Report on Regulatory Frameworks for European Energy Networks 2024

Summary

Ref: C24-IRB-74-03a

January 2025

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1 Introduction

This Council of European Energy Regulators (CEER) report analyses different regulatory systems of electricity and gas networks of CEER Members plus Northern Ireland and five Energy Community Regulatory Board (ECRB) Members, four of which are also CEER Observers. It provides a general overview of the regulatory practices in place, the calculation of a rate of return (RoR), 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 2024, while ex post calculations are still 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 2024, took place in the first till third quarter of 2024. In comparison to the previous reports from 2014 to 2023, no major changes were found in respect of the most important parameters.

2 Description of the regulatory framework

The second chapter describes most European 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 in 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 regulation approaches (rate-of-return or cost-plus regulation) were widely used for tariff regulation purposes. As a response to the major drawbacks of these cost-based regulation approaches (no incentive for cost minimisation or 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 (an 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 cap regulation (revenue or price) and a guaranteed RoR. Furthermore, the survey reveals that a majority of the regulators require cost savings mainly on the operational expenditure (OPEX) side, independent of the type of energy (gas/electricity) or the market player (Transmission System Operator (TSO) or Distribution System Operator (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 RoR.

Often a weighted average cost of capital (WACC) is used. Regulators can distinguish between *nominal* or *real* and *before* or *after* taxation as well as a “vanilla” WACC. For electricity network regulation, the most popular approach is to use the nominal WACC before taxation. In the gas sector, the nominal WACC before taxation approach is also popular, however, the real WACC before taxation is also frequently used. In general, the 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 based on government bond 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 five-year bonds also appear. 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 based on market analysis provided by external experts and internal comparative analysis conducted by the regulators, although some of them also use country ratings. Most regulators add debt premiums to the real risk-free rate. The survey shows that for most of the countries surveyed, the real cost of debt was evaluated between 2015 and 2024;
- Market risk premium. This is also based on market analyses or reports prepared by expert groups and is evaluated between 2015 and 2024;
- Capital gearing. This is based on market analyses or reports prepared by expert groups. Concerning the year of evaluation of the gearing ratio, most regulators use years between 2015 and 2024;
- Taxes. This is mostly defined by law and evaluated between 2015 and 2024; and
- Beta values. Most regulators evaluate beta values by using external and internal market analyses. The most frequently applied approach to the calculation is to use a formula that includes tax.

Regulators also use different lengths of regulatory periods (RPs) and different tariff years in their individual regulatory systems. In general, the majority of regulators evaluate the RoR parameters in the year before the RP starts, and the typical RP is between three and five years, independent of whether the period applies to the TSO or DSO or the electricity or gas sector.

5 Regulatory asset base

The RAB serves as a fundamental parameter in utility regulation in order to determine the allowed revenue; most countries surveyed use 100% of the RAB to do this. The structure of individual components included in 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 capital expenditure (CAPEX):

- Fixed assets. Nearly all regulators count fixed assets in the RAB;
- Working capital. The majority of countries do not include working capital in the RAB. If working capital is included in the RAB, the application differs;
- Assets under construction. Nearly half of the regulators include assets under construction in the RAB. Some countries have certain conditions for them to be included;

- Contributions from third parties. The vast majority of the regulators surveyed deduct such contributions from the RAB; and
- Leased assets. Nearly half of the countries surveyed include leased assets in the RAB. Most other countries include this in OPEX.

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

Over half of the regulators adjust the RAB during the RP. Annual recalculation of the net book value (NBV) (new investment depreciation) is the most common approach. Concerning the question of whether the adjustment affects NBVs by accounting for new investments and/or depreciation, most countries surveyed confirmed that this adjustment is applied.

6 Depreciation

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

The lifetime of a typical network asset ranges from 20 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 a mixture of these two methods. The vast majority of regulators allow depreciation of tangible and intangible assets valued on the same basis as the RAB in their regulation.

7 Incentives and improvements

Technological changes affect transmission and distribution networks. 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 RP.