

Subject: Global Infrastructure and Networks Customer Connections Guidelines

Application Areas

Perimeter: *Global*

Staff Function: -

Service Function: -

Business Line: *Infrastructure and Networks*

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1. DOCUMENT AIMS AND APPLICATION AREA

Within the Customer Management process area, this document describes the guidelines for the management of customer requests for new connection or connection modification services, concerning the perimeter of commercial operations in Global Infrastructure and Networks, in relation to distribution networks with the obligation to connect third parties.

It should be noted that this version of the policy only defines New Connection service for withdrawal points: first installation, with or without contextual energizing, activation of an existing connection and power modification.

This policy shall be implemented and applied to the extent possible within the Infrastructure and Networks Global Business Line and in compliance with any applicable laws, regulations and governance rules, including any stock exchange and unbundling-relevant provisions, which in any case prevail over the provisions contained in this document.

2. DOCUMENT VERSION MANAGEMENT

Version	Data	Main changes description
01	08/01/2018	Issuing of Global Infrastructure and Networks – Customer Connections Guidelines.

3. UNITS IN CHARGE OF THE DOCUMENT

Responsible for drawing up the document:

- Global Infrastructure and Networks: Network Commercial Operations;

Responsible for authorizing the document:

- Global Infrastructure and Networks: Head of Human Resources and Organization Unit
- Global Infrastructure and Networks: Head of Health, Safety, Environment and Quality Unit;

4. REFERENCES

- Enel Group Code of Ethics;
- The Enel Group Zero Corruption Tolerance (ZCT) Plan;
- Organization and management model as per Legislative Decree No. 231/2001;
- Enel Global Compliance Program (EGCP);
- Enel Human Rights Policy
- Global Infrastructure and Networks RACI Handbook;
- Policy No. 220/2016: Global Infrastructure and Networks Customers Connections Planning Criteria
- Policy No. 86/2016: Global Infrastructure and Networks HV, MV, LV Technical Connections Criteria
- Policy No. 202/2016: Global Infrastructure and Networks Energy Recovery Management Guidelines

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- Policy No. 233/2016: Global Infrastructure and Networks Technical Classification criteria for investments related distribution activities
- Operating Instruction No. 727/2017: Global Infrastructure and Networks Accounting Management Standardization

5. ORGANIZATIONAL PROCESS POSITION IN THE PROCESS TAXONOMY

Value Chain/Process Area: Customer Management

Level 1 Macro Process: Customer Connections

Level 2 Process: Customer Connections

6. DEFINITIONS AND ACRONYMS

Acronym and Key words	Description
GI&N	Global Infrastructure and Networks Business Line
Global NCO	Network Commercial Operations units within Global Infrastructure at Global Level
Country NCO	Network Commercial Operations units within Global Infrastructure at Country Level
GoM(*)	<p>Group of Measurement: all the equipment found in each point of the distribution network in order to evaluate quantities of energy flows. It always includes the point of delivery and may include:</p> <ul style="list-style-type: none"> - energy meter, - meter boxes (individual or board), - current/voltage transformers with associated terminal blocks and wiring, - maneuver equipment, - equipment directly linked to meters to communicate measurements to the central system. <p>In some Countries, GoM may include also the electric cable or wire, owned by the customer, from the connection point of the distribution network to the GoM itself.</p>
NCS Contract	<ul style="list-style-type: none"> - First Connection with contextual energizing - First Connection without energizing - Activation (energizing an existing connection) - Power modification (increase/decrease)
Power outlet	It corresponds to the final section of the electrical system of the distribution plant that supplies the end user. It is the LV inbound route coming from an existing distribution network node which, regardless of its length, feeds an end user (or

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	a set of end users whose GoMs are side-by-side and connected directly to each other).
Type of NCS	<p>LV New Connection Service - Simple works [code U2, according to policy 233/16] Activities under DSO's responsibility for the installation, modification or replacement of a plant, at the request of the applicant, carried out with limited intervention to:</p> <ul style="list-style-type: none"> - power outlets, in case of LV, or - electromechanical equipment in the existing system, and possibly to the existing GoM, in case of MV. <p>These works do not require either construction of new lines in existing distribution network or upgrade of the network.</p> <p>LV New Connection Service - Complex works [code U4, according to policy 233/16] Activities under DSO's responsibility for the installation, modification or replacement of a plant, at the request of the applicant, carried out with interventions not limited to the outlet, but extended to the distribution line. These works require construction of new lines in the existing distribution network and/or complex interventions with impacts on MV network.</p> <p>MV New Connection Service [code U9, according to policy 233/16] Activities related to the creation of new plants or renewals/upgrades of existing installations for new connections or power increases (including the simultaneous replacement of measurement units) required by MV customers.</p> <p>HV New Connection Service [code UH, according to policy 233/16] Activities related to the creation of new plants or the upgrading of existing plants on the AT network for new connections or for power increases required by HV customers.</p>
LV, MV, HV	<ul style="list-style-type: none"> ▪ LV: Low Voltage; ▪ MV: Medium Voltage; ▪ HV: High Voltage.
Front Office	Structures of the DSO organization that manage requests of new connections, either directly with the end user or with a trader.
B2B / C2B	Business-to-Business / Client-to-Business: automated channels provided by DSO to interchange service requests and responses with another Business Party (e.g. a Trader) or directly with Customers.
DSO	Distribution System Operator
Open Data	Open sources of information and databases related to various topics, such as cartography and personal data, made available by citizens, public and private organizations (e.g. traders, suppliers, etc.) through

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	portals and applications, for use that in any case is subject to restrictions on privacy, statistical confidentiality and business interests.
NCS	New Connection Service
NRA	National Regulatory Authority
YTD / LTM	Year-to-Date / Last Twelve Months

7. PROCESS DESCRIPTION

New Connection Service (NCS) Management is a process composed of the following phases:

- Definition and maintenance of NCS Annual Plan - NCS Annual Plan Management,
- Management of customer's requests for new connections - NCS Application Management,
- Management of offers (cost estimates and validated technical proposals) to customers and their relevant acceptances - NCS Offer Management,
- Execution of work and relevant actualization in the information systems - NCS Execution,
- Monitoring and elaboration of KPIs on NCS trends, focussing on regularity, efficiency and commercial quality.

