

Regulatory Frameworks Report 2025

Regulatory Frameworks Report 2025 – Background

- Former Investment Conditions Report
- 2018 changed into Regulatory Frameworks Report
- 2025: 8th version
- Every year high figures of downloads

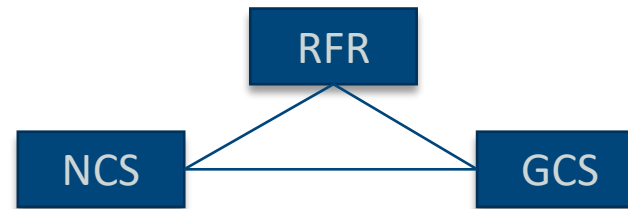
Regulatory Frameworks Report 2025 – In General

- Objective: *Provide a general overview of the regulatory regimes applied in 2025 and the required efficiency developments, with a major focus on the calculation of an adequate rate of return, regulatory asset base, depreciation of assets and incentive mechanisms.*
- 35 European countries
 - 29 CEER members + Northern Ireland
 - 5 ECRB members (4 of which are CEER observers)
- Toolbox of regulatory components in use
- Most regulatory regimes are complex and individually adjusted. Therefore, the report cannot give a complete description of all European regulatory systems and direct comparison of certain parameters, such as capital cost, is difficult and should only be done in the context of the whole regulatory system!



Regulatory Frameworks Report 2025 – Structure

- Report is a living document – new ideas and developments lead to annual changes and adjustments
- RFR main text as one part of a describing triangle:



- NCS: National Case Studies (Annex 5 – since RFR19)
- GCS: General Case Study (Annex 6 – since RFR22)
- The German NRA, BNetzA, is the editor of the report. All participants author their own subchapter in Chapter 2 and the annexes. BNetzA evaluates the submitted tables (Chapters 3-7)

Regulatory Frameworks Report 2025 – Contents

- Main document
 - Ch. 2: Description of the regulatory frameworks for each participant (limited to 5 pages each)
 - Fact sheet at the beginning
 - Individually designed text with descriptions
 - Ch. 3: Economic theory and the regulatory system
 - Ch. 4: Calculating the Rate of Return (RoR)
 - Ch. 5: Regulatory Asset Base (RAB)
 - Ch. 6: Depreciations
 - Ch. 7: Incentives and improvements
- Annex 4: Collected and filled out excel tables
- Annex 5: NCS – Sample calculations, tables and further descriptions of the national regulatory system (voluntary)
- Annex 6: GCS – Example calculations on one fictional example DSO (voluntary)

Chapter 2 - Description of the regulatory framework

- Fact sheet
 - One column per network sector (G, E) and level (TSO, DSO)
 - Topics: market structure, general framework, rate of return, regulatory asset base, depreciations
 - Idea: Keep it compact on one page – most countries were able to stay more or less within this limitation
- Additional text with detailed description
- New paragraph in Chapter 2 on “Mode of action of incentives”
 - (AT): description of productivity factor X_{gen} , and benchmarking methods, efficiency dependent WACC
 - (HR): efficiency factor X + profit-sharing mechanism
 - (GE): methods for benchmarking and productivity factor are described
 - (IT): cost reduction incentives
 - (LV): cost efficiency coefficient
 - (LU): incentive to improve forecasted spendings
 - (AL): describe regulation factors
 - (GE): productivity and efficiency incentives + service quality standards

Chapter 3 - Economic theory and the regulatory system

3.1 Regulatory System in Place

- In most countries: incentive based approaches
- Mixture of revenue (or price) cap and guaranteed rate of return
 - Response to the drawbacks of former cost-plus regulation

3.2 Efficiency Requirements

- Inefficiencies have to be reduced during the current regulatory period
- In most cases the reduction has to be on the OPEX

3.3 Non-controllable Costs

- The share of the non-controllable costs on the allowed revenue varies largely (0.5% - 86%)
 - Most important cost positions: network losses, network fees, ancillary services, redispatch
 - Only very few countries distinguish between permanently non-controllable costs and temporarily non-controllable costs

3.4 General Overview of System Operators

- Nearly all countries only have one TSO for gas and one for electricity
- In most of the countries, the TSO functions of transport and system operation are within one company
- Also, in most cases a common methodology for setting the revenues for both functions is used

3.4.2 OPEX

- mostly consists of personnel and operating costs (only in a few times also financial expenses); half of the countries look at inflated costs

3.4.3 CAPEX

- CAPM, WACC for Rate of Return; investment plans like the TYNDP

3.4.4 Incentives and Penalties

- redispatching optimization, improvements in forecasting, efficient energy transmission, quality of supply, grid connection, continuity of supply, R&D expenses, or innovation

3.4.5 Tariffs

- In most cases no special tariffs

3.4.6 Allowed Revenue


- Incorporation into new tariffs, sometimes correction factor

Chapter 4 - Calculation of the Rate of Return (RoR)

4.1 Methods Used to Calculate the RoR

- Different ways, but mostly a weighted average cost of capital (WACC) factor is used. Simplified formula:

$$WACC = \frac{Equity}{(Equity + Debt)} * Cost\ of\ equity + \frac{Debt}{(Equity + Debt)} * Cost\ of\ debt$$



 Weighting factors

- Choice between: *nominal / real* and *before / after taxation* and *vanilla WACC*
 - Most NRAs implement a nominal WACC before taxation

*Cost of equity (post tax, nominal) = risk free rate (nominal) + market risk premium * equity beta*

$$Cost\ of\ equity\ (pre\ tax,\ nominal) = \frac{Cost\ of\ equity\ (post\ tax)}{(1 - tax\ rate)}$$

