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**Summary of the
CEER Report on Regulatory
Frameworks for European Energy
Networks 2019**

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Regulatory Frameworks for European Energy Networks 2019

1 Introduction

This CEER report analyses different regulatory systems of electricity and gas networks in most individual EU Member States plus Iceland and Norway. It provides a general overview of the regulatory practices in place, the calculation of a rate of return, the determination of the regulatory asset base (RAB) and the depreciation of assets in the different regulatory systems. Some of the content only reflects an ex-ante approach for 2019, while ex-post calculations still are to be executed. As tariff regulation schemes are highly complex, a direct comparison of certain parameters, such as cost of capital, is difficult and should only be done in the context of the whole regulatory system.

The data for the report was subject to a basic comparison and a number of conclusions were drawn. The data collection, covering the current regulatory regimes in 2019, took place in the first half of 2019. In comparison to the previous reports from 2014 to 2018, no major changes were found in respect to the most important parameters.

2 Description of the Regulatory Framework

The second chapter describes most European countries' regulatory systems in a compact manner. Each national description starts with a fact sheet, showing the key regulatory parameters. The chapter shows that countries have different characteristics of their respective regulatory regimes. On the other hand, it also identifies many parallels between the regulatory regimes.

3 Economic Theory and the Regulatory System

In the past, cost-based regulatory approaches (rate-of-return or cost-plus regulation) were widely used for tariff regulation purposes. In response to the major drawbacks of these cost-based regulation (no incentive for cost minimisation or avoiding waste of resources), incentive-based approaches were developed and are currently applied in many countries.

Incentive-based regulation can be characterised by the use of financial awards and penalties to achieve the desired goals (efficient cost base) whereby the regulated company is allowed some discretion in how to achieve them. Most countries surveyed for this report use incentive-based regulation in the form of a mixture of a cap regulation (revenue or price) and a guaranteed rate of return. Furthermore, the survey reveals that a majority of the regulators require the cost saving mainly on the OPEX side, independent of the type of energy (gas/electricity) or the market layer (TSO/DSO).

4 Calculation of the Rate of Return

In all countries surveyed, network operators are allowed to make a return on investment, just as in a competitive market. However, there are different methods used to calculate the rate of return.

Often a WACC (Weighted Average Cost of Capital) is used. Regulators can distinguish between *nominal or real* and *before and after* taxation as well as a “Vanilla” WACC¹. For electricity network regulation, the most popular approach is to use a nominal WACC before taxation. In the gas sector, the nominal WACC before taxation approach is popular as well, however, the real weighted average cost of capital before taxation is also frequently used. In general, WACC can be expressed by the following components:

- Risk-free rate: There are only marginal differences in the individual regulatory systems concerning evaluation of the risk-free rate. Most regulators evaluate the risk-free rate on the basis of government bonds interest rates and in most cases they use the same methodology for all network operators. The most frequently used bonds have maturities of ten years, but also five-year bonds appear and there is a high usage of historical averages, however, without conformity regarding the years of these averages.
- Debt premiums: The evaluation of the values differs from regulator to regulator. They are usually estimated on the basis of market analysis provided by external experts and internal comparative analysis conducted by the regulators, but some of them also use country ratings. Most regulators add them to the real risk-free rate and the survey shows that for the majority of the countries surveyed, the real cost of debt was evaluated between 2016 and 2019.
- Market risk premium: This is also based on market analysis or reports prepared by expert groups and is evaluated between 2016 and 2018.
- Capital gearing²: This is based on market analysis or reports prepared by expert groups. Concerning the year of evaluation of the gearing ratio most regulators apply years between 2016 and 2018.
- Taxes: This is mostly defined by law and evaluated between 2016 and 2018.
- Beta values³: The majority of regulators evaluate beta values by using external and internal market analysis. The most frequently applied approach in the calculation is to use a formula that includes tax.

Regulators also use different length of regulatory periods and different tariff years in the individual regulatory systems. In general, the majority of regulators evaluate the rate of return parameters in the year before the regulatory period starts and the typical regulatory period is between three and five years independent of TSO or DSO and electricity or gas sector.

5 Regulatory Asset Base

The Regulatory Asset Base (RAB) serves as a fundamental parameter in utility regulation in order to determine the allowed revenue; most countries surveyed use 100% of RAB for that. The structure of individual components included into the RAB and their valuation differ significantly among the countries surveyed and even among the regulated sectors.

The RAB can be comprised of several components such as fixed assets, working capital or construction in progress. The RAB may be valued according to different methods (e.g. historical costs, indexed historical costs or actual re-purchasing costs), which will have an influence on the determination of the CAPEX:

¹ This is the weighted average cost of capital using a pre-tax cost of debt and a post-tax cost of equity.

² Also known as “financial leverage”, this refers to the amount of debt a company has relative to its equity.

³ A measurement of risk compared to the overall market.

- Fixed assets: All regulators count fixed assets into the RAB.
- Working capital: The greater part of countries do not take working capital into the RAB. If working capital is included in the RAB, the application differs.
- Assets under construction: About half of the surveyed regulators include assets under construction into the RAB. Some countries have certain conditions for them to be included.
- Contribution from third parties: The vast majority of the regulators deduct such contributions from the RAB.
- Leased assets: Around 40% of the countries surveyed include leased assets into the RAB. Most other countries include this in the OPEX.

The value of the assets included into the RAB could be expressed either in historical costs or re-evaluated values. The survey shows that the historical cost method is the most common way for calculating the RAB components, followed by the re-evaluated assets method, while a mixture of these two methods is rarely applied.

Over half of the regulators adjust the RAB during the regulatory period and the annual recalculation of the net book value (new investment depreciation) is the most common approach. Concerning the question whether the adjustment affects net book values by accounting for new investments and/or depreciation, most countries surveyed confirm this.

6 Depreciation

In all countries surveyed, the same regulatory method for depreciation is used for electricity and gas, where straight line depreciation is the most common one.

The lifetime of a typical network asset ranges from 30 to 50 years and the majority of the regulators use a separate depreciation rate for each type of asset. For both electricity and gas regulation, most regulators apply the same depreciation rate value for typical TSO and DSO network assets alike.

Similar to the RAB valuation, the depreciation of assets is based on historical values, re-evaluated values or on a mixture of these two methods. The vast majority of regulators allows depreciation of tangible and intangible assets valued on the same basis as the RAB in their regulation.

7 Incentives and improvements

Technological changes affect current developments of the transmission and distribution network levels. Therefore, at both network levels of the electricity sector we find some incentives regarding the installation and operation of smart grids and smart meters. At the electricity DSO level, there are also some incentives established for the integration of renewable distributed generation. In general, more incentives are implemented at the DSO level than at the TSO level and more in the electricity sector than in the gas sector. Concerning trending topics and regulatory improvements, many regulators are considering adjustments in their next regulatory period.