The following table shows the types of NCS which are in the scope of these guidelines¹.

Type ID	Type of New Connection Service	NCS Contract Types
U2	Simple Works	- First Connection - Activation (i.e. energizing an existing connection) - Power modification (increase or decrease)
U4	Complex Works	
U9	MV Connections	- First Connection - Power modification (increase or decrease)
UH	HV Connections	

Table 1 - Types of New Connection Services

¹ : Other possible requests of modification on the existing network which are not related to creation or modifications of supply points (e.g. a change of the layout of a line, passing a line from aerial to underground, etc.) are out of scope of these guidelines and should be dealt apart from New Connection Services.

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In order to maintain a clear reference framework, each Country NCO shall specify, in the relevant operating procedures deriving from this global policy, the technical, environmental and economic conditions under which the DSO operates in order to provide new connection services. In particular, these will include: a) the regulatory issues that distinguish the actions that are mandatory for the DSO and b) the current NRA conformity standards to determine compensation costs for the quality of commercial service.

7.1 New Connection Service - Annual Plan Management

A new connection (first connection, activation or power modification) usually arises from the need of a final user who explicitly requires for it (directly or indirectly) to the relevant DSO through a proper application front-end channel (mail, fax, commercial contact point, B2B/C2B, etc.), according to possibly regulated agreements with market and distribution operators.

Attempts to anticipate and identify customer demands for new connection services is out of scope of this policy, even if needs could be envisaged by the analysis of *open data* (on citizens or firms) from public administration or from other relevant stakeholders' portals.

Each Country NCO shall contribute to the definition of an annual plan for New Connection Service, taking into account grid modification forecasts and customer needs, improving at the same time the quality of commercial service, reducing operating costs and risks for regulatory compensation liabilities.

7.1.1.NCS Annual Plan – Definition and Maintenance

The elaboration of the annual plan of requests for NCS is based on:

- historical data from previous years, considering the effects of seasonality,
- growth estimates, depending on forecast of electrification by urban plans, evolution of customer requests, adoption of new technologies, development of self-consumption, diffusion of electric cars, etc.,
- regulatory changes, determining more (or less) convenient conditions which could have as a consequence an increase (or decrease) in volumes of the requests of these services.

Each Country NCO shall implement and keep up to date the NCS Annual Plan considering the following issues, for each different type of first connection:

- expected volumes,
- duration of the various phases (from application to execution),
- related costs² and revenues, according to the applicable fee remuneration models (RAB) established by National Regulatory Authorities (NRAs),
- KPI trends for deadlines and claims.

² According to *Global I&N Managerial Accounting Model Handbook* as for the taxonomy of investments for *Connections & Requests*, the costs to be considered for NCS are determined by the ones related to personnel, materials, supplies, services and other costs necessary for new connections / power increases regarding:

- simple works,
- complex grid works in low and medium voltage,
- construction of new facilities or reinforcement of existing ones for new MV connections / power increases, including simultaneous replacement of metering groups;
- new installations or reinforcement of existing facilities on the HV network for new HV connections / power increase requests, including also management activities to be capitalized.

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Each Country NCO shall define and maintain the NCS Annual Plan in accordance with the responsibilities, timing and modalities of I&N Budget Planning and Management process implemented in each country.

The plan of NCS activities shall be approved by Country NCO and validated by Global NCO within the month of November of the year n-1. The plan will be possibly upgraded by Country NCO after the first half of the year n, in case of events, internal or external to the Company, that radically change its operational content. Possible changes must be tracked and communicated to Global NCO indicating the reasons of the modifications (in particular, if the economic outcomes of the exploited resources for NCS result different from +/- 20% compared to the expected Budget figures, Country NCO must update the NCS Annual Plan).

NCS Annual Plan shall be monitored quarterly by Country NCO and the volumes of the main NCS entities shall be updated (see 7.5.1 and Annex 9.1) and communicated to Global NCO.

7.2 New Connection Service - Application Management

According to local regulation standards, this phase deals with the management of NCS requests from the point of view of the DSO, by registering valid applications and returning outcomes to customers within adequate standards of quality of service.

7.2.1.NCS Application - Registration

Each Country NCO shall register in the relevant commercial system all the requests from the network customers seeking for connecting their physical assets to the grid.

The interface between DSO and external parties (network customers) requiring new connections can be either direct or indirect (e.g. through a Trader) with physical or telematics relationships, depending on various cases and according to regulatory standards.

It is worth noticing that data management is vital for the operation of existing and new markets. Customers have the legal right to own their own data and the DSO (in most cases having access to data directly from smart meters) has the special responsibility to act impartially and to make available necessary data to other parties, while respecting data privacy legislation.

Requests must be registered in the commercial system with a unique recognition code (application ID code) so that their progress status can be monitored.

Issues can also occur due to failures (exceptions) in IT systems during the application creation phases, causing unexpected delays. To detect these cases, each Country NCO is recommended to implement exceptions management procedures and reports that intercept failures, allowing recognition and subsequent correction / removal of the problem.

KPI shall be implemented and maintained to monitor the exceptions and address specific action plans.

