

## COMPLIANCE NOTE

*by the Energy Community Secretariat*

### **Ukraine – assessment of regulations and methodologies for network tariff setting**

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# **Assessment of the set of regulations and methodologies for network tariff setting in Ukraine**

## Contents

<b>1. Introduction</b> .....	3
<b>2. Summary</b> .....	5
<b>3. Current regulatory mechanism for network tariffs setting</b> .....	7
3.1 Level and structure of network tariffs .....	7
<b>4. Assessment of the regulatory asset base (RAB) calculation methodology</b> .....	9
<b>5. Revaluation of the assets</b> .....	10
5.1 Revaluation procedure .....	14
5.2 Assessment of the condition of network in use .....	15
5.4 Accounting for revaluation reserve and its realization .....	17
5.5 Indicative revaluation results .....	19
<b>6. Assessment of the incentive based revenue requirement (RR) calculation methodology</b> .....	20
6.1. Efficiency targets .....	20
6.2 Implementation of the incentive pricing .....	26
<b>7. Recommendations for implementation</b> .....	28
Annex 1: Survey - Clarification questions on the valuation of assets .....	31
Annex 2: Comparison of network charges per consumption band .....	33

## 1. Introduction

Energy reforms are changing the electricity markets and bringing new challenges for energy regulators in setting distribution tariff mechanisms. Against these challenges, incentive-based pricing methodologies present the most effective means to improve the operating and investment efficiency of electricity utilities and to ensure that consumers benefit from the efficiency gains. In 2013, Ukraine initiated the process of reforming its distribution tariff setting methodology in order to move towards an incentive based calculation methodology. Despite these initial efforts, the methodology was never applied in practice.

The main challenge for incentive-based regulation is to strike a balance between seemingly conflicting objectives, namely improving cost efficiency against improving and maintaining quality standards. Benchmarking is commonly seen as the most appropriate tool to address these challenges in a non-biased and non-discriminatory manner.

The key challenge of NEURC is thus to maintain basic fairness and impartiality in considering the legitimate interests of both the investors and the network users. This is an explicit requirement of the Third Energy Package as transposed in Ukraine via Article 3(2)15 of the 2016 Electricity Market Law, which stipulates that “non-discriminatory pricing and tariff-setting reflecting economically justified costs” are two of the key principles of electricity market operation. Article 6(4)9 of the Law entrusts NEURC to, inter alia, “introduce regulatory accounting for setting tariffs, determine the regulatory asset base, take account of financial and capital investments and hold regulatory audits”.

The above-mentioned provisions of the Law give NEURC the competence to define an adequate accounting and reporting system, which reflects accurate information on the transactions of regulated undertakings, with the aim to ensure fair tariffs reflecting justified costs.

The adopted secondary legislation to implement the incentive pricing mechanism, which remains to be applied in practice, consists of the following:

- “Procedure for determining the regulatory asset base of subjects of natural monopolies in the power sector” No 899 of 2013 issued by NEURC (RAB Methodology);
- “Decree on setting regulatory parameters with a long-term period of validity for the purpose of incentive regulation” No 1009 of 2013, issued by NEURC;
- “Procedure for determining the revenue requirement for activities such as transmission of electricity through local power networks in case incentive regulation is applied” No 1032 of 2013 issued by NEURC (RR Methodology); and
- “Methodology for valuation of assets of subjects of natural monopolies, subject to management of adjacent markets in the field of combined production of electric and thermal energy” No 293 of 2013 and No 1929 of 2016 issued by the State Property Fund (“The SPF Valuation Methodology”).

The present Report was prepared as a compliance check of the tariff methodology as provided by the above-mentioned secondary legal acts in their current form, with the requirements of the energy acquis and international best practice. It analyses the above-mentioned secondary legislation against the principles of predictability, fairness, non-discrimination and cost recovery.

The Report concludes that the implementing acts, albeit setting out reasonable objectives, give rise to serious concerns, including those related to the principles and requirements defined by the Energy Community acquis.

Finally, the Report provides a comprehensive set of recommendations to support Ukraine in the transition to an incentive-based tariff system.

The first draft of this Report was discussed with NEURC and their views are reflected in this paper. Outcomes of interviews with one company (Kyivenergo) and two evaluators (Deloitte and Ernst & Young) also contribute to this assessment. Their responses are annexed to this Report.

## 2. Summary

Regulatory asset based (RAB) methodologies are in general the best tool for tariff setting. Every RAB methodology has many elements for price setting, depending on the actual circumstances in the sector and regulatory objectives.

The guiding principle for every tariff methodology is to ensure that tariffs are non-discriminatory, fairly consider the legitimate interests of investors and network users and reflect economically justified costs.

The Secretariat is of the opinion that the current RAB Methodology of NEURC does not entirely follow these requirements and should be substantially improved.

The most problematic are possible windfall profits for operators due to non-deductible revaluation reserve when calculating the return on the RAB and new revaluation of already fully depreciated assets.

NEURC's RAB methodology is coupling the calculation of RAB with incentive pricing as mutually dependent variables. In reality, RAB is used in cost-plus as well as in incentive based regulation. The introduction of RAB should not be conditioned by the introduction of incentive based tariffs.

Incentive pricing by itself should not necessarily bring higher prices, but better quality. Higher prices (network tariffs) seem to be expected in Ukraine as the result of revaluation, therefore the whole procedure and requirements from revaluation must be carefully analysed to achieve the desired outcome, to avoid tariff shocks and windfall profits for network operators.

The accounts and financial statements, regardless of the ownership and the applicable method of regulation, must "present fairly" the financial position, financial performance and cash flows of an entity<sup>1</sup>.

Incentive pricing is intended to bring better quality at less cost; hence privatization should not be a precondition for the implementation of incentive based tariffs. If privatization would be a precondition for the determination of fair value of a company's assets and introduction of incentive-based pricing, customers would be treated differently solely based on the ownership of the operator serving them.

The regulator should take all reasonable measures to analyse the long-term impact of its decisions and avoid tariff shocks. Predictability improves the confidence of operators and of network users.

Regulatory accounting should be in line with international accounting standards and requirements as well as the procedures stipulated in Article 31 of Directive 2009/72. The statutory accounts and financial statements of regulated companies must be prepared, audited

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<sup>1</sup> IAS 1, Presentation of financial statements.

and published in accordance with IAS and IFRS and therefore the property, plant and equipment must be measured at their fair value both in regulatory and statutory accounts<sup>2</sup>.

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<sup>2</sup> IAS 16 (Property, plant and equipment) and IFRS 13 (Fair value measurement).

### 3. Current regulatory mechanism for network tariffs setting

At present, the network tariffs in Ukraine are set pursuant to the Tariff Methodology from 2001 (Resolution No 801/2001) for bundled operation of vertically integrated utilities<sup>3</sup>. It is based on normative of specific operational expenditures for each activity, with an additional allowance for profit as a percentage of total costs approved for the activity. In that sense, it is a sort of cost-plus approach, whereas the allowance on top of the costs is based on the costs of operation, and not the capital employed or necessary.

This cost-plus Methodology covers costs of network losses<sup>4</sup>. No benchmarking or other ways of measuring justified costs were applied. The actual costs of losses were approved for tariff calculation. Return (profit) was added as a percentage to the total cost (normative).

This method of tariff setting provides no incentives to invest in fixed assets or to improve cost efficiency; to the contrary, it incentivizes a company to increase operating expenditures as a basis to calculate approved profit.

#### 3.1 Level and structure of network tariffs

According to NEURC, the tariff structure in 2017 for non-residential consumers was: 84,2% - wholesale, 8,2% - networks, 7,1% - losses and 0,5% - supply service. In comparison, the average EU electricity tariff for small industrial consumers consisted of 49% for wholesale energy, 19% for network charges and 32% for taxes and levies (primarily renewable energy levies)<sup>5</sup>.

The decomposition of end-user price to the above cost components is at the core of the currently applied tariff methodology.

Table 1 Components of industrial end-user price in 4 quarter 2017 (Source: NEURC)

Category	in UAH/MWh		share in%	
	>35 kW	<35 kW	>35 kW	>35 kW
Distribution	27,40	198,57	1,9%	10,8%
Transportation	68,46	68,46	4,7%	3,7%
DSO losses	44,40	269,33	3,1%	14,6%
Supply	7,54	7,54	0,5%	0,4%
Commodity (electricity)	1.297,04	1.297,04	89,8%	70,5%
Total end user price	<b>1.444,84</b>	<b>1.840,94</b>	100,0%	100,0%

<sup>3</sup>Source: IEA "Ukraine Energy Policy Review"

2006(<https://www.iea.org/publications/freepublications/publication/ukraine2006.pdf>).

