, checked by, received from and possibly also stored in just one address, which might become particularly important in the future, when smart meters provide an interface between the technical operation and the market system. The ownership/control of such data hub can be public, private or mixed. It is however important that such data dispatching platform is operated in an efficient, transparent and non-discriminatory manner with clear access rules to protect customers' data confidentiality.

We suggest that the DSO be assigned with the task of operating and maintaining such database in Bosnia and Herzegovina (please see the metering report for further details).

2.4.5 Supplier of last resort

The supplier of last resort (SoLR) ensures the continuity of supply for household customers and small enterprises in case a supplier becomes insolvent. The appointment of a SoLR should be transparent, non-discriminatory and restrict competition as little as possible. In some EU Member States the SoLR is also responsible to supply vulnerable customers who fail to pay their bills.

Tariffs of the SoLR should be cost-based, since at tariffs below market prices a customer has no incentive to re-enter the electricity market and a regulated sub-market would be created. This problem is especially relevant when the SoLR is appointed to customers who have failed to pay their bills. Low SoLR tariffs would then provide a particular incentive for customers (who are eligible for such tariffs) not to pay their bills.

We suggest that clear and transparent procedures be defined for the appointment of the supplier of last resort (SoLR) in Bosnia and Herzegovina. The DSO should notify the SoLR to commence its supply to specific customers in the case of predefined situations (e.g., when a supplier becomes insolvent).

2.4.6 Default supplier

When a person moves into a new house the customer should be able to use electricity immediately. Also when a customer does not actively select a supplier, he should be supplied with electricity. A default supplier enables supplying and billing customers even when a supply contract has not yet been explicitly agreed. This provision is often used when opening up markets, in which case all consumers are on default prices until they choose to switch. It is important that the tariff of the default supplier is cost-based and that in particular any cross-subsidies between other services and default supply are avoided. Customers only have an incentive to enter the market if the market price is below the tariff of default supply.

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We suggest clear and transparent procedures be defined for the appointment of the default supplier in Bosnia and Herzegovina. The DSO should notify the default supplier to commence its supply to specific customers in cases where customers do not actively select a supplier.

2.4.7 Customer switching

In a well-functioning retail electricity market, customers actively choose their supplier. Since the old supplier has an incentive to obstruct the switch of a customer to a new supplier as far as possible, transparent and non-discriminatory switching procedure and timelines are of particular importance. Since continuous supply with electricity is essential, this includes also measures to make sure that the customer is not cut off the network as part of the switching process. For the switching process two different models can be observed in EU Member States:

1. Customer → new supplier → registration with DSO and notification of old supplier. Here the risk of bad debt remains with the old supplier. This model is currently applied in NL, NO, IT, ES, SE, FR, DK, GR.
2. Consumer → new supplier → DSO checks → old supplier may restrict switch → DSO confirms to new supplier whether switch can precede or not. In this model the switching process is subject to a check by the DSO and may be blocked by the 'old supplier' under certain conditions. This model is currently applied in FI, DE, CZ, HU, AT, UK.

In some markets objections to switching for outstanding debt are normal practice. In other markets switching is not permitted under any circumstances.

We suggest a customer switching model in Bosnia and Herzegovina be a[[;oed, where the DSO first checks with old supplier whether any bad debts remain that have fist to be settled with the old supplier before the customer switch can proceed.

2.4.8 Moving of end-user:

Moving can be split into two separate business processes: moving out of a consumption place and moving into a consumption place. Two different approaches are currently applied within EU Member States:

1. The supply contract is linked to the customer. When the customer moves her place, he informs her supplier – who then informs the DSO of the move – while the supply contract moves with the customer, unless the customer explicitly chooses to switch to a new supplier. This approach is currently applied in NL, IT, NO, FI, CZ, DE.
2. The supply contract is linked to a connection point and automatically ends when the customer moves. The customer contacts the supplier and has to arrange a contract for the new address with a new supplier or will assigned to the default supplier. This approach is currently applied in SE, ES, FR, HU, GR; DK.

Following the first approach, the supply contract being linked to the specific customer (e.g., moving with the customer if the customer is moving from one place to another) would have the advantage that a customer, previously supplied at a different location, would not automatically be assigned to the default supplier at the new location, when not actively contracting with a new supplier.

2.4.9 Metering

Metering is a crucial behind-the-scenes process for establishing consumption data for billing purposes. The meter reader has to provide consumption information to the relevant market players in a timely, efficient and non-discriminatory manner, while protecting the customer's privacy and data confidentiality.

In the majority of the EU Member States the DSO is the owner of the metering assets, responsible for meter reading, for estimation and for validation of metering data. The established consumption data is communicated to the supplier, who is then able to correctly bill the customer.

In most EU Member States, DSOs maintain a database of customer and metering data, although there are differences in how the necessary information is made available to market participants and there remain obstacles in some Member States to the availability of metering data required by the new supplier.

Further details on the metering process are provided in the separate metering report.

2.4.10 Billing

Use of network charges and the supply of electricity could be either charged to the customer in a single bill (whereas the DSO invoices the network fees to the supplier in a separate step preceding the billing of the customer) or in two separate bills, issued by the supplier and the DSO respectively. Almost all EU Member States apply the single bill including related costs such as taxes. The supplier is usually liable for unpaid bills including the component for the use of network charges. Only two EU Member States (SE, DK) have to adopt the approach with two separate bills.

We suggest the single bill approach in Bosnia and Herzegovina be applied where the supplier also collects network fees for the DSO from its customers.

2.4.11 Balance and settlement

Balance and settlement are essential processes to settle any imbalances between supply and consumption of electricity. Within EU Member States each BRP is responsible for balancing its own portfolio, while the TSO is responsible for residual imbalance and relies on the DSOs for meter reading. Regarding the settlement process – usually TSOs rather than DSOs – are responsible for the allocation process. Within the balance and settlement process the DSO has typically the obligation to calculate and submit consumption and metering data to the balancing responsible party. **Further details on the metering process are provided in the separate metering report.**

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3 GAP ANALYSIS OF EXISTING LEGISLATION AND CODES

In this chapter we analyse, whether – in comparison to European best practice – any missing roles and processes as regards the DSO as a neutral retail market facilitator can be identified in the legal obligations and agreements of BiH. In the gap analysis the following documents, which prescribe the DSOs role in the retail market, are assessed:

a. ISO Market Rules
b. Network Code
c. General Conditions of Supply
d. Distribution Code
e. Metering Code
f. Rule(s) on Eligible Customers
g. Gap Analysis (developed by REAP).

