



International Congress on Economics, Management and Business Studies

Hosted Online from New York, USA

Date: 23rd October, 2026

Website: <https://econferencia.com>

ALIGNING THE USEFUL LIVES OF ELECTRICITY NETWORK ASSETS WITH A TECHNICAL CONDITION INDEX AND THE REGULATORY PERIOD

Muzaffar Kholboevich Mardanov PhD

E-mail: m.mardanov@tsue.uz

Abstract

This study develops a methodology for aligning the useful lives of electricity-network assets with a technical condition index (TCI) and the regulatory period. For five TCI bands, the framework specifies technical actions and their accounting, tariff and audit consequences; it also establishes rules for overhaul components, decommissioning obligations and pools of mass assets. In addition, the study proposes a model in which the timing difference between accounting depreciation and tariff-recovered depreciation is recognised as a regulatory asset or liability. Applied to Regional Electric Power Networks JSC, the model produces a depreciation timing difference of approximately UZS 153-455 billion, depending on the technical-condition scenario.

Keywords: Useful life; technical condition index; component accounting; depreciation; decommissioning provision; regulatory asset; regulated asset base; IFRS 20.

Introduction

Under the regulated asset base (RAB) framework effective from 1 August 2026, eligible assets are determined using IFRS-based financial statements, the post-tax rate of return is 14-16 per cent, and the regulatory period ranges from one to five years [1; 2]. Consequently, depreciation recovered through tariffs becomes a function of the useful lives adopted in accounting policy: shorter lives increase



International Congress on Economics, Management and Business Studies

Hosted Online from New York, USA

Date: 23rd October, 2026

Website: <https://econferencia.com>

the revenue requirement, whereas longer lives increase reported profit in the short term. Current useful-life assumptions are not consistently linked to technical condition. Regional Electric Power Networks JSC (REPN JSC) applies uniform lives of 25 years to machinery and equipment and 30 years to transmission devices [3, accounting policy], whereas National Electric Grid of Uzbekistan JSC (NEGU JSC) applies a 5-50 year range to transmission structures and equipment and reports UZS 460,038 million of fully depreciated assets that remain in use [4, Note 6]. IAS 16, however, requires useful lives to be reviewed at least at each financial year-end based on expected utility [5, paras. 51, 56-57]. The purpose of this study is to develop a methodology that aligns useful lives with a technical condition index (TCI) and the regulatory period.

The TCI expresses asset condition on a 0-100 scale using diagnostic parameters. One of the most detailed regulatory models is the methodology established by Order No. 676 of the Russian Ministry of Energy: an asset is decomposed into functional units, unit scores are aggregated using weights, and the result is classified into five bands - 0-25 critical, 25-50 poor, 50-70 satisfactory, 70-85 good and 85-100 very good [6, paras. 2.2 and 2.4; Table 1]. Under Ofgem's Common Network Asset Indices Methodology (CNAIM), condition deteriorates exponentially with age: the "health score" rises from 0.5 for a new asset to 5.5 at end of life [7, sections 6.1.4-6.1.6]. Uzbekistan does not yet regulate a comparable index, but the required inputs - technical supervision records, inspection reports and test protocols - already exist under the national technical-operation rules [8]. The core proposition is that the TCI is not an accounting entry; it is an input to an accounting estimate. Remaining useful life is expressed as $RUL = UL \times \varphi(TCI)$, where UL is the expected useful life and φ is a convex condition function calibrated to CNAIM; changes are accounted for prospectively [9, para.



International Congress on Economics, Management and Business Studies

Hosted Online from New York, USA

Date: 23rd October, 2026

Website: <https://econferencia.com>

36]. Each TCI band is therefore linked not only to a technical response but also to accounting, tariff and audit consequences (Table 1).

