ARTICLE

Economic regulation of the electricity sector in Ivory Coast

Economic regulation in Africa

On 1 January 2021, the 12-year agreement signed last October between the Government of Ivory Coast and the country's integrated electricity utility CIE (Compagnie Ivoirienne d'Electricité) became operational, establishing one of the first incentive-based regulatory regimes in Africa. FTI Consulting acted as advisor on economic and financial aspects to help achieve the Government's goals: to improve quality of supply, increase cost efficiency and transparency, prepare for sector liberalisation, and establish a clear and dynamic remuneration mechanism.

"1,000 thanks to the whole FTI team for your incredible commitment […] We have greatly appreciated all of your advice."

Office of the Energy Minister of Ivory Coast

In 2019 and 2020, FTI Consulting helped define an entirely new regulatory regime for the Ivorian electricity sector, aiming at improving service quality for the Ivorian population, reducing costs, and increasing accountability.

An Ivorian electricity sector fit for the future

The Compagnie Ivoirienne d'Electricité (CIE) had been the privately-owned electricity monopolist in charge of most of the electricity sector operations since 1990 in Ivory Coast.

After several amendments, the agreement between the Ivorian state and CIE was due to expire in 2020.

To meet the challenges of a growing and more diverse electricity sector, the government wished to go beyond the pre-existing agreement and fundamentally renew its relationship with CIE. In particular, it wished to improve performance, expand electrification, increase cost accountability and transparency, achieve financial sustainability and prepare for the further liberalisation of the sector.

In 2019, Ivory Coast's Energy Ministry, and its electricity sector supervising agency Côte d'Ivoire Energies, assembled a team of legal, technical and economic advisors, including FTI Consulting, to devise a new agreement between the State and CIE which would support the expected growth of consumption and deliver the framework to achieve the renewed objectives set for the electricity sector.

Working alongside public authorities, FTI Consulting developed the economic concept and supported the drafting of the new agreement to govern the remuneration and operations of the private national utility CIE for the next 12 years. FTI provided international benchmarks, developed and reviewed business plans, highlighted relevant regulatory options and their impacts, offered recommendations for ministerial approval, as well as provided draft wordings for all economic clauses to the legal team.

With a view towards modernising the economic regulation of the electricity sector by drawing on international best practices, FTI Consulting helped develop and adapt the following key regulatory mechanisms to achieve the government's objectives.

KEY REGULATORY MECHANISM

Objectives	Regulatory mechanism
Improve quality of supply	Incentive-based regime
Increase cost efficiency, accountability and economic understanding of operations	Business Plan with triennial reviews
Preparing for further liberalisation while maintaining horizontal synergies	Progressive accounting and operational segmentation
Establishing predictable remuneration mechanisms and containing risks	Cap and floor on financial incentives

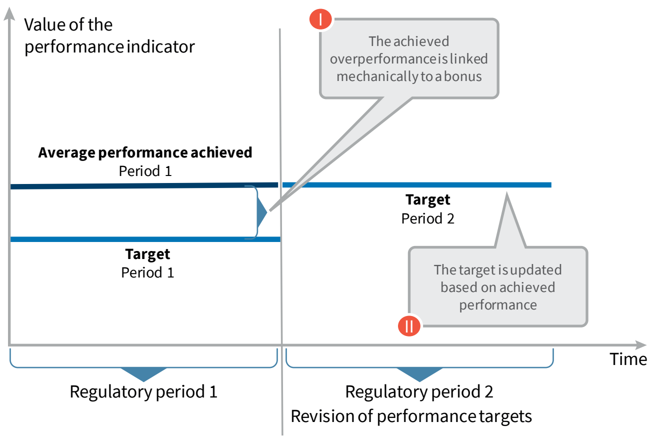
Improving quality of supply

Based upon FTI Consulting's recommendations, the Energy Ministry adopted a financial incentive scheme for CIE to improve its quality of supply and services based on a list of 23 performance indicators.

CIE will see its profit margin increased or reduced according to pre-determined formulas linking the achieved values of performance indicators to financial bonuses or penalties.

The target values for the indicators are revised every three years based on the Energy Ministry's accumulated information regarding CIE's performance, while also considering international benchmarks. For each triennial review, the performance over the past period is accounted for, meaning that high bonuses in one period for one indicator will become harder to achieve in the next period as the target is adjusted upwards. This continuous revision process is illustrated in the figure below.

FIGURE 1: INCENTIVE-BASED REGIME FOR QUALITY OF SUPPLY



This framework constitutes a significant leap in sophistication compared to the preceding agreement between the government and CIE, which provided only for *ad-hoc* penalties (with no bonuses) for only four indicators – penalties which were ultimately never applied.