For some process we did not find process descriptions in the documents available to us. However, the observation that specific processes are not defined in the legal documents does not necessarily mean that currently there are not processes for these areas in place at all, since usually (additional) bilateral agreements between the DSO and the supplier have been made, which may include agreed processes for these areas. For the gap analysis of the metering process and the balancing and settlement processes, see the separate metering and balancing report.

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Process / Issue	Current procedures as specified in the existing legislation and codes			Assessment
	FERC	RSERC	SERC (Brcko)	
Role of the supplier in the retail market	General Conditions for electricity supply Art. 6 → rights and obligations	General Conditions for delivery and supply of electricity Art. 6, 10	General Conditions for delivery and supply of electricity of Brčko District, Art. 6, 10	FERC and RSERC: The rights and obligations of the supplier are described in the relevant documents SERC (Brcko): The rights and obligations of the supplier are described in the relevant documents
Role of DSO in the retail market	General Conditions for electricity supply Art. 5 → rights and obligations	General Conditions for delivery and supply of electricity Art. 5, 9	General Conditions for delivery and supply of electricity of Brčko District, Art. 5, 19	FERC and RSERC: The rights and obligations of the supplier are described in the relevant documents SERC (Brcko): The rights and obligations of the supplier are described in the relevant documents
DSO as a neutral party	General Conditions for electricity supply Art. 92 Electric Power Law Art. 46, 78 Licencing Rules Art. 5, 6, 30, 33	General Conditions for delivery and supply of electricity Art. 114 Rulebook on Licenses Art. 7, 34, 35 Electricity Law Art. 62	General Conditions for delivery and supply of electricity of Brčko District, Art. 112 Rulebook on Licenses, Art. 3, 4, 6 Electricity Law, Art. 63	FERC: DSO can hold supply license during the unbundling process, DSOs are allowed to hold trade licenses RSERC: DSO can hold supply licenses, although there are legal unbundling requirements SERC (Brčko): Until the unbundling is carried out, the rights and obligations that refer to the distributor and supplier of tariff customers are the rights and obligations of the existing distribution company. **For a functioning retail market the DSO should not have as license for supply of end-customers.**

Draft

Process / Issue	Current procedures as specified in the existing legislation and codes			Assessment
	FERC	RSERC	SERC (Brcko)	
Customer Contact / customer information				**No detailed description of steps, timelines and data formats to be exchanged as part of this process**
Customer contact			General Conditions for delivery and supply of electricity of Brčko District, Art. 110	**No detailed description for the role of the supplier as single point of contact for customer requests, and the role of the DSO as contact for the customer.**

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Process / Issue	Current procedures as specified in the existing legislation and codes			Assessment
	FERC	RSERC	SERC (Brcko)	
Price information	Rulebook on eligible Customer supply Art. 22 Electric power law Art. 88	Rulebook on eligible customer Art. 20 (public supplier, SOLR)	The information on the prices is available on the web page of the regulator and supplier. The documents "The Decision on Supply of Eligible Customers with Electricity in Brčko District BiH", SERC (Official Gazette, No 89/11, dated 08.11.2011), Article 10 defines the manner of determining and publication of the prices of the default supplier of eligible customers, and Article 4 the manner of negotiation of quantities and prices of electricity between the supplier selected by the customer and the customer.	**For RSERC and Brcko there is no obligation for suppliers to publish prices. The customer has no access to that information, which would be a pre-condition for a functioning retail market.**

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Process / Issue	Current procedures as specified in the existing legislation and codes			Assessment
	FERC	RSERC	SERC (Brcko)	
Information on suppliers and switching requirements, on switching and contracts	Rulebook on eligible Customer supply Art. 15, 16, 21 General Conditions for electricity supply Art. 91	Rulebook on eligible customer Art. 12, 13, 21 General Conditions for delivery and supply of electricity Art. 7, 9, 58, 91, 113	General Conditions for delivery and supply of electricity of Brčko District, Art. 7, 9, 110 The Decision on Supply of Eligible Customers with Electricity in Brčko District BiH", SERC (Official Gazette No 89/11, dated 08.11.2011), Art. 2 - 14	For FERC and RSERC the DSO and the suppliers have obligations to provide information to the customer.
Access to consumption data	Rulebook on eligible Customer supply Art. 6 General Conditions for electricity supply Art. 62, 63	Rulebook on eligible customer Art. 12 General Conditions for delivery and supply of electricity Art. 81, 84	General Conditions for delivery and supply of electricity of Brčko District, Art. 81, 84	For FERC and RSERC the customer can request the consumption data on DSO or receive the information on the bill.
Price changes	Rulebook on eligible Customer supply Art. 16 (30 days in advance)	Rulebook on eligible customer Art. 13 (30 days in advance)	Not defined precisely in the existing documents	→ responsibility of the supplier

Draft

Process / Issue	Current procedures as specified in the existing legislation and codes			Assessment
	FERC	RSERC	SERC (Brcko)	
Customer Contract	Electric Power Law Art. 47 General Conditions for electricity supply Art. 7, 11, 30-35, 37, 42 Rulebook on eligible Customer supply Art. 15, 17	Law on electricity Art. 72, 73, 74, 77, 80 General Conditions for delivery and supply of electricity Art. 7, 11, 42, 45-48, 51-54, 56, 58 Rulebook on eligible customer Art. 11, 12, 13	General Conditions for delivery and supply of electricity of Brčko District, Art. 9, 10, 42, 45, 46, 47, 48, 51, 52, 53, 54, 56 The Decision on Supply of Eligible Customers with Electricity in Brčko District BiH", SERC (Official Gazette No 89/11, dated 08.11.2011), Art. 4	FERC: Ambiguity in the regulatory rules for whether a single or a dual contract model is applied.) RSERC: Ambiguity in the regulatory rules for whether a single or a dual contract model is applied.) Brcko: Supply Contract between customer and supplier The manner of concluding the contract between the supplier and customer is defined in the document "The Decision on Supply of Eligible Customers with Electricity in Brčko District BiH, issued by SERC (Official Gazette no 89/11 dated 08.11.2011.), Art. 4
Dispute settlement	Electric Power Law Art. 31 General Conditions for electricity supply Art. 83ff	Law on electricity Art. 28 General Conditions for delivery and supply of electricity Art. 111	Law on Electricity, Article 26 General Conditions for delivery and supply of electricity of Brčko District, Art. 121	FERC: Procedure established by supplier/ DSO; Regulatory Commission shall arbitrate in disputes RSERC: on request RSERC is in charge of dispute settlement
Third party access to data and information exchange				**No detailed description of steps, timelines and data formats to be exchanged as part of the processes**