Table 1 TCI bands and their accounting, tariff and audit implications

TCI band	Technical action	Accounting implication	Tariff (RAB) and audit
Very good (85-100)	Routine diagnostics	Remaining life exceeds normative life; extend up to approved upper limit	Fully included in RAB; TCI protocol serves as evidence
Good (70-85)	Routine diagnostics based on results	Maintain normative life; review if deviation exceeds 20% (IAS 16.51)	Included in RAB; annual review documentation
Satisfactory (50-70)	Enhanced monitoring; major overhaul	Shorten useful life; separate overhaul component	Included in RAB; linked to overhaul programme
Poor (25-50)	Additional maintenance and repair	Remaining life limited to replacement plan; impairment indicator (IAS 36.12(e))	Include in investment programme; test estimate (ISA 540)
Critical (0-25)	Remove from service; reconstruct/replace	Remaining life $\leq$ 1 year; decommissioning provision (IAS 37.14; IFRIC 1)	Exclude from RAB; evidence of existence and condition

Source: author's compilation based on [5; 6; 10; 11; 12].

Three additional rules complete the algorithm. First, overhaul components: the cost of a major overhaul or major inspection is recognised as a separate component and depreciated until the next overhaul, while the remaining carrying amount of the previous overhaul component is derecognised. In generation and network businesses, where overhaul programmes may cover dozens of units each year, this treatment reduces artificial profit volatility and provides a transparent basis for recovery through the RAB. Second, decommissioning obligations: a



International Congress on Economics, Management and Business Studies

Hosted Online from New York, USA

Date: 23rd October, 2026

Website: <https://econferencia.com>

present obligation for retirement, dismantling and disposal is recognised as a provision, and its discounted amount is included in the cost of the related component. A movement into the critical TCI band becomes a trigger to reassess the provision. Neither REPN JSC nor NEGU JSC currently reports such a provision. Third, pools of mass assets: meters, poles and insulators are accounted for not as individual inventory objects but as annual pools of homogeneous units, consistent with the “retirement unit” approach used in US utility accounting. The pool TCI is linked to the proportion of functioning units. More than 234,000 of REPN JSC’s 8.16 million meters are not transmitting data; accordingly, 2.9 per cent of the pool should be isolated as a separate “critical pool” and either assigned a shorter remaining life or derecognised.

Useful lives and the regulatory period are aligned through two rules. The first is a regulatory useful-life catalogue: at the beginning of each regulatory period, benchmark component structures and useful lives are approved for tariff purposes, and deviations by an individual entity are permitted only when supported by TCI evidence. Useful life therefore ceases to be a negotiable tariff input. The second rule concerns subsequent recovery of timing differences. Because tariff calculations are based on prior-period reporting, depreciation revised using the TCI enters the tariff with a one-period lag:

$$RA_T^D = \sum_{t=1}^T (D_t^{\text{xic}} - D_t^{\text{tap}}) ; \quad D_t^{\text{tap}} = D_{t-1}^{\text{xic}} \Rightarrow RA_T^D = D_T^{\text{xic}} - D_0^{\text{xic}} \quad (1)$$

where D_{acc} is depreciation recognised in the financial statements, D_{tar} is depreciation recovered through the tariff, and RAD is the cumulative timing difference. A positive balance is a regulatory asset and a negative balance is a regulatory liability. IFRS 20, issued on 27 May 2026, requires such regulatory timing differences to be recognised from 2029 and permits earlier application, provided that the regulatory agreement establishes an enforceable right to recover



International Congress on Economics, Management and Business Studies

Hosted Online from New York, USA

Date: 23rd October, 2026

Website: <https://econferencia.com>

or obligation to refund the difference in a future period. The accounting and tariff action calendar is presented in Table 2.

Table 2 Calendar for reviewing useful lives and aligning them with the regulatory period

Event / date	Accounting action	Tariff (RAB) action	Documentation and evidence
Year-end (31 Dec)	Review useful lives using TCI (IAS 16.51)	Depreciation enters next-period revenue requirement	Register report: TCI, Δ UL, Δ D
Start of regulatory period	Confirm compliance with catalogue	Useful-life catalogue; deviations supported by TCI evidence	Catalogue; deviation register
Change in TCI band	Prospective change (IAS 8.36); disclosure (IAS 8.39)	Timing difference under equation (1) recovered in next period	TCI protocol
Major overhaul / inspection	Overhaul component (IAS 16.14, 16.70)	Recover through RAB or operating expenditure	Overhaul completion certificate
Retirement decision (TCI $\leq$ 25)	Derecognise asset; recognise decommissioning provision (IAS 37.14)	Remove from RAB	Decision; decommissioning plan
1 Jan 2029 — IFRS 20	Recognise regulatory asset/liability under equation (1)	Recovery/refund mechanism specified in tariff methodology	Regulatory agreement

Source: author's compilation based on [1; 5; 9; 11; 17].