Increasing cost efficiency, accountability and economic understanding of operations

The electricity sector in Ivory Coast is set to grow significantly over the next decade, with the current population of c. 26 million expected by the UN to double by 2050,[1] combined with an ambitious 99% electrification target by 2035.[2] CIE's activity is accordingly set to expand over the course of the new agreement, reaching more remote customers with higher costs to serve, which makes it more important than ever for the government to ensure CIE is run efficiently to maintain electricity affordability.

At the heart of the new financial framework lies CIE's business plan, which sets out CIE's detailed estimated costs for each segment, which are:

— Production;

— Transmission;

— Distribution;

— Dispatching;

— Retail; and

— Import-export.

1 United Nations (population.un.org/wpp/)

2 World Bank (banquemondiale.org/fr/news/feature/2020/07/23/the-secret-to-cote-divoires-electric-success)

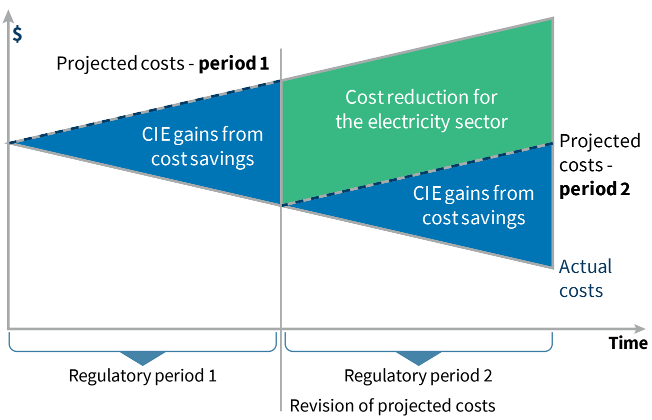
CIE's base remuneration consists of the coverage of its estimated costs, plus a regulated margin which was determined after a review of national and international benchmarks.

After each year, the Energy Ministry measures CIE's actual costs against the estimated costs from the business plan. If CIE outperforms the estimates, it can improve upon its base remuneration by earning a fixed percentage of the cost savings. On the other hand, if CIE underperforms, it bears the additional costs and thus reduces its final profit margin.

A new business plan is submitted by CIE for every three-year period, which must account for the cost reductions effectively achieved in the previous period. Based on reviews of CIE's historic spending as compared to previous business plans, the Energy Ministry can analyse, challenge and propose revisions to the new business plan for the next period, which is eventually agreed between the State and CIE before the start of the new three-year period.

This system creates a virtuous cycle: CIE is incentivised to lower its costs in the medium term (three years) to improve its profits, however for each subsequent business plan the target costs become increasingly difficult to achieve and so CIE must find new innovative ways to reduce costs further. This dynamic mechanism is illustrated in the figure below.

FIGURE 2: REVISION OF THE BUSINESS PLAN BETWEEN REGULATORY PERIODS



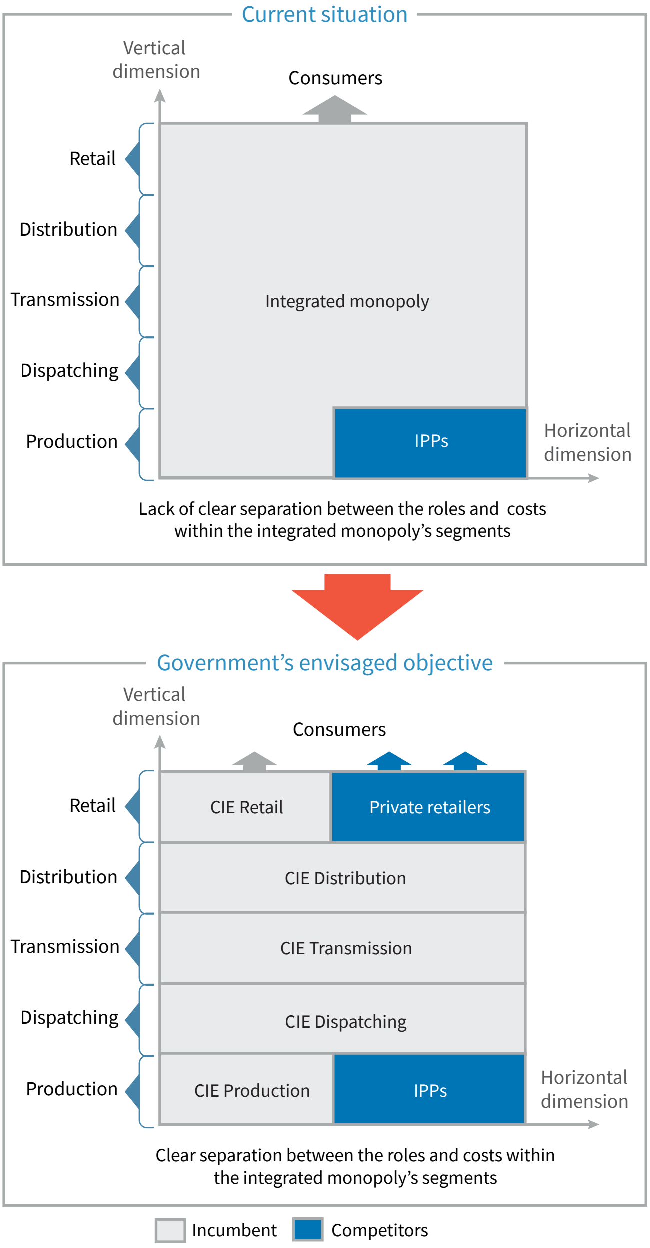
Preparing for further liberalisation while maintaining horizontal synergies