Draft

Process / Issue	Current procedures as specified in the existing legislation and codes			Assessment
	FERC	RSERC	SERC (Brcko)	
DSO to ensure confidentiality of commercially sensitive data	Electric Power Law Art. 39	Law on electricity Art. 42	Law on Electricity, Article 41	For FERC and RSERC the confidentially of commercially sensitive information is generally defined in the legal documents.
DSO to ensure publication of commercially advantageous information	Electric Power Law Art. 39	Law on electricity Art. 42	Law on Electricity, Article 41	For FERC and RSERC the non-discriminatory access to information for third parties is defined in the legal documents.
Provide information on access and connection requirements	General Conditions for electricity supply Art. 19, 20	General Conditions for delivery and supply of electricity Art. 9, 20	General Conditions for delivery and supply of electricity of Brčko District, Art. 9 and 20	For FERC and RSERC the obligation of the DSO is described.
Identification of connection point			General Conditions for delivery and supply of electricity of Brčko District, Art. 35	**No detailed description of steps, timelines and data formats to be exchanged as part of the process**

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Process / Issue	Current procedures as specified in the existing legislation and codes			Assessment
	FERC	RSERC	SERC (Brcko)	
Request for information	**Supplier to DSO:** Rulebook on eligible Customer supply Art. 17 (after switching) General Conditions for electricity supply Art. 32 (after signing a usage contract) **DSO to supplier:** Rulebook on eligible Customer supply Art. 15, 17	**Supplier to DSO:** Rulebook on eligible customer Art. 15 (after switching) General Conditions for delivery and supply of electricity Art. 9, 59, 78 **DSO to supplier:** Rulebook on eligible customer Art. 12, 15	General Conditions for delivery and supply of electricity of Brčko District, Art. 9 and 59	For FERC and RSERC the supplier can only get information about customers after switch. No process is described in the case where the supplier can obtain information on behalf of a customer (with authorization). That would be relevant for a functioning retail market. The DSOs can request information of the supplier. **No detailed description of steps, timelines and data formats to be exchanged as part of the processes**
Change of master data			Not precisely defined	**No detailed description of steps, timelines and data formats to be exchanged as part of the process**
Inventory list			Not precisely defined	**No detailed description of steps, timelines and data formats to be exchanged as part of the process**
Data format for electronic information exchange	General Conditions for electricity supply Art. 38	General Conditions for delivery and supply Art. 59	General Conditions for delivery and supply of electricity of Brčko District, Art. 9 and 59	**No detailed description of data formats for the exchange of information**

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Process / Issue	Current procedures as specified in the existing legislation and codes			Assessment
	FERC	RSERC	SERC (Brcko)	
Customer connection / disconnection	General Conditions for electricity supply Art. 36, 43-54, 76-79 Distribution Code Art. 40, 45-46 (technical requirements)	General Conditions for delivery and supply Art. 28-44, 99-105	General Conditions for delivery and supply of electricity of Brčko Distric, Art. 28-44, 94-107	**For FERC and RSERC detailed descriptions of steps, requirements and timelines are only partially defined, not specification on data formats to be exchanged as part of this process.**
Supplier of last resort	Rulebook on eligible Customer supply Art. 8, 14, 19	Rulebook on eligible customer Art. 3, 6, 8, 9, 18, 20 General Conditions for delivery and supply of electricity Art. 50	General Conditions for delivery and supply of electricity of Brčko District, Art. 50 The Decision on Supply of Eligible Customers with Electricity in Brčko District BiH", SERC (Official Gazette No 89/11, dated 08.11.2011), Art. 11	FERC: Supplier, that serves customers that were left by the supplier, but not longer than 60 days RSERC: Public supplier, that serves customers that were left by the supplier or did not freely choose a supplier Brcko: For all customers that lost the supplier will be supplied for 30-days, Public Utility Company "Komunalno Brčko" **Detailed description of steps, timelines and data formats to be exchanged as part of this process only partially defined**

Draft

Process / Issue	Current procedures as specified in the existing legislation and codes			Assessment
	FERC	RSERC	SERC (Brcko)	
Default supplier	Rulebook on eligible Customer supply Art. 5, 7-10, 12-13, 15, 20	Rulebook on eligible customer Art. 3, 6, 7, 8, 9, 12, 17	General Conditions for delivery and supply of electricity of Brčko District Art. Art. 5, 6, 10, 12 The Decision on Supply of Eligible Customers with Electricity in Brčko District BiH", SERC (Official Gazette No 89/11, dated 08.11.2011), Art.13	FERC: Licensees for First Tier Supply as public supplier (during the transitional period until Jan. 2015) also used later if household customer failed to choose RSERC: See supplier of last resort Brcko: For all customers that not choose their own supplier, Public Utility Company "Komunalno Brčko" **Detailed description of steps, timelines and data formats to be exchanged as part of this process only partially defined**

Draft

Process / Issue	Current procedures as specified in the existing legislation and codes			Assessment
	FERC	RSERC	SERC (Brcko)	
Customer switching	Rulebook on eligible Customer supply Art. 10, 11, 17-19 General Conditions for electricity supply Art. 34	Rulebook on eligible customer Art. 12, 14, 15-17 General Conditions for delivery and supply of electricity Art. 112	General Conditions for delivery and supply of electricity of Brčko District Art.12 ➔ Further rules are not yet developed The Decision on Supply of Eligible Customers with Electricity in Brčko District BiH", SERC (Official Gazette No 89/11, dated 08.11.2011)	FERC: Customer request to new supplier and to old supplier for termination not later than 30 days before switching – 10 days for information to DSO and new supplier – new supplier to DSO within 10 days – DSO approval within 10 days RSERC: Customer request to new supplier and to old supplier for termination not later than 40 days before switching – 10 days for information to DSO and new supplier – new supplier submits application to DSO within 20 days – DSO approval within 10 days to old and new supplier Brcko: The new supplier has the obligation to inform the old supplier and the DSO. **For FERC and RSERC, documents already provide responsibilities, timelines; however, description of steps and data formats to be exchanged as part of this process should be further specified** **For Brcko, rules for customer switching need to be defined in detail (description of steps, timelines, data formats)** **For all: The guidelines of the EU directive need to be realized, especially the timeframe for switching within 3 weeks**

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Process / Issue	Current procedures as specified in the existing legislation and codes			Assessment
	FERC	RSERC	SERC (Brcko)	
Moving in/out	n/a	n/a	General Conditions for delivery and supply of electricity of Brčko District, Art.52 (Partly defines the rights and obligations of the contracting parties in case of change of address)	**No detailed description of steps, timelines and data formats to be exchanged as part of this process**
Invoicing	General Conditions for electricity supply Art. 6, 31, 63-67, 70-71 Rules on Tariff methodology and tariff proceedings Art. 28-34, 50, 51 (distribution) Art. 35-41 (supply) Rulebook on eligible Customer supply Art. 15	General Conditions for delivery and supply of electricity Art. 10, 42, 52, 83-89, 93 Rulebook on eligible customer Art. 15	General Conditions for delivery and supply of electricity of Brčko District, Art.10, 46, 59, 81-89, 93, 114	FERC: Invoice electricity supply (information about the fuel mix of the supply) Fee for connection in the connection contract RSERC: Energy Supply and usage of the network in one bill **No detailed description of steps, timelines and data formats to be exchanged as part of the process invoicing network fee between DSO and supplier.**

Table 2: Gap analysis of roles and processes of the DSO on the retail market in the existing legislation and codes

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Regarding the DSO processes for a functioning retail market there are some gaps in the description within the relevant documents, especially for the Brcko district. The dispute settlement, the third party access to data and the customer contract are defined in detail. Still some of these processes may be further adjusted as regards their adequacy for the development of competitive retail markets, especially when retail markets will be completely opened to all household customers in 2015.