7.2.2.NCS Application - Definition

Requests must include the following minimum set of information, according to NRA's standards:

- **Applicant's references:** end customer's name and, when applicable, his/her representative's name; these include registration certificates (for legal person) or identity cards (for natural persons); when required by legislation, in case of companies, also bank account references must be included;

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- **Localization information:** address and/or GPS coordinates for the localization of Point of Delivery (POD), Applicant's address, Applicant's legal address (these three addresses can coincide);
- **Existing connection identification** (POD code), when applicable and in case of an already existing point;
- **End Use of Energy:** domestic, commercial, industrial, agricultural, public services, building construction, own uses, etc.;
- **Technical requests:** active and reactive energy requirements (power size), voltage level and system (single or poly-phase) requirements, according to the preliminary information for connections specified in policies 86/2016 and 220/2016;
- **Service requests**, according to local regulations, such as:
 - Connection type: permanent (continuous or seasonal) or temporary (for site building or events),
 - New Connection contract type:
 - First connection with or without activation,
 - Activation (i.e. energization) of an existing connection,
 - Power increase/decrease;
- **Contact references:** email, telephone and/or mobile numbers;
- **Technical documentation and drawings:** these can be produced also by electricians or authorized firms chosen by customers, when independent study and execution of work are allowed by local regulation;
- **Legal right of use:** all acts attesting to the Applicant's right of use on the ground, enclosure or building, where the connection is being constituted, included possible plant conformity documents, when required according to local authorities or NRA standards.

7.2.3.NCS Application – Support to Customers

For all the above items, each Country NCO is recommended to adopt possibly standardized formats to be provided to customers in order to facilitate the digitalization of NCS Application Management, gathering and accelerating the subsequent approval steps, according to global Policy 220/16.

It may be convenient to assist the customer at this stage through the support of a technical area, dealing with special requests that Front Office can address, in order to reduce errors and durations for the other phases.

7.2.4.NCS Application – Eligibility Checks

As required by Regulator or shared with Traders/Market side, applications can be accepted only after adequate feasibility checks for the obligation to provide a NCS on the DSO's network.

Eligibility at this stage can be checked both according to formal criteria (correctness of customer fiscal code, POD code, etc.) and taking into account the content of the application (verifying, when applicable, the correct matching between Applicant and POD, POD and Trader, or the consistency of required technical data, such as power and voltage or the completeness of required documents).

When applicable, it is recommended to specify and adopt pre-acceptance conditions already in Front Office, in order to enable simultaneous acceptance of the offer (by the customer) and generation of work order (by DSO).

KPI shall be implemented and maintained to monitor the feasibility checks and address specific action plans.

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7.2.5. NCS Application - Automated Support

It is vital to have as a minimum standardized interfaces and information exchange at DSO boundaries between customer and other market participants (stakeholders).

For this reason, in this phase each Country NCO is recommended to implement:

- Automated solutions to support exchange information³ between the parts, both for Customer-to-Business (C2B) and Business-to-Business (B2B) interactions,
- Geographical localization of the connection points,
- Complete and functional application forms, through standard templates, in order to improve efficiency and effectiveness of the process and reduce obstacles to the rapid development of subsequent technical and commercial phases.

7.2.6.NCS Application - Quality of Service

Specific reports on integrated systems should be envisaged to monitor the progress of applications, providing notifications of delays and traceability of potential claims, both to improve efficiency and to reduce customer compensation charges due to non-compliance with the regulatory terms of the commercial service provided by DSO (compensations for Quality of Service).

KPI shall be implemented and maintained to monitor the commercial quality of new connection service and address specific action plans.

7.2.7.NCS Application – Data Quality

Network technical data must be recorded and kept updated to allow for efficient requests management and accurate work estimates, so that, when applicable and cost-effective, execution of site inspections shall be minimized, without degrading the risks of non-executable occurrences in work order management.

KPI shall be implemented and maintained to monitor and let data quality accuracy be improved by operating functions, taking into account events of non-executable or beyond of deadline work orders due to non-corresponding network technical data.

7.2.8.NCS Application – First visits

Preliminary on site visits should be made in the face of customer's payments of the relevant charges. Otherwise, only if explicitly required by NRA, first visits could be free or their costs could be included in the estimate of works.

Unless specifically required by regulations, the execution of the first visit can be optional only when is convenient and network data are reliable, due to systems with technical data constantly updated and to specifications of requests reliably collected by the Front Office.

Depending on NRA model about DSO obligations to implement connections also from the grid to the customer premises, this visit must disclose all technical and operational evidence to determine the following issues:

³ Including technical documents and instances, appointments for inspections, acceptance and payment for first visits and estimates (where applicable).

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- an estimation of costs and what to do (material, labor, fulfillments, access restrictions, etc.) on DSO network's side and, if applicable, also on customer's connection side;
- necessity to make a possible technical study to determine the solution and estimate both project and implementation budgets.

Standardization of the information to be captured in the field is recommended for this phase.

Assignment of resources, execution of first inspections on site and compilation of their outcomes must be monitored to keep pace with the expected commercial quality limits.

When allocating resources, it is recommended to take into account the following issues:

- instructions provided by the customer,
- technical requirements from data evidences available also in DSO network data system,
- required skills,
- efficient management of third party service contracts, if external resources are used.

All communications and events relating to these first inspections (from possible 'meeting appointment' agreed upon with the customer, to the 'visit execution' and to the 'communication of the outcome of the inspection') shall be managed in accordance with the prescribed regulatory rules.

In any case, first visits (and all successive inspections, too) have to be registered on DSO's commercial system, in order to monitor effective progress and manage actions to reduce delays or regulatory backlogs with their consequent compensation charges. Information on visit executions (possible fixed appointments, success or failure, notes) has to be registered as well, in order to manage possible claims or evaluate correctly the parameters of commercial quality, as required according to what established by NRA.

Specific KPI shall be implemented and maintained to monitor the commercial quality of inspections and address relevant action plans.

7.2.9.NCS Application – Results

Visit outcomes for customers shall be compiled and reported on standardized templates to support the production of homogeneous and coherent estimates.