As part of its long-term strategy, the Ivorian Government asked FTI Consulting for a roadmap to liberalise the electricity sector, where CIE is currently the monopolist in the transmission, dispatching, distribution and retail segments.[3]

Based on experience of electricity sector liberalisation in other markets, FTI Consulting recommended focussing in the first place on establishing an accounting separation between CIE's different segments, before working towards operational and *de jure* separation, aiming notably at potentially opening up the retail segment for competitors.

Based on these recommendations, the new agreement places a strong focus on cost transparency and separated accounts between each of CIE's segments. This enables both increased accountability on operations of similar nature, and preparedness for the potential separation of one or more segments to be opened to private competitors.

FIGURE 3: KEY INITIAL STEPS TOWARDS SECTOR LIBERALISATION



3 The production sector is partially liberalised, with Independent Power Producers covering c. 70% of domestic power generation (ibid.).

Establishing predictable remuneration mechanisms and containing risks

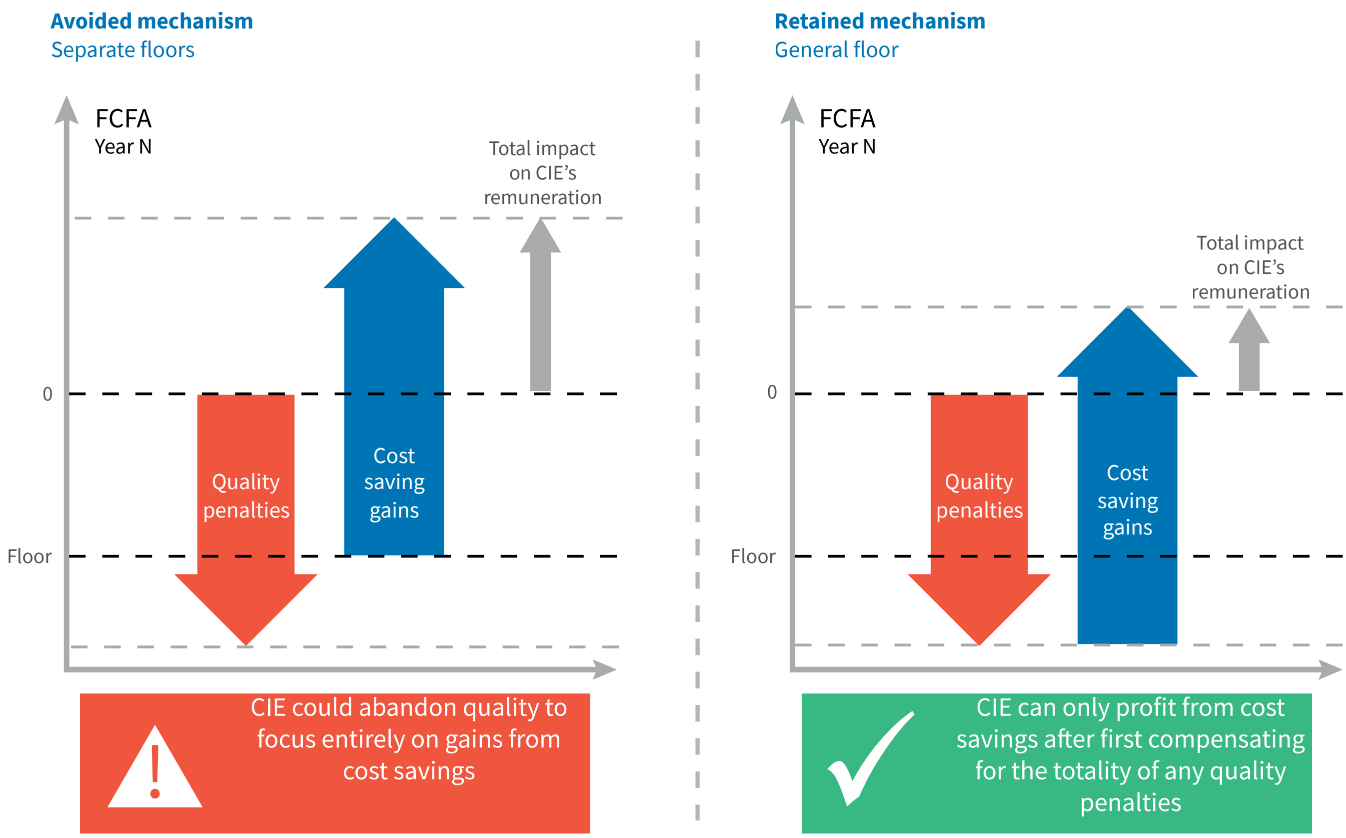
Regulated companies desire a predictable set of rules from their regulator in order to adequately assess risks and plan for the future, while at the same time regulators wish for financially significant and regularly updated incentives to align the regulated company management with the evolving metrics reflecting public policy goals.