<sup>4</sup> Article 3(11) of the Regulation 801: "the standard characteristics of electricity technological costs, standard technological and actual electricity consumption for each voltage class in the base period and in the the three previous years, agreed by the Ministry of Energy, and the draft calculation of the coefficients of normative distribution losses for the planed period".

<sup>5</sup> Source: NEURC comparison tool; official Eurostat data on tariff components for EU Member States and Energy Community Contracting Parties for 2017 have not been published at the time of drafting of this Report. The price component report for Ukraine was not submitted to Eurostat.



The share of network component, network tariffs (including losses) is rather low in comparison with the majority of EU Member states and Contracting Parties to the Energy Community. In 2017, they amounted to only 0,77 ct/kWh, much less than in any EU Member State (Fig. 1).

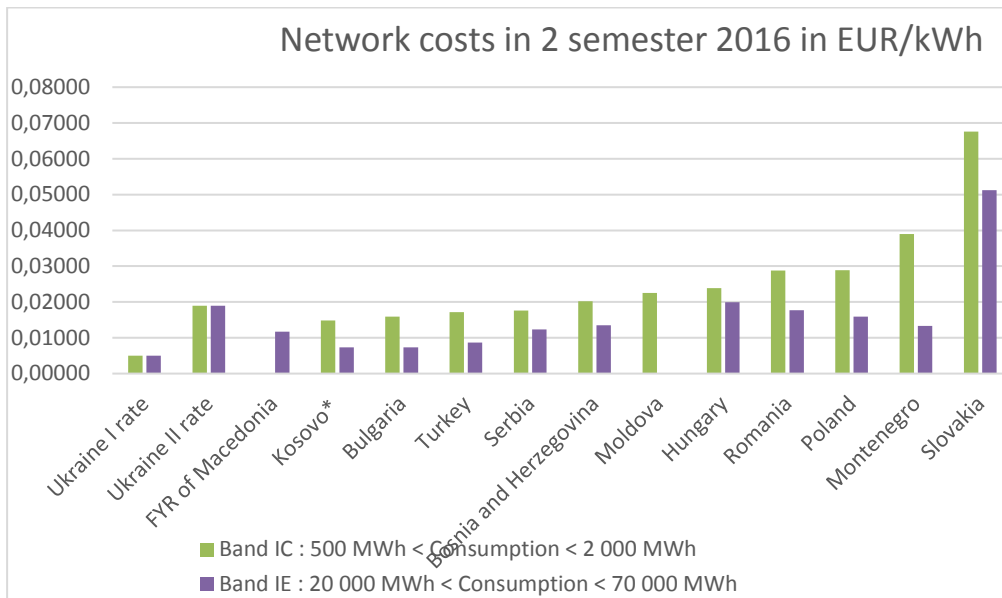


Figure 1- Network costs in 2 semester 2016 charged to industrial end-users in Energy Community Contracting Parties and certain neighbouring EU Member States (source: Eurostat; data for Ukraine, compiled by Energy Community Secretariat on the basis of average rates ( I rate >35 kV connection, II rate < 35 kV)<sup>6</sup>

The current tariff system defines the distribution tariff in Ukraine as volume based only (monetary unit / kWh). There are only two tariff rates, for different voltage levels (lower than 27.5 kV – 2nd class, and higher than 27.5 kV – 1st class). In countries where tariffs include capacity charge (EUR/kW), prices on average are lower for higher consumption bands.

The impact of capacity (demand based) charges and the difference in the average tariffs as consumption increases is shown in the Figure 1 with relevant data presented in the table in Annex 2. Where network tariff is only volumetric based, the average tariff does not differ much for different consumption bands.

If Ukraine is to move towards incentive-based tariffs, it should also consider changing the network tariff design introducing demand or capacity based charges.

<sup>6</sup> The comparison of network costs in Ukraine with the corresponding costs in the EU and Energy Community (as given in Figure 1) is only indicative, as the official statistics on electricity price components for Ukraine were not yet published by Eurostat.

#### 4. Assessment of the regulatory asset base (RAB) calculation methodology

The need for the revaluation of the assets is based not only on the low value of assets, not sufficiently indexed during the periods of high inflation, but also on the need to harmonise calculation of the value of assets in different companies.

The “Procedure for determining the regulatory asset base of subjects of natural monopolies in the power sector” No 899 (from hereon referred to as the RAB Methodology) was approved by NEURC in 2013 and subsequently amended in 2014 and 2015. This is a concise (5 pages plus 2 Addenda) document outlining the basic principles in evaluation of the regulatory asset base (RAB) when calculating electricity distribution and supply tariffs. The RAB Methodology is clearly relying on the obligations stemming from the “State Property Fund Valuation Methodology” and the Law on Natural Monopolies No 1682-III (2000, as amended).

There is a need to amend the Law on Natural Monopolies further to bring it in line with the laws regulating the energy sector (e.g. Electricity Market Law) in order to allow the regulatory authority to adequately assess the relevance and to estimate and recognize as justified the elements for calculation of the required revenues and tariff setting.

In general, the analysed RAB Methodology provides clear guidelines for the RAB calculation. Its underlying principles are in line with general regulatory practice, although some issues defined therein require reconsideration.

Our main concerns and open questions together with the comment of NEURC and our conclusions are shown in the following table .

*Table 2. The main comments on the RAB Methodology*

	<b>Question</b>	<b>NEURC response</b>	<b>Conclusion</b>
1.	<p>Concept of RAB:</p> <p>The RAB value (based on historic costs or revalued) should be used to set tariffs, with or without incentives.</p>	<p>The fair RAB is a key element for cost reflective and cost-recoverable tariffs setting the right starting base and providing an adequate source for the maintenance of existing assets.</p>	<p>For any tariff methodology, the Regulator must determine RAB, i.e. fixed assets necessary to run the network company. Regulator must determine and recognize RAB as physical assets and their corresponding monetary value and define the principles and procedure for recognition of the RAB value for tariff setting.</p>
	<p>NEURC’s RAB methodology is coupling the determination of RAB with incentive pricing as mutually dependent variables. In reality, RAB is used in cost-plus as well as in incentive-based regulation.</p>		<p>Although the introduction of incentive-based tariffs is reasonably conditioned with the determination of the RAB, the opposite conditionality does not hold. Determination of the RAB should be conditioned regardless of the introduction of incentive-based tariffs.</p>
2.	<p>The main doubtful item of the RAB Methodology is the requirement to move to incentive pricing only when the assets are revaluated.</p>	<p>The valuation of the initial RAB is a prerequisite based on the following:</p> <ul style="list-style-type: none"> <li>- Cornerstone to establish fair value with</li> </ul>	<p>Introduction of the incentive pricing is legally coupled with revaluation of the assets conducted in line with the Methodology of State Property Fund (more details in the following sections).</p>

	Question	NEURC response	Conclusion
		a uniform approach to all companies; and - Obligation by Law of Ukraine on Natural Monopolies.	
3.	Revaluation may increase the asset value several times and cause a steep increase of the tariff. Some precautionary measures should be taken to avoid tariff shocks.	The regulator is concentrated on sustainable and reliable services for the consumers. Due to the fact that DSO tariffs are extremely low with only 8% in the end-user price, the potential tariff increase will not be significant for the end-user versus expected interruptions due to underfinanced distribution networks.	With respect to predictability as the guiding principle in tariff setting, the regulator should take all reasonable measures to analyse the long-term impact of its decision and avoid tariff shocks. Due to significant tear and wear of the distribution grids, it is reasonable to focus on its reliability.
4.	The RAB Methodology does not mention assets financed by capital contributions paid by the Government (investment funding, grants, subsidies) or by consumers (e.g. grid connection) or international institutions (grants). These assets are also usually excluded from the RAB.	Such a statement will be included into the RAB Methodology.	Assets acquired from third parties and contribution of third parties must be disclosed and taken into account either via exclusion from RAB or with revenue adjustments corresponding to the depreciation rate of the asset. (For more details see <a href="#">ECS Policy guidelines</a> )
5.	The RAB Methodology does not mention the working capital, which could be included into the RAB. The RAB Methodology in Addendum 1 <sup>7</sup> recognizes “stock” as part of the RAB.	Will be included for electricity supply.	Supply usually does not have stocks (of electricity). Material at stock naturally belongs to distribution. The term (“stock”) in Addendum 1 needs clarification. If “stocks” are included in RAB, it should be under the title “working capital”.