Some processes are already described in some detail, but further specifications are necessary regarding the relevant processes. For example for customer switching, customer connection and disconnection, supplier of last resort and default supplier processes or the requirements for publication of information to customers are currently not adequately specified. For these processes adjustments in line with the internal best practice and the provision of the EU legislation should be made.

Some processes are not yet defined in the legal documents for the three jurisdictions: the moving in/out, the customer contact and the invoicing of the network fee. Also the responsibilities and processes regarding the information exchange between the different stakeholders need to be defined in detail.

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4 DRAFT PROCESSES AND ROLES FOR THE DSO AS NEUTRAL RETAIL MARKET FACILITATOR

4.1 General requirements for the definition of retail market processes

When specifying roles and processes to establish the DSO as a neutral retail market facilitator and to foster the development of well-functioning retail markets it is important to consider these against a set of appropriate criteria. This section describes several criteria for the design of retail market processes.

First of all the processes should provide a **non-discriminatory** framework for the interactions between the DSO, old and new suppliers and customers. This is particularly important since the old/incumbent supplier as well as its affiliated DSO have a strong incentive to discriminate against other (new) suppliers in the provision of competitive retail market services. The retail market processes should therefore include definition of responsibilities, timeframes, data requirements and formats to ensure that all market players can exchange critical information efficiently and swiftly in a non-discriminatory manner.

The processes should be designed in such a way that they are **practical** to implement. This also goes hand in hand with the administrative burden for all affected market participants and should avoid overly complex procedures. This involves consideration of the specific characteristics of the electricity sector in Bosnia and Herzegovina. The defined processes should furthermore be seen as a starting point with the option to be further developed and adjusted with the development of the retail market or in case of technical progress (e.g. as regards the roll-out of smart metering and the development of smart grids).

It is essential that the processes are clearly understood by all market participants. The processes should be **understandable and transparent** to the DSO and the suppliers as well as the customers (where they are involved). Excessively sophisticated approaches may set very precise incentives, but may appear as a “black box” to companies and customers. Under such circumstances, they may not be able to respond adequately to the corresponding signals provided by the processes.

Transparency also has the advantage of promoting accountability for the actions, by the DSO as well as old and new suppliers. It helps to avoid disputes and legal battles and improves the general acceptance of stakeholders. The processes to be applied should be based on publicly available documented and transparent procedures. The less scope the incumbent supplier or the DSO has to exercise discretion in conducting the processes, the lower the associated risk of market entry for new suppliers will be.

The processes should not create an excessive **administrative burden** for the DSO, old and new suppliers and customers. This may be achieved through a standardisation of the data to be collected and exchanged as well as by limiting the amount of data to be exchanged on the necessary information.

In order to provide clear incentives for all market participants, processes **should be stable and predictable** so that customers as well as companies are able to confidently plan for the future. This is par-

ticularly important for the DSO, who needs to be assured that its investments in the network and the metering assets will not be threatened by unexpected changes in the regulatory environment.

Furthermore procedures need to be in place on what regulatory actions are to be taken if a market participant does not comply with the processes set out further below. The amount of effort a company puts into complying with these processes will depend on the consequences for the company when not following these procedures.

4.2 Customer connection and disconnection

The DSO is responsible for the technical establishment of the connection point and the installation of the meter devices. When the customer freely chooses a supplier that will be in charge for the supply of electricity for the connection point or there are other changes in the supply situation the DSO needs to be informed on time. After that the DSO can assign the delivered energy and finally send the measured values to the correct supplier.

Changes in the supply situation can be:

- The beginning of a new supply contract,
- The end of a supply contract,
- The disconnection due to non-payment or non-compliance (dismissal of the supplier),
- The switching of suppliers.

In the process **beginning of supply** a new supplier registers a customer with the DSO after signing a new contract of supply for the connection point. Triggers for the beginning of supply can be the following:

- moving in process,
- establishment of a new connection point,
- new supplier after default supplier/ supplier of last resort,
- new start of supply after disruption of connection point or use of connection point,
- customer switching (see separate process).

If the customer does not choose a supplier when moving in to a new place, the DSO notifies the default supplier of the new assignment (see separate process further below). The different steps to be conducted by the DSO, the old supplier and the new supplier in the process beginning of supply are depicted in the following figure and further described in the subsequent table.

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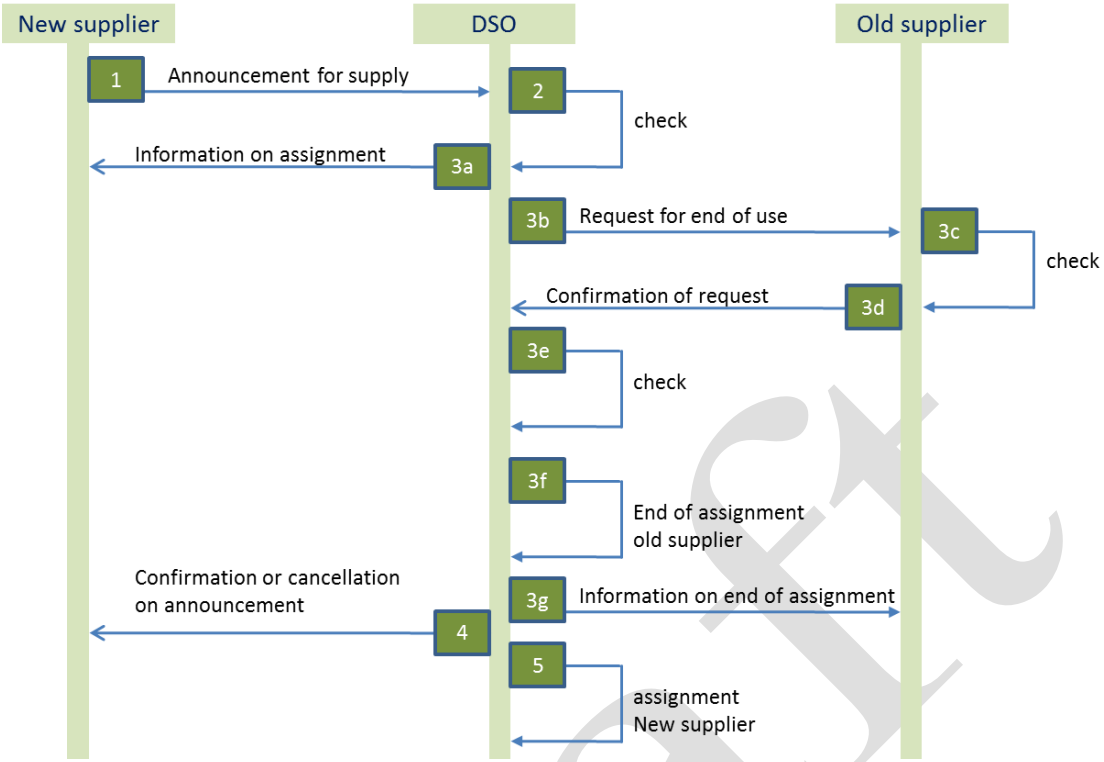