In this context, the asymmetry of information between (i) the regulated company performing operations and (ii) the regulator supervising them at only a higher level, may lead to inefficient outcomes: if performance indicators or cost benchmarks are poorly calibrated, a risk of excessive bonuses or penalties may occur.

In order to contain the financial risk to CIE, while ensuring incentives have an impact on CIE, the cumulative effect of automatically applied penalties is subject to a common floor, encompassing both quality of supply and cost reduction incentives. Similarly, a cap on bonuses is applied, to limit the risk to the Energy Ministry of miscalibrating either cost or quality targets.

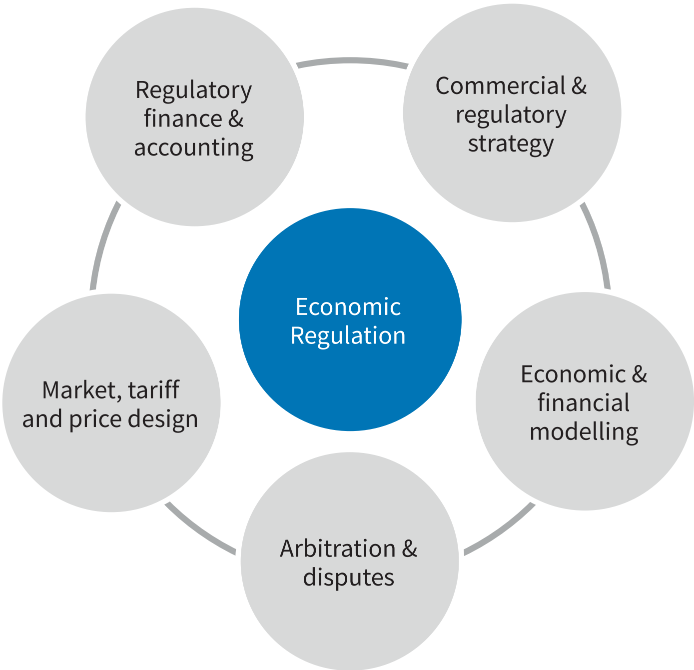
Crucially, the agreement ensures that CIE cannot abandon quality of supply objectives in order to benefit exclusively from cost savings (or vice-versa). Both quality and cost penalties and bonuses are subject to the common floor, so that any benefits from cost savings will only accrue to CIE after they have compensated the total amount of penalties, including penalties beyond the floor. This is illustrated in the figure below.

FIGURE 4: FINANCIAL IMPACT OF CIE'S COST AND QUALITY INCENTIVES



Economic regulation

FTI Consulting's areas of expertise



FTI Consulting's economic regulation experts advise governments, regulators, companies and their investors in the pursuit of regulatory outcomes that strike a balance between the promotion of efficient operations and investment incentives, competition and continued investment in assets and service quality.

Our advisors combine exceptional technical expertise and economic rigour with extensive sector-specific knowledge, as they advise clients facing complex and fundamental changes in critical infrastructure sectors.

The economic regulation team is part of FTI Consulting's globally recognised Economic & Financial Consulting practice. Building on our renowned expert witness and competition knowledge, our specialists advise companies and regulators across a wide range of industries.

Our team is made up of a diverse mix of experts: former sector regulators, in-house regulatory economists, engineers, and highly-qualified academics who have conducted pioneering research in their fields. Together with FTI Consulting's experienced economic and financial consultants, contributing many years of sector-specific expertise, the economic regulation team provides unrivalled depth of academic rigour, coupled with breadth of practical experience in several languages. More recently, our experts have also been advising clients in markets relatively new to advanced economic regulation, inlcuding Africa.

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EMMANUEL GRAND
Senior Managing Director
+33 1 40 08 12 43
emmanuel.grand@fticonsulting.com

JOACHIM MOWINCKEL
Director
+33 1 40 08 12 53
joachim.mowinckel@fticonsulting.com

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