The methodology was tested through a model calculation using REPN JSC. Depreciation of the “machinery and equipment” class in 2025 amounted to UZS 784,489 million. Applying the benchmark component structure and TCI-linked useful lives increases depreciation to UZS 937,709-1,239,001 million under three



International Congress on Economics, Management and Business Studies

Hosted Online from New York, USA

Date: 23rd October, 2026

Website: <https://econferencia.com>

scenarios (TCI-0/1/2: 10/25/40 per cent of assets are one condition band worse than age would imply, while 20/10/5 per cent are better). The resulting increase is UZS 153,220-454,512 million, or 19.5-57.9 per cent. Under TCI-1 and TCI-2, the increases of UZS 315,827 million and UZS 454,512 million exceed the 1 per cent materiality threshold for total assets (UZS 270,565 million). Under the RAB framework, the full first-year effect becomes a timing difference: if recovery is enforceable it is a regulatory asset; if not, it is an unrecovered expense equal to 35-105 per cent of 2025 net profit (UZS 431,656 million). For NEGU JSC, the same model produces the opposite effect because existing lives are shorter than the benchmark composite life: component accounting reduces depreciation by UZS 107,703 million, or 23.6 per cent. A single regulatory catalogue can therefore affect the tariffs of the two companies in opposite directions and should be assessed on an entity-by-entity basis during the 2027 RAB review.

From an audit perspective, useful life is an accounting estimate and the TCI is an input to that estimate. The auditor should test the completeness and accuracy of the underlying data through the “inspection protocol - asset register - accounting records” trail, assess calibration of the condition function by comparing condition-based and normative remaining lives for assets whose condition is consistent with age, and evaluate the work of the technical expert [12]. A single condition indicator can thus become a common evidential basis for management’s accounting estimate, the regulator’s tariff decision and the auditor’s conclusion.

Conclusions and recommendations

Under the RAB framework, useful life has evolved from a purely accounting estimate into a tariff variable. It should therefore be determined from documented technical condition rather than management discretion alone. The TCI can serve



International Congress on Economics, Management and Business Studies

Hosted Online from New York, USA

Date: 23rd October, 2026

Website: <https://econferencia.com>

as a common input for the company, the regulator and the auditor, linking accounting, tariff and audit decisions across condition bands. The following measures are recommended:

- 1) amend NAS No. 5 to introduce explicit requirements for component accounting, major-inspection components, decommissioning costs and annual review of useful lives based on technical condition;
- 2) add a TCI methodology to the technical-operation rules, including functional units, weights, a 0-100 scale and five condition bands; apply the full methodology to assets of 35 kV and above and a simplified assessment to 0.4-10 kV networks;
- 3) add to the RAB methodology a regulatory useful-life catalogue and a rule for recovering depreciation timing differences in subsequent periods, while excluding assets in the critical condition band from the RAB;
- 4) apply IFRS 20 early in regulated entities and recognise qualifying timing differences as regulatory assets and regulatory liabilities;
- 5) incorporate into audit programmes procedures for testing useful-life estimates through the “TCI protocol - asset register - accounting records” evidence trail, reperformance of calibration and evaluation of the technical expert’s work.