Figure 4: Process beginning of supply

Step	Sender	Receiver	Description	Data/ Information to be exchanged	Deadline
1	New supplier	DSO	New supplier registers a connection point by the DSO to a specific date	– connection point ID – name of the customer – type of customer / load profile (e.g. household) – assignment to balance group – trigger – frequency of meter reading	asap
2	Internal process of the DSO		The DSO checks, if all requirements are fulfilled. a) No other supplier is registered for the connection point or a corresponding		asap (at the latest 4 days after announcement)

Step	Sender	Receiver	Description	Data/ Information to be exchanged	Deadline
			cancellation is existing b) Another supplier is registered without a corresponding cancellation		
3a	DSO	New supplier	DSO informs the new supplier about the existence of the old supplier and the request for cancellation to the old supplier	– Identification of the old supplier	asap (at the latest at the end of the 4th working day after announcement)
3b	DSO	Old supplier	DSO sends a request for cancellation because of request of the new supplier.	– connection point ID – name of the customer	asap (at the latest at the end of the 4th working day after announcement)
3c	Internal process of the old supplier		The old supplier checks the contract situation and decides for cancellation of supply for this connection point.	–	asap
3d	Old supplier	DSO	There are different situations possible: a) The old supplier confirms the date for cancellation b) The old supplier confirms a date of cancellation before the date the new announcement. c) The old supplier disagrees including a reason.	– connection point ID – date of cancellation – reason for disagreement	asap (at the latest at the end of the 3rd working day after request)
3e	Internal process of the DSO		Because of the three different situations in the previous step (3d) the following results are possible: • For cases a) or b) the DSO assigns the new supplier be-		asap (at the latest at the end of the 8th working day after announcement)

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Step	Sender	Receiver	Description	Data/ Information to be exchanged	Deadline
			cause of a corresponding cancellation of the old supplier. The gap (case b) will be filled by the default supplier • For case c) the connection point will remain with the old supplier. • If the old supplier doesn't send the answer in due time, the assignment of the old supplier will be cancelled x day(s) before the start of the new supply contract.		
3f	Internal process of the DSO		The DSO cancels the assignment of the old supplier.		asap (at the latest at the end of the 8th working day after announcement)
3g	DSO	Old supplier	The DSO informs the old supplier about the cancellation.	– connection point ID	asap (at the latest at the end of the 8th working day after announcement)
4	DSO	New supplier	a) The DSO refuses the announcement of the new supplier. b) The DSO confirms the announcement of the new supplier.	a) DSO informs about reason. b) DSO transmits master data.	on the same day like step 2 (4 days, if no old supplier) or on the same day like step 3e (if old supplier, at the end of the 8th working day after announcement)
5	Internal process of the DSO		The connection point will be assigned to the		If 4.b), same deadline as step

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Step	Sender	Receiver	Description	Data/ Information to be exchanged	Deadline
			new supplier.		4

Table 3: Steps of the process beginning of supply

The process **end of supply** is the cancellation of a connection point through a supplier because of an ending contract of supply.

Triggers for the end of supply can be the following:

- moving out process,
- disconnection due to non-payment or non-compliance (dismissal of the supplier),
- closing of the connection point,
- end of default supply,
- customer switching (see separate process).

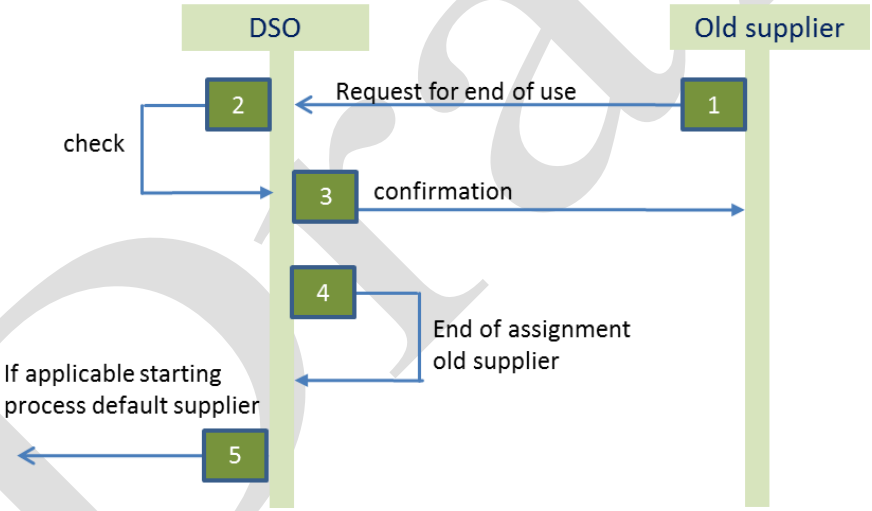

Figure 5: Process end of supply

Step	Sender	Receiver	Description	Data/ Information to be exchanged	Deadline
1	Old supplier	DSO	The old supplier sends a request for cancellation or the assignment for the connection point to a special date.	– connection point ID – name of the customer – reason	asap
2	Internal process of the DSO		The DSO checks the request.		asap
3	DSO	Old suppli-	a) The DSO refuses the cancellation	– connection	asap

Step	Sender	Receiver	Description	Data/ Information to be exchanged	Deadline
		er	including the reason. b) The DSO confirms the cancellation.	point ID – date of cancellation	(at the latest on the 3rd working day after cancellation
4	Internal process of the DSO		The DSO finishes the assignment of the connection point for the old supplier.		If 3b, then same deadline as step 3
5			See Process for default supplier / supplier of last resort		asap

Table 4: Steps of the process end of supply

4.3 Supplier switching

In the retail market the customer can freely choose the supplier. There are two situations that can occur:

- The customer chooses a supplier the first time (different to the default supplier) and ends the supply of the default supplier.
- The customer receives a better offer in the market and switches to another supplier.