## 5. Revaluation of the assets

In 2013, the State Property Fund of Ukraine approved the *Methodology of valuation of assets of the subjects of natural monopolies and economic entities on adjacent markets in the field of combined production of electricity and heat (No 293, amended in 2014 and 2016)*. Revaluation of RAB in accordance with the State Property Fund Methodology (further referred to as: SPF Valuation Methodology) is a precondition for implementation of the NEURC RAB Methodology. Section 1.1 of the SPF Valuation Methodology states that it applies solely to evaluation of the assets of the subjects of natural monopolies and entities on adjacent markets in the field of

<sup>7</sup> Addendum 1 to the Procedure No 899 for determining the RAB (Groups of assets of licenses which are part of RAB – Group item 5)

combined production of electricity and heat, which are regulated according to the Ukrainian Law on Natural Monopolies, with the goal of determining the regulatory asset base when introducing incentive pricing principles.

It is important to point out that the Law on Property Valuation No 2658-III and SPF RAB Valuation Methodology, while imposing an obligation on natural monopolies to perform (re)valuation before transition to incentive pricing, do not prevent the operators from ensuring that their financial reports present fair value of their assets, which may require revaluation of the assets in use, regardless of the regulation method.

The Law on property valuation No 2658-III under Article 7.2 prescribes the cases when valuation is mandatory, explicitly stipulating the case of privatization. In addition, Article 7.2 defines revaluation for accounting purposes. This means that statutory accounts, as well as regulatory accounts, have to ensure that the property, plant and equipment of the company are measured at fair value.

Follow up questions:

	<b>The question</b>	<b>Response</b>	<b>Conclusion</b>
1	The scope of the SPF Valuation methodology for privatization and for accounting purposes (Article 7.2)	NEURC: The provision explicitly defines different cases when valuation is to be conducted. This Article clearly states that valuation is mandatory for privatization and other disposal only in cases prescribed by Law (Privatization Law). The methodology for fair value determination for accounting (IFRS and IAS) and regulation activity is different (SPF methodology).	Our understanding is that the SPF Methodology does not contradict the requirements of the IAS and IFRS, which also allow the RCN methodology for valuation of property, plant and equipment. It is reasonable and cost effective to conduct (re)valuation for regulatory accounting and for statutory accounting.
2	The result of valuation of fixed assets as per the RCN method pursuant to the SPF Valuation Methodology should be the fair value of respective assets. Why this value should not be integrated in a company's books of accounts for regulatory accounting and for financial reporting pursuant to IFRS?	NEURC: Companies are not obliged to conduct revaluation for statutory accounting, but they are for regulatory accounting. E&Y: The two valuation methodologies may have similar results, but they have a different purpose and a different legal basis.	To reduce the administrative burden, it is recommended to rely on already existing records and established requirements, whenever possible. Introduction of regulatory accounting envisaged by the Electricity Market Law should also be based and rely on the existing accounting records of the company and be? integrated in it, with the possibility to produce additional reports for regulatory purposes. The result of valuation pursuant to the SPF Valuation Methodology should be integrated with accounting records of fixed

	The question	Response	Conclusion
			assets for the purpose of regulatory accounting. It is in line with E&Y statement (which was provided for the needs of an arbitrage in Stockholm that SPF has “more strict standards for use of valuation approaches and methods” and that “the Methodology based on national valuation standards meets the international valuation standards”.
	Why revaluation pursuant to IFRS and valuation pursuant to SPF are not conducted in a single exercise	Revaluation pursuant to IFRS must take into account DCF based on actual WACC determined for each company, which may result in impairment	Taking into account that expected revenues from tariffs are determined on the basis of revaluated RAB, DCF method for determination of RAB makes no sense. If NEURC determines tariff on basis of revalued RAB, the revaluation method should be depreciated replacement costs.

The accounts and financial statements, regardless of the ownership and of the applicable method of regulation, must "present fairly" the financial position<sup>8</sup>, financial performance and cash flow of an entity.

According to the SPF Valuation Methodology, the basis for the asset valuation can be the market value or the residual value of substitution. Assets, which are widely represented on the market and are not specialised, with the exception of real estate, are evaluated at their market value. The market value of the assets is determined by applying a comparative methodological approach.

As per the SPF Methodology, approximately 80% of the assets are specialised for electricity distribution, i.e. their market value cannot be easily determined. In this case, the current SPF Valuation Methodology presents a detailed list of equipment and materials used in the electricity distribution activity with their monetary values (given as Addenda to the Methodology). It means that the value of the majority of the assets is set and valuers cannot apply any other estimates. For the remainder of assets, evaluators apply market values.

The residual value of substitution is determined by the application of the method of substitution or the method of direct reproduction cost. According to Section 3.3 of the SPF Valuation Methodology, the complete algorithm for determining the residual value of substitution of the asset includes the following steps:

- calculation of the replacement cost;
- calculation of the physical deterioration of the asset and its value to decrease the cost of replacement;

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<sup>8</sup> Fair presentation requires the faithful representation of the effects of transactions, other events, and conditions in accordance with the definitions and recognition criteria for assets, liabilities, income and expenses set out in the IASB Framework (IAS 1).

- calculation of the coefficient of optimisation applied to the cost of replacement, with regard to physical wear and tear of the respective groups of assets determined by the SPF Methodology.

The coefficient of optimisation is used to evaluate the rate of usage of overcapacities in the networks (defining the percentage of the need of certain assets at peak times).

With regard to the above, namely the inability of the competitive market to set the market value of the distribution assets in use and the inherent circularity when using expected future benefits from the use of the assets,<sup>9</sup> the recommended method is depreciated replacement cost, in line with the [ECS policy guidelines](#).

Valuation of the assets, according to the SPF Valuation Methodology, is performed by the valuator according to a contract between the regulated company and a valuator acting on the basis of the Ukrainian Law on the valuation of the property. Reportedly, all DSOs until now had contracts for the valuation of their assets with the Deloitte and/or Ernst & Young companies.

Recalling the limited number of companies eligible under Ukrainian law to perform the audit (eight firms) and that NEURC holds that only the “Big 4” firms are eligible to conduct revaluation, attention should be paid to the possible conflict of interest when an auditing firm is selected.

The SPF Valuation Methodology defines that each company asking for the valuation of its assets prepares the register and supplies all data to the valuator (accuracy of the data is the responsibility of the company, but the valuator may check it against similar data from other companies). The report on the valuation of assets, prepared by the valuator, is further presented to a professional reviewer working in the State Property Fund of Ukraine. This reviewer provides an overall conclusion of conformity of the valuation report with the requirements of the SPF Valuation Methodology and national valuation standards.

The validity of the result (revaluation report) is finally confirmed by NEURC, but the validation date may not exceed eighteen months from the date of the initial assessment. This time period may be too short as the general view is that the revaluation process is costly and lengthy.

Some DSOs have already performed the revaluation of their assets, but they are still applying old tariffs, calculated using the normative cost method. Pursuant to the eighteen months deadline for implementation, these companies will need to repeat the valuation procedure. NEURC does not include the cost of valuation of the assets in the required revenues. According to NEURC, the cost is covered by the shareholders, i.e. the owners of the DSO.

If revaluation is an obligation set by law, the respective costs should be recognized in tariff calculation (RR Methodology No 1032). The normal regulatory scrutiny to check prudence of the incurred level of costs should be applied, including the procurement method and timelines.

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<sup>9</sup> ECS Policy guidelines for distribution network tariffs: [https://www.energy-community.org/dam/jcr:a6882c6d-923f-4d6a-83d3-395773804984/PG\\_02\\_2018\\_ECS\\_tariffs\\_DS.pdf](https://www.energy-community.org/dam/jcr:a6882c6d-923f-4d6a-83d3-395773804984/PG_02_2018_ECS_tariffs_DS.pdf).

As a precaution measure, the costs of the revaluation should not be recognized only in cases where the DSO is responsible for an unsuccessful completion of the revaluation process.

Without questioning the competence of the reviewer, it has to be noted that international accounting standards have to apply also to valuation and, therefore, an independent audit of a company's accounts has to confirm that the valuation was conducted and recorded in accordance with International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS). NEURC's approach, stated in licencing conditions, on the obligatory annual audit of licensee financial statements is in line with Article 31 of Directive 2009/72/EC obliging regulated companies to have their accounts prepared, audited and published in accordance with international standards.

In order to ensure a fair and consistent approach to assets valuation/revaluation, results must be integrated in the company's books of accounts, even if the company maintains a separate set of accounts for regulatory purposes, in accordance with international best practice, respecting national accounting standards, IAS and IFRS.

It is recommendable that the regulator at least reviews and approves the terms of reference for the revaluation for regulatory purposes.

To ensure that regulatory accounts present the position of a company fairly and that transactions are recorded in accordance with instructions of the regulator and the State Property Fund, an independent audit of all accounts, including regulatory accounts, must be conducted and the auditor's report made publicly available. A review of the State Property Fund cannot replace the proper audit of financial accounts.

