WGCPARIS2015
WORLD GAS CONFERENCE
"GROWING TOGETHER TOWARDS A FRIENDLY PLANET"

26th World Gas Conference | 1-5 June 2015 | Paris, France

Third party access to gas distribution networks – Italy's experience

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Background

Gas Industry in Italy has a long story and tradition dating 19th century, when the first distribution infrastructures were realized to supply public lighting in the main cities of the country. Starting from that pioneer beginning, Gas Industry developed constantly all around the country and in the second part of 20th century natural gas took place substituting all other gases (e.g. town gas) via the realisation of a national transmission network going throughout the country and the parallel conversion to natural gas of the existing distribution networks and the development of new ones.

This process brought to a sound industry well developed that by the end of year 1999 with such figures:

Total gas transmission throughput: ~ 68 Billion m3

Total gas distribution networks throughput: ~ 30 billion m3

Total gas distribution networks length: ~ 182.000 km

Gas distribution customers: ~ 16 million

Gas distribution companies (LDC) (year 1998): 774

Tab. 1 – LDCs in year 1999

LDC size	Total volume million m^3	Customers thousands	Total customers %	LDC number	Average dimension million m^3
> 500.000	9.644	6.520	40	4	1.630
100.000 - 500.000	5.664	2.921	18	17	172
50.000 - 100.000	3.287	1.652	10	24	69
10.000 - 50.000	7.402	3.340	21	162	21
< 10.000	4.067	1.706	11	567	3
TOTAL	30.064	16.139	100	774	21

The first steps towards liberalization: The implementation of the Internal Gas Market Directive

With Law 144 of 17 May 1999 the Government was delegated by Parliament to issue one or more decrees within one year for the implementation of Directive 98/30/EC concerning common rules for the internal natural gas market, with definitive approval envisaged by 22 May 2000. In so doing Parliament set out the principles and guidelines to be followed by the Government in the reorganization of the natural gas market. These include regulated access to the system under transparent, non-discriminatory conditions and the unbundling of vertically integrated companies, where this would have positive effects on the development of the market.

Among the principles and guiding criteria for the transposition of Directive 98/30/EC (pursuant to Art. 41 of Law 144/1999), we must highlight:

- Definition of the rules for the opening of the market with due guarantees for public service, safety, quality, interconnection and system interoperability in full respect of the powers of the Italian Energy Authority (AEEGSI);
- Elimination of normative disparities between the different operators;
- Unbundling, where this would have positive effects on the development of the market, of vertically integrated companies, and accounting unbundling for the activities of importation, transportation, distribution and storage;
- Regulated access to the gas system under transparent, non-discriminatory conditions.

<u>The Legislative Decree of May 2000</u>

In May 2000 the Government issued the Legislative Decree (n. 164) implementing Directive 98/30/EC concerning common rules for the internal gas market. The Decree goes further than merely transposing the Directive, since it regulates the entire sector. The importation, exportation, transportation, dispatch, distribution and sale of natural gas are declared to be free within the provisions of the law, while for exploitation and storage the current license arrangements are changed. Among the provisions envisaged by the Legislative Decree we can highlight the following:

- Distribution: distribution, assigned solely through competitive bids, is declared to be a public service with connection and network access obligations according to the criteria and tariffs laid down by the AEEGSI. For current concessions and licenses a transition phase to encourage concentration is envisaged.
- Sale: from January 2003 the sale of gas is subject to authorization by the Ministry of Industry, based on availability of adequate modulation and storage services, the

origin of the gas and reliability of transportation facilities, and appropriate technical and financial conditions.

- Eligible customers: in addition to operators using natural gas for electricity production and cogeneration, eligibility is also extended to distributors (for gas consumed in their distribution network) and customers who consume over 200,000 m2/year, and to producer-users of national gas; with effect from January 2003 all customers will be eligible.

- Unbundling: by January 2002 distribution and sales to final customers should be separated. For distribution and sales companies with less than 100,000 final customers a transition period is envisaged during which accounting and management unbundling will be obligatory.

The first steps towards liberalization: The first years

During the first years after the starting of the liberalization process, we assisted to the birth of gas sales companies, the first switching processes, and the evolution (in terms of number and size) of the LDCs, via a very dynamic process.