The Process **supplier switching** is a combination of the end, the beginning and the cancellation of supply processes.

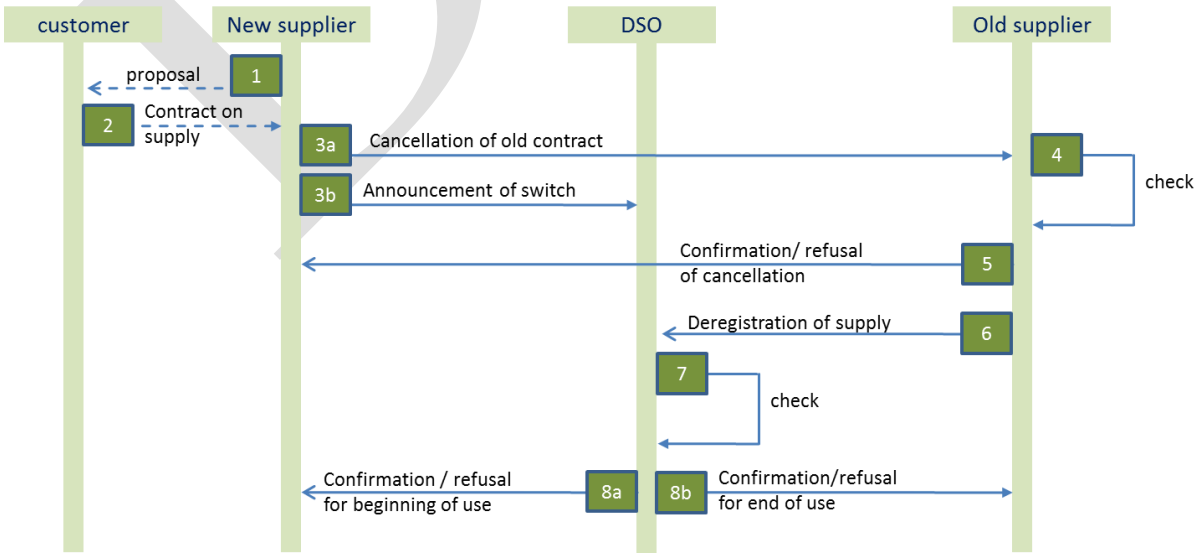

Figure 6: Process supplier switching

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The separate steps of the supplier switching process are similar to the processes described above under connection and disconnection of customers and are therefore not listed again here.

4.3.1 Default supplier / Supplier of last resort

The **default supplier** or the supplier of last resort is in charge, when no contract of supply can be assigned to the consumption of a connection point, as for example after the move-in of a consumer or the establishment of a new connection point. The default supplier can be also in charge, when the consumer doesn't want to use the possibility to freely choose a supplier in the market, i.e. when the customer sticks with her incumbent supplier.

The **supplier of last resort** is responsible to supply those customers whose supplier has become insolvent and ceases operation or otherwise abruptly stops service.

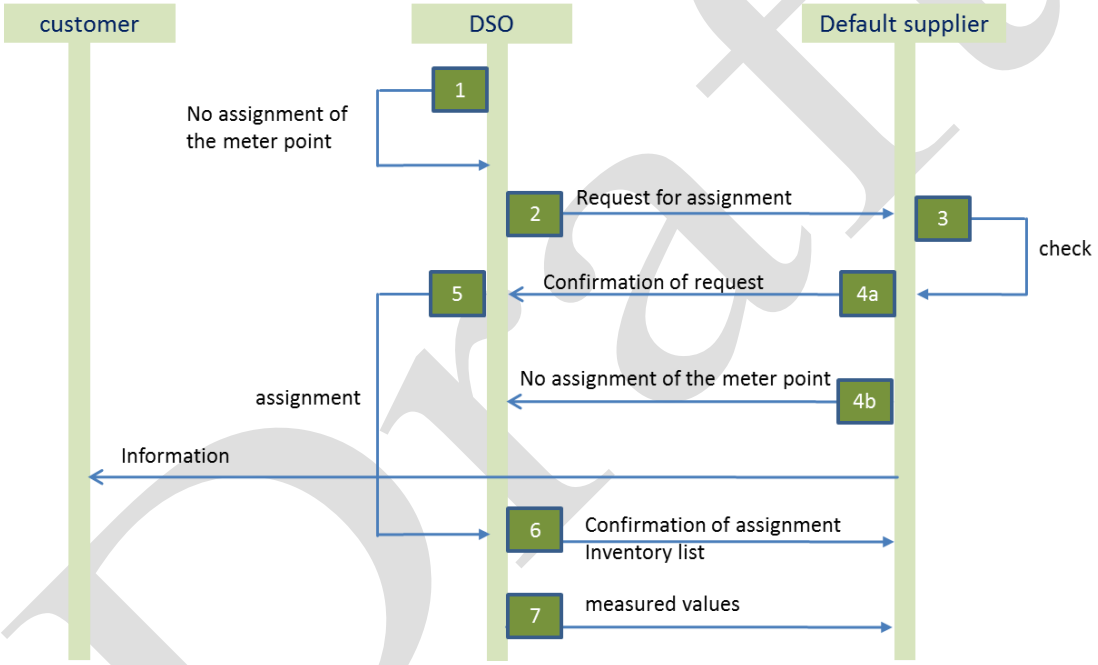

Figure 7: Process default supplier / supplier of last resort

Step	Sender	Receiver	Description	Data/ Information to be exchanged	Deadline
1	Internal process of the DSO		Possible triggers of this step could be: – the establishment of a new connection point, – the request for end of supply without a request for a beginning of supply, – end of supply because of an ending contract between		-