Cost of debt (nominal) = risk free rate (nominal) + debt premium

Chapter 4 - Calculation of the Rate of Return (RoR)

4.2-4.3 Rate of Return Parameters

- Most NRAs evaluate the RoR parameters in the year before the RP starts (base year)
 - Regulatory period (RP) ~ mostly 4 – 5 years
 - Risk free rate (nominal) ~ -1.7 – 6.84 % (0.0 – 10.24 % for ECRB)
 - Debt premium ~ 0.27 – 6.84 %
 - Market risk premium ~ 3.5 – 8.0 % (4.77 – 10.46 % for ECRB)
 - Gearing ratio ~ 40 – 60 %
 - Asset beta ~ 0.35 – 0.66
 - Equity beta
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- Definitions
 - Risk free rate = expected return on an asset which bears in theory no risk at all
 - Debt premium = expected RoR above a determined risk-free rate
 - Market risk premium = excess return that the overall stock market provides above an investment at the risk-free rate
 - Gearing ratio = proportion of assets that were funded from borrowed funds
 - Asset beta = measures the volatility of a given stock, reflects the business risk
 - Equity beta = indication of the systematic risk attached to the returns of an ordinary stock

Chapter 6 - Depreciation

Mode of Depreciation

- Most often used is straight line depreciation
- Alternative: accelerated depreciation, not often now, but perhaps in the future for gas sector
 - E.g. Germany implemented a choice between straight line and accelerated in gas

Depreciation Ratios

- Depreciation rate depending on the type of asset
 - Mostly between 2 and 5 % (20-50 years)
 - Mostly, an individual rate for each type of asset
 - E.g. lines and pipes ~ 40 years lifetime
 - A few countries use the average rate for all companies and all assets
- Gas: depreciation rate such that life ends in 2045 or 2050

Base values

- Depreciations can be based on historic values, re-evaluated values or a mixture of both
 - Mostly, the same method is used as for the RAB

Chapter 7 – Incentives and improvements

7.1 Description of the incentives established

- The installation of incentive elements in the national regulatory regimes are assessed as one main element
- Example incentives:
 - Enhancement of cost efficiency in operational costs
 - Improvement of quality, security of supply and cybersecurity
 - Integration of renewable energies, smart technologies, electric vehicle, recharging
- Some countries name further incentives in their regulatory regime, e.g.
 - Network stability and market liquidity
 - Collaboration across the operator levels
 - Ensuring that stakeholder concerns are addressed
 - Incentives for customer satisfaction
 - Innovation support
 - Investment control incentive
 - Financial prudence incentive
 - Asset lifetime extension incentive

Chapter 7 – Incentives and improvements

7.2 If there are no incentives established

- Some countries already plan to implement incentives
- For example:
 - Commercial quality in a reward and penalty scheme
 - New components in the quality element to incentivise the energy transmission competence and the digitalization of electricity DSOs
 - Preparation of the gas system for the transmission of renewable and low-carbon gases
- Luxembourg and Czech Republic introduced a new tariff methodology / regulatory framework

7.3 Regulatory consequences of the energy crisis

- Separate WACCs for old and new assets, more frequent re-evaluation of assets
- Several legal changes and adjustments to accelerate the grid extension
- Increased discount rates on electricity bills for vulnerable consumers
- Change in depreciation mode to faster depreciate gas assets

Chapter 7 – Incentives and improvements

7.4 Other trending topics and regulatory improvements

- integration of renewable energies or new tasks caused by changes in energy markets and climate change like decarbonization or integration of new assets (e.g. hydrogen, biomethane, ...)
- Increasing transmission capacity
- Installation and operation of data hubs
- System and cyber security
- Access to the grid for solar and wind power parks

7.5 Details on the methods used to implement incentives

- (AT) Efficiency score: 50% DEA with super-efficiency and outlier analysis, 50% MOLS with Cook Distances
- (DE) Efficiency score: Best-of-4 (DEA/SFA, Totex/sTotex), productivity factor via Törnqvist and Malmquist
- (LU) Quality of information provided to the regulator
- (ES) bonus/malus system to incentivise reduction of losses in gas transmission pipelines
- Quality element as bonus/malus system via ASIDI/SAIDI or AIT/AIF

Regulatory Frameworks Report 2025 – Changes 2025

- General data update
- New participant: Bulgaria (with tables for gas sector)
- New paragraph in Chapter 2 on “Mode of action of incentives”:
 - (AT): description of productivity factor X_{gen} , and benchmarking methods, efficiency dependent WACC
 - (HR): efficiency factor X + profit-sharing mechanism
 - (GE): methods for benchmarking and productivity factor are described
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 - (GE): productivity and efficiency incentives + service quality standards
- New subchapter 7.5 “Details on the methods used to impellent incentives”

Annexes 5 and 6

- National Case Studies (Annex 5)
 - 12 NRAs participated (Austria, Estonia, Finland, Germany, Greece, Latvia, Lithuania, Netherlands, Norway, Portugal, Spain, Sweden)
 - Greece reviewed their case study
 - Detailed descriptions of the regulatory regimes
 - no page limitation
 - space for calculations, tables and figures

- General Case Study (Annex 6)
 - 5 NRAs participated (Austria, Germany, Spain, Greece, Sweden)
 - Goal: Show differences between the single regulatory regimes
 - Focus on common regulatory corridor
 - One fictional electricity DSO is given with assets and costs
 - Questionnaire about regulatory system: Depreciation, RAB, WACC
 - Important: No judging comparison