By the end of 2004 the companies authorized by the Ministry of Productive Activities to engage in gas sales numbered 389. Most of these companies came into being as a result of the separation of the sales division of former integrated distribution companies. These can be divided in "wholesale" operators and "retailers", identifying 41 "wholesale" operators who sell gas both to other operators and directly to the final market and about 350 "retailers" who engage almost exclusively in re-sales to final customers, using other operators only in the event of surpluses and balancing operations.

The following table contains the main data relating to the retail market. Gas consumption has shown a marked rise, from 70 G(m^3) in 2001 to 79 G(m^3) in 2004. This notwithstanding, the number of operators owning more than 5% of the market is essentially unchanged, at 5. In 2004 the first three operators covered 80% of sales to electricity generating companies, 54% of sales to industrial customers and 33% of sales to households (equally detailed data for the different market segments for previous years are not available).

Tab. 2 – Retail market in year 2004

	Total consumption (G(m³))	No. of companies with >5% of final market	No. independent companies (A)	Market share of the first three companies (%)				Cumulative % customers who have changed supplier (by volume)			
				Thermoelectric uses	Large industrial companies (B)	Small-medium sized industrial and commercial companies (C)	Very small firms and household sector (D)	Thermoelectric uses	Large industrial companies (B)	Small-medium sized industrial and commercial companies (C)	Very small firms and domestic sector (D)
2001	70.1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2002	70.0	4	n.a.	85.71		54.31		n.a.	n.a.	n.a.	n.a.
2003	76.4	5	n.a.	74.43		45.60		n.a.	n.a.	n.a.	n.a.
2004	79.3	5	110	80.33	54.14	n.a.	33.27	53(E)		6(F)	1(G)

(A) Completely independent from grid operators
(B) Industrial undertakings
(C) Commercial and service undertakings
(D) Household customers
(E) Standard consumers with annual consumption > 200.000 m3/year
(F) Standard consumers with annual consumption 5.000-200.000 m3/year
(G) Standard consumers with annual consumption < 5000 m3/year

On the Distribution side, we saw a significant decrease in the number of LDCs, although still with a wide range of legal form; at 1 October 2004 most were joint stock companies or limited liability companies (42.7% and 38.4% respectively). The following table shows the legal form of gas distribution operators

Tab. 3 – LDCs in year 2004, divided by legal form

TYPE	NUMBER	PERCENTAGE SHARE
Municipally operated	61	12.66
Joint stock company (S.p.A.)	206	42.74
Limited liability company (S.r.L.)	185	38.38
Unlimited partnership (S.n.C.)	2	0.41
Limited partnership (S.a.S.)	2	0.41
Joint-stock consortium	2	0.41
Limited liability consortium	5	1.04
Limited cooperative society	4	0.83
Special undertaking	6	1.24
Special consortium undertaking	5	1.03
Consortia	4	0.83
Total	**482**	**100.00**

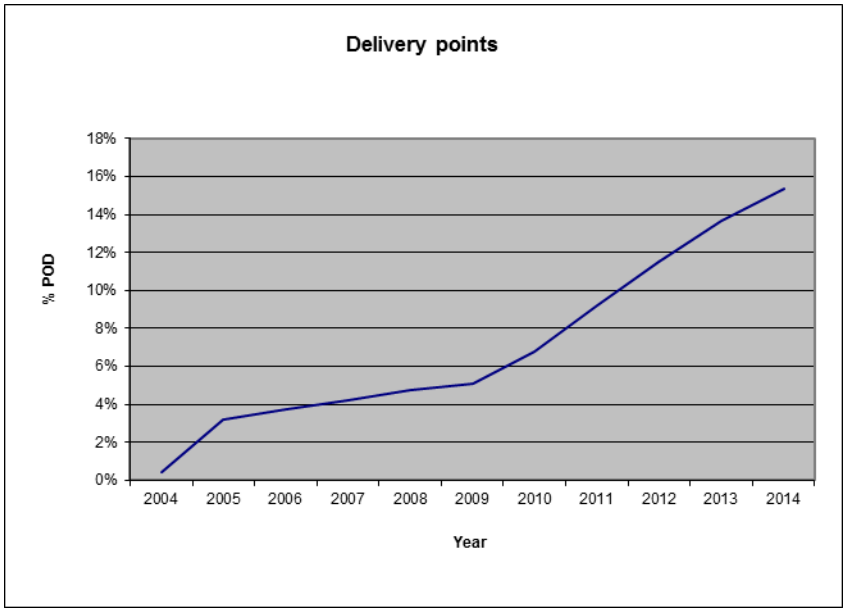
With these figures (both on retailers and LDCs side) and the corresponding reduced number of customers involved in switching and supplied on the free market, up to this year the relations and connections among operators where mainly managed "one by one" with a manual or semi-manual approach.