Step	Sender	Receiver	Description	Data/ Information to be exchanged	Deadline
			DSO and supplier closing of a balancing group The DSO checks, if the connection point is located in the low voltage level.		
2	DSO	Default supplier / supplier of last resort	The DSO informs the default supplier about the new assignment as regards: – the starting date for default supply, – if possible the end date, – the type of consumer (household), – if known the name and address of connection user.	– connection point ID – name and address of the connection user – start and end date – type of customer, load profile	asap
3	Internal process of the default supplier / supplier of last resort		The default supplier checks if the connection point belongs to his responsibility. a) The request is valid. b) The request is invalid, because the supplier isn't responsible for the connection point.		asap (at the latest at the end of the 4th working day)
4a	Default supplier / supplier of last resort	DSO	The default supplier informs the DSO on the result of the check. The default supplier informs the customer about the beginning (and end) of the electricity supply.	– Connection point ID – Frequency of meter reading – Beginning and end date of supply	asap (at the latest at the end of the 4th working day after information of the DSO)
4b	Default supplier / supplier of last resort	DSO			
5	Internal process of the DSO		The assignment can also be backdated. If the default supplier doesn't respond on time, the DSO will assign the connection point to the mentioned starting date.		asap
6	DSO	Default supplier / supplier	Exchange of inventory list	– Inventory list	

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Step	Sender	Receiver	Description	Data/ Information to be exchanged	Deadline
		of last resort			
7	DSO	Default supplier / supplier of last resort	Exchange of measured values	– Measured values of the connection point	

Table 5: Steps of the process default supplier / supplier of last resort

4.4 Information sharing

Identification of a connection point

The process identification of a connection point can be carried out between two suppliers or between the DSO and a supplier. This step is necessary before starting one of the other described processes, because the involved market participants make sure to refer to the same customer and the same connection point.

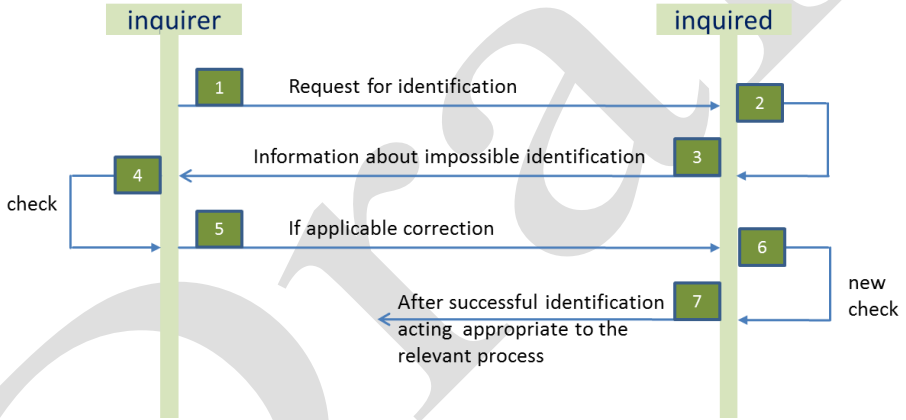

Figure 8: Process identification of a connection point

The request should contain a minimum of data to ease the process of identifying the correct connection point. The following combinations of information can be useful:

- Name of the customer, address of the connection, identification number of the connection point
- Without the ID of the connection point, the inquirer should know the meter number (written on the meter)
- Previous supplier, customer number, name and address of the customer
- Name and address of the connection user, if applicable further information to identify the correct consumer (e.g. floor…)

Request for change of master data

The DSO needs to keep a file with the basic data of each customer (master data) connected to his grid. The request for change of master data can be initiated by the consumer (e.g. name, consumption level),

the supplier (e.g. new balancing group) or the DSO (e.g. new consumption prognosis, new metering device).

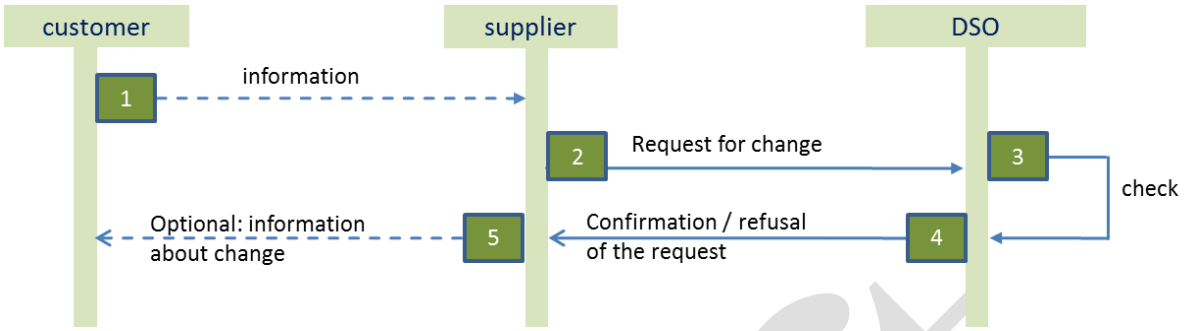

Figure 9: Process request for change of master data

Request for Information

The process request for information describes the information sharing, especially of data regarding the customer or the connection point, between two market participants. One possible request could be the clarification of the supply situation of a connection point before the beginning of a new supply contract. The inquirer needs to have an authorization from the customer unless there is a legal basis for the request.

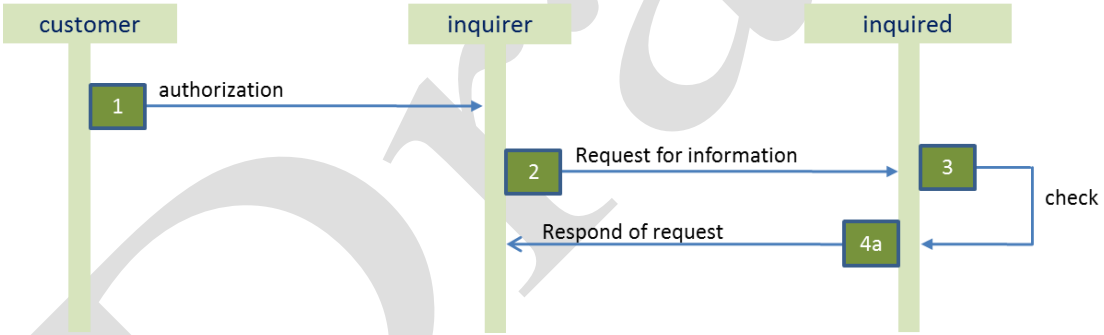

Figure 10: Process request for information

Exchange of inventory lists

It has proven to be useful that the DSO regularly transmits an inventory list with all assigned connection points to the different suppliers. The list summarizes all customer switches, announcements and cancellations of the last month and can be used as backup information. This approach allows the suppliers to make sure, that all processes have been successfully concluded.

4.5 Invoicing

The **invoicing process** with the customer will be carried out by the supplier. If the supplier acts as the single point of contact for the customer, he will invoice the electricity supply **and** the network fee in one bill. Before the supplier can send out the bill to the customer the DSO needs to provide the metering data and a bill for the network fees to the supplier. The following process describes the communication between the DSO and the supplier.