The results of first visits (costs, work to be done or necessity for technical study) must be communicated promptly to the customer, possibly at the end of the visit itself, in accordance with the rules and the reply channels established by the regulatory rules.

Replies to customers have to include deadlines for the activities concerning work execution.

If it is evident that a technical study is unnecessary, the results of the first visit shall include a possibly standardized formal document specifying all the technical and administrative obligations for the customer, precondition to realize the work under DSO's responsibility (acts, authorizations, transfers, preliminary work, etc.).

7.3 New Connection Service - Offer Management

According to local regulation standards, this phase deals with the management of NCS offers to customers from the point of view of the DSO, by elaborating a possible technical study and returning to customers the DSO's proposals for services to be provided within adequate standards of quality of service.

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Depending on regulation standards and business models, DSO provides offers to the customer (possibly through Market function, in presence of the carve-out business model) or to the customer's Trader (in case of unbundling).

7.3.1.NCS Offer – Technical Study

When a technical study is to be developed by DSO (due to regulatory obligations or under explicit request from the customer, who might be free to choose a third party for this), the corresponding budget for the design of the solution will be elaborated and communicated to the client without delay.

In case of a study elaborated by either DSO or a third party chosen by the customer, validations of technical proposals are subjected to what established by global Policy 220/16.

Unless otherwise indicated by the Regulator (they could be free or included in work execution estimates) technical studies should be done in the face of customer's payment/acceptance of the corresponding charges.

Estimations must be registered in the commercial system and associated to the relevant applications in order to make possible future analysis.

For this phase, it is recommended to each Country NCO to implement an automated exchange of budget information, whose compilation should be facilitated by standardized templates/models in order to produce homogeneous offers.

Technical studies may require contacts with the customer for further visits on field, managed directly by whom attends the analysis, and have to be registered in the commercial system, as well.

NCS technical solutions and schemes are regulated by Global Infrastructure and Networks HV, MV, LV Technical Connections Criteria No. 86/2016.

If there is a mismatch between the detected conditions and what specified in the request, which could imply significant modifications of the project, each Country NCO is recommended to record any change and then report. In this case, the request can be canceled, requiring to the customer to submit a new one.

This kind of situations must always be traced.

7.3.2.NCS Offer – Main Issues with Customers

According to regulated standards, when a technical proposal is validated, Country NCO shall communicate the relevant offer to the customer⁴.

The NCS offer shall include:

- technical solution and economic information about what is necessary to accomplish the required service for the new connection, for those works and interventions which are under DSO's responsibility⁵,

⁴ Either directly or indirectly, depending on the applied business model (unbundling or carve-out), based on the regulated relationship model between DSO and clients, and on the interaction channels which are valid in each different country.

⁵ The solution offered to the customer may have more than one variant.

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- deadlines for the activities concerning work executions under DSO's responsibility, possibly related to conclusions of complementary and/or preparatory tasks performed by Third Parties chosen by the customer,
- deadline for the validity of the offer and payment terms.

The offer must be accompanied also by a document specifying all the technical and administrative obligations for the customer and which ones constitute a precondition to realize the work under DSO's responsibility (acts, authorizations, transfers, preliminary work, etc.).

Each country NCO shall give a formal notification to customers each time a document concerning the offer from DSO is issued, in order to monitor the commercial relationships and the quality of the service⁶.

Country NCO shall consider the offer made by DSO as formally accepted by the Applicant only in face of an explicit customer request for a NCS contract (for first connection, activation or power increase/decrease).

Country NCO shall check the validity of an NCS contract determined by the payment (possibly divided) of the relevant NCS bill or by the sign of the contract itself, when this is applicable in consideration of customer type, connection voltage level or possible motivated administrative issues.

If an Applicant does not accept formally a DSO's proposal for NCS or when the validity of the proposal is expired, the request itself shall be cancelled and, if the Applicant asks again for a new connection service, this has to be dealt as a new demand.

7.4 New Connection Service - Execution

This phase deals with the management of the outcomes of the works⁷ performed under DSO's responsibility⁸ and related to NCS requests made by customers.

Each Country NCO shall register NCS work orders (only those under DSO's responsibility) in the face of specific NCS contracts with the customers.

Each Country NCO shall monitor situations that could result in either a poor service quality or the risk of incurring regulatory compensation costs.

Country NCO shall supervise these results through the following activities:

- Monitoring durations and "work beyond deadlines" events, which arise when service executions exceed the planned times, in order to anticipate possible problems of compliance of NCS Applications with NRA expected service levels;

⁶ Either directly or indirectly, taking into account also physical or telematics relationships, according to NRA relationship model and channels valid in each different country.

⁷ : These works include elaborations of possible technical studies to connect end user's physical assets to DSO's network due to customers' requests for first connection, activation or power modification.

⁸ : From DSO's point of view; all works performed under customer's responsibility (either directly or by third parties chosen by the customer himself) are out of scope of NCS execution.

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- Performing on-field inspections of GoMs at the end of the NCS work execution, as specified for “New connections/modifications” by Global Infrastructure and Networks Energy Recovery Management Guidelines No. 202/2016;
- Reporting and solving possible relevant data inconsistencies on the systems, which might generate obstacles to the management of future connection related operations, for both technical and commercial issues.

7.5 New Connection Service - Monitoring and KPI Management

Each Country NCO is responsible to monitor the progress of NCSs and to adopt adequate actions to contain backlogs related to timing issues that can produce regulatory compensation liabilities.

Controls should be implemented in order to generate notifications of events (e.g. exceeding percentage thresholds or duration limits) that can cause delays.

In addition, conditions should be defined and verified in order to stop progressing to a next step when the former is in a state incompatible with the correct continuation of the process.

7.5.1.NCS Monitoring

Each Country NCO shall implement procedures to extract data from IT systems in order to monitor both NCS Annual Plan and outcomes of NCS process and it is recommended to adopt automated solutions for these monitoring activities, in order to reduce risks of manual errors.