Further, it is recommendable that the regulator at least approves the Terms of Reference for the audit of accounts relevant for the tariff setting (regulatory accounts).

## **5.1 Revaluation procedure**

The current Revaluation Methodology of the State Property Fund presents a detailed list of equipment and materials used for the electricity distribution activity with their monetary values (given as Addenda to the Methodology). This means that the value of the majority of the assets is determined by the state authority and valuers cannot apply any other estimates.

Therefore, engaging an expensive "independent valuator" to perform the calculation does not make much sense, except for the quality assurance of the work performed. In particular, since the company normally provides the list of assets with the description of their status and the SPF Valuation Methodology defines the price of each item, the replacement costs are already there. The task of the valuator or any other independent authority would be to determine if the register fairly discloses the fixed assets of a DSO and if they are in the location and condition to be used in operation for their intended purpose.

The outcome of the revaluation, applying the replacement cost methodology, pursuant to the Law on appraisal No 2658-III and the SPF Valuation Methodology and also in line with the ECS Policy Guidelines, is to determine the cost of acquiring the same new asset, and then to

decrease that value for the lapsed time of usage, taking into account quality of the maintenance, wear and tear, obsolescence and stranding of assets and any other elements affecting the usability of the assets. This approach is compliant with international best practice.

Calculation of “the physical wear and tear” pursuant to the principles of the SPF Valuation Methodology would require expert technical knowledge of electrical, mechanical and civil engineering, based on information that is correct, complete and reliable. The implementation of the SPF Valuation Methodology pursuant to NEURC RAB Methodology No 899 do not explicitly require valuator to ensure this level of expertise during the very process of revaluation.

Knowing that the standard costs of each item of network equipment are determined by the State Property Fund, the valutors will have to determine the “physical wear and tear of the asset and its value to depreciate the cost of replacement”, all under the condition that the accounting record of the assets are reliable and fairly disclosed in the financial reports, confirmed as such by the independent audit.

If accounting records are not reliable in the sense that there is no clean audit report, the valuation first has to address the missing or non-reliable inputs and request the company to provide additional data and/or request the valuator to conduct additional examinations, site visits and inspections of the physical conditions of the assets. It would be an efficient tool to incentivize regulated companies to improve their practices and procedures for accounting and financial control if NEURC would request a clean audit report and have the power to make estimates and adjustments of the respective information, if relevant for tariff setting.

To ensure that all concerns are taken into account, the regulator may request the company to submit the terms of reference for valuation or define the minimum requirements and scope of work to be conducted in the valuation exercise, including the inputs to be provided by the concerned company and the terms of reference for a contracted external valuator.

In that way, not only the approach would be harmonized, but also the costs of revaluation would be kept within reasonable limits. The terms of reference have to indicate who will be responsible to determine the “coefficient of optimization” for each group of assets.

## **5.2 Assessment of the condition of network in use**

Ukrainian electricity distribution networks are suffering from long-term underinvestment and poor maintenance.

Poor maintenance usually shortens the useful life of networks and results in lower value in comparison with their expected lifetime and normal maintenance. Such assets may be expected to be written off before full depreciation. At the same time, poor condition of fixed assets increases their costs of maintenance, decreasing the quality of operation.

The answers from contacted firms (Kyivenergo, Deloitte, Ernst & Young in Annex 1) do not explain how poor maintenance affected the restated value of fixed assets. It is also not clear from the Methodologies (both of the State Property Fund or NEURC) who is responsible to estimate the wear and tear, usability and usefulness, obsolescence and remaining useful life.



Although Section 3.3. of the SPF Valuation Methodology requires the calculation of the physical deterioration of the assets, in the procedural part, it requires only to account for capitalized major repair, reconstruction and modernization costs and their depreciation to be taken into account. Physical deterioration above linear reduction over time is mentioned in Section 3.11 (unusual condition of operation caused by damage and accident). The impairment resulting from other reasons is not envisaged.

Whereas Section 3.12. of the SPF Valuation Methodology No 293 requires that the estimation of physical wear and tear of fixed assets in cases determined by this Methodology is carried out by the method of life with a linear reduction of cost provision, Section 3.12.1 allows to take into account the unusual (non-typical) conditions of operation of the facility in the past, damage to the facility as a result of an accident or its incomplete staffing in the list of assets made by the enterprise. In this case, the physical deterioration of the asset is determined taking into account the information specified in the documents of the company itself, but limiting the deterioration only in case of damage and accidents.

The outcome of the revaluation, applying the replacement cost methodology, pursuant to the Law on natural monopolies and also in line with [ECS Policy guidelines](#), is to determine the cost of acquiring the same new asset, and then to decrease that value by taking into account the lapsed time of usage and the quality of the maintenance, wear and tear, obsolescence, impairment, stranding and any other element affecting the usability of the assets for its intended purpose.

In this regard, clear instruction is needed for implementation of the SPF Valuation Methodology. In the absence of such guidance, the regulator, in accordance with its competence for tariff setting and regulatory accounting, should ensure that the valuation of assets forming the RAB takes fully into account the economic and functional obsolescence and impairment.

### **5.3 Remaining useful life of revalued assets**

According to formula No 1 in Section II<sup>10</sup> of the RAB Methodology No 899, assets in use at the time of first revaluation will be depreciated at the rate of 0,033, with average remaining useful life of all revalued assets of 30 years.

Recalling the first observation that “networks are suffering from long-term underinvestment and poor maintenance”, a remaining useful life of 30 years (120 quarters) does not seem realistic.

In accordance with the results of an independent valuator’s report, the average remaining useful life for assets on the valuation date is 13 years. However, NEURC considered this value as too low and established 30 years as the basis for calculating the depreciation of assets that were on the balance sheet on the day of transition to incentive-based regulation.

According to the Section 3.12.4, the Revaluation Methodology requires valuers to determine the remaining useful life for each asset taking into account only a normative or “statutory” lifetime. Therefore, the NEURC approach of establishing a regulatory lifetime as an average

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<sup>10</sup> Formula 1 of RAB Methodology:  $RAB^0 = RAB + I - BA - RAB \times UPK / 120 - A^{new}$ .

for the entire RAB and for all companies, as a tool to avoid the likely tariff shock due to high depreciation, is not compliant with IAS and with SPF methodology.

Part of the revaluation process is to define the remaining useful life for each asset, or, when not feasible, for a group of assets, on the basis of information provided by the company and verified by the valuers (using a random sampling method or similar to limit the costs), which is in compliance with the Revaluation Methodology. According to Section 1.2 of the Methodology, the “residual life of an asset is the expected life of an asset until the date of its decommissioning, which, in accordance with the requirements of this Methodology, is calculated taking into account its normative term of use and the value of its physical deterioration”. This is further elaborated in Section 3.12.4: “The residual life of an asset is determined in months or years in accordance with the indicator of the statutory life of the asset.”

The useful life of an asset is normally subject to defined rules and procedures, specific expertise and fair assessment. Revaluation should also strive to determine, to the extent possible, the remaining useful life of the revalued assets, taking into account, as mentioned above, wear and tear, innovation, changes in the electricity demand and so on. Expert engineers must be consulted regarding this matter.

Qualified engineers should confirm the final estimate of the expected useful life of a new asset and the remaining useful life of a used asset. According to best international practice, the useful life should be established for each asset individually or, if one item can be used in distribution only as a part of an installation, then for such a group of assets as an installation.

In addition, the revaluation report, pursuant to Section 3.17 of the SPF Valuation Methodology, has to include the list of assets with an indication of their accounting data and the results of each asset's assessment, including the remaining useful life.

When remaining useful lives of assets are determined with respect to the concerns presented above and based on reliable and verified information, then this information should be used to calculate a fair value of the RAB, the depreciation costs and realization of the revaluation reserve until the revalued assets are fully depreciated or written off.

Therefore, the RAB Methodology has to recognize and rely on the assets' remaining useful lives determined in accordance with best international practice and pursuant to the provisions of the SPF Valuation Methodology, based on expert assessment and credible documentation, including those about the physical condition for each asset or group of assets (i.e. items consisting of several assets).

#### **5.4 Accounting for revaluation reserve and its realization**

According to Article 4(9) of the Electricity Market Law, NEURC is entitled, if it decides so, to introduce on top of statutory accounting also regulatory accounting for setting tariffs and for determining the regulatory asset base (RAB), taking account of financial and capital investments. NEURC is therefore entrusted and has the responsibility to define an adequate accounting and reporting system.

When NEURC introduces separate regulatory accounting, this accounting should be compatible and integrated with the statutory accounting, in line with international accounting standards and requirements as well as the procedures stipulated in Article 31 of Directive 2009/72. The statutory accounts and financial statements of a regulated company must be prepared, audited and published in accordance with IAS and IFRS standards, including measuring the property, plant and equipment at their fair value<sup>11</sup>.