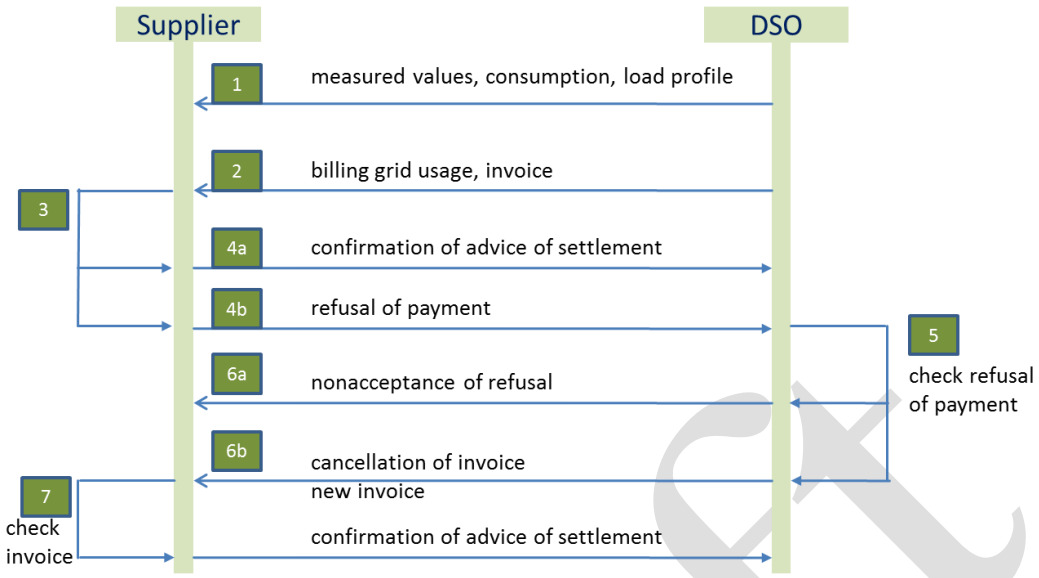

Figure 11: Process invoicing network fees

Step			Short description	Data/ Information to be exchanged	Deadline
1	DSO	Supplier	The DSO transmits the relevant information (measured values, consumption data, load profiles)	– Connection point ID – Customer information – Load profile – Measured values	
2	DSO	Supplier	The DSO sends an invoice for the network fees within the relevant time frame.	– Connection point ID – Network fee	asap (at the latest at the end of the 10th working day after the transmission of the relevant metering data)
3	Internal process of the supplier		The supplier checks the invoice.		10 working days

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Step			Short description	Data/ Information to be exchanged	Deadline
4a	Supplier	DSO	The supplier confirms the invoice.		
4b	Supplier	DSO	The supplier refuses the invoice.		
5	Internal process of the DSO		The DSO checks the refusal and contacts the supplier in case of unclarities.		
6a	DSO	Supplier	The DSO doesn't accept the refusal.		
6b	DSO	Supplier	The DSO cancels the invoice and sends a new one.		
7	Internal process of the supplier		The supplier checks the invoice.		

Table 6: Steps of the process invoicing of network fees

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5 CONCLUSIONS AND RECOMMENDATIONS FOR IMPLEMENTATION

Since DSOs affiliated to a vertically integrated utility that is also active in the supply of electricity to end-users and existing/incumbent suppliers have strong incentives to obstruct the switching of customers to a different supplier, several issues and processes need to be defined, including a clear distinction of the responsibilities and tasks of the supplier and the DSO, to facilitate and enable a functioning competitive retail market.

To ensure that all market players can exchange critical information efficiently and swiftly in a non-discriminatory manner, such retail market processes should be simple and reliable and include the definition of responsibilities, timeframes, data requirements and formats. The availability of such information allows customers to seek products or services that best suit their needs, while suppliers are able to invoice their customers and develop and offer new products and services. Also procedures need to be in place to ensure a continuous energy supply to the customer in the case the customer is moving in or out of a place, switching the supplier or not being able to pay its bill.

In line with the European practice we propose to define the following areas relevant for the DSO's role on the retail market and to assign the following responsibilities to DSOs and suppliers:[13]

- Customer contact and information – supplier acts as main point of contact, DSO to be addressed for grid-related questions / information
- Customer contract – minimum of contracts for the customer, one connection contract (with DSO) and one supply contract (with retail supplier)
- Dispute settlement – supplier handles customer complaints
- Third party access to data – the supplier provides access to commercial data, the DSO to technical data
- Information exchange – necessary information is provided to all market players in an efficient, non-discriminatory manner
- Customer connection and disconnection – responsibility of the DSO
- Supplier of last resort, default supplier – definition of a clear processes, DSO checks
- Customer switching – supplier is responsible for the process, DSO checks
- Metering – responsibility of the DSO
- Billing – supplier invoices customer, DSO charges network fees to supplier

In a second step the existing legal and regulatory framework of Bosnia and Herzegovina has been assessed regarding the level of detail in the description of the necessary roles and processes required for the development of competitive retail markets. Processes for dispute settlement, third party access to

[13] Please note that the processes related to metering as well as balancing and settlement – which are also relevant in this context – are addressed in two separate reports and are therefore not further addresses within this report.

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data and customer contract are defined in detail in the legal documents; however adjustments may be required to the processes to foster the development of competitive retail markets. Other processes are described to some extent, but lack necessary detailed specifications. This applies for customer switching, customer connection and disconnection, supplier of last resort and default supplier processes, the requirements for publication of information to customers and the exchange of information between different stakeholders. Some processes remain to be defined in the legal documents for the three jurisdictions. This includes the processes of moving in/out, the customer contact and the invoicing of the network fee. The observation that specific processes are not yet defined in the legal documents, does not necessarily mean that there are no processes for these areas in place at all, since usually (additional) bilateral agreements between the DSO and the supplier have been made, which may include agreed processes for these areas.

For the development of a functioning retail market it has proven quite successful throughout Europe to describe the specific tasks of the DSO and the supplier(s) in the electricity retail market and to precisely define procedures (or steps), timeframes and the extent of the data to be exchanged between the supplier and the DSO. Based on the international practice and the requirements specified in the European legislation we have within this report provided a first draft proposal for processes and role descriptions that define the specific procedures to be applied by the DSO (and the supplier(s)). Each process has been described by a detailed graphical representation as well as by a written explanation of the different steps and responsibilities of the respective market actors. Draft proposals – to be further discussed with the regulatory authorities of Bosnia and Herzegovina and the relevant electricity sector stakeholders – have been made for the processes of customer connection and disconnection, supplier switching, default supplier and supplier of last resort, information sharing and invoicing.

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