Due to the possibility to deal with the management of distinct phases of the process in separate systems (due to organizational issues, possible efficiency improvement, systems evolution, etc.), it is also recommended to concentrate the information of the different systems in a single centralized view, to establish a unique trace that allows a more efficient monitoring.

Each Country NCO shall monitor the NCS Annual Plan and report quarterly the updates of the following information according to the progress of NCS activities (see Annex 9.1):

- NCS registered applications,
- NCS executed visits,
- NCS completed technical studies, when these are required to elaborate an offer,
- completed NCS.

The outcomes of NCS process have to be monitored through the relevant information systems, by elaborating periodically (at least quarterly) also the volumes of activities related to the following issues:

- a) Performance of NCS process,
- b) Conformity levels to quality targets subjected to compensation, established locally by each NRA (e.g. standard durations or other values of regulated service levels agreed with customers and/or stakeholders).

Each Country NCO shall communicate periodically (quarterly) to Global NCO (see template shown in Annex 9.2), the volumes and costs of activities related to NCS process, in order to share and address initiatives

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and/or projects to improve quality of service, reducing operating costs and risks for regulatory compensation liabilities.

According to NRA requirements and business objectives, monitoring of the above issues should be carried out taking into account the relevant analytical dimensions, such as:

- customer type (e.g. Large, Residential, Business, etc.),
- interaction/communication channel,
- geographical area,
- NCS contract type (i.e. First Connection, Activation or Power Increase/Decrease), with or without the necessity of a possible technical study,
- levels of tension and power,
- end use of energy,
- connection type (permanent, temporary).

7.5.2.NCS KPIs

In this section are described the main KPIs to provide a clear view of NCS performances and make it possible to compare them with the expected strategic and/or operational goals defined yearly by each Country NCO.

With a convenient periodicity, each Country NCO shall elaborate and analyze the results of NCS KPIs considering the above-mentioned dimensions (customer type, contract type, etc.) and according to the aggregation formats LTM and YTD. In any case, KPIs shall be communicated at least quarterly to Global NCO.

The indicators take into account the following aspects:

- Efficiency and progress of execution of NCS phases: these KPIs deal with system exceptions, application feasibility faults, progress of visits, elaboration of offers, execution of works and completion of the service, and should address adequate actions for the resolution of backlog;
- Quality of service: these KPIs deal with compliance to NRA conformity standards for NCS which are specific of each country and subjected to economic compensation charges in case of non-compliance.

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Table 2 shows NCS KPIs, pointing out both the mandatory ones and those coming from the experiences of single countries and to be gradually implemented and shared with Global NCO (see Table 3 and Table 4 for KPI definitions).

NCS Entities	KPIs on Efficiency and Progress of Execution	KPIs on Quality of Service
Applications	% NCS System Exceptions $= \frac{\#NCS\ System\ Exceptions}{\#NCS\ Customer\ Requests} * 100\ (***)$ % NCS Eligibility Faults $= \left(1 - \frac{\#NCS\ Applications}{\#NCS\ Customer\ Requests}\right) * 100\ (***)$	% NCS in NRA Compliance $= \left(1 - \frac{\#NCS\ Out\ of\ NRA\ Standard}{\#NCS\ Applications}\right) * 100\ (*)$ % NCS Claims = $\frac{\#Claims\ directly\ related\ to\ NCS}{\#NCS\ Applications} * 100\ (**)$
Visits	% NCS First Visit Appointments $= \frac{\#NCS\ First\ Visit\ Appointments}{\#NCS\ Applications} * 100\ (**)$ % NCS Visits = $\frac{\#NCS\ Visit\ Orders}{\#NCS\ Applications} * 100\ (**)$ % NCS Visits with Appointments = $\frac{\#NCS\ Appointments}{\#NCS\ Visit\ Orders} * 100\ (**)$ % NCS Executed Visits = $\frac{\#NCS\ Executed\ Visits}{\#NCS\ Visit\ Orders} * 100\ (**)$	% NCS Visits in NRA Compliance $= \left(1 - \frac{\#NCS\ Visits\ with\ Appointment\ Out\ of\ NRA\ Standard}{\#NCS\ Visits\ Orders\ with\ Appointment}\right) * 100\ (*)$
Offers	% NCS Proposed Offers = $\frac{\#NCS\ Proposed\ Offers}{\#NCS\ Applications} * 100\ (**)$ % NCS Contracts = $\frac{\#NCS\ Accepted\ Offers}{\#NCS\ Proposed\ Offers} * 100\ (**)$ % NCS Expired Offers = $\frac{\#NCS\ Expired\ Offers}{\#NCS\ Proposed\ Offers} * 100\ (***)$	% NCS Offers In NRA Compliance $= \left(1 - \frac{\#NCS\ Offers\ beyond\ NRA\ deadline}{\#NCS\ Application}\right) * 100\ (*)$
Work Executions	% NCS Completed Work Executions $= \frac{\#NCS\ Completed\ Work\ Executions}{\#NCS\ Work\ Orders} * 100\ (*)$	% NCS Work Deadline Compliance $= \left(1 - \frac{\#NCS\ Works\ beyond\ deadline}{\#NCS\ Work\ Orders}\right) * 100\ (*)$
Accounts	% Accounted NCS = $\frac{\#NCS\ Active\ Accounts}{\#NCS\ Completed\ Work\ Executions} * 100\ (***)$ % Completed NCS = $\frac{\#NCS\ Active\ Accounts}{\#NCS\ Applications} * 100\ (*)$	-

(*): mandatory KPI

(**): recommended KPI

(***): advanced KPI

Table 2 – KPIs on New Connection Service

Subject: Global Infrastructure and Networks Customer Connections Guidelines

Application Areas

Perimeter: *Global*
 Staff Function: -
 Service Function: -
 Business Line: *Infrastructure and Networks*

Error! Reference source not found. shows the NCS scheme related to the KPIs.