The market development

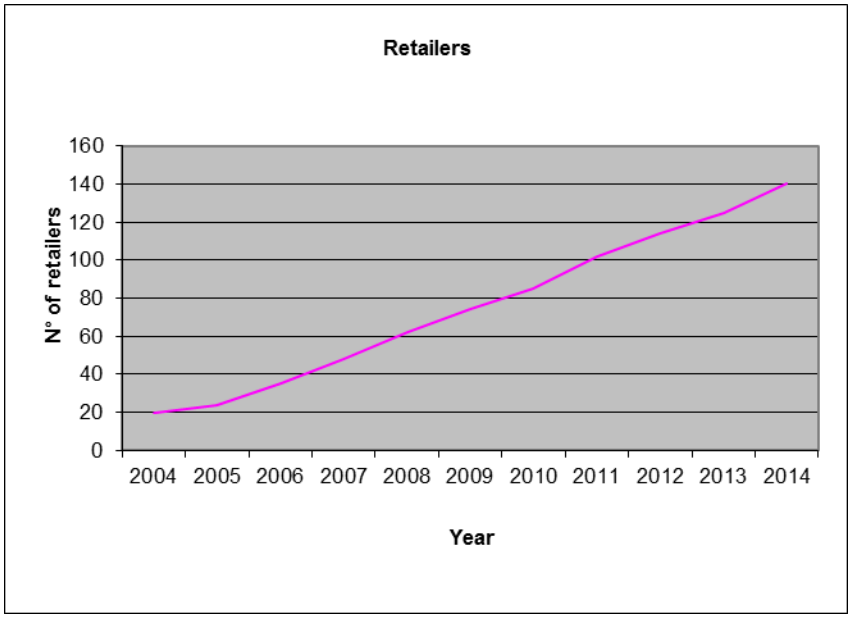
Starting form year 2005 things dramatically change: in fact staring this year retailers approach the mass market, targeting domestic customers. In our experience as gas distribution company, as represented in next graph, we saw a first significant increase during year 2005 due to the initiative of a limited number of retailers, then becoming systematic and constant from year 2009 on. Up to now on our distribution networks around 16% of customers are not any more supplied from the "incumbent" retailer (those coming from the former integrated companies), with an annual "churn rate" (number of switching vs. total number of delivery points) over 5%, involving a continuously increasing number of retailers (over 140 by the end of year 2014).

Following a series of graph to show the development of the gas market (downstream side) as from our direct experience:

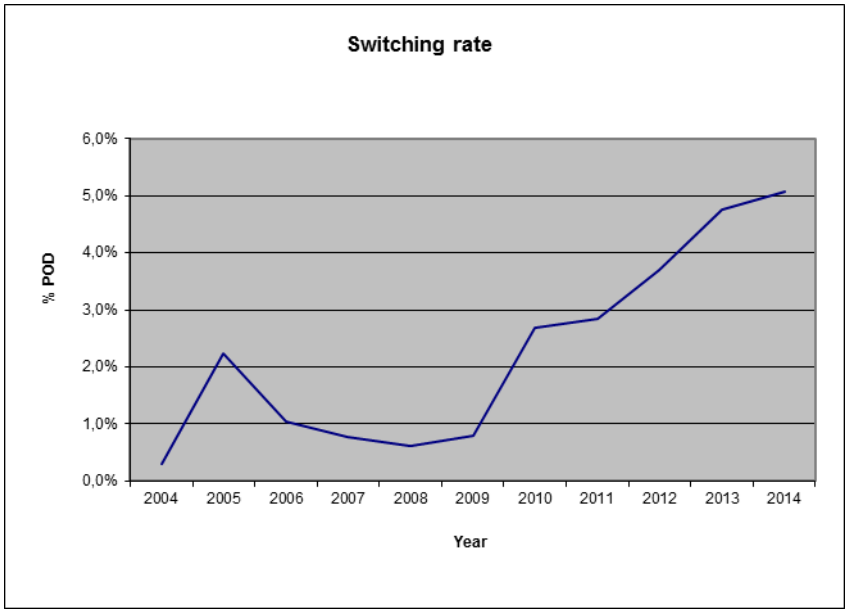
Graph 4 - % POD supplied by "not incumbent" retailer



Graph 5 – N° of retailers operating on our gas networks



Graph 6 – Switching rate



The need in terms of rules

Following the evolution and trends of the downstream gas market, the operators (LDCs and retailers) felt the need of at least a minimum set of rules in order to operate under a regulated environment. This was strongly supported by AEEGSI that started developing and upgrading a set of rules on the key issues:

- Access to the gas distribution network (new connections, quality of service, switching)
- Meter reading
- Balancing

The main need was to have a "standard contract" defining on a national level the relations among LDCs and retailers.

