

Agenda

Advancing economics in business

Electricity network regulation in Italy moves towards a new paradigm

In December 2015, the Italian Regulatory Authority for Electricity Gas and Water (AEEGSI) adopted its final decision on the fifth electricity transmission and distribution price control review. Andrea Oglietti, Director, and Marco Delpero, Deputy Director, of AEEGSI Directorate for Infrastructures describe the main features of the new Italian electricity network regulation for the period 2016–23

In the past decade the financial and economic crisis on the one hand, and rapid changes in the electricity market—mostly a consequence of energy and climate policy actions—on the other, have induced energy regulators to consider a full review of their network regulation paradigms.

This process is of interest to both European regulators—which, since the beginning of the privatisation and liberalisation process in the energy industry have mostly adopted incentive regulation schemes; and North American regulators—which are traditionally more oriented towards cost-of-service/rate-of-return schemes.

The big challenge for network regulators in developed countries is to adapt their regulatory frameworks to a new context, with the aim of pursuing the traditional objectives of adequacy, efficiency and security of infrastructure, and balancing these with customer protection. In a new context such as this, renewables and distributed generation are modifying the traditional role of distribution networks, and energy efficiency improvements in end-uses are progressively reducing demand. As such, the perspective of demand response implementation requires an evolution of the traditional role of distribution companies, and smart metering and smart grids are promoting consumer awareness of energy use and modernisation of network operation.

To face this new context, Ofgem, the energy regulator for Great Britain, has recently adopted a new regulatory paradigm (RIIO). New York State has started a proceeding, 'Reforming the Energy Vision', where the Public Service Commission (PSC) plays an important role in 'crafting the significant regulatory changes needed to make the agenda a reality';¹ and California has started a regulatory review.

AEEGSI, with its decision 654/2015 on the fifth electricity transmission and distribution price control review (adopted

in December 2015), has set the basis for reforming the electricity tariff regulation in the next few years. Furthermore, AEEGSI has approved its decisions 646/2015 and 653/2015 on output-based electricity distribution and transmission regulation, including quality regulation, for the fifth regulatory period. In December 2015, AEEGSI also adopted a new methodology to calculate the allowed return on invested capital, in order to develop a more consistent and predictable regulation, given the challenging financial market conditions at present.

The previous regulatory framework

The tariff regulation scheme, designed in 2000 by the newly appointed regulator and based on the principles of 'incentive regulation' in the form of a 'price cap', has evolved over four regulatory periods (2000–15) to a hybrid approach with an 'incentive-based' scheme (price cap) for tariff components covering operating expenditure (OPEX), and a cost-of-service scheme for tariff components covering capital expenditure (CAPEX).

Since the beginning, tariff regulation, in particular with reference to electricity distribution, has been associated with quality regulation. As the first AEEGSI President, Pippo Ranci, wrote:

Liberalization is often opposed on the grounds that it could damage public service and weaken national industry. We have taken quality of service as one of the main targets of regulatory action, the aim being to demonstrate that liberalization plus regulation will produce *better* quality than did the previous regime.²

Quality regulation provides for 'output-based' incentives (related to the duration and frequency of interruptions) aimed at supporting investments in the distribution network, in order to improve quality of supply. From the second regulatory

period (2004–07) onwards, quality regulation has been extended to transmission, with the objective of promoting reliability. An output-based incentive scheme provides for rewards/penalties according to over-/underperformance in terms of energy not supplied (ENS), compared with ENS targets set at the beginning of each regulatory period.

Since 2008, in order to promote adequacy and security of network infrastructure, AEEGSI has adopted an 'extra-WACC' remuneration, differentiated by activities and types of investment. The extra-WACC represents a simple form of incentive which is focused mainly on an ex ante assessment of the adequacy of the grid in ensuring reliable and economical infrastructure service supply in the future. In Italy, such extra-WACC has been aimed mainly at reducing congestion in transmission networks, facilitating network modernisation, and promoting innovation (i.e. piloting smart grids).

The main features of the new regulatory scheme

AEEGSI has always considered stability as one of the main objectives of regulation. The regulatory frameworks adopted in Italy since 2000 have offered stability and certainty for investors and have ensured transparency of allowed cost calculation procedures and periodical review criteria. This applies not only within each regulatory period, but also in the transition from one period to another, so as to reduce the so-called 'regulatory risk' for network operators, with positive effects on the cost of capital and the willingness of network operators to invest.

Since 2012, AEEGSI has stressed the need for a new paradigm of more selective regulation that is able to focus on a systemic view of the value of network investments.