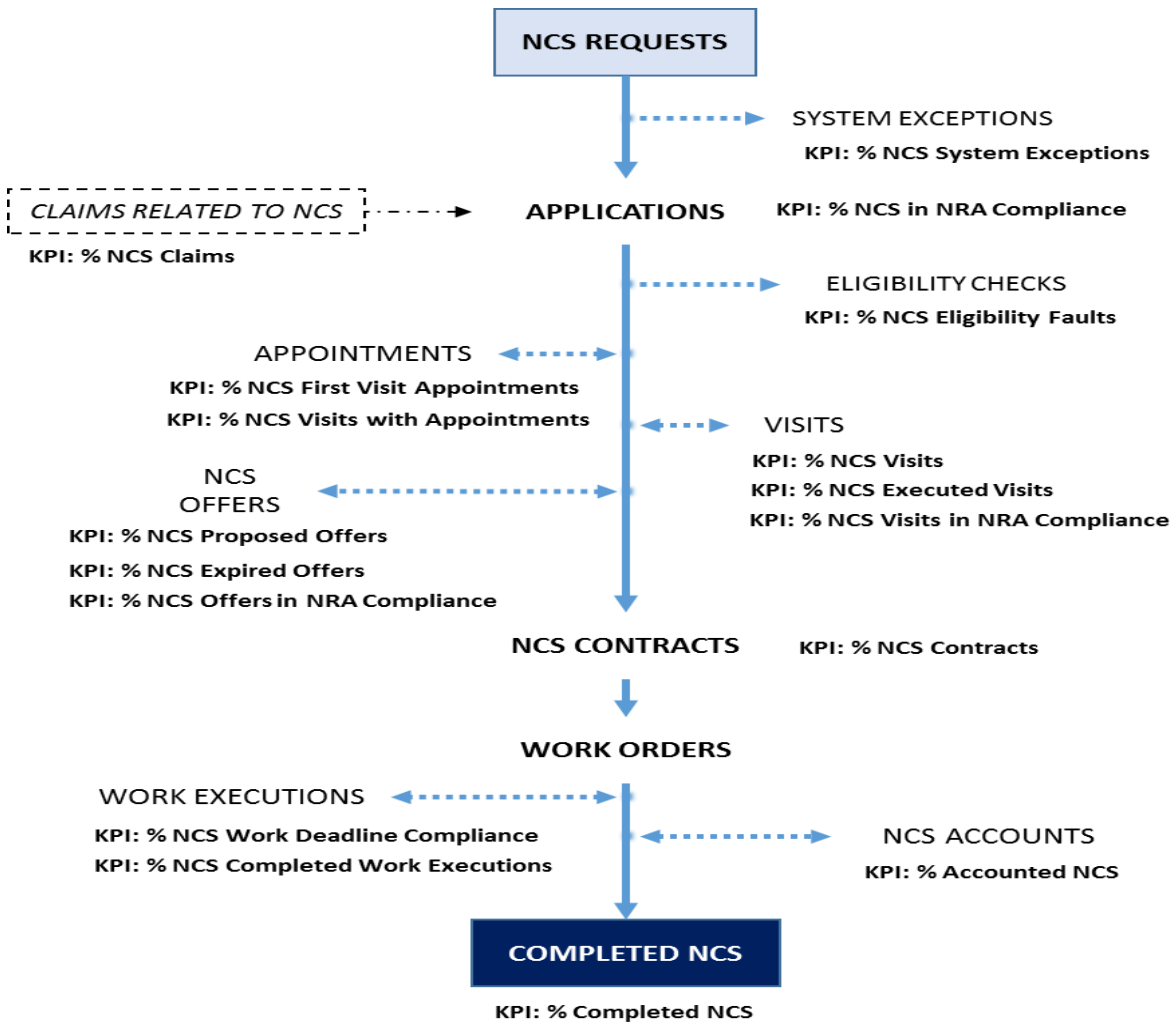


Figure 1 - NCS Entities and related KPIs

Subject: Global Infrastructure and Networks Customer Connections Guidelines

Application Areas

Perimeter: *Global*

Staff Function: -

Service Function: -

Business Line: *Infrastructure and Networks*

The following tables contain the definition of NCS KPIs.