The path to the Standard Distribution Network Code

In June 2006 the AEEGSI approved the Standard Distribution Network Code, which contains rules for access to and delivery of the gas distribution service. The Code is a key step in the development of the gas market since it acts as a contractual instrument which regulates and clarifies relations between the companies operating distribution plants and the retailers using these facilities.

As a result of the Code, distribution companies can provide the distribution service to retailers in a neutral and non-discriminatory manner. Alongside the main service (taking delivery of gas which users are entitled to inject to the distribution plant, and transporting it to the delivery points where access is required), the standard Code also regulates the services required by retailers in the light of their specific needs, such as ancillary and optional services.

To reach this result AEEGSI went well over the standard process adopted to establish its rules. In fact, as a standard process, AEEGSI applies criteria of transparency when adopting general rules and decisions. The process involves full consultation with operators and the associations representing interested parties (consumer, environmental, trade union, and business associations) through the circulation of documents and the collection of written observations, discussed where appropriate during collective and individual hearings prior to the issuing of any provisions.

In the case of the Code, the aforesaid process was foregone by the establishment of a working group, gathering operators (representing the Italian Associations of LDCs, Retailers and Traders) that worked very hardly and closely to the AEEGSI offices. The contribution of the operators consisted mainly in bringing their own operational experience (we must keep in mind that the market was just leaving its "childhood era", so real field experience was by that

time something to share as not all the subjects had the same knowledge of the process under all the different aspects), and discussing and sharing proposals to approach critical areas.

The work started in Autumn 2005, and the activity approached the drafting of the code item by item, publishing for public consultation each chapter once they were ready, using a specific area of AEEGSI website dedicated to this task, in order to allow all interested parties to take part to the work presenting observations and suggestion in a "near real time" way.

Finally the Standard Distribution Network Code saw its publication by 06/06/2006.

After publication each LDC had to either:

- Adopt the standard Distribution Network Code (with an official application letter sent to the AEEGSI and published on the company's website)
- Write its own Network Code, that must follow the scheme defined by AEEGSI and that must go under an approval process by AEEGSI (in this case the standard Network Code can be completed with clauses determined by specific needs, that LDC must properly justify)

Why a Standard Distribution Network Code

Having a national Standard Distribution Network Code (in a crowded environment as the one of the gas downstream industry, in terms of operators – LDCs and retailers) allows to speed up the approval by AEEGSI of LDCs Network Codes (that, in case of adoption of the Standard one, is basically a declaration of adoption by the LDC) and, mainly, allows the retailers to have rules to access distribution networks that are the same all over the country, simplifying the need to operate in any area of the nation, no matter who the LDC is.

In terms of adoption of the Standard Distribution Network Code, it has been adopted by almost 100% LDCs, the only exceptions due to specific needs or characteristics.

Structure of the Standard Distribution Network Code

The Standard Distribution Network Code covers all the areas of interoperation between a LDC and a retailer. Not all the issues are covered with the same depth, and we can distinguish two main areas: one related to administration topics (e.g. billing, responsibilities, litigation, etc.), that is more "static" in the time and that is defined in depth, the other that is more related to the operational relations that involve LDC and retailer (e.g.: network access, meter reading, communication, etc.): for this area AEEGSI preferred to detail more deeply through regulation, that evolves more frequently and following market needs and technology evolution; in this case the Standard Distribution Network Code highlights just the main issues, referring to regulations for all the details.