If the revaluation results would not be recorded in statutory accounts and fixed assets included in the RAB would not be measured at their fair value determined by (re)valuation, the rate of return on capital disclosed in the statutory financial statements would be many times higher than recognized by NEURC.

IAS 16 permits the choice of two possible treatments with respect to the property, plant and equipment, namely cost model and the revaluation model. If the result of the revaluation is positive, gain on revaluation is accounted in the equity account "Revaluation reserve" in which any upward changes in the value of capital assets are stored<sup>12</sup>.

Revaluation losses or gains are not a matter of taxation only. If a revaluation reserve is not recorded, disclosed and taken into account for revenue requirements, the company will be rewarded two times for the costs it never incurred, first through the depreciation of revalued assets, receiving a return on assets at a revalued price to recoup the amount necessary to purchase a new asset to replace the depreciated one, and through the return on revalued assets. This will create windfall profit for the company. If any item of property, plant and equipment is revalued, the revaluation result must be recorded and disclosed in the books of accounts. Result on revaluation is then transferred to the retained earnings. There is no reason not to respect this obligation for regulatory accounting.

The amount of revaluation reserve, realized proportionally with the depreciation rate of the respective assets, transferred to the retained earning and disclosed as such in the balance sheet, should be deducted from the recognized and approved return on assets for the revenue requirement (determined in accordance with the regulatory rate of return on RAB of 12,5% in Decree No 1009/2013 and No 972/2017).

This procedure, compatible with IAS, provides for elimination of the risk of windfall profits for companies. It also can be used to offset any decrease in value for impairment or determined in a subsequent revaluation. To keep recovered investment in the business, the regulator may set thresholds for new investments in the network in relation to the accrued annual depreciation, i.e. return on assets in use, to maintain the asset base.

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<sup>11</sup> IAS 16 (Property, plant and equipment) and IFRS 13 (Fair value measurement).

<sup>12</sup> If a revaluation results in an increase in value, it should be credited to other comprehensive income and accumulated in equity under the heading "revaluation surplus" unless it represents the reversal of a revaluation decrease of the same asset previously recognised as an expense, in which case it should be recognised as a profit or loss [IAS 16.39].

## 5.5 Indicative revaluation results

According to NEURC data, book values in similar companies differed in several instances. It was reported that sometimes the book value of a DSO servicing an industrial region was lower than the book value of a company working in a rural region<sup>13</sup>.

*Table 3 Book value of selected DSOs and the value of assets after revaluation (Source: NEURC)*

Company	Book value, in million UAH	New value, in million UAH	Comment
Vinnitsa	825	8103	The 2 DSOs serve similar regions, but with very different book values of the assets (the difference is more than 5 times!).
Zhitomir	4356	8395	
Prikarpatya	1511	8466	
Dnipro	4904	13363	The initial book value of the assets in this industrial centre was the same as in Zhitomir.
Poltava	998	8492	
Zaporozhe	774	...	This industrial region had the book value of the assets many times lower than in Zhitomir or Prikarpatya
Odessa	5958	15457	

Table 3 above illustrates the extreme differences in the increases of the book value among selected DSOs, from two times in Zhitomir to almost ten times in Vinnitsa. The reason behind these sharp differences is that certain companies conducted the revaluation of their assets and kept the record of the fixed assets at the revalued value.

It is worth noting that the comparison of historic, actual or restated values of different DSOs cannot be based only on the service area or company size. The age of the network of key network elements as well as the network structure (overhead – underground, density, voltage level and other parameters) have a decisive impact on the carrying value and the re-stated value. The condition and maintenance also significantly affect these values, along with the accounting policy for initial and subsequent recognition of the fixed asset (e.g. increase of the original value, capitalization of borrowing costs, indexation, etc.).

In case of reliability concerns regarding the RAB value record, a possible solution is setting the differentiated rates of return for newly acquired assets and a lower rate for assets acquired before a certain point of time. This approach may also be considered by NEURC as a tool to overcome the current problem of recognition of a fair return on assets.

<sup>13</sup> The list providing information on book values and revaluation results of additional companies, provided by NEURC, is outlined in Annex 3. In addition, NEURC provides the purchase price at privatization but only as an indicative value.

The comparison of book values before and after revaluation can be used only as an indication to NEURC for further research and better definition of terms of reference for the valuator.

To ensure just treatment of all companies, comparison of their book values should be consistent, taking into account effects of revaluation on reported book values.

An additional relevant information that should be considered to assess investors' confidence and expected returns is total sale price of the privatized companies, disclosures and treatment of goodwill. It is recommended that NEURC conducts an analysis of the impact of valuation on the financial position of each company, taking these aspects also into consideration.

## 6. Assessment of the incentive based revenue requirement (RR) calculation methodology

The "Procedure for determining the revenue requirement for such activity as transmission of electricity through local power networks in case incentive regulation is applied" No 1032 (further RR Methodology) was approved by NEURC in 2013 and amended in 2017. It is to be applied for the calculation of revenue requirements to determine electricity distribution tariffs. This is an incentive based methodology, where operational expenses (OPEX) are calculated for the base year and adjusted annually with the several given external parameters. At the same time, depreciation is calculated for every year, adjusted for actual new investments into the networks. The rate of return is fixed for the whole regulatory period, but RAB is recalculated every year and consequently the return on assets is also recalculated. The first regulatory period is three years, the following one is five years. All the basic principles are in line with general regulatory practice.

The typical RR calculation formula is very simple:  $RR = Cost + Depreciation + Return\ on\ assets$ . In the RR Methodology, the relevant formula (formula no 13<sup>14</sup>) has more components.

Besides the standard components, namely controllable and non-controllable operating costs given separately (this is correct as they should be treated differently), return on assets (after taxes), plus taxes (as the nominal rate of return is applied) and depreciation, there are five additional components: K, KO, KЯ, КП and КПР. K is compensation for loan repayments, KO evaluates the change in the volumes of distributed electricity, KЯ evaluates the change in quality of service, КП is adjustment for failure of operator to comply with the rules set by NEURC, КПР evaluates revenues and charges for the connection of consumers.

### 6.1. Efficiency targets

These factors have a real impact on the RR and their use is in line with best regulatory practice, except for component K (compensation for the repayment of loans for investments into the networks and interest on them). This component was introduced when the investments were

<sup>14</sup> Formula No

13 
$$HД_{t-1}^y = OKB_{t-1}^y + OHB_{t-1}^y + A_{t-1}^\phi + \Pi_{t-1}^y + \Pi\Pi_{t-1}^y + K_{t-1} + KЯ_{t-1} + KO_{t-1} + КПР_{t-1} - КП_{t-1}$$

funded, not from the depreciation, but as an addition to the total revenue. With the transition towards the recognition of RAB, depreciation should be sufficient to repay the loans and the return on RAB to cover the cost of interest.

The calculation of RAB using formula no. 8<sup>15</sup> of the RR methodology introduced a new parameter: revenues from payment of reactive energy (ДР). This component is not relevant for the calculation of the value of RAB, and it has to be introduced in formula no. 1<sup>16</sup> of the RR Methodology for calculation of revenue requirements as a deductible item. Other revenues incurred from the use of assets included in the RAB should also be incorporated in this formula (1) as a deductible component.

It is of utmost importance for the network users to understand how all parameters in the formulas defined in the RR Methodology No 1032 are determined and what are the expected and achievable gains for companies and customers.

Taking into account the diverse structure, age and condition of the networks, as well as company structure and organisation, it would be recommendable to consider setting different, operator-specific efficiency targets.

The number and diversity of the regulated network operators provide sufficient data to rely on benchmarking for setting adequate targets. The discussion with NEURC touches a number of concrete elements of the Methodology (Table 4).

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<sup>15</sup> Formula No 8:  $PBA_{kt}^{HO6} = PBA_{nt}^{HO6} - BA_t^{HO6} - A_t^{HO6} - A_t^{cm} + I_t - DP_t$ .

<sup>16</sup> Formula No 1:  $HD_t^n = OKB_t^n + OHB_t^n + A_t^n + \Pi_t^n + \Pi\Pi_t^n + K_t$ .