KPI	Description	Formula (%)	
%NCS System Exceptions	Measure of effectiveness to fix system failures and to reduce risks of NCS request processing blocks	$\frac{\#NCS\ System\ Exceptions}{\#NCS\ Customer\ Requests}$	<ul style="list-style-type: none"> • # NCS System Exceptions: number of captured and reported exceptions, occurred during the registration of NCS application items related to requests entering NCS Application management system • # NCS Customer Requests: number of NCS requests entering the NCS application management system • # NCS Applications: number of applications registered the NCS application management system • # NCS First Visit Appointments: number of appointments set up with the customers in order to make the first visit related to a required NCS • # NCS Visit Orders: number of orders, registered in the order management system, to make a visit (first visit or subsequent ones) related to NCS applications • # NCS Appointments: number of appointments set up with the customers in order to make any visit related to a required NCS • # NCS Executed Visits: number of executed visit orders, registered in the order management system, for first visit or subsequent ones, related to NCS applications • # NCS Proposed Offers: number of NCS offers proposed to customers for services (work executions and/or connection to DSO's network, possibly including elaboration of technical studies) provided by DSO and relevant to required NCS • # NCS Accepted Offers: number of NCS offers accepted by customers for services provided by DSO and relevant to required NCS • # NCS Expired Offers: number of NCS offers for services to be provided by DSO and relevant to required NCS, proposed to the customers but exceeding the offer expiration date • # NCS Work Orders: number of orders, registered in the work order management system, to execute NCS works (first connection, activation or increase/decrease of power, possibly including elaboration of technical studies) • # NCS Completed Work Executions: number of executed work orders, registered in the work order management system • # NCS Active Accounts: number of completed NCS work orders whose connections have accounted PODs, i.e. connections that, if energized, have PODs with relevant active contracts for energy supply, or, in case of first connections not energized, have only new PODs
%NCS Eligibility Faults	Measure of the capacity of intercepting incoming inconsistent or incorrect NCS requests, avoiding unnecessary application processing	$\left(1 - \frac{\#NCS\ Applications}{\#NCS\ Customer\ Requests}\right)$	
% NCS First Visit Appointments	Measure of the percentage of appointments made with customer for first visits related to NCS (to be analyzed to deal with effectiveness of executing visits)	$\frac{\#NCS\ First\ Visit\ Appointments}{\#NCS\ Applications}$	
% NCS Visits	Measure of the percentage of visit orders to be executed, for first visits or subsequent ones, related to NCS, independently from having made an appointment or not (to be analyzed to deal with issues on NCS performances)	$\frac{\#NCS\ Visit\ Orders}{\#NCS\ Applications}$	
% NCS Visits with Appointments	Measure of the percentage of appointments made with customers for any visits related to a required NCS (to be analyzed to deal with effectiveness of executing visits)	$\frac{\#NCS\ Appointments}{\#NCS\ Visit\ Orders}$	
% NCS Executed Visits	Measure of the percentage of executed visit orders related to NCS (to be analyzed to deal with issues on NCS performances and progress of execution)	$\frac{\#NCS\ Executed\ Visits}{\#NCS\ Visit\ Orders}$	
% NCS Proposed Offers	Measure of the percentage of applications for which an offer is made to the customer for services to be provided by DSO and relevant to required NCS (to be analyzed to deal with issues on NCS performances and progress of execution)	$\frac{\#NCS\ Proposed\ Offers}{\#NCS\ Applications}$	
% NCS Contracts	Measure of the percentage of accepted offers with respect to those proposed to customers by DSO and relevant to required NCS (to be analyzed to deal with issues on NCS performances and progress of execution)	$\frac{\#NCS\ Accepted\ Offers}{\#NCS\ Proposed\ Offers}$	
% NCS Expired Offers	Measure of the percentage of expired offers with respect to those proposed to customers by DSO and relevant to required NCS (to be analyzed to deal with issues on NCS performances and progress of execution)	$\frac{\#NCS\ Expired\ Offers}{\#NCS\ Proposed\ Offers}$	
% NCS Completed Work Executions	Measure of the percentage of completed NCS work execution orders (to be analyzed to deal with issues on NCS performances and progress of execution)	$\frac{\#NCS\ Completed\ Work\ Executions}{\#NCS\ Work\ Orders}$	
% Accounted NCS	Measure of the percentage of completed NCS work execution orders whose relevant connections have accounted PODs (to be	$\frac{\#NCS\ Active\ Accounts}{\#NCS\ Completed\ Work\ Executions}$	

Subject: Global Infrastructure and Networks Customer Connections Guidelines

Application Areas

Perimeter: *Global*

Staff Function: -

Service Function: -

Business Line: *Infrastructure and Networks*

	analyzed to deal with issues on NCS performances and progress of execution)	
% Completed NCS	Measure of the percentage of NCS applications whose relevant connections have accounted PODs (to be analyzed to deal with issues on NCS performances and progress of execution)	$\frac{\#NCS \text{ Active Accounts}}{\#NCS \text{ Applications}}$

Table 3 - KPIs on Efficiency and Progress of Execution

KPI	Description	Formula (%)	
%NCS in NRA Compliance	Percentage measuring the degree of compliance to the quality requirements of NRA for NCS, considered in an end-to-end view	$\left(1 - \frac{\#NCS \text{ Out of NRA Standard}}{\#NCS \text{ Applications}}\right)$	<ul style="list-style-type: none"> • #NCS Out of NRA Standard: number of applications for which the relevant NCS, in at least one of its stages, does not meet the requirements of NRA due to causes attributable to DSO
% NCS Claims	Percentage measuring the degree of compliance to the quality expectations of customers for NCS, considered in an end-to-end view	$\frac{\#Claims \text{ directly related to NCS}}{\#NCS \text{ Applications}}$	<ul style="list-style-type: none"> • #Claims directly related to NCS: number of claims raised by customers for the failure to meet their expectations for the quality of service provided by DSO during at least one of the stages of NCS before the conclusion of NCS itself
% NCS Visits in NRA Compliance	Percentage measuring the degree of compliance to the quality requirements of NRA on NCS for the issues relevant to all kind of visits for which appointments with customers have been made	$\left(1 - \frac{\#NCS \text{ Visits with Appointment Out of NRA Standard}}{\#NCS \text{ Visits Orders with Appointment}}\right)$	<ul style="list-style-type: none"> • # NCS Visit Orders with Appointment: number of orders, registered in the order management system, to make any visit related to NCS applications, for which an appointment has been made with customers • # NCS Visit with Appointment Out of NRA Standards: number of NCS visit orders with appointment, for which the management of the visit itself does not meet the requirements of NRA due to causes attributable to DSO
% NCS Offers In NRA Compliance	Percentage measuring the degree of compliance to the quality requirements of NRA on NCS, concerning issues relevant to services for which offers to customers have to be provided by DSO	$\left(1 - \frac{\#NCS \text{ Offers beyond NRA deadline}}{\#NCS \text{ Application}}\right)$	<ul style="list-style-type: none"> • # NCS Offers beyond NRA deadline: number of offers for NCS services (technical study, work execution and/or connection to DSO's network), for which the management of the offer itself does not meet the requirements of NRA due to causes attributable to DSO
% NCS Work Deadline Compliance	Percentage measuring the degree of compliance with deadlines of NCS work executions foreseen by DSO	$\left(1 - \frac{\#NCS \text{ Works beyond deadline}}{\#NCS \text{ Work Orders}}\right)$	<ul style="list-style-type: none"> • # NCS Works beyond deadline: number of NCS work orders for which the duration of the work itself exceeds deadlines foreseen by DSO