Main topics covered by the Standard Distribution Network Code are:

- Description of main LDC duties

  This section of the code describes the activities of the LDC, that can be divided in three main areas:

  1. Those that are mandatory and included in the distribution tariff. Among them we can remind:
     - Operation and maintenance of pressure regulating and measurement stations
     - Technical operation of the distribution network
     - Gas leakage search and repair
     - Cathodic protection of steel mains
     - Gas odorization and its control
     - Emergency services
     - Gas metering and meter reading
     - Emergency supplies in case of shortage due to maintenance needs
     - Gas balancing data gathering and communication
     - Third party access to the network
     - Billing to retailers
  2. Those that are mandatory and that have a specific tariff (regulated or self-determined by each LDC) that must be paid by the retailer each time requires one. Among them:
     - Realization of new connection or works on the network required by a customer (e.g. placing the gas meter in a different position from the actual one)
     - Supply activation
     - Supply deactivation
     - Supply temporary deactivation (and following reactivation) requested by the retailer due to payment delays of the customers

3. Those that are not mandatory and that have a tariff freely settled by the LDC, that must be paid by the retailer each time requires one.

- Communication issues

  This section approach the issue of the communication between LDCs when they manage different parts of an interconnected distribution network, establishing some main rules and settling that LDCs involved must define agreements among them that must be presented to AEEGSI. Moreover it approaches the issue of the communication between LDC and retailer, mainly referring to the specific regulation

- Access to the network (switching, etc.)

  As for communication, this section mainly refers to the specific regulation, so it focuses on the aspects related to the first access by a retailer to a distribution network/LDC.

- Commercial services by LDC

  Listed in main LDC's duties section, here the Code goes in more detail describing the commercial services and how must be operated by the LDC. Some of them (e.g. activation, deactivation) have a relevant regulation, while others are reported in detail (e.g. temporary emergency gas supply, in terms of activation responsibility, cost allocation and billing)

- Gas metering

  Gas metering is widely described in the Code. But due to the evolution of technology and communication systems, part of this section has been overtaken by relevant regulation during the last years

- Gas allocation

  As for gas metering, gas allocation has been widely described in the Code, and with the support of regulation on specific topics this part has been the reference for gas allocation since year 2012. Starting from year 2013 AEEGSI reengineered completely the process, settling a new discipline on gas balancing with specific regulation.

- Service Quality and Emergencies management

  Again, this part is just touched, as it is deeply regulated by a series of specific rules (that were already operating before the definition of the Standard Distribution Network Code)

- LCD service billing

  This section describes in detail how is the billing process by the LDC and the contents of the bills. It identifies two typologies of bills, one related to the distribution

service covered by the distribution tariff, the other specific to services not covered by the distribution tariff (as described in the first section of the Code).

Some of the aspects covered are the minimum requirements in terms of content and the billing frequency (that must be on a monthly basis).

- Payment and warranties

  Following billing, this section defines standard payment methods and timing, allowing an ordered flow of documents and payment orders, needed in a "many to many" environment. The other topic covered, that is of particular relevance, is related to warranties that must be presented by retailers and their management in terms of economic determination of the value of each single warranty, its updating, terms and conditions to fulfil updating requirements, etc. One of the most relevant rules settled in this section is that under specific conditions, a retailer can present a rating declaration by a rating services company internationally recognised, instead of a bank/insurance warranty.

- Liability and litigation

  Finally this section takes care of the cases that can bring to the termination of the contract, and the procedures to manage it. Some cases can bring to immediate termination (e.g. lack of gas availability at a city gate), while for others (e.g. a delay of payment, not repeated in time) the termination is preceded by a notification that gives a defined timeline (30 days) to fulfil the duties, before proceeding to termination.

  The section covers also legal aspects related to litigation.

The evolution of the Standard Distribution Network Code and relations among LDCs and retailers

After year 2006 of course the relations between LDCs and retailers continued to evolve, as they are still evolving now. In fact the perception of the industry was to have a standardization in the communication between the operators.

So starting from year 2009 LDCs mandatorily had to implement communication tools to ease the exchange of data and information. This brought LDCs to develop web portals and Application to Application solutions with these minimum requirements:

- Using XML (Extensible Markup Language) as standard
- The communication tool must allow at least:
  - Data exchange in XML standard
  - Upload and download of massive data sets

- Validity check of requests in real time (for single requests – 1 day delay for massive)
- Structured and free research of requests and their tracking along the process
- Booking on line in case the presence of the final customer is needed to complete the activity requested
- Automated notifications of specific events

On the other hand AEEGSI (with the contribution of the operators through the institution of a dedicated working group) started defining communications standards, for a set of activities (increasing along time), that mandatorily must be implemented by operators.

This huge effort by AEEGSI has brought to a significant success in terms of standardization and simplification for communications. In fact although LDCs are a large number, each with its own web-service, the language is common. This allows retailers to manage standard communication data sets, not depending on the specific LDC they are exchanging data with.

AEEGSI up to spring 2015 has defined standards for the following activities:

- Estimation for a new connection
- Estimation for the modification of an existing connection
- Estimation to remove an existing connection
- Work execution
- Supply first activation
- Supply following activation
- Supply activation after deactivation due to non-payment
- Supply deactivation
- Supply deactivation due to non-payment
- Supply interruption due to non-payment
- Supply activation after deactivation due to safety supply interruption
- Metrological verification of the gas meter
- Delivery pressure verification

- Switching
- Technical data request due to complaint by customer
- Meter reading request due to complaint by customer
- Contract termination due to non-payment
- Contract termination due to impossibility to deactivate supply due to non-payment
- Contract termination due to non-payment for delivery points that cannot be interrupted due to uninterruptible supply needs (e.g. hospitals)
- Contract termination due to general causes (e.g. contract expiry between retailer and final customer)

For each activity listed AEEGSI defined single transactions and their contents in terms of single data (list and format). Following an example for a switching request:

```
<?xml version="1.0"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
        <xs:include schemaLocation="../def_dati_tecnici.xsd"/>
        <xs:include schemaLocation="../def_cliente.xsd"/>
        <xs:include schemaLocation="../def_identificativi.xsd"/>
        <xs:element name="Prestazione">
                <xs:complexType>
                        <xs:sequence>
                                <xs:element name="IdentificativiRichiesta" type="IdentificativiRichiestaCodDistrOpt"/>
                                <xs:element name="DatiTecnici" type="PdrDataSwitch"/>
                                <xs:element name="Titolare" type="CF_PIVA"/>
                        </xs:sequence>
                        <xs:attribute name="cod_servizio" type="xs:string" use="required" fixed="SW1"/>
                        <xs:attribute name="cod_flusso" type="xs:string" use="required" fixed="0050"/>
                </xs:complexType>
        </xs:element>
</xs:schema>
```

Apart from the listed activities, LDCs are free to define standards for other activities managed, always following the same model.

Effectiveness of the Standard Distribution Network Code

The main question that we can ask ourselves as gas industry operators is: has been the Standard Distribution Network Code something that we needed and has fulfilled our expectations?

The answer is of course yes, the Code was needed and fulfilled our expectations. If we can make a parallel with the "cousin" electricity market in Italy, in that case there is not a Standard Code like the one existing in gas, and this brought each single LDC to draft a contract that must be signed by each retailer aiming to access the electricity grid. Even if metric is not the same of gas (LDCs are a smaller number, 138 by march 2015, and one operator runs 85% of the total amount of delivery points), this brings to a significant fragmentation and variety of contracts, rules, obligations that on one hand make difficult for a retailer to approach different LDCs, on the other hand gives a kind of "uncertainty" to LDCs, as the contract is not a standard one, settled and approved by AEEGSI, but is something that can potentially be disputed by a commercial counterpart.

Of course, being a standard document on a national basis, it becomes harder and slower to make any change or adjustment, as it must go under a regulation modification process. But if this on one hand brings to less flexibility, on the other brings to more stability, that eases commercial relations.

A good approach could be the one that has developed through the years in Italy:

On one hand to have a Standard Distribution Network Code that covers all legal, administrative, commercial aspects of the relations between a LDC and a retailer, on the other following the evolution of needs in terms of standards with specific regulation.

Effectiveness of the Standard Distribution Network Code and related regulation – Some conclusions

Looking back to our experience on the field related to the availability of a Standard Distribution Network Code and related commercial regulation, we can summarize these main aspects:

- A standard code is a need, seen both from retailer perspective (it allows to have the same set of rules not depending on the single counterpart) and LDC perspective (no rules settled by a single operator, less conflict with retailers);
- A sound network code is the product of an in-depth analysis and honest discussion among all the interested parties; contributions must be targeted to always reach a fair balance between the needs of the subjects involved in the process, always keeping in mind that the real benefit is the one for the customer;
- The more the standard code is "static" (i.e. the introduction of changes is a long process), the more it must be focused on legal, administrative, commercial aspects, leaving operations and data exchange issues to regulation;
- In a dialogue "many to many", standard communication rules must be settled, in order to achieve a common platform in terms of process and communication standard. Main focus should be (having as a reference the contents of complaints by

customers): switching, meter reading data communication, operations requested by the customers;

- Regulation on process must walk "hand in hand" with communication standardization: this is essential in terms of efficiency and effectiveness.

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