Table 4 The main comments on the RR Methodology

	<b>Question</b>	<b>NEURC response</b>	<b>Conclusion</b>
<b>1.</b>	Component Kt in the formula (13) is the compensation for the repayment of loans, and related interest, which were used for investments into the networks, approved by NEURC. This component was needed when the investments were funded not from the depreciation, but as an addition to the total revenue. Such a method is not relevant for incentive pricing, where depreciation allowances are used for repayment of the loans.	Can be excluded from the Methodology	Costs of borrowed capital must be excluded, if the rate of return is applied on the entire RAB.  It would be reasonable to provide an explanation for setting the overall rate of return at 12,5%.
<b>2.</b>	KПP parameter - revenues and charges for the connection of consumers  Applicability of this factor should be reconsidered in the light of the draft Connection Fee Methodology and the consequent treatment and recognition of the revenues from the connection fee (exclusion from the RAB, or inclusion and deduction of deferred revenues or deduction of fees not attributable to a specific item of the RAB).	Will be synchronised with Connection Fee Methodology	To follow up and compare the two revised drafts.
<b>3.</b>	The Methodology fails to mention how the base cost is calculated and what principles are used.	Under the existing methodology, the cost calculation is not a part of the RR Methodology and is treated separately in NEURC order #801 from 01/08/2001. A new tariff methodology (will be approved in June 2018) will bundle all the related documents with sophisticated cost and principles behind.	The methodology should provide a comprehensive understanding of the relevant topics, from the determination of costs to the final tariff. The regulator has competences set by law to assess if the costs of a DSO are reasonable, to define principles and to develop criteria for assessment and recognition of justified costs.



	Question	NEURC response	Conclusion
			Developing a comprehensive act would improve the transparency of the process.
4.	Losses in the network are one of the controlled costs, but there is a lack of explanation how they are calculated and treated. Are there any incentives for loss reduction?	<p>Until mid-2017, power losses used for end-user tariff calculation were normative. After performing analysis of actual and normative losses, aiming to incentivise DSOs to further reduce losses and starting the regulatory period with right base year parameters, NEURC:</p> <p>Approved a switch to actual losses (2014-2016 average) for RAB on 27 June 2017 <a href="http://zakon5.rada.gov.ua/laws/show/v098187-4-17">http://zakon5.rada.gov.ua/laws/show/v098187-4-17</a>; and</p> <p>Approved a switch to actual losses (2014-2016 average) for cost+ on 27 December 2017: <a href="http://zakon5.rada.gov.ua/laws/show/v1424874-17">http://zakon5.rada.gov.ua/laws/show/v1424874-17</a></p> <p>Efficiency factors used for power losses vs. base period described previously are approved in resolution 1009:</p> <p>1.0% for in medium voltage (&gt;35kV) 3.5% in low voltage (&lt;35kV)</p>	<p>Losses vary for different DSOs, therefore different efficiency factors should be chosen in order not to punish efficient companies and require more from inefficient ones.</p> <p>It is recommendable to assess the level of losses and approve the base level and target, applying the harmonized criteria (as given in the ECS <a href="#">Policy guidelines</a>), taking into account the consumption structure per voltage level, network design, transit flows, etc. Targets should be set taking into account the overall welfare in order to ensure that expenditures to decrease losses do not exceed savings from reduction.</p>
5.	The general producer price index (PPI) does not reflect the change in prices of materials and equipment needed in electricity distribution and was very high (20.5% in 2016 and 26.6% in 2017). Isn't it better to use an index of equipment for the electricity sector producer prices, which may more accurately reflect the change in prices of materials	The index of equipment for the electricity sector producer prices represents only local products. A significant part of the equipment is imported. Cables are imported. Even in transformers, 60% of the parts are imported. This is caused by the unavailability of materials and equipment produced in Donetsk.	Considering such a significant level of PPI and CPI, it is reasonable to increase the efficiency factor.





	Question	NEURC response	Conclusion
	and equipment needed for electricity distribution companies?	NEURC uses not actual, but official forecasted figures of PPI 16,8% and CPI 12,9% (approved by the Government of Ukraine) and there are no forecasts of index of equipment for the electricity sector producer prices.	
6.	Setting low efficiency factors: 0 for the first year and 1% for the following ones (Regulation of NEURC #1009). In the periods of high inflation, higher efficiency is usually assumed, as not all regulated controllable costs increase by PPI.	<p>NEURC can address the bottom-line of "index-X" after the 1<sup>st</sup> regulatory period by both factors.</p> <p>Over three regulatory periods, combination of controllable OPEX and power losses efficiency factors vs. CPI is:            18.5% lower rates for 2 class consumers            10.1% lower rates for 1 class consumers            NEURC sees on average 1-1.5% efficiency factors (0% in UK) in EU and expects single digit inflation going forward.            The starting level should also be considered - NEURC has pushed many expenses down vs. DSO requests.</p>	We suggest reconsidering efficiency factors, at least, for the nearest future, by allowing NEURC to reset the targets on the basis of the assessment of achieved results in DSOs.
7.	Calculation of the depreciation of the assets, which were received as grants, subsidies, international funding or were paid by consumers (formula (6)), should be excluded from the RR as these assets are not included into the RAB according to the RAB Methodology.	Will be changed	It is advisable to apply revenue adjustments, as explained above and in the ECS <a href="#">Policy Guidelines</a> .
	Revenues from reactive energy are deducted from the RAB (formula 8), instead of required revenues in formula (1).		Revenues from reactive energy, and any other revenues incurred using the assets included in the RAB, have to be considered in the calculation for the

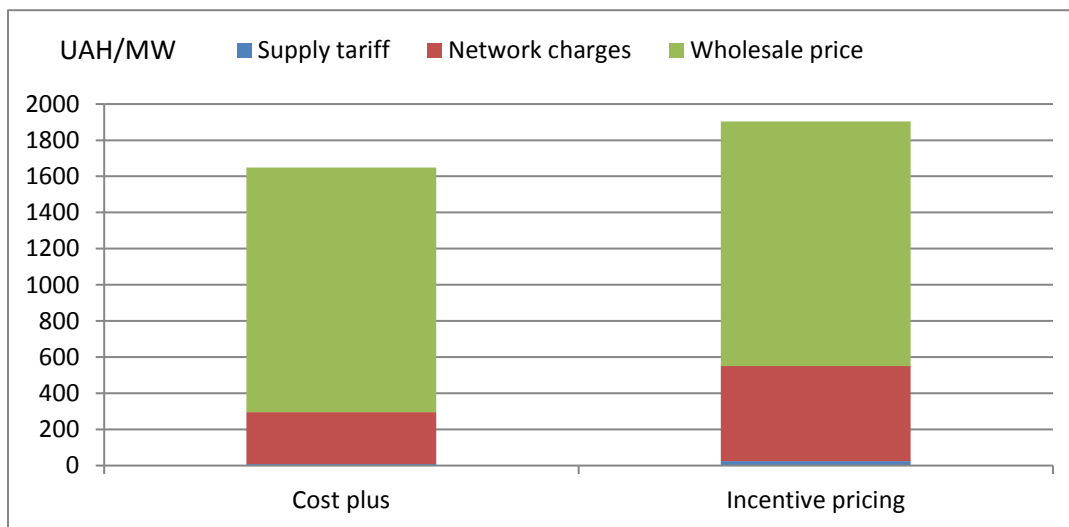


	Question	NEURC response	Conclusion
			required revenue as a deductible item, and not in the calculation of the RAB.
8.	In order to avoid excessively high returns on the old assets after the revaluation and encourage new investments, different rates of return may be set for old and new assets.	<p>It is possible according to the formula (7). But NEURC has decided to set an equal rate of return on old and new assets based on best EU practice for all regulated areas.</p> <p>Predictability (sticking to WACC) and a solid regulatory framework based on fundamental economics is a prerequisite for a favourable investment climate and reduction of risk in the long-term.</p> <p>Any rate of return different from WACC has no justification and would reduce revenues from the planned privatisation of the remaining shares of the DSOs.</p>	<p>The revaluation reserve should be taken into account for considering the RR. Realization of the revaluation reserve should be reflected as a deductible item for the calculation of approved return on the RAB.</p> <p>Otherwise, NEURC may consider introducing differentiated rates of return.</p>
9.	Section 2.10 declares that if the level of operating non-controlled expenses increases (or decreases) by more than the value of the consumer price index plus 5%, the base level of operating non-controlled expenses is revised. However, no further explanation is provided, e.g. who has the right to apply for the change, on what terms, etc.	<p>Based on two procedures set by NEURC resolutions:</p> <p>#1030 dated 26.07.2013 that describes tariff setting procedure for electricity DSOs</p> <p>#866 dated 30.06.2017 that describes the public hearing process for any tariff decisions</p>	Explanation accepted.

## 6.2 Implementation of the incentive pricing

According to NEURC calculations, a complete switch to incentive pricing by all electricity distribution companies (under the current conditions and parameters approved by NEURC) would have roughly doubled the network tariff (including the costs of network losses), from 258 UAH/MWh (7.7 €/MWh) to 527 UAH/MWh (16 €/MWh). The tariff would still be lower than in any EU Member State. The move to incentive pricing (if all DSOs have switched to the new methodology) would have caused an increase of the average tariff for non-residential consumers by 18% (Fig. 3).