Table 4 – KPIs on Quality of Service

Policy no. 279

Version no. 01 dated 08/01/2018

Subject: Global Infrastructure and Networks Customer Connections Guidelines**Application Areas**Perimeter: *Global*

Staff Function: -

Service Function: -

Business Line: *Infrastructure and Networks*

8. RELATED ORGANIZATIONAL DOCUMENT TO BE IMPLEMENTED AT COUNTRY LEVEL

Within corresponding geographical and regulation perimeters, each I&N Country shall issue, under the supervision of Global Network Commercial Operations and according to the provisions of the present document:

- local organizational documents related to NCS Management;
- updated documents of existing local guidelines, if necessary, in order to adapt to this global policy.

In addition, these documents shall include a chapter to report and keep update all possible digital transformation and reengineering projects on NCS, according to objectives to be approved by Global NCO.

Subject: Global Infrastructure and Networks Customer Connections Guidelines

Application Areas

Perimeter: *Global*

Staff Function: -

Service Function: -

Business Line: *Infrastructure and Networks*

9. ANNEXES

9.1 NCS Annual Plan - Reporting Template

For the main entities of the NCS process (Applications, Executed Visits, possible Completed Technical Studies and Completed NCS), the NCS Annual Plan of each Country shall report quarterly the actual quantities (Q) as shown in the reporting template below.

NCS Type	NCS Contract	Connection Type	NCS Applications (Q)				Executed Visits (Q)				Completed Technical Studies (Q)				Completed NCS (Q)			
			Planned vs Actual		Planned vs Actual		Planned vs Actual		Planned vs Actual									
			1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Possible values: • LV Simple • LV Complex • MV Connections • HV Connections	Possible values: • First Connection • Activation • Power Modification	Possible values: • Permanent • Temporary																

Table 5 - NCS Annual Plan Reporting Template

9.2 NCS Process Activities – Review Report Template

Volumes of activities related to NCS process and their relevant status shall be communicated periodically (quarterly) to Global NCO by each Country NCO in the format shown by the following template, in order to share and address initiatives and/or projects to improve quality of service, reducing operating costs and risks for regulatory compensation liabilities.

The same template can be produced with different views (by customer type, contract type, etc.).

In particular, the report shall include the following issues, related to the total operating costs due to NCS activities:

- Visits (made by own resources and/or third parties);
- Possible Technical Studies (elaborated by own resources and/or third parties),
- Quality of Service (compensation charge for non-compliance with NRA terms on the commercial service provided by DSO).

The following table shows the NCS Review Report template.

Subject: Global Infrastructure and Networks Customer Connections Guidelines

Application Areas

Perimeter: *Global*

Staff Function: -

Service Function: -

Business Line: *Infrastructure and Networks*

NCS Process Activities – Quarterly Review Report (Year N)			Previous Year (N-1)	Current Year (N)					
NCS Activities	NCS Entities	UoM	Actual	Planned	Actual / Estimated				
					1Q	2Q	3Q	4Q	Total
NCS Application Management	NCS Applications	Nr.	-	-	-	-	-	-	-
NCS Offer Management	NCS Visits	First NCS Visits	Nr.	-	-	-	-	-	-
		Total NCS Visits	Nr.	-	-	-	-	-	-
		by Own Resources	Nr.	-	-	-	-	-	-
		by Third Parties	Nr.	-	-	-	-	-	-
		Total Operating Costs for NCS Visits	LCU	-	-	-	-	-	-
		by Third Parties	LCU	-	-	-	-	-	-
	NCS Technical Studies	Total NCS Technical Studies	Nr.	-	-	-	-	-	-
		Total Costs for NCS Technical Studies	LCU	-	-	-	-	-	-
		by Third Parties	LCU	-	-	-	-	-	-
	NCS Offers	Nr.	-	-	-	-	-	-	
NCS Contracts	Nr.	-	-	-	-	-	-		
NCS Work Order Execution	NCS Work Orders	Total NCS Work Orders	Nr.	-	-	-	-	-	
		Executed NCS Work Orders	Nr.	-	-	-	-	-	
		Total Operating Costs for NCS Work Order Executions	LCU	-	-	-	-	-	
		by Own Resources	LCU	-	-	-	-	-	
		by Third Parties	LCU	-	-	-	-	-	
Monitoring and KPI	Efficiency and Progress of Execution	System Exceptions	%	-	-	-	-	-	
		Eligibility Faults	%	-	-	-	-	-	
		First Visit Appointments	%	-	-	-	-	-	
		NCS Visits	%	-	-	-	-	-	
		NCS Visits with Appointments	%	-	-	-	-	-	
		NCS Executed Visits	%	-	-	-	-	-	
		NCS Proposed Offers	%	-	-	-	-	-	
		Completed NCS	%	-	-	-	-	-	
	Quality of Service	NCS in NRA Compliance	Nr.	-	-	-	-	-	
			%	-	-	-	-	-	
		NCS Visits in NRA Compliance	Nr.	-	-	-	-	-	
			%	-	-	-	-	-	
		NCS Offers in NRA Compliance	Nr.	-	-	-	-	-	
			%	-	-	-	-	-	
Total NRA QoS Compensation Costs	LCU	-	-	-	-	-			
NCS-related Claims	Nr.	-	-	-	-	-			
	%	-	-	-	-	-			
NCS Work Deadline Compliance	Nr.	-	-	-	-	-			
	%	-	-	-	-	-			

Table 6 - NCS Progress Review Report Template