With its decision 654/2015, AEEGSI has defined a transition process to balance the objective of stability with the need to reform the regulatory paradigm. The length of the regulatory period has been extended to eight years (2016–23) and divided into two 'sub-periods', each with a duration of four years.

The regulatory scheme for the first sub-period (2016–19) is similar to the previous regime, with a hybrid approach combining price-cap (applied to OPEX) and cost-of-service regulation (applied to CAPEX).

For tariff components covering operating costs:

- annual tariff reviews are based on the price cap and include quality-of-supply incentives, as well as adjustments reflecting cost variations arising from unforeseeable and exceptional events, changes in regulation, and changes in universal service obligations;
- productivity targets (X-factors) are differentiated by activity (transmission, distribution and metering) and are basically used as a tool to redistribute to network users the efficiency gains of the previous regulatory periods,

which were temporarily retained by network operators under the so-called 'profit-sharing mechanism';

- on the basis of this profit-sharing mechanism, at the end of the regulatory period, in order to set tariffs for the following period, efficiency gains are symmetrically shared between network operators and network users.

For tariff components covering capital costs:

- fixed assets are included in the regulatory asset base (RAB), with a one-year lag if investment costs are efficiently incurred and are consistent with system security, follow cost-effective criteria and, with regard to transmission, are included in the ten-year transmission development plans approved by the relevant authorities;
- the RAB value is expressed at current cost and is based on depreciated historical costs inflated using a construction-specific index ('Investimenti Fissi Lordi'). In other words, capital costs are based on data from the accounting records of network operators;
- assets under construction are also basically included in the RAB, with some exception for transmission;
- the rate of return on invested capital is calculated and periodically reviewed—according to the methodology defined in decision 583/2015—as a WACC;
- the cost of equity is determined on the basis of the capital asset pricing model (CAPM) and reflects the systematic risk that is typical of each regulated activity;
- the systematic risk is assessed for each activity by estimating the value of the beta parameter used in the context of CAPM;
- the beta parameter is set at the beginning of the regulatory period;
- depreciation is calculated under a straight-line method for all fixed assets in use included in the RAB. The regulatory asset lifetime is established by taking into account the technical lifetime of different types of assets.

AEEGSI also sets the transition from the extra-WACC approach for transmission network regulation to the new paradigm that will be fully applied from 2020 onwards. In the first sub-period, strategic infrastructure for which the final investment decision was taken before 2016 will still be allowed a transitional (reduced) extra-WACC if it is completed by 2019. At the same time, AEEGSI is setting a new incentive mechanism aimed at fostering cost savings for strategic infrastructure.

Towards a new regulatory paradigm: TOTEX

AEEGSI believes that the hybrid approach in cost recovery may distort network operators' decisions, since it is

not neutral between ‘make or buy’ solutions, and may generate inefficiencies in the mid to long term. The hybrid approach entails the risk that companies may tend to adopt capitalisation policies in order to maximise revenues. Further, productivity analysis in the gas distribution sector has revealed that some companies with a good ranking in relation to operating costs have turned out to be inefficient in terms of total productivity.

For these reasons, AEEGSI has decided to change the regulatory paradigm, with the aim of ensuring efficient and selective infrastructure development and avoiding increased costs for final customers caused by inefficiencies. AEEGSI will apply the new paradigm—based on the total expenditure (TOTEX) approach, combined with incentive menus and output-based incentive schemes—in the second sub-period 2020–23, in order to focus the network operators towards the

value of new investments in terms of outputs (e.g. quality) and services for network users.

According to decision 654/2015, by the end of 2016 AEEGSI will define an action plan for the introduction of the new regulatory framework in 2020. The regulator considers that four years is an adequate period of implementation in order to examine and develop a regulatory toolkit (definition of the baseline, calibration of the regulatory menu, and definition of incentive mechanisms), discuss with stakeholders the different solutions available, and give network operators a reasonable time to prepare for the new regulatory paradigm. International experience has shown that the success of a reform also depends on the commitment of all stakeholders involved.

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The views expressed in this article are those of the authors and do not necessarily represent those of AEEGSI.

¹ See State of New York Department of Public Service’s website, available at: <http://www.dps.ny.gov/>.

² Ranci, P. (2001), ‘Regulating Energy in Italy’, chapter 10, in C. Henry, M. Matheu and A. Jeunemaître (eds), *Regulation of Network Utilities: The European Experience*, Oxford University Press, pp. 195–204.