*Figure 2. Possible increase of electricity tariffs to non-residential consumers if all DSOs would have switched to incentive pricing in 2017 (NEURC estimates)*



The graph in Figure 2 shows only the expected rise for industrial customers, based on a 12,5% rate of return on RAB. It is the task of the regulatory authority to analyse the possible impacts of its decisions on the whole market, including end-user prices for all customers.

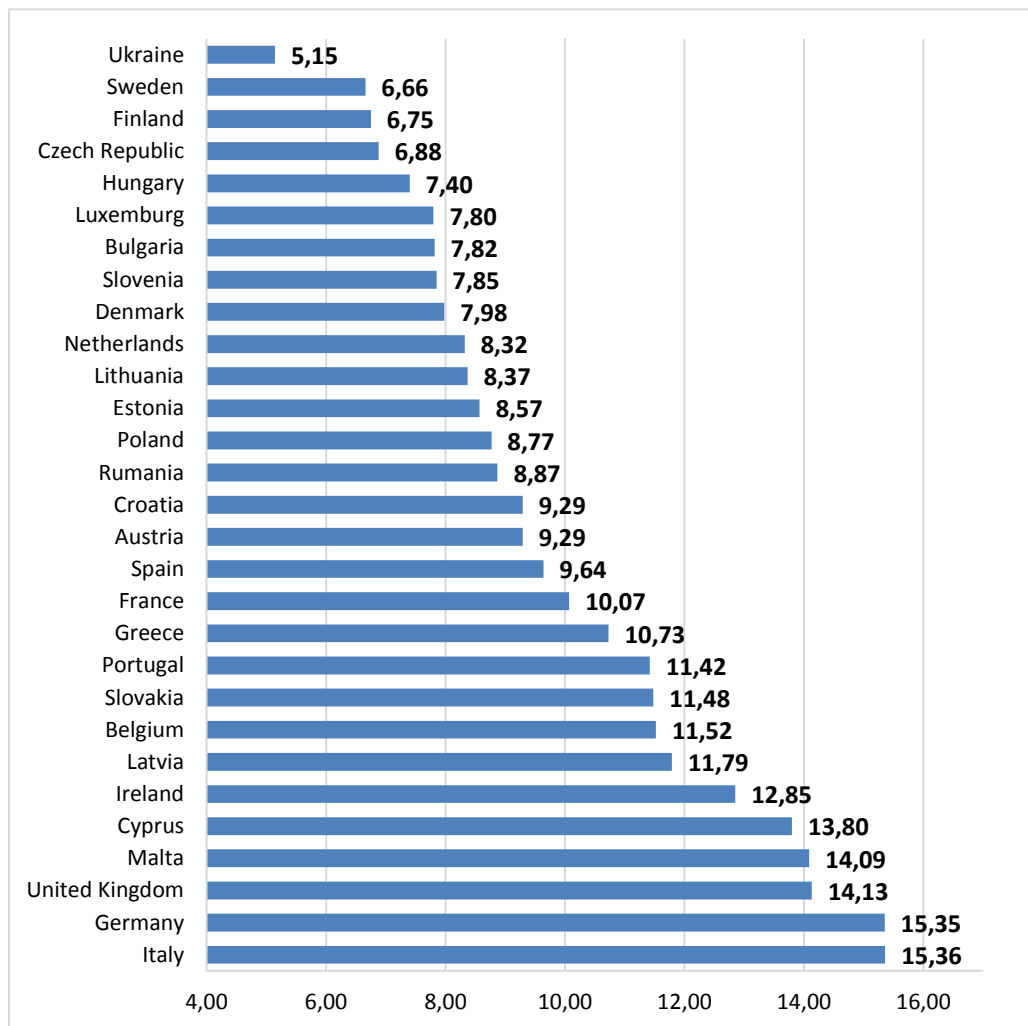
Recalling that residential consumer prices were subsidised and equalised all over the country, additional effort is required to conduct a comprehensive analysis of all changes, from incentive regulation to elimination of cross subsidies, and to analyse the impact on tariffs and end use prices for households.

The information shown in the table above “if all DSOs switch to incentive pricing” compares “incentive pricing” with “cost plus”, not showing the base scenario – the current price structure. If not all DSOs would have switched to the new methodology and new tariffs, the average tariff increase would be lower. The tariff would be higher only for those DSOs that have switched, their customers not having the benefit of this “gradual implementation”.

According to NEURC estimates, the controlled increases of distribution tariffs together with changes of the average wholesale electricity price (also approved by NEURC) keep the

industrial end-user electricity tariffs lower than in any EU country. According to NEURC, the wholesale prices have increased in the second quarter of 2018 by 16% in comparison with the last quarter of 2017 (. Competitiveness for the Ukrainian industry has to be reviewed by Council of Ministers of Ukraine separately and a State aid decision should be applied if reasonable.

Figure 3. Estimates of Market Observatory for Energy: Electricity prices for industrial customers for the fourth quarter 2017, excluding VAT for EU MS and estimates of NEURC for Ukraine<sup>17</sup>



Regulator may take a set of precautionary measures, such as:

- an information campaign on the need for a long-term strategy to ensure reliable services with adequate quality;

- gradual introduction of incentive pricing starting with companies complying with strict requirements such as unbundling, transparency, clean audit reports<sup>18</sup>, etc.,
- considering a cautious selection of the indicators for the annual adjustment of tariffs and efficiency factors; and
- using benchmarking as a tool for the normalization of parameters and setting of efficiency targets .

The concrete proposals are formulated in the set of recommendations below.

## 7. Recommendations for implementation

1. For the sake of clarity and transparency, it is recommended to develop the tariff methodology as a single and comprehensive document, replacing the several rulebooks and orders currently applicable, relying on regulatory powers and competences.
2. The regulator must make sure to define in advance the principles and criteria for recognition of costs and revenues and parameters for setting / calculation of DSO specific targets. The targets should be set taking into account the overall welfare, i.e. ensuring that expenditures to decrease the costs do not exceed savings from reduction.
3. Introduction of incentive-based tariffs should be accompanied by the introduction of demand or capacity based charges.
4. Introduction of incentive regulation based on revaluation of electricity distribution assets included in the RAB should start with the properly unbundled distribution companies, with revaluation recorded in the company's books of accounts and audited, with an "unqualified auditor's opinion", without reserve on the fair value of assets, and having all stakeholders well informed. In the meantime, the RR Methodology may be implemented, without an incentive scheme and with the RAB value determined at depreciated costs of acquisition.
5. Regulatory accounting should present accurate information on the transactions of regulated undertakings, with the aim to ensure fair tariffs which reflect justified costs. Recalling that the SPF Methodology meets the requirements of international valuation standards, regulatory accounting should be compatible with statutory accounting and respect the core principles of recording, disclosure and reporting of relevant transactions and the position of the regulated business.
6. To ensure that regulatory accounts present the fair position of a company and that transactions are recorded in accordance with the instructions of the regulator and the

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<sup>18</sup> A "clean" or "unqualified" opinion is the opinion of an independent auditor that the financial records and statements of a company are presented appropriately and fairly, without any exception, and in accordance with accounting standards.

State Property Fund, the accounts must be audited and the auditor's report published. It is recommended that the regulator at least approves the terms of reference for the audit.

7. Revaluation of the distribution assets for regulatory accounting should be recognized only after full unbundling of this activity from all other related (electricity supply and generation) and unrelated (e.g. transportation, telecommunication, etc.) activities. Revaluation must be processed in accordance with international best practice, respecting national accounting standards, IAS and IFRS.

As regards the firms eligible to conduct revaluation, attention should be paid to the possible conflict of interest when auditing firms are selected. Revaluation should include setting the remaining useful life for each asset, or when not applicable, for a group of assets, based on their actual physical condition, usefulness and usability.

8. Since revaluation is imposed as an obligation of the operators, the costs of revaluation of assets should be recognized as justified costs. The normal regulatory scrutiny to check prudence of incurred level of costs should be applied, including procurement method and timelines.
9. The mandatory revaluation and recognition of the revalued RAB should be accompanied by a proper recording and disclosure of the revaluation reserve and the realization of the revaluation reserve in the regulatory accounting. Revaluation for regulatory purposes must not be exempted from the application of general rules on fair presentation and disclosure of results of the revaluation.
10. To avoid recognition of windfall profits for operators and discontent of customers and the general public, the realized revaluation reserve has to be included as a deductible item for recognition of the return on the RAB. Regulator should consider also the introduction of differentiated (lower) rate of return for recently privatized assets.
11. Fully depreciated assets with carrying value zero should not be revalued and depreciated again at a restated value. Instead, such assets, if still used and usable, should be kept in the fixed assets register at zero value in order to be included in the calculation of the respective cost of operation and maintenance, even with an additional allowance as an incentive (for more details see [ECS Policy guidelines](#)).
12. Assets acquired from third parties and contribution of third parties must be disclosed and taken into account either via exclusion from the RAB or with revenue adjustments corresponding to the depreciation rate of the asset (for more details see [ECS Policy guidelines](#)).
13. Revenues from reactive energy, as well as any other revenues earned using the assets included in the RAB, have to be taken into account in the calculation for the required revenue as a deductible item, as explained in the [ECS Policy guidelines](#).