References

1. Ministry of Economy and Finance of the Republic of Uzbekistan. Information on the initial stage of introducing prices based on the regulated asset base in the electricity and natural-gas sectors, 29 April 2026. <https://gov.uz/uz/imv/news/view/159309>
2. Ministry of Economy and Finance of the Republic of Uzbekistan. A new system of state tariff regulation in the energy sector introduced in Uzbekistan, 7 August 2026. <https://gov.uz/uz/imv/news/view/203538>



International Congress on Economics, Management and Business Studies

Hosted Online from New York, USA

Date: 23rd October, 2026

Website: <https://econferencia.com>

3. Regional Electric Power Networks JSC. Consolidated IFRS Financial Statements and Independent Auditor's Report for the year ended 31 December 2025.

https://het.uz/uploads/4da8bd49-5a8c-814a-e327-18f919f4cea5_media_.pdf

4. National Electric Grid of Uzbekistan JSC. Consolidated financial statements as at and for the year ended 31 December 2024 with independent auditor's report.

https://www.uzbekistonmet.uz/uploads/acb4d911-cc4d-34db-d742-198e9d33386b_media_.pdf

5. IFRS Foundation. IAS 16 Property, Plant and Equipment. IFRS Accounting Standards, Part A. London: IFRS Foundation, 2026.

6. Ministry of Energy of the Russian Federation. Order No. 676 of 26 July 2017 "On Approval of the Methodology for Assessing the Technical Condition of Main Technological Equipment and Power Transmission Lines of Power Plants and Electric Networks" (registered by the Ministry of Justice on 5 October 2017, No. 48429). <https://rulaws.ru/acts/Prikaz-Minenergo-Rossii-ot-26.07.2017-N-676/>

7. Ofgem. DNO Common Network Asset Indices Methodology (CNAIM), Version 2.1. London: Ofgem, 2021.

https://www.ofgem.gov.uk/sites/default/files/docs/2021/04/dno_common_network_asset_indices_methodology_v2.1_final_01-04-2021.pdf

8. Cabinet of Ministers of the Republic of Uzbekistan. Resolution No. 609 of 18 October 2022 "On Approval of the Rules for Technical Operation of Power Plants and Electric Networks of the Republic of Uzbekistan".

<https://lex.uz/docs/6241311>

9. IFRS Foundation. IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors. IFRS Accounting Standards, Part A. London: IFRS Foundation, 2026.



International Congress on Economics, Management and Business Studies

Hosted Online from New York, USA

Date: 23rd October, 2026

Website: <https://econferencia.com>

10. IFRS Foundation. IAS 36 Impairment of Assets. IFRS Accounting Standards, Part A. London: IFRS Foundation, 2026.
11. IFRS Foundation. IAS 37 Provisions, Contingent Liabilities and Contingent Assets; IFRIC 1 Changes in Existing Decommissioning, Restoration and Similar Liabilities. IFRS Accounting Standards, Part A. London: IFRS Foundation, 2026.
12. IAASB. ISA 540 (Revised), Auditing Accounting Estimates and Related Disclosures. Handbook of International Quality Management, Auditing, Review, Other Assurance, and Related Services Pronouncements. New York: IFAC, 2024.
13. Thermal Power Plants JSC. Key operating results for 2025. Tashkent, 2026. <https://cdn.tpp.uz/2026/03/12/04/28/db11G1LvxyzcqgUX0dowxcfGzdcnQgFSg.pdf>
14. FERC. Uniform System of Accounts Prescribed for Public Utilities and Licensees (18 CFR Part 101), Electric Plant Instruction 10. <https://www.ecfr.gov/current/title-18/chapter-I/subchapter-C/part-101>
15. Regional Electric Power Networks JSC. General information. https://www.het.uz/oz/pages/view/general_info
16. Presidential video-conference meeting on the fuel and energy sector, 27 July 2026. Sputnik Uzbekistan. <https://sputniknews.uz/20260727/prezident-energetika-tanqid-59309811.html>
17. IFRS Foundation. IFRS 20 Regulatory Assets and Regulatory Liabilities. London: IASB, 27 May 2026. <https://www.ifrs.org/news-and-events/news/2026/05/iasb-issues-ifrs-20/>
18. Ministry of Finance of the Republic of Uzbekistan. National Accounting Standard No. 5, Property, Plant and Equipment, approved by Order No. 114 of 9 October 2003 and registered by the Ministry of Justice on 20 January 2004, No. 1299. <https://lex.uz/docs/821041>