14. Although working capital is not explicitly defined as a part of RAB, the RAB Methodology<sup>19</sup> allows the inclusion of “stock” in the RAB. Since stocks are commonly included in the RAB under the title “Working Capital”, the method for recognition of the amount should be defined in the Methodology or, alternatively, “stocks” should be excluded from the RAB to avoid ambiguity.
15. Efficiency gains should be measured against associated costs and the efficiency targets have to be revisited regularly in order to check if any further decrease would not result in the overall decreased a welfare for the operator and for customers.
16. As there are rather different levels of actual network losses in different DSOs, consequently there are different potentials for reduction of the losses. Therefore, instead of the same efficiency factor for losses in all DSOs, different efficiency factors should be chosen in order not to punish efficient companies and to require more from inefficient ones.
17. Being a part of the RR calculation methodology, the costs of network losses should be determined using benchmarking. It is recommendable to assess the level of losses and approve the base level and target, applying the harmonized criteria (as suggested in the [ECS Policy guidelines](#)) taking into account the consumption structure per voltage level, network design, transit flows, etc.
18. The Methodology for Connection Fees and the Methodology for Network Tariffs have to be compatible and consistent due to their inherent interdependency. Using the parameter based on revenues from connection fees for calculation of required revenue should be reconsidered in the light of the draft Connection Fee Methodology and consequent treatment and recognition of revenues from the connection fee (exclusion from RAB, or inclusion and deduction of deferred revenues or deduction of fees not attributable to specific item of the RAB).

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<sup>19</sup> Addendum 1 to the Procedure No 899 for determining the RAB (Groups of assets of licenses which are part of RAB – Group item 5)

## Annex 1: Survey - Clarification questions on the valuation of assets

### Selected responses to explanatory questions on the valuation of assets

Question	Answer
<b>To Kyivenergo</b>	
How do your books account for intangible assets, assets paid by consumers (e.g. user's grid connection), assets paid by the government or by other donors? Did you submit any of those to E&Y for the purpose of RAB valuation?	These assets are not included into the RAB.
How are the assets separated in your books, are there separate books for electricity distribution? Have you submitted to E&Y a 'fraction' of shared assets with non-distribution activities?	There are separate books of accounts for distribution and other activities. From March 1, 2018 legal unbundling of a distribution company should be completed.
At which value were assets kept in the books before revaluation: historical (at the accrual value), some indexation or revaluation after 1991?	Last revision in order to obtain a "fair value" of the assets was in 2015. According to the IAS a company may chose the lowest out of three possible evaluation results, incl. replacement.
Is there any asset that needs to be licensed or certified before the right to put them into operation? If affirmative, which entity is responsible for licensing/certifying?	All the new investments commissioned are checked and approved by the State Energy Inspectorate.
Who is the external auditor of your accounts? Does your auditor publish annual reports on the results?	An external auditor is PriceWaterhouse. They publish an annual report.
How did you submit data for the valuation in 2016? How the accuracy of data was checked?	Before the revaluation, [an] inventory of the data was prepared, every single item had its information card. Company presents a comprehensive report annually to the Ministry of Energy and Coal as also separate reports to the NEURC. As the main items in the RAB are lines and substations, it is very easy to check trustworthiness of the data.
<b>To Deloitte and Ernst &amp; Young</b>	
Why do you think that the replacement cost method instead of the historic/indexed method is appropriate for valuating electricity distribution RAB in Ukraine?	The historical/indexed book values in similar companies differed several times and sometimes the book value of a DSO servicing an industrial region was lower than this of a rural region. Therefore only the replacement value was a proper instrument harmonising asset values of the companies.
In view of the significant depreciation of assets and a privatization process which did not take into account the introduction of RAB, don't you think that it will lead to windfall profits for those owners?	There is no windfall profit after revaluation as the revaluated assets are used for determination of RAB only. Company may have a higher profit in the future due to higher tariffs only.
How can you ensure the reliability of the data submitted	DSOs were responsible for the correctness of the data supplied, but auditors did a due diligence also, made several visits to different substations. As there were several companies revaluated comparison was a good tool to ensure reliability of the data.



Was the revaluation surplus determined?	There was no revaluation surplus according to the Methodology. Revaluation was done to obtain the RAB only, for the taxation another value of assets was applied.
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## Annex 2: Comparison of network charges per consumption band

Network costs charged to industrial end-users in 2016 in EUR/kWh (source: EUROSTAT)  
2 semester 2016

<b>Network Costs</b>	<b>Band IA : Consumption &lt; 20 MWh</b>	<b>Band IB : 20 MWh &lt; Consumption &lt; 500 MWh</b>	<b>Band IC : 500 MWh &lt; Consumption &lt; 2 000 MWh</b>	<b>Band IE : 20 000 MWh &lt; Consumption &lt; 70 000 MWh</b>
FYR of Macedonia	0,0854	0,0436		0,0117
Greece	0,0444	0,0265	<b>0,0137</b>	0,0063
Kosovo (under UNSCR 1244/99)	0,1016	0,0342	<b>0,0148</b>	0,0073
Bulgaria	0,0239	0,0209	<b>0,0159</b>	0,0073
Turkey	0,0199	0,0202	<b>0,0172</b>	0,0087
Italy	0,0582	0,0237	<b>0,0174</b>	0,0094
France	0,0532	0,0407	<b>0,0176</b>	0,0148
Serbia	0,0382	0,0275	<b>0,0176</b>	0,0123
Netherlands	0,0525	0,0266	<b>0,0186</b>	0,0159
Spain	0,0585	0,0332	<b>0,0198</b>	0,0061
Bosnia and Herzegovina	0,0445	0,0346	<b>0,0202</b>	0,0135
Finland	0,0335	0,0341	<b>0,0205</b>	0,0064
Slovenia	0,0593	0,0377	<b>0,0214</b>	0,0104
Malta	0,0220	0,0220	<b>0,0220</b>	0,0220
Moldova	0,0262	0,0239	<b>0,0225</b>	:
Hungary	0,0416	0,0336	<b>0,0239</b>	0,0199
United Kingdom	0,0301	0,0285	<b>0,0246</b>	0,0212
Denmark	0,0458	0,0332	<b>0,0267</b>	0,0175
Austria	0,0590	0,0409	<b>0,0273</b>	0,0140
Cyprus	0,0374	0,0355	<b>0,0274</b>	0,0228
Sweden	0,1056	0,0380	<b>0,0275</b>	0,0131
Romania	0,0416	0,0373	<b>0,0288</b>	0,0177
Poland	0,0664	0,0476	<b>0,0289</b>	0,0159
Iceland	0,0345	0,0349	<b>0,0299</b>	:
Norway	0,0290	0,0307	<b>0,0307</b>	0,0071
Lithuania	0,0576	0,0391	<b>0,0317</b>	0,0185
Czech Republic	0,1040	0,0669	<b>0,0336</b>	0,0307
Germany	0,0694	0,0492	<b>0,0357</b>	0,0221
Luxembourg	0,0686	0,0447	<b>0,0367</b>	0,0097
Portugal	0,0868	0,0545	<b>0,0368</b>	0,0199
Estonia	0,0532	0,0429	<b>0,0370</b>	0,0217
Ireland	0,0571	0,0551	<b>0,0375</b>	0,0199
Croatia	0,0541	0,0479	<b>0,0381</b>	0,0206
Montenegro	0,0467	0,0509	<b>0,0390</b>	0,0133
Belgium	0,0749	0,0630	<b>0,0418</b>	0,0203
Latvia	0,1044	0,0617	<b>0,0478</b>	0,0327

<b>Network Costs</b>	<b>Band IA : Consumption &lt; 20 MWh</b>	<b>Band IB : 20 MWh &lt; Consumption &lt; 500 MWh</b>	<b>Band IC : 500 MWh &lt; Consumption &lt; 2 000 MWh</b>	<b>Band IE : 20 000 MWh &lt; Consumption &lt; 70 000 MWh</b>
Slovakia	0,1395	0,0841	<b>0,0676</b>	0,0512
Liechtenstein	:	:	<b>0,0737</b>	: