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Governing for Growth in Georgia

DRAFT IRRIGATION AND DRAINAGE TARIFF METHODOLOGY

USAID GOVERNING FOR GROWTH (G4G) IN GEORGIA

29 FEBRUARY 2016

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ACRONYMS

AA	Amelioration Association
ANC	Allocated Non-Direct Cost
AP	Area Planned to Serve
APTL	Annual Payment on Targeted Loan
CAPEX	Capital Expenditure
CNA	Converted Nominal Allocation
CNL	Cost of Normative Losses
CORR	Cost Correction Factor
CPI	Consumer Price Index
EC	Electricity Cost
ESCO	Electricity System Commercial Operator
FG	Forecasted Generation
FIWU	Forecasted Irrigation Water Usage
FWU	Forecasted Water Usage
G4G	Governing for Growth in Georgia
GA	Georgian Amelioration
GEL	Georgian Lari
GNERC	Georgia National Electricity and Water Supply Regulatory Commission
GoG	Government of Georgia
HPP	Hydropower Plant
IFRS	International Financial Reporting Standards
LLC	Limited Liability Company
MC	Maintenance Cost
MOA	Ministry of Agriculture
NA	Nominal Allocation
NBV	Net Book Value
OC	Operating Cost
OPEX	Operating Expenses
PCF	Pricing Conversion Factor
PPE	Property Plant and Equipment
RAB	Regulatory Asset Base
RB	Regulatory Body
RCB	Regulatory Cost Base
SB	Supervisory Body
SCA	Scheme Command Area
SCRB	Separable Cost Remaining Benefit
SP	Service Provider
TPC	Third Party Contribution
USAID	United States Agency for International Development
USOA	Uniform System of Accounts
VAT	Value Added Tax
WACC	Weighted Average Cost of Capital
WC	Working Capital

CONTENTS

EXECUTIVE SUMMARY

In the Strategy for Agricultural Development in Georgia 2015-2020, the amelioration sector is mentioned as one of the national strategic priorities. According to the strategy, measures to be undertaken aim to support fair and optimal allocation of water resources and improvement of the tariff system. Therefore, the Government of Georgia (GoG) intends to reform the amelioration sector.

The regulatory framework for the amelioration sector has not yet been developed and the technical capacity for administering a tariff setting process is underdeveloped in Georgia. Currently, the framework does not provide the necessary level of self-sustainability of the amelioration sector. The key problems Service Providers (SPs) and specifically Georgian Amelioration (GA) face are high network losses, inadequate tariff levels, and low levels of collection of receivables.

Recovery of costs is partially provided by the tariff level. The existing tariff level for irrigation services was determined by the Georgian National Electricity and Water Supply Regulatory Commission (GNERC), primarily governed by the Law on Abolishment of Soil Law, while tariff setting procedures and methodology on calculation of tariffs have never been developed.

The Ministry of Agriculture (MoA) and GA proposed the development of a draft Amelioration Law to regulate the irrigation and drainage sector. The draft law would incorporate a new tariff methodology on pricing of the services delivered by the irrigation/drainage SPs.

“Governing for Growth (G4G) in Georgia” efforts have been on-going in the water and energy sector in Georgia for more than one year. This report provides a recommendation for the development and implementation of component based tariffs for irrigation and drainage services. It includes the description of purposes for such a tariff structure and provides information on the tariff design process, the tariff structure itself, and the steps necessary for calculation.

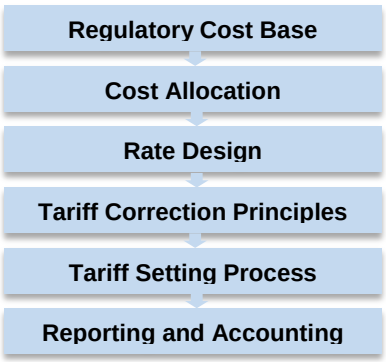
The proposed methodology for irrigation and drainage services recommends the development and implementation of new customer classes and segment pricing approach, where tariffs are set for each scheme with the consideration of the cost of providing services and estimating priority on irrigation water access. All tariffs set by each SP are calculated without the Value Added Tax (VAT) inclusion.

Two approaches - the Lower Revenue Bound (LRB) and Upper Revenue Bound (URB) pricing were considered as alternatives of the tariff calculation basis. Under LRB, in order for the utilities to be viable, they should recover, at least, the operational, maintenance and administrative costs, externalities, taxes, interest cost on debt, and dividends (if any). Lower Bound Costs are essentially Upper Bound costs, without any return on assets. In return under URB, SPs should not recover more than the operational, maintenance and administrative costs, externalities, taxes, provision for the cost of asset consumption and cost of capital, the latter being calculated using a Weighted Average Cost of Capital (WACC).

In the proposed methodology, a “building block” approach was used as a basis to determine URB and as well as LRB revenue requirement. Such an approach allows for the calculation of Lower Bound tariffs via ignoring or excluding the Rate of Return on the Regulatory Asset Base component, which is the factual difference between the Upper and Lower Bound of Revenue.

The tariff regulatory period is determined individually by Supervisory Body (SB) or Regulatory Body (RB) between three to five years and the process of rate design and regulatory approval consists of several stages:

Stages of Tariff Regulatory Period:



Each stage of the process consists of several specific steps, which are described in this report. Additionally, certain policy questions, such as the return to shareholders, must be addressed at each stage.

The Regulatory Cost Base (RCB) i.e., revenue requirement, is the total amount needed by a SP to meet all its costs of operations during a one-year period for a specific scheme. It consists of:

$$RCB = CAPEX + cOPEX + ncOPEX + CNL + CORR + sANC$$

Where:

RCB	Regulatory Cost Base
CAPEX	Capital expenditure
cOPEX	Controllable Operational Expenses
ncOPEX	Non-controllable Operational Expenses
CNL	Cost of normative losses in scheme
CORR	Cost correction factor, which provides the reflection of the difference between factual and planned costs and also received income from non-operational activity
sANC	Non-direct cost (for instance General and Administrative (G&A) expenses incurred by the structural units of SPs such as: Head office and Regional Service/Business centers) allocated to controllable certain scheme

For some of the components used in the determination of RCB's, policy decisions are required. In the case of no decision, the proposed methodology includes two alternatives (options) to determine these components. In case of applying Option A, preferences are given to the best international practices, which suggests the existence of a regulatory body. Option A leads to a two component tariff with strict regulations whilst Option B, with its three component structure tariffs, allows flexibility and customization to suit sector and SP's needs.

The SP or RB should adopt a Uniform Chart of Accounts (USoA) to oblige SPs to apply regulatory accounting principles which would specify each cost and revenue component with a distinctive account number. This chart of accounts would also be used for the annual filings of company information to the SP or RB.

For the calculation of the annual RCB for specific scheme, a cost allocation is conducted to determine the cost of providing scheme related services to each class of customers. The proposed methodology describes the cost allocation approach, which consists of the allocation of all components of the RCB. Costs are allocated at first to the scheme, then segment and last between the customer groups.

To start the cost allocation process, SPs shall start classify their cost as either direct or non-direct. Direct costs are those directly attributed to a particular scheme, scheme related activities and scheme segments, whereas non-direct costs are those common to a number of schemes, which need to be allocated using an appropriate cost allocator.

Next, an SP must decide on customer classes and estimate priority on water access to customer classes in order to allocate the RCB to each class. In this report, customer classes are provided as an example:

- Irrigation - This class includes those customers who use irrigation services for crop growing purposes;
- Drainage - This class includes those customers who use drainage services for crop growing purposes as well as water removal from the ground or groundwater or removal of storm water to protect construction structures, buildings and other structures;
- Urban - This class includes those customer(s) who use delivered bulk water for the city drinking water supply purposes;
- Aquaculture - This class includes farmers carrying out cultured fishery in ponds supplied through irrigation channels;
- Industrial - This class includes customers such as chemical and metal processing factories/ minerals processing/Thermal Power Plants which use delivered water for the technological purposes;
- Water Export - This class includes customers for which irrigation water supply is performed across the national borders;
- Hydro Power Plant (HPP).

Several appropriate allocation factors are used, each of which must be calculated from scheme utilization factors or operational costs. For example, to allocate non-direct costs (head office and regional office General and Administrative (G&A) expenses, depots, workshops and power operated equipment and its Operating and Maintenance (O&M) expenses etc.) to schemes is to use each

scheme's share of total direct O&M costs less 90% of Electricity Costs (EC).

Once the cost allocation is completed, the actual design of the tariff structures must be selected and the prices for each segment or customer group calculated. The draft tariff methodology incorporates volumetric as well as area-based multi-part tariff structure, respectively with the different billing determinants for each. A SP shall then submit a tariff application to SB or RB for approval of the investment program, grouping of customers and analysis of operational expenses. This process involves the filing of supporting documents and exhibits for regulatory/public scrutiny and analyses.

The implementation of draft tariff methodology requires the development of several regulatory and technical regulations which are reflected under the draft's transitional provisions.

BACKGROUND

Water pricing reform plays an important role in any new national water reform agenda by encouraging economic efficiency in service delivery, investment and water use. Overall, regulated pricing together with other regulatory reforms seek to improve the economic efficiency of water use and the industry as a whole (e.g. investment, operations and asset management), including ensuring that consumers are protected from excessive prices in monopoly markets. In return, efficient water pricing should help to ensure that production and consumption decisions across a range of sectors and industries of Georgia's economy reflect the efficient use of water.

The GoG intends to reform the Amelioration (irrigation and drainage) Sector. In the Strategy for Agricultural Development in Georgia 2015-2020, amelioration is mentioned as one of the strategic priorities of the country and in the measures preference will be given to rehabilitation and modernization investment projects in order to build efficient technological and organizational capacities. Future measures to be undertaken aim to support fair and optimal allocation of water resources and improvement of the tariff system. The main priority for the sector is to become viable and sustainable in order to commercialize and transform GA into a profitable organization.

The institutional arrangement for management of irrigation infrastructure was changed several times in Georgia. With the most recent institutional changes in Georgia, the amelioration infrastructure is now directly managed by GA.

GA is responsible for the management of nearly the entire portion of the irrigation infrastructure in Georgia. It is a state-owned entity and the management authority is transferred to the MoA.

Before 2010, customers of irrigation and drainage services were represented mostly from Amelioration Associations (AA). Due to abolishment of AAs in 2010, currently GA practices direct contractual interaction with irrigation and drainage service customers. In addition to irrigation and drainage, other customer categories include industrial companies, small HPPs, fish farms, and customers in neighboring countries (water export), which receive water delivered through irrigation infrastructure.

GA collects fees from farmers and other customers for two primary reasons: The first is to cover at least the O&M cost to enable a company to deliver services and second, to be financially sustainable, whereas in case of full cost recovery, service fees should include a charge for GA's cost of capital.

GA has operated without an update of tariffs since the last tariff approval by the GNERC, almost 5 years ago (2010). The tariff approval by GNERC lacked methodology. Without basic cost information necessary to calculate proper tariffs, the rates were introduced several times in the amelioration sector. The water charges can cover only part of total O&M costs, with an additional part of the cost covered by the state budget, while the remaining proper level of O&M costs remained unrecovered. If GA continues operating under the existing rates, even in case where it can achieve high contracting efficiency and collection rates comparative to the existing level, the company cannot afford to cover employee salaries.

Respectively, water pricing and cost recovery even for operational costs for irrigation and drainage service delivery have been contentious issues for decades in Georgia. The existing fee for amelioration services and percentage of contracting and payment creates serious problems both for irrigation and drainage SPs including GA and, in the long-run, for farmers. If the fees collected do not cover the costs of irrigation and drainage service delivery, its sustainability requires heavy government subsidies, without which functioning of the system may be at risk.

In regard to address the above prescribed issues, GA applied to USAID Georgia for assistance in development of tariff methodology. In response to the request, G4G and GA initiated a joint project to introduce a new system of tariffs for irrigation and drainage services.

G4G developed the initial draft on tariff methodology with the consideration of best international practices, including different alternatives to the approaches for the input calculation. The development process of draft tariff methodology included providing capacity building to GA on best international practices (several workshop trainings delivered) and intensive consultation and discussions with the main beneficiary on the draft tariff methodology.

METHODOLOGY

G4G consultancy activities have been carried out in close cooperation with the GA staff (both Financial and Technical) between September 10, 2015, and December 24, 2015.

	Activity	Description
1	Desk review	The review of the following document packages: ▪ Current regulatory acts, relevant to the assignment ▪ Draft regulatory acts, intended to be adopted within the frames of the irrigation/drainage sector reform ▪ Available examples on best international experience
2	Workshops	The workshops/discussions with both financial and technical staff of GA intended for the capacity building and to establish a common understanding of future changes and additionally required regulations for the tariff setting and its implementation process.

RECOMMENDATIONS

TARIFF CALCULATION METHODOLOGIES WITHIN THE IRRIGATION AND DRAINAGE SECTOR

DEFINITION OF TERMS

a) **Regulated Activities -** under the proposed Law, these activities include water storage, abstraction, conveyance and delivery or distribution of the water or services delivered to different customer groups, i.e., scheme related activities;

b) **Upper Bound Cost -** upper-bound provides for the recovery of costs, including rate of return on capital, but avoiding the earning monopoly rents;

c) **Lower Bound Cost -** lower bound costs are essentially Upper Bound Costs, without any return on assets;

d) **Customer -** customer is the individual person(s) and/or organization(s) who have (or have had) a contract with a SP for the supply of irrigation water or removal of the excess water. The customer represents the contracting party that is responsible for complying with the terms and conditions specified in their contract with the SP;

e) **Consumptive Use -** the term “consumptive” denotes uses that partially or totally “use up” water, through evapotranspiration, transformation, contamination or other processes;

f) **Hydro Melioration -** a set of activities and structures that improve the natural conditions of agricultural land use by controlling soil water regime;

g) **Soil Water Regime -** set of processes of receipts, movement and consumption of moisture in the soil;

h) **Irrigation Service -** the supply of water for irrigation of crops or pastures;

i) **Major Irrigation Scheme -** a scheme having SCA more than 10,000 hectares is major irrigation scheme;

j) **Medium Irrigation Scheme -** a scheme having SCA more than 500 hectares and up to 10,000 hectares individually is a medium irrigation scheme;

k) **Minor Irrigation Scheme -** a scheme having SCA up to 500 hectares individually is classified as minor irrigation scheme;

l) **Drainage -** natural or artificial removal of water from the ground surface either groundwater when soil is in need of regulating the level of groundwater or removal of storm water to improve agricultural technology, construction of buildings and structures;.

m) **Drainage Norm -** the allowable duration of over-wetting (flooding) of the root zone, which does not cause waterlogging of crops and reducing the crop yields and the required depth of standing groundwater level, at which in the root zone of the soil maintained best for crop water-air regime and enabled the construction of settlements and industrial enterprises. Drainage Norms measured in time – days and linear metric units - Centimeter (cm) and Meter (m), respectively. It is a dynamic value and reflects primarily the optimal position of the groundwater level for the favorable development of the root systems of plants at all stages of the growing season. It also depends on the soil properties;

n) **Root Zone -** the entire area where roots are growing below the plant;

o) **Scheme -** a complex set of interconnected hydraulic structures, which ensures the creation of optimum water, air and temperature regime in the soil for plants and increase of fertility;

   a) **Irrigation Scheme -** a complex set of a water reservoir, headworks, a main canal, a pipeline, a distributary and irrigation network, deep drainage, main drain network, a pumping station, a well, roads, bridges, culverts and other hydraulic structures which ensures storage, transportation and distribution of water in the area according to water necessity of plants in different phases of their growth;

   b) **Drainage Scheme -** a complex set of horizontal and vertical drainage, regulating, open canal, a water receiver, a mountain foot canal, an embankment, a pumping station and other hydraulic structures, which ensures removal of excessive water according to water necessity of plants in different phases of their growth;

p) **Scheme Command Area -** for irrigation scheme it is the area (does not fit cultivation) which can be irrigated from a scheme, and for the drainage scheme it is the area that scheme is capable to serve by the removal of excess water. To determine SCA necessary condition is that scheme must be capable to deliver services which are in compliance to the set of requirements of Drainage and Irrigation Norms as well as Customer Service Standards;

q) **Segment -** it is a component of a water supply scheme that may be distinguished from other components of the same water supply scheme on the basis of any number of factors, including its geographical location, the type of operating requirements, the type of water infrastructure used to supply the relevant water services and in some cases, the type of customers taking water;

r) **Bulk Water Supply -** The supply of large quantities of Water other than as a supply of Irrigation Services;

s) **Channel Distribution System -** Water Infrastructure designed to:

- Convey water in bulk from headwork's storage or river diversion points into a distribution system (main channel); or
- Deliver Water from a main channel to a customer's supply point (distribution channels); or
- Remove excess water from land (drainage channels).

t) **Regulatory Cost Base -** SP's allowed income which includes reasonable costs and rational profit, calculated according to the methodology prescribed by this law and which is necessary for the effective functioning of the SP;

u) **Regulatory Asset Base -** the value of assets used for the purpose of determining the regulatory cost of capital, also referred to as the "regulatory capital value" or "regulatory capital base, PPE and intangible assets" used for the regulated activity, that are directly related to the regulated activity and are used in tariff calculation;

v) **Weighted Average Cost of Capital -** rate of return based on regulatory assets, calculated before taxes, according to the capital structure of the company (own and attracted capital);

w) **Gearing Ratio -** the gearing ratio measures the proportion of a company's borrowed funds to its equity;

x) **Working Capital -** the generic term "working capital" encompasses two items: 1) working cash, and, 2) materials and supplies. Working cash is the amount of cash required to bridge the gap between expenses for the delivery of service and the receipt of payments from consumers. It represents the amount needed to pay for salaries, services, current bills, and to maintain a sound financial position;

y) **Contributions -** contributions in aid of construction, customer contributions and transfers of assets the SP receives in the form of cash from its customers for the acquisition or construction of items of property, plant and equipment that must be used to connect those customers to the scheme network and provide them with ongoing access to a supply of services or a contribution of property, plant and equipment constructed by a developer on behalf of the customer and transferred to the SP;

z) **Contributed Assets** - contributed assets are those assets that are provided/funded by water users, or provided/funded on behalf of users by a third party (e.g. governments, donors and financial institutions);

aa) **Net Book Value -** asset cost minus accumulated depreciation and accumulated revaluation loss;

bb) **Historic Cost Asset Valuation Method -** asset cost revaluation using the price of its creation or the first purchase;

cc) **Loan -** loan is debt provided by an entity (organization or individual) to another entity at an interest rate, and evidenced by a note which specifies, among other things, the principal amount, interest rate, and date(s) of repayment;

dd) **Loan Amortization -** the process of reducing debt through regular payments of principal and interest that will result in the payoff of a loan at its maturity;

ee) **Loan Amortization Period -** the amortization period is the length of time it will take to fully pay off the amount of the loan;

ff) **Targeted Loan -** a loan specifically for funding the rehabilitation, modernization and augmentation of one or more schemes or segments with significantly low interest rate

comparative to the average annual interest rate of mid-term and long-term loans issued by commercial banks to legal entities;

gg) **AP_t -** annual payment on targeted loan according to the loan agreement during the loan amortization period;

hh) **Investment -** capital investment which is used for creating, purchasing, modernization or/and rehabilitation of assets, the useful life of which is more than one year;

ii) **Reasonable Costs -** cost incurred in accordance with the minimum cost principles, which is rational and nessesary for the effective functioning of the utility;

jj) **Property Plant and Equipment -** major assets used by the company for the regulated activity, including land, buildings, machinery, equipment and other main assets the useful life of which is more than one year;

kk) **Intangible Assets -** identifiable, non-monetary assets without physical form including patent, trade mark, goodwill, software, license and other types of intangible assets;

ll) **Depreciation/Amortization -** gradual allocation of depreciable amount of the tangible/non-tangible asset over its useful life;

mm) **Straight Line Depreciation -** this type of depreciation provides an equal amount of depreciation on an asset each year over its expected life (but the total depreciation for a portfolio of assets will fluctuate with asset additions and maturities);

nn) **Segment Pricing -** pricing approach which allows setting different prices at different scheme and different segments of the scheme;

oo) **Direct Cost -** are those costs that have been budgeted at the individual asset level and directly can attribute to particular schemes or segments;

pp) **Non-Direct Costs -** non-direct costs are costs common to a number of schemes and/or segments, which need to be allocated using an appropriate cost allocator. Non-direct costs are not directly attributable to the operations and management of a specific scheme or segment and include both indirect and overhead costs associated with the provision of corporate and other business services;

qq) **Service Providers -** are utilities managing the water supply/removal schemes or operating the network;

rr) **Non-Controllable Operating Expenses -** costs that occur due to external factors and which cannot be influenced by the SP;

ss) **Controllable Operating Expenses -** costs that occur due to internal factors which can be controlled by the SP;

tt) **O&M -** operation and maintenance expenses related to the scheme management and scheme related activities;

uu) **Corrective Maintenance -** corrective maintenance is maintenance task and associated expenditure relating to maintenance that is made in reaction to events or new information/inspections;

vv) **Planned Maintenance -** it is a maintenance on an asset, that is operational, to improve its condition and/or performance to the required level. The maintenance is scheduled to be undertaken at an appropriate time;

ww) **Reactive Maintenance -** it is maintenance on an asset that cans no longer function as required, to restore its function;

xx) **Scheduled Maintenance -** the scheduled maintenance is a planned maintenance on an asset, that is operational, to minimize deterioration in its condition and/or performance. The maintenance is periodic;

yy) **Tariff -** the price SP charges to its customers for the delivery of services or water;

zz) **Tariff Calculation Year (t) -** the calendar year prior to the tariff year;

aaa) **Tariff Regulatory Period -** time period set by SB (3 to 5 years) for which tariffs are reviewed using correction factors foreseen in this methodology;

bbb) **Tariff Year (t+1) -** the calendar year for which the SP sets tariffs in accordance with this methodology;

ccc) **Test year (t-1) -** the calendar year prior to the tariff calculation year;

ddd) **Useful Asset Lives -** useful lives in conjunction with asset age is the estimation of the remaining asset lives and the timing of asset replacement activities;

eee) **USoA -** Uniform System of Account is a Chart of Account as well as rules and instructions on record keeping and reporting the transactions regulated under this law scheme related activities;

fff) **Volume risk -** volume risks can be categorized according to their short or long-term nature, as well as whether they are driven by demand or supply. Short-term volume risks are associated with existing infrastructure, while long-term volume risks are related to the augmentation of supply (that is, planning and infrastructure risks);

ggg) **Demand Risk -** demand risk occurs when customer demand for water is uncertain and can result in variations between actual and forecast revenues;

hhh) **Nominal Allocation (or Nominal Value) -** for the purposes of this methodology it is a projected volumetric amount i.e. the nominal allocation of water that can be allocated for the delivery to customers groups at each water year and/or irrigation season depending on seasonal conditions and particular regulations;

iii) **Water losses -** the volume of water lost due to evaporation and leakage are defined as losses of water which occurs when water is released or diverted for delivery through a channel (or pipeline) distribution system. The primary sources of water losses are through:

- Uncontrollable factors – evaporation, seepage, and overflows due to lack of customer usage after rainfall;
- Operational losses – leakages from channels, pumps and/or broken pipes, un-metered or uncontrolled use, metering errors, overflows and “dumping” of channel water for maintenance requirements and for weed control management.

jjj) **Water extra normative loss -** positive difference between the factual and normative loss rates set by SP for the water storage, conveyance and distribution network;

kkk) **Water factual losses -** difference between the volumes of water which is stored, conveyance, or delivered to the customer calculated based on the estimates through the approved methodology or based on the data from metering devices;

lll) **Water normative loss -** allowed technical loss of water which occurs during the storing, conveying and delivering water via channel distribution network;

mmm) **ESCO** – Electric System Commercial Operator.

PRINCIPLES OF TARIFF CALCULATION METHODOLOGY

a. This methodology for setting irrigation and drainage service tariffs in Georgia is based on the following principles:

- Reflects the cost of service for scheme related activities for each separate geographical scheme utilizing approaches of segment pricing and differentiating prices inside the segments between the customer categories;
- Protects consumers from the monopolistic prices;
- Stimulates irrigation and drainage SPs to increase their efficiency via optimization of their costs with the requirement not to decrease the quality of services and technical conditions of the operated infrastructure;
- Supports the increase of the SP’s rate of return on capital by means of increased operational and management efficiency;
- Ensures that tariffs are transparent, stable and fair for the SP and for the customer;
- Reflects the state policy with regard to commercialization and profitability of SPs and development of irrigation/drainage sector;
- Reflects different costs between the different schemes, segments and consumer categories, and;
- Covers the costs of the SP with funds recieved from each consumer category in proportion to costs incurred for servicing a consumer category.

b. This tariff methodology uses the Revenue Cap Approach to calculate prices that are expected to recover the efficient costs of providing service based on applying the building block approach for the determination of SP’s costs and expected revenue requirements. This is done by considering the components or “building blocks.” Components generally used in this method are the following:

- Capital expenditures;
- Controllable operational expenses;

- Non-controllable operational expenses, and;
- Costs related to normative loss levels in water storage, conveyance and delivery activities.

c. Calculation of capital and non-controllable operational expenses is carried out by the "cost-plus" method, with annual cost investigation and assessment.

d. For calculation of controllable operational costs, the "incentive regulation" principle is used, which implies setting up incentives to optimize SP's costs.

e. Controllable operational costs as well as capital expenditures and investment plan investigation and assessment is carried out before each regulatory period and costs changes are made during tariff regulatory period accordingly to this methodology.

f. In case when the result of the cost examination reveals corrective information of the previous year(s) existed before test year, which was not identified in the previous years' tariff calculations, an SP has the authority to use this information for correcting the results of the investigation. Correction shall be made by using principles envisaged in this methodology.

g. The amount of actual losses and a target parameter estimation model can be used to calculate the cost of Water Normative Losses (WNL) at each segment level.

h. All tariffs set by each SP are calculated without the VAT inclusion.

i. SB[1] engages in careful and thorough assessment of the SP's proposed capital and operational program, and to ensure that approved Capital Expenditures (CAPEX) and Operational Expenses (OPEX) are prudent, consist of projects that are necessary to deliver satisfactory and adequate level of service, and are provided at the most efficient cost.

Possible Regulatory Options for SP

Option A

SB – Ministry of Agriculture or RB (such as GNERC)

Option B

SB – Administrative body which holds partners authority of the SP
SB – Supervisory Board of SP or other structure of SP

TARIFF REGULATORY AND TARIFF SETTING PERIOD

a. Based on this methodology, the tariff regulatory period is determined individually by SB (between three (3) to five (5) years).
b. The SB sets the tariff regulatory period for each SP according to the terms and conditions of this methodology.
c. The SB is authorized to set for the entire tariff regulatory period, the basic components of the WACC and fixed rate for the efficiency factor (X-factor).
d. Tariffs are set annually by the SPs during tariff regulatory period, and are valid from January 1 to December 31.

REGULATORY COST BASE FOR THE TARIFF YEAR

a. Regulatory Cost Base

RCB for the tariff year is calculated according to the following formula for each independent scheme:

Option A

$$RCB_{(t+1)} = CAPEX_{(t+1)} + cOPEX_{(t+1)} + ncOPEX_{(t+1} + CNL_{(t+1)+} CORR_{(t+1)} + sANC_{(t+1)} \quad (1)$$

Where :

$RCB_{(t+1)}$	Regulatory Cost Base for the tariff year (GEL)
$CAPEX_{(t+1)}$	CAPEX for the tariff year (GEL)
$cOPEX_{(t+1)}$	Controllable Operational Expenses for the tariff year (GEL)
$ncOPEX_{(t+1)}$	Non-controllable Operational Expenses for the tariff year (GEL)

[1] Supervisory Body - Because of SPs are a monopoly service providers, and particularly given its status as a for-profit company, there is a need for some form of regulatory mechanism of it.

$CNL_{(t+1)}$	Cost of Normative Losses in schemes for the tariff year (GEL)
$CORR_{(t+1)}$	Cost correction factor, which provides the reflection of the difference between factual and planned costs of tariff year in the Regulatory Cost Base, and also income received from non-operational activity
$sANC_{(t+1)}$	Non-direct cost (for instance, General and Administrative (G&A) expenses incurred by the structural units of SPs such as: Head office and Regional Service/Business centers) allocated to certain scheme for the tariff year (GEL)

Option B

$$RCB_{(t+1)} = CAPEX_{(t+1)} + OPEX_{(t+1)} + D_{(t+1)} + CNL_{(t+1)} + CORR_{(t+1)} + sANC_{(t+1)} \quad (1)$$

Where :

$RCB_{(t+1)}$	Regulatory Cost Base for the tariff year (GEL)
$CAPEX_{(t+1)}$	CAPEX for the tariff year (GEL)
$OPEX_{(t+1)}$	Operational Expenses for the tariff year (GEL)
$D_{(t+1)}$	Depreciation/Amortization of scheme - infrastructure assets for the Tariff Year (GEL)
$CNL_{(t+1)}$	Cost of Normative Losses in schemes for the tariff year (GEL)
$CORR_{(t+1)}$	Cost correction factor, which provides the reflection of the difference between factual and planned costs of tariff year in the Regulatory Cost Base, and also income received from non-operational activity
$sANC_{(t+1)}$	Non-direct cost (for instance General and Administrative (G&A) expenses incurred by the structural units of SPs such as: Head office and Regional Service/Business centers) allocated to certain scheme for the tariff year (GEL)

b. CAPEX- Capital Expenditure

b.a Capital expenditures for the tariff year are calculated for each scheme according to the following formula:

Option A

$$CAPEX_{(t+1)} = RAB_{(t+1)} * WACC + D_{(t+1)} + I \quad (2)$$

Where:

$CAPEX_{(t+1)}$	CAPEX for the tariff year (GEL)
$RAB_{(t+1)}$	Regulatory Assets Base (RAB) for the tariff year (GEL)
$WACC$	Rate of return on the RAB for the tariff regulatory period (%)
$D_{(t+1)}$	Depreciation/Amortization of infrastructure assets for the tariff year (GEL)
I	Interest payments on targeted loans for the rehabilitation, modernization and augmentation of the (i) scheme for the tariff year (GEL)

Option B

b.a Capital expenditure for the tariff year calculated for each scheme according to the following formula:

$$CAPEX_{(t+1)} = RAB_{(t+1)} * WACC + I_{(t+1)} \quad (2)$$

where:

$CAPEX_{(t+1)}$	CAPEX for the tariff year (GEL)
$RAB_{(t+1)}$	Regulatory Assets Base (RAB) for the tariff year (GEL)
$WACC$	Rate of return on the RAB for the tariff regulatory period (%)
$I_{(t+1)}$	Interest payments on targeted loans for the rehabilitation, modernization and augmentation of the (i) scheme for the tariff year (GEL)

b.b SP shall not include in WACC calculation the repayment of interest on targeted loans.

b.b With the consideration that all expenditure are capital in nature and involve: constructing or purchasing a new asset, or upgrading, rehabilitating, replacing, modernization, fitting, or performing required comprehensive technical diagnostics of an existing asset, each SP shall perform:

- Efficiency tests – this would determine if the proposed CAPEX was representative of the best way to meet customers' needs for services;
- Prudency tests – such tests seek to establish whether or not the decision to invest is prudent, given the particular and specific circumstances at the time;
- Used and Useful tests – essentially examines whether or not the particular assets/equipment/plant are utilized in and contribute to, the provision of the particular service;
- Categorization of CAPEX according to several major categories:
  - By type;
  - By system and network, headwork, primary, secondary and tertiary canals, re-lift systems;

- By functions such as: water storage, water diversion, water conveyance, water delivery and removal;
- Other network related and non-network related projects, thereby allowing in-depth analysis of the level and the timing of the proposed investments.

c. Regulatory Asset Base

c.a Formation of the RAB

Option A

The RAB shall include:

- SP's used and useful assets for the scheme related activities, PPE and Intangibles Net Book Value (NBV); and
- Planned prudent investment assets during the tariff regulatory period agreed with the SB is included RAB.

Option B

The RAB shall include:

- SP's used and useful assets for the scheme related activities, PPE and Intangibles Net Book Value;
- Planned prudent investment assets during the tariff regulatory period agreed with the SB; and
- Allowance for Working Capital (WC).

c.b Calculating the Value of an asset

Option A

For calculating the value of an asset, the SPs use Historic Cost Valuation Method. In case the assets value can not be determined by the method specified herein, an SP, with the agreement of the SB, is allowed to use depreciated replacement cost approach asset valuation approach.

Option B

For calculating the value of an asset, the SP is allowed to use depreciated replacement cost asset valuation approach.

c.c In the case when an SP sells or transfers regulatory assets to another SP, this methodology does not envisage asset re-sale value or revaluated cost while calculating relevant tariffs;

c.d Investment cost is used to value planned assets cost, which is to be agreed with the SB. (construction, purchase, repair, rehabilitation, modernization, etc.);

c.e The value of RAB is determined by the NBV of the assets that constitute RAB.

c.f During the regulatory period the SP reflects in RAB the annual planned investment for tariff calculation year and tariff year according to the investment plan of the utility;

c.g The investment plan of an SP, as well as amendments by the SP in investment plan before tariff setting or correction should preliminarily be agreed with the SB. The SP should justify the necessity for the planned investment, as well as planned target effect and the benefit. The SB shall approve the investment plan and consequently the plan will be reflected in RAB with only those investments which the SB considers as justified and reasonable after the appropriate review and assessment;

c.h If a planned investment by the SP (specific investment project) was not carried out based on the investment plan provisions agreed with SB (didn't receive acceptance act, was not completed or properly commissioned prior to the end of the investment plan year), such investments are considered as construction-in-progress and capital expenditures on these investments are subject to correction, in accordance with this methodology;

c.i If the SP does not submit the investment plan and does not agree the volume of investment with the SB, the SB is authorized not to allow inclusion of the unsubstantiated investment in the calculation of tariff;

c.j If the SP cannot achieve the targets planned for the investment, including quality of service standards set by the SB, the SB is authorized to apply penalty mechanisms according to the current legislation/methodology;

c.k The RAB shall not reflect:

a) Contributions;

Option A

Those investments that were carried out since establishment of the utility or will be carried out by third party financing (SPs should account for such assets separately)

Option B

1. Those investments that will be carried out by third party financing started from the first regulatory period determined according this methodology (SPs should account for such assets separately).
2. Subparagraph (a) removed.
   b) Those investments which are not considered as prudent, justified and reasonable by the SB;
   c) Assets that are not used in regulated scheme related activity;
   d) Construction work in progress;
   e) Goodwill.

c.l The SP shall consider capitalized cost of the paid loan according to the factual annual interest rate for the long-term loan taken to finance the construction during the construction process in the cost of asset defined in subparagraph (c.k) ‘’construction-in-progress of paragraph (c) of Article 3, but the rate should not exceed the rate of debt (r_d) defined according to this methodology.

c.m Accounting of impairment loss shall be done separately by the SP. For regulatory purposes the SB is authorized to allow an SP to reflect asset impairment loss in tariffs in individual cases.

c.n RAB value at the end of the tariff year shall be determined based on the following formula:

Option A

$$RAB_{(t+1)}=PPE_{(t-1)}+IA_{(t-1)}-TPC_{(t-1)}-RDIA_{(t-1,t,t+1)}+pINV_{(t,t+1)}-pD_{(t,t+1)}-pTPC_{(t,t+1)} \quad (3)$$

Where:

$RAB_{(t+1)}$	Value of RAB at the end of the tariff year(GEL)
$PPE_{(t-1)}$	Value of Property Plant and Equipment items at the end of the test year (GEL)
$IA_{(t-1)}$	Value of intangible assets at the end of the test year (GEL)
$TPC_{(t-1)}$	Contributions - value of assets, financed by third party, at the end of the test year (GEL)
$RDIA_{(t-1,t,t+1)}$	Allowed impairment during test year, retirement & disposal of assets in the test year, assets value which will be retired within investment plan in the tariff calculation year and tariff year, (GEL)
$pINV_{(t,\ t+1)}$	Value of planned assets envisaged by investment plan approved by the SB for the calculation year and the tariff year (GEL)
$pD_{(t,t+1)}$	Annual depreciation/amortization for the tariff calculation year and tariff year charged to property plant and equipment and intangible assets (GEL)
$pTPC_{(t,t+1)}$	Contributions - asset cost financed by third parties during tariff year and tariff calculation year (GEL)

Option B

$$RAB_{(t+1)}=PPE_{(t-1)}+IA_{(t-1)}-RDIA_{(t,t+1)}+ INV_{(t,t+1)}- D_{(t,t+1)}+WC_{(t-1)}+\Delta WC_{(t,t+1)} \quad (3)$$

Where:

$RAB_{(t+1)}$	Value of RAB at the end of the tariff year (GEL)
$PPE_{(t-1)}$	Value of Property Plant and Equipment items at the end of the test year (GEL)
$IA_{(t-1)}$	Value of intangible assets at the end of the test year (GEL)
$RDIA_{(t-1,t,t+1)}$	Allowed impairment during test year, retirement & disposal of assets in the test year, assets value which will be retired within investment plan in the tariff calculation year and tariff year (GEL)
$INV_{(t,\ t+1)}$	Value of planned assets envisaged by investment plan approved by the SB for the calculation year and the tariff year (GEL)
$D_{(t,t+1)}$	Annual depreciation/amortization for the tariff calculation year and tariff year charged to Property Plant and Equipment and intangible assets (GEL)
$WC_{(t-1)}$	The Working Capital Allowance at the end of the test year (GEL)
$\Delta WC_{(t,t+1)}$	The changes in the Working Capital Allowance in the tariff calculation year and tariff year, (GEL)

d. Depreciation/Amortization

d.a The annual depreciation/amortization allowance shall not reflect:

Option A

Annual depreciation/amortization of:

- Contributions;
- Property Plant and Equipment (PPE) and Intangible assets not used and useful for the regulated activities.

Option B

Subparagraph (d.a) removed

d.b SPs shall calculate depreciation and amortization by the straight line method, based on historical (acquisition) cost and useful lives of used and useful PPE and Intangibles.

d.c SPs shall perform componentization of PPE, determine useful lives and conduct depreciation study.

d.d Treatment of Cash Flow from Depreciation/Amortization

Option A

As depreciation provides for recovery of the capital invested in an asset, SPs shall use cash flow provided through the depreciation only for the recovery of the incurred capital expenditures during the tariff year on certain schemes and systems and/or segments from which certain amount of depreciation originated from.

Option B

1. As depreciation provides for recovery of the capital invested in an asset, SPs shall use cash flow provided through the depreciation only for the recovery of the incurred capital expenditures.
2. Subparagraph (d.d) removed.

e. Weighted Average Cost of Capital

e.a Rate of Return on RAB shall be defined based on the Weighted Average Cost of Capital (WACC) method.

e.b WACC is fixed during the regulatory period.

e.c The pretax WACC for each regulatory period is calculated as follows:

$$\mathbf{WACC}_{pre-tax} = g^{*}r_d + \frac{(1-g)*re}{(1-T)} \quad (4)$$

Where:

$WACC_{pre-tax}$	Pre-tax Weighted Average Cost of Capital (%)
G	Share of loans (%)
r_d	Cost of debt (%)
r_e	Cost of own capital (%)
T	Profit tax (%)

f. Cost of debt and own capital

f.a Cost of debt and own capital is calculated based on the following formula:

$$r_d = r_{rf} + DP \quad (5)$$

$$r_e = r_{rf} + \beta \times (r_m - r_{rf}) \quad (6)$$

Where:

r_{rf}	Risk free rate (%)
DP	Debt premium (%)
r_m	Market risk (%)
B	Relative sectorial risk factor

f.b Risk free rate (r_{rf}), relative sectorial risk factor (β), market risk premium (r_m-r_{rf}), and the debt premium (DP) are fixed for each tariff regulatory period.

f.c The long-term risk-free interest rate, the market risk premium and debt premium shall be agreed with or determined by the SB.

f.d For the first regulatory period, the components of the WACC is determined as follows:

Risk-free rate (r_{rf})	- 7.50%;
Debt Premium (DP)	- 3.50%;
Market risk premium (r_m- r_{rf})	- 7.25%;
Sectorial risk coefficient (β)	- 1.00

f.e The (β) can be set no higher than 1.2

f.f The maximum allowed level of real gearing ratio (**g**) of 60 per cent can be used in the WACC formula for SPs.

g. OPEX - Operating Expenses

g.a For the purpose of this Methodology, operating expenses consists

Option A

g.a For the purpose of this methodology, operating expenses consists of two components: – Controllable and Non-controlable operating expenses.

Option B

Subparagraph (g.a) removed

g.b Operating expenses should ensure the recovery of costs associated with the scheme related activities regulated under this law, in particular:

Option A

- O&M costs of schemes – infrastructure assets;
- Property tax and other tax equivalents such as environmental fees;
- Other justified costs identified in the process of analysis related to the scheme operating activities.

The OPEX shall not reflect:

- The cost of doubtful receivables and uncollectable revenues;
- Costs arising from changes in the value of assets (written down values of inventories, written down value of current assets);
- Penalties and fines for delays imposed on the SP pursuant to law (fines for administrative violations, penalty payments, compensation for damages);
- Costs of unregulated activities;
- Other unjustified cost identified in the process of analysis.

Option B

- O&M incurred on Infrastructure Assets - schemes and its components are:
  1. Operation Cost (OC)[2]
     - Amelioration services;
     - Activities and measures for the care and upkeep of infrastructure
     - Cost of Electricity;
     - Current Maintenance.
  2. Maintenance Cost (MC)
     - Minor Maintenance;
     - Periodic-restorative (overhaul) maintenance;
     - Emergency-Restorative (overhaul) maintenance.
- Property tax and other tax equivalents such as environmental fee;
- Other justified costs identified in the process of analysis related to the scheme operating activities.

g.c OPEX cover maintenance cost as well as of contributions financed by third party, including:

[222] Grouping of Operating and Maintenance costs performed according the Technical Regulation on Operational rules of amelioration infrastructure adopted by GoG decree #409

Option A

Preventative, corrective and reactive maintenance, as well as other costs.

Option B.

Minor, Current, Periodic-restorative (overhaul) and Emergency-Restorative maintenance cost.

Option A

1. OPEX cover reimbursement of the short-term loan interest borrowed for financing the WC, i.e. the costs related to the interest expense on short term loans for the WC allowance which should not exceed average annual interest rate on short-term loans issued by commercial banks to legal entities.

To determine the WC allowance, a SP shall perform a study which analyzes the time between the date customers receive service and the date that customers payments are available to the SP (or "lag" or debtor days) together with the time during which the SP receives goods and services but pays for them at a later date (or lead or creditor days). "Leads" and "Lags" are both measured in days and are generally GEL-weighted. The GEL-weighted net lag (i.e., lag minus lead) days is then divided by 365 (or 366 if a leap year is selected) and then multiplied by the annual OPEX to determine the amount of cash WC required for operations.

$$Working\ Capital = \frac{Lag\ Days - Lead\ Days}{365} * OPEX$$

2. For calculating the WC, a SP takes 5% of the sales revenue relating to the regulated activities under this law. The internal turnover of companies belonging to a vertically integrated group is not included in the calculation of WC allowance.

Option B

Subparagraph (g.d) removed (The WC financed through the SP internal funds included in RAB)

g.d OPEX for the test year, which are justified, reasonable and fair, are the direct or indirect bases for calculating operational costs for the tariff year.

g.e SPs shall classify their OPEX by scheme, segment and by type as either direct or non-direct, with the consideration of direct costs are those directly attributed to particular activities, schemes and scheme segments, whereas non-direct costs are those common to a number of schemes or segments, which need to be allocated using an appropriate cost allocator.

g.f In the case when the SP does not have factual data for the test year, SPs shall use one of the below method(s) to forecast operating costs:

- The extrapolation of historical costs, and adjusting for increases such as inflation and decreases such as expected efficiencies;
- The review and updating of historic costs allowing for new levels of service; and
- The bottom up predictions based on current and planned activities.

g.g The SB is authorized to request from the SP technical economic and financial forecasting data for the tariff year and to require SPs to consider only the data which is justified, reasonable and fair.

g.h In the process of the tariff calculation for the tariff year, the SP uses and SB takes in consideration audited factual financial and technical data, that should be submitted according to SB approved forms and should be verified by the head of the SP or duly authorized person.

g.i Within its mandate, the SB is authorized to verify the correctness of the submitted documentation, and assess the fairness and reasonableness of the costs submitted.

g.j All associated costs incurred and revenues received from non-regulated activities shall not be reflected in tariff calculation. Such costs must be ring-fenced (excluded) from the cost used to generate new prices. Prior to being excluded from the cost for providing regulating services, it is necessary to ensure that, to these activities are allocated a proportionate share of SP's indirect (overhead) costs. For that type of expenses, the SPs shall carry out separate accounting.

g.k SPs shall be obliged to carry out accounting according to the USoA (Chart of Accounts and relevant instructions to this chart of account) approved by the SB.

g.l Only expenses recorded in compliance with USoA aprooved by the SB shall be recovered through tariffs.

h. Assessment (review) of OPEX

h.a A review of OPEX by the SB shall assess the cost components and forecasting methodology behind them. The overall aim of the assessment of OPEX is to ensure a reasonable and transparent approach has been applied to cost forecasting.

h.b The review of OPEX shall be undertaken by the SB through examining data provided by SPs and further discussions with relevant staff or experts (both optional).

h.c To assess the OPEX efficiency, the SB is authorized to request and SP will provide data which shall include but not limited:

- Summaries of forecasted operating costs per annum, broken into projects, systems or schemes and segments, operating functions and resources;
- Historical operating costs as required for various functions;
- Methodology behind future cost forecasts;
- Any constraints in regards to OPEX;
- Details on proposed efficiency gains including the allocation of gains to operating areas.

h.d In reviewing the above data, the following tasks need to be undertaken by the SB.

- Review of corporate structure and functions undertaken, both in-house and outsourced
- Investigate the appropriateness of the functions undertaken, with reference to the private enterprise irrigation/drainage businesses;
- Examine predicted efficiency gains over the past period including reviewing the process behind predicting efficiency gains;
- Review operating costs structure for each business or structural unit;
- Review of historical operating costs and predicted operating costs;
- Obtain and review any previous study undertaken into corporate operations, structure or operational performance/benchmarking.

h.e SB opinion on the efficient level of OPEX, latter converted to the approval or the correction of the OPEX shall be based around an overall assessment and a review of the operations undertaken on certain system or scheme, size and age of the operational asset base and the associated customer base, taking into account that costs are examined to identify any that appear abnormally high or low when compared to similar SPs.

i. Controllable Operational Expenses

i.a Controllable Operational Expenses ($_C$OPEX) include all costs over which the utility has the ability to make a decision and therefore may affect them (salaries, on-going repair works, outsourcing, office maintenance, insurance costs, security costs, business trip, etc.).

i.b The base of $_C$OPEX of the SP shall be audited $_C$OPEX of the base year; audited $_C$OPEX for every tariff year of tariff regulatory period is changing according to the Consumer Price Index (CPI) and Efficiency Factor and it is calculated by following formula:

$$cOPEX_{(t+1)} = cOPEX_{(t-1)} * (1 + CPI_t - X_t) * (1 + CPI_{(t+1)} - X_{(t+1)}) \quad (7)$$

Where:

$cOPEX_{(t+1)}$	Controllable Operational Expenses for the tariff year (GEL)
$cOPEX_{(t-1)}$	Controllable Operational Expenses for the test year (GEL)
CPI_t	Average annual rate of inflation, during tariff calculating year (%)
$X_{(t)}$	Efficiency factor during tariff calculation year (%)
$CPI_{(t+1)}$	Average annual rate of inflation, during tariff year (%)
$X_{(t+1)}$	Efficiency factor during tariff year (%).

i.c For the inflation (CPI_t) rate of the tariff calculation year (t), a percentage change of annual average value of year (t-2) compared to annual average value of year (t-3) is taken.

i.d For the inflation rate (CPI_{t+1}) of the tariff year (t+1), a percentage change of annual average value of year (t-1) compared to annual average value of year (t-2) is taken.

j. Non-Controllable Operational Expenses

j.a $_{nc}$OPEX include all costs which are triggered by outside factors and SP cannot affect them. This includes taxes, fees, and other externalities, rents, electricity cost, statutory insurance costs etc.

j.b For the tariff year, the $_{nc}$OPEX from the test year is changed by the CPI and is calculated as follows:

$$_{nc}OPEX_{(t+1)} = {}_{nc}OPEX_{(t-1)} * (1 + CPI_t) * (1 + CPI_{(t+1)}) \quad (8)$$

Where:

$_{nc}OPEX_{(t+1)}$	Non-controllable Operational Expenses for the tariff year (GEL)
$_{nc}OPEX_{(t-1)}$	Non-controllable Operational Expenses for the test year (GEL)
CPI_t	Average annual rate of inflation during tariff calculating year, which is calculated in accordance with the paragraph i.c
$CPI_{(t+1)}$	Average annual rate of inflation during tariff year, which is calculated in accordance with the paragraph i.d. above

k. Water Normative Losses

k.a The Water Normative Losses (WNL) rate is set separately for each scheme and each segment of the scheme calculated according to the rule or methodology envisaged in the relevant normative act and is effective during the regulatory period.

k.b The WNL rate set by the authorized body (SB or RB, MoA) is fixed during regulatory period, except in cases specified by law.

k.c New rates of the WNL are set before the start period of each regulatory period except the first regulatory period.

k.d The cost of WNL shall be reflected in tariff only in those cases where this service includes such cost by law.

k.e If factual loss rate in scheme and relevant segments exceeds the approved rate, the difference shall not be reflected in tariff calculation and will not be reimbursed.

k.f If factual loss rate is less than approved normative rate, the tariff shall reflect the normative loss level.

k.g When scheme-related services envisage the obligation for fulfilling the WNL, the cost of water to compensate for the WNL is calculated based on the following formula:

$$sCNL_{(t+1)} = P_{(t+1)} * E_{loss(t+1)} \quad (9)$$

Where:

$sCNL_{(t+1)}$	WNL value for the certain scheme's distribution system for the tariff year (GEL)
$P_{(t+1)}$	Cost of water to compensate the normative losses for the tariff year (GEL/1000 m³)
$E_{loss\ (t+1)}$	Volume of normative losses for the tariff year (1000 m³)

k.h The cost of water to compensate the WNL for the tariff year includes:

- Specific surface water abstraction fee (the resource cost) of water to be abstracted to compensate the normative losses for the tariff year as it is prescribed in the Law on Fees for Natural Resources;
- Cost of electricity for the pumping the water plus water abstraction fee.

k.i The volume of normative losses for the tariff year is an estimate based on the actual usage volume of the test year, segment customer group specific forecast of water usage and normative rates of water loss approved for the scheme and/or segment.

COST ALLOCATION

a. Segment pricing

a.a SPs shall use segment pricing approach which is based on the premise that if the cost of storing, diverting, conveying and delivering water differs across various segments within a single scheme, then segment tariffs should be set to reflect this relative difference.

a.b With the consideration of avoiding any potential cross subsidization, SPs shall set different tariffs for different schemes and scheme related activities.

a.c In the process of applying segment pricing approach, SPs:

- Shall apply segment pricing for Major and Medium schemes;

Option A

For the schemes to which HPPs are connected, segment pricing shall be used together with Separable Cost Remaining Benefits approach (SCRB).

Option B

Due to the HPP's non-consumptive water use pattern and low priority on water supply during the irrigation season, HPPs are exempted from segment pricing. SPs should apply only the principles of tariff calculation. Revenues from HPPs should remain under the disposal of the SP and not reduce the RCB of the scheme.

- For minor schemes, it is an SP's own discretion to apply or not the segment pricing approach
- For irrigation schemes, SPs at least shall divide the scheme Into the following segments:
  - Water Storage Segment / Dams and Reservoirs;
  - Water Diversion & Abstraction Segment / Headwork and Weirs;
  - Water Abstraction & Conveyance Segment /Intake and Main Channel;
  - Water Delivery Segments (Secondary Canals and Tertiary Canals);
  - Re-lift systems.[3]
- For drainage schemes, SP at least shall divide the scheme into the following segments:
  - Regulatory segment (drains, collectors, hollow) - A field drainage system, which prevents ponding water on the field and/or controls the water table;
  - Conveyance segment - (open and closed collectors, main canal) - A main drainage system, which conveys the water away from the farm;
  - Leveeing segment (serves to protect the drained area from the inflow of surface water and groundwater);
  - An outlet segment, which is the point where the drainage water is led out of the area;
  - Re-lift systems.

b. Classification of Costs

SPs shall classify their cost as either direct or non-direct, taking into consideration that direct costs are those directly attributed to particular scheme, scheme related activities and scheme segments, whereas non-direct costs are those common to a number of schemes, which need to be allocated using an appropriate cost allocator.

c. Definition of Customer Classes

c.a Differentiation shall be made based on customers classes. Each customer class shall comprise customers of the same consumption characteristics, whose supply and servicing results in more or less similar cost for the system.

c.b During customer classification, except for the technical characteristics, economic characteristics, water consumptive use characteristics, availability of an alternative as well as the required level of reliability must be taken into account.

c.c From the abovementioned, the following classes of customers or customers groups shall be recommended for scheme related activities:

- Irrigation - This class embraces those customers who use irrigation services for crop growing purposes;
- Drainage – This class embraces those customers who use drainage services for crop growing purposes as well as water removal from the ground or groundwater or removal of storm water to protect construction, buildings and structures;
- Urban - This class embraces those customer(s) who use delivered bulk water for the city drinking water supply purposes;
- Aquaculture - This class embraces farmers carrying out cultured fishery in ponds supplied through irrigation channels;
- Industrial - This class embraces customers such as chemical and metal processing factories/ Minerals processing/Thermal Power Plants and other similar types of customers which use delivered water for technological purposes;
- Water Export - This class embraces customers for which irrigation water supply is performed across national border.

Option A

HPP – Non consumptive users connected or constructed on the channel distribution system, either diverting water without returning it back to the system or contrary facilitating conveyance or delivery of the water.

[3] Re-lift systems utilize pump stations and therefore cause higher electricity costs that are recognized for individual segments.

Option B

Subparagraph on HPP removed

c.d Customer classes and their structure shall be approved by the SB upon submission by the SP.

d. Allocation of Costs

d.a The classified costs in this stage shall be allocated to the schemes, scheme segments and to the segment customer groups. Such allocation shall be carried out by means of allocation factors to be determined in a manner to reflect the causes of costs incurred within customers groups.

d.b There are four primary levels of cost allocation for which SPs shall apply and appropriate methodologies need to be considered:

(1) Direct Scheme/Segment Cost Allocation

The direct costs of day-to-day scheme operations have to be identified and allocated to each scheme and to each segment.

This method of cost identification and data collection means there is no requirement for a subsequent methodology to allocate scheme costs to segments.

(2) Non-direct Cost Allocation

a. The primary methodology SPs shall apply to allocate non-direct costs (head office and regional office G&A expenses, depots, workshops and power operated equipment and its O&M expenses, etc.) to schemes is to use each scheme's share of total direct O&M costs less 90% of Electricity Cost (EC).

a.a Non-direct cost allocation to the scheme

$$sANC_{(t+1)}=\frac{sO\&M-sEC*90\%}{O\&M-EC*90\%}*NC \quad (10)$$

Where:

$sANC_{(t+1)}$	Non-direct cost - allocated to certain scheme for the tariff year (GEL)
$sO\&M_{(t+1)}$	Certain scheme's direct O&M Cost for the tariff year including electricity cost (GEL)
$O\&M_{(t+1)}$	Total direct O&M cost of the schemes for the tariff year including electricity cost (GEL)
EC	Electricity cost relating to the scheme activities (GEL)
$sEC_{(t+1)}$	Certain scheme activities relating electricity cost for the tariff year (GEL)
$NC_{(t+1)}$	SP non-direct cost for the tariff year (GEL)

a.b Scheme Regulatory Cost Base

Option A

$$sRCB_{i(t+1)}= sCAPEX_{i(t+1)} + scOPEX_{i(t+1)}+ sncOPEX_{(t+1)}+ sCNL_{i(t+1)+} sCORR_{i(t+1)+} sANC_{(t+1)} \quad (11)$$

Where:

$sRCB_{i(t+1)}$	Scheme Regulatory Cost Base – (i) scheme's allowed income for the tariff year (GEL)
$sCAPEX_{i(t+1)}$	Scheme's capital expenditure for the tariff year (GEL)
$scOPEX_{i(t+1)}$	Certain scheme's Controllable Operation Expenses for the tariff year (GEL)
$sncOPEX_{i(t+1)}$	Certain scheme's Non-Controllable Operation Expenses for the tariff year (GEL)
$sCNL_{i(t+1)}$	Cost of scheme normative loses (GEL)
$sCORR_{i(t+1)}$	Scheme cost correction factor
$sANC_{(t+1)}$	Non-direct cost allocated to certain scheme for the tariff year (GEL)

Option B

$$sRCB_{i(t+1)}= sCAPEX_{i(t+1)} + sOPEX_{i(t+1)}+ sD_{i(t+1)} + sCNL_{i(t+1)+} sCORR_{i(t+1)+} sANC_{(t+1)} \quad (11)$$

Where:

$sRCB_{i(t+1)}$	Scheme Regulatory Cost Base – (i) scheme's allowed income for the tariff year (GEL)
$sCAPEX_{i(t+1)}$	Scheme's CAPEX for the tariff year (GEL)
$sOPEX_{i(t+1)}$	Certain scheme's Operation Expenses for the tariff year (GEL)
$sD_{i(t+1)}$	Certain scheme's depreciation for the tariff year (GEL)
$sCNL_{i(t+1)}$	Cost of scheme's normative losses for the tariff year (GEL)
$sCORR_{i(t+1)}$	Scheme cost correction factor for the tariff year (GEL)
$sANC_{i(t+1)}$	Non-direct cost allocated to certain scheme for the tariff year (GEL)

b. SPs shall use the proportion (as a percentage) that each segment contributes to the total scheme direct costs to allocate to each segment the non-direct costs already allocated to the scheme.

b.a Non-direct cost allocation to segments

$$seANC_{(t+1)} = \frac{seDC}{sDC} \times sANC_{(t+1)} \quad (12)$$

Where:

$seANC_{(t+1)}$	Non-direct cost allocated to the certain scheme's segment for the tariff year (GEL)
$seDC_{(t+1)}$	Segment direct cost for the tariff year (GEL)
$sDC_{(t+1)}$	Scheme direct cost for the tariff year (GEL)
$sANC_{(t+1)}$	Non-direct cost already allocated to the scheme for the tariff year (GEL)

Option A

b.b For the schemes to which HPPs are connected, the schemes segments used for the delivery of the water to HPPs shall be recognized as a separate segment.

b.c Segment pricing shall be used together with SCRB which allocates costs among beneficiaries proportional to the benefits remaining after separable costs are removed,

b.d To use SCRB approach, SPs shall follow steps provided in Annex 1.

Option B

Subparagraphs (b.b) (b.c) and (b.d) removed

c. **Segment Regulatory Cost Base**

Option A

$$seRCB_{i\ (t+1)} = seCAPEX_{(t+1)} + secOPEX_{(t+1)} + sencOPEX_{(t+1)} + seCNL_{t+1)} + seCORR_{(t+1)} + seANC_{(t+1)} \quad (13)$$

Where:

seRCBi	(i) Segment Regulatory Cost Base - certain segment's allowed income for the tariff year
seCAPEX	Certain scheme's segment CAPEX for the tariff year (GEL)
scOPEX	Certain scheme's segment controllable operation expenses for the tariff year (GEL)
sncOPEX	Certain scheme's segment non-controllable operation expenses for the tariff year (GEL)
$seCNLi_{(t+1)}$	Certain scheme's segment cost of normative losses for the tariff year (GEL)
$seCORRi_{(t+1)}$	Cost correction factor, which provides the reflection of the difference between factual and planned costs of tariff year in the RCB of the tariff year, and also received income from non-operational activity (GEL)
$seANC_{(t+1)}$	Non-direct cost allocated to certain scheme's segment for the tariff year (GEL)

Option B

$$seRCBi_{(t+1)} = seCAPEX_{(t+1)} + secOPEX_{(t+1)} + seD_{(t+1)+} seCNL_{(t+1)+} seCORR_{(t+1)} + seANC_{(t+1)} \quad (13)$$

Where:

seRCBi	(i) Segment RCB - certain segment's allowed income for the tariff year (GEL)
seCAPEX	Certain scheme's segment CAPEX for the tariff year (GEL)
sOPEX	Certain scheme's segment Operation Expenses for the tariff year (GEL)
$seD_{(t+1)}$	Certain scheme's segment depreciation for the tariff year (GEL)
$seCNL_{(t+1)}$	Certain scheme's segment cost of normative losses for the tariff year (GEL)
$seCORRi_{(t+1)}$	Cost correction factor, which provides the reflection of the difference between factual and planned costs of tariff year in the RCB of the tariff year, and also received income from non-regulated activity (GEL)
seANC	Non-direct cost allocated to certain scheme's segment (GEL)

(3) Inter-Segment Allocation – SPs shall proportion direct and indirect costs, i.e. $seRCBi_{(t+1)}$ assigned to one segment across other segments within the same scheme following the below provided steps:

(a) For cost relating to the irrigation scheme allocation purposes, SPs shall develop water usage forecasts to be used for projection of scheme internal water allocation (nominal allocation) to the segments.

(b) To allocate upstream segment $seRCBi_{(t+1)}$ to downstream dependent segments for irrigation scheme, SPs shall follow below provided steps:

(b.e) Pricing conversion factors for irrigation schemes - SPs shall develop and use pricing conversion factors (recommended range of numbers from 0 to 5 and for irrigation 1) convert nominal allocations to the equivalent of the high priority allocation by multiplying water pricing conversion factors to the volume of Nominal Allocations (NA) expressed in 1000 m^3.

$$seCNA = seNA * PCF \quad (14)$$

Where:

seCNA	Converted Nominal Allocation to segment
sNA	Nominal Allocation to segment - volume of water proposed for the delivery - allocated to segment based on forecasted water usage
PCF	Pricing Conversion Factor

(b.f) Cost Allocation Factor (CAF) for irrigation schemes -The allocation factors used to allocate the 'upstream' segment's seRCBi$_{(t+1)}$ associated with the water storage, diversion and conveyance segments to the each dependent "downstream" segment (delivery - secondary and tertiary canals) are the proportion (as a percentage) of the total volume of Converted Nominal Allocations (CNA) supplied by the upstream segments.

$$seCAFi = \frac{seCNAi}{sCNAi} * 100\ (\%)\ (15)$$

Where:

seCAFi	CAF for the allocation of upstream segment seRCBi $_{(t+1)}$ to the "downstream" segments
seCNAi	(i) segment Converted Nominal Allocations
sCNAi	(i) scheme Converted Nominal Allocation

Option A

(b.g) HseRCBi $_{(t+1)}$ HPP segment CAF between HPPs connected to one irrigation scheme (Annex 2)

Option B

Subparagraph (b.g) removed

- **In cases when a pumping station** in combination with headworks supply water to the main channel, a combined seRCBi$_{(t+1)}$ of both facilities shall be allocated to downstream facilities in the above prescribed manner;
- **In cases when a Carrier Canal is included in the scheme** (which besides providing irrigation services carries water for another scheme), the other scheme can be recognized as a separate segment at the main canal level and then after certain portion of the seRCBi$_{(t+1)}$ of upstream facilities allocated to the reservoir, cost allocation process shall be started again following steps prescribed above;
- **In case when reservoir or headworks supply water to two different systems,** segment seRCBi$_{(t+1)}$ associated with the reservoir and the river headwork shall be allocated to the each dependent 'downstream' segments as the proportion (as a percentage) of the total volume of converted nominal allocations supplied by the upstream segments.

(c) To allocate downstream segment seRCB$_{(t+1)}$ to upstream dependent segments for drainage scheme, SPs shall use the proportion (as a percentage) that each segment contributes to the total scheme direct costs or Scheme Command Area (SCA) which is more appropriate.

(4) Customer Sector Allocation – As the final step, total segments costs must be allocated to each customer sector (e.g. irrigation, urban and industrial, water export, etc.)

- The parameters of cost allocation between customers sectors to allocate segment seRCBi$_{(t+1)}$, shall be based on the proportion (as a percentage) of the total volume of customer group cgCNA to the seCNA allocated to the segment.

$$cgCAFi = \frac{cgCNAi}{seCNAi} * 100\ (\%)\ (16)$$

Where:

cgCAFi	CAF for the allocation of seRCBi$_{(t+1)}$ to the customer groups
cgCNAi	(i) segment customer group converted nominal allocations
seCNAi	(i) segment converted nominal allocation

SELECTION OF FORMS AND STRUCTURE AND CALCULATION TARIFFS

Irrigation

a. To ensure balance between revenue stability, water use efficiency and service delivery reliability, as well as fair allocation of the volume and demand risks between customers and SPs:

a.a Where technical characteristics of the scheme and patterns of water supply practices allows, for the Major and Medium schemes tariffs shall be calculated using the two part - Part A and Part B as defined below - tariff structure assuming NA and forecasted irrigation water usage (FIWU).

a.b For Minor schemes which water supply based on re-lift systems utilizing pump stations, tariffs shall be calculated using the two part (Part A and Part B) tariff structure.

a.c For Minor gravity schemes as well as for schemes where technical characteristics of the scheme and patterns of water supply practices do not allow use of two part tariffs, SPs shall use average pricing. Tariffs shall be averaged and as a billing determinant basis, the SCA shall be used.

b. SPs shall apply two-part tariff with the segregation of price to Part A and Part B

c. In case of applying two part tariff for irrigation:

c.a **Part A**

1. **Part A** Can be calculated per hectare (ha) of SeCA

Option A

$$\textbf{Part A} = (seRCBi_{(t+1)} * cgCAFi * (1 - \frac{AP\ (t+1)}{4 * SeCA}) / \textbf{SeCA}$$

Option B

Part A Can be calculated per hectare (ha) of SeCA with the segregation of PART A to two components where by the SP's CAPEX shall be allocated to the Component 1 whilst no less than 80% of RCB remaining components such as OPEX excluding Operating Cost (OC), Depreciation (D), Normative Losses (CNL). Cost Correction Factor (CORR) and Allocated Non-direct cost shall be allocated to the Component 2.

Part A =Component 1+Component 2

$$Component\ 1 - Part\ A_1 = (RAB_{(t+1)} * WACC + I_{(t+1)}) * cgCAFi\ /\ SeCA\ \ (1)$$

$$Component\ 2 - Part\ A_2 = (seOPEX_{(t+1)} - seOC_{(t+1)} + seD_{(t+1)} + seANC_{(t+1)} + se\ CNL_{(t+1)} + seCORR_{(t+1)}) * cgCAFi * 80\%/SeCA\ (2)$$

Where:

$seRAB_{(t+1)}$	(i) segment RAB for the tariff year (GEL)
WACC	Rate of return on the RAB for the tariff regulatory period (%)
$I_{(t+1)}$	Annual Interest payment on targeted loans for the rehabilitation, modernization and augmentation of the scheme's (i) segment for the tariff year (GEL).
cgCAFi	seRCBi $_{(t+1)}$ to irrigation customer group allocation factor (%)
SeCA $_{(t+1)}$	Scheme (i) segment command area
$seOPEX_{(t+1)}$	(i) segment OPEX for the tariff year (GEL)
seOCi $_{(t+1)}$	Operation Cost of (i) segment infrastructure assets for the tariff year (GEL)
$seDi_{(t+1)}$	Certain scheme's (i) segment depreciation for the tariff year (GEL)
$seANC_{(t+1)}$	Non-direct cost allocated to certain scheme's (i) segment for the tariff year (GEL)
se $CNL_{(t+1)}$	Certain scheme's (i) segment cost of normative losses for the tariff year (GEL)
$seCORR_{(t+1)}$	Cost correction factor, which provides the reflection of the difference between factual and planned costs of tariff year in the RCB of the tariff year, and also received income from non-regulated activity (GEL)

2. **Part A -** Can be calculated per Nominal Allocation 1000 m³

Option A

$$Part\ A = (seRCBi_{(t+1)} * cgCAFi * (1 - \frac{FIWU}{4 * NA}) / NA$$

Option B

Part A Can be calculated per Nominal Allocation 1000 m³ with the segregation of PART A into two components where by the SP's CAPEX shall be allocated to Component 1 whilst no less than 80% of RCB remaining components such as OPEX excluding Operating Cost (OC), Depreciation (D), Normative Losses (CNL). Cost Correction Factor (CORR) and Allocated Non-direct Cost shall be allocated to the Component 2.

Part A =Component 1+Component 2

$$Component\ 1 - Part\ A_1 = (RAB_{(t+1)} * WACC + I_{(t+1)}) * cgCAFi\ /\ NA_{(t+1)}\ (1)$$

$$Component\ 2 - Part\ A_2 = (seOPEX_{(t+1)} - seOC_{(t+1)} + seD_{(t+1)} + seANC_{(t+1)} + se\ CNL_{(t+1)} + seCORR_{(t+1)}) * cgCAFi * 80\%) / NA_{(t+1)}\ (2)$$

Where:

$seRAB_{(t+1)}$	(i) segment RAB for the tariff year (GEL)
WACC	Rate of return on the RAB for the tariff regulatory period (%)
$I_{(t+1)}$	Annual Interest payment on targeted loans for the rehabilitation, modernization and augmentation of the scheme's (i) segment for the tariff year (GEL).

cgCAFi	seRCBi $_{(t+1)}$ to irrigation customer group allocation factor (%)
$NA_{(t+1)}$	NA of the (i) segment irrigation customer group for the tariff year (GEL)
$seOPEX_{(t+1)}$	(i) segment OPEX for the tariff year (GEL)
$seOCi_{(t+1)}$	Operation cost of (i) segment infrastructure assets for the tariff year (GEL)
$seDi_{(t+1)}$	Certain scheme's (i) segment depreciation for the tariff year (GEL)
$seANC_{(t+1)}$	Non-direct cost allocated to certain scheme's (i) segment for the tariff year (GEL)
$se\ CNL_{(t+1)}$	Certain scheme's (i) segment cost of normative losses for the tariff year (GEL)
$seCORR_{(t+1)}$	Cost correction factor, which provides the reflection of the difference between factual and planned costs of tariff year in the RCB of the tariff year, and also received income from non-regulated activity (GEL)

c.b **Part B**

1. **Part B** - Can be calculated per hectare (ha) of the Area Planned to serve (AP) in compliance with the Irrigation Norms:

Option A

$$\textbf{Part B} = (seRCBi_{(t+1)} * cgCAFi * \frac{AP\ (t+1)}{4*SeCA}) / AP_{(t+1)}$$

Option B

$$\textbf{Part B} = ((seOC_{(t+1)}+(seOPEX_{(t+1)} - seOC_{(t+1)}+seD_{(t+1)}+seANC_{(t+1)}+seCNL_{(t+1)}+seCORR_{(t+1)})) * cgCAFi * 20\%))/AP_{(t+1)}$$

2. Can be calculated per 1000 m³ of Forecasted Irrigation Water Usage

Option A

$$\textbf{Part B} = (seRCBi_{(t+1)} * cgCAFi * \frac{FIWU}{4*NA}) / FIWU$$

Option B

$$\textbf{Part B} = ((seOC_{(t+1)}+(seOPEX_{(t+1)} - seOC_{(t+1)}+seD_{(t+1)}+seANC_{(t+1)}+seCNL_{(t+1)}+seCORR_{(t+1)})) * cgCAFi * 20\%)) / FIWU$$

Part B - Can be calculated per forecasted total number of water applications (CAPP) required for irrigation of certain crop) with the consideration of crop pattern, through the development of the Irrigation Norms – "The Standard of Organization on Rates of Application and Irrigation Rates of Certain Crops" where together with crop water requirement the technologies of on farm irrigation shall be considered as well.

Option A

$$\textbf{Part B} = seRCBi_{(t+1)} * cgCAFi_{)} * \frac{FIWU}{4*NA} * (\frac{FIWU\ for\ certain\ crop\ occupied\ area}{FIWU}) / CAPP$$

Option B

$$\textbf{Part B} = (seOC+(seOPEX - seOC+seD+seANC+seCNL+seCORR) * cgCAFi * 20\%)) * (\frac{FIWU\ for\ certain\ crop\ occupied\ area}{FIWU}) / CAPP$$

Drainage

a. To ensure the balance between revenue stability, drainage system functioning efficiency and service delivery reliability, SPs shall apply a two-part tariff structure with the segregation of drainage price to Part A and Part B**.**

1. **Part A** Can be calculated per ha of Scheme Command Area (SCA):

Option A

$$\textbf{Part A} = (sRCBi_{(t+1)} * (1 - \frac{AP\ (t+1)}{4*SCA}) / SCA$$

Option B

Part A Can be calculated per hectare (ha) of SCA with the segregation of PART A to two Components where by the SP's CAPEX shall be allocated to the Component 1 whilst no less than 80% of RCB remaining components such as OPEX excluding Operating Cost (OC), Depreciation (D), Normative Losses (CNL), Cost Correction Factor (CORR) and Allocated Non-Direct Cost shall be allocated to the Component 2.

PART A=Component 1+Component 2

$$\textbf{Component 1-Part } A_1 = (sRAB_{(t+1)} * WACC + I_{(t+1)}) / SCA_{(t+1)} \quad (1)$$

Component 2-Part A_2=($sOPEX_{(t+1)}$ – $sOC_{(t+1)}$+$sD_{(t+1)}$+$sANC_{(t+1)}$+$sCORR_{(t+1)}$) *80%/$SCA_{(t+1)}$ (2)

$sRAB_{(t+1)}$	Scheme RAB for the tariff year (GEL)
WACC	Rate of return on the RAB for the tariff regulatory period (%)
$I_{(t+1)}$	Annual Interest payment on targeted loans for the rehabilitation, modernization and augmentation of the scheme for the tariff year (GEL).
$SCA_{(t+1)}$	Scheme Command Area
$sOPEX_{(t+1)}$	Scheme OPEX for the tariff year (GEL)
$sOC_{(t+1)}$	Operation Cost of scheme infrastructure assets for the tariff year (GEL)
$sDi_{(t+1)}$	Scheme depreciation for the tariff year (GEL)
$sANC_{(t+1)}$	Non-direct cost allocated to the scheme for the tariff year (GEL)
$sCORR_{(t+1)}$	Cost correction factor, which provides the reflection of the difference between factual and planned costs of tariff year in the RCB of the tariff year, and also received income from non-regulated activity (GEL)

2. **Part B -** Can be calculated per ha of the Area Planned to serve (AP) in compliance with the "Standard of Organization on Drainage Norms".

Option A

Part B = $sRCB_{(t+1)}$ * ($\frac{AP\ (t+1)}{4*SCA}$) / $AP_{(t+1)}$

Option B

Part B = ($sOC_{(t+1)}$ +($sOPEX_{(t+1)}$ –$sOC_{(t+1)}$ +$sD_{(t+1)}$ +$sANC_{(t+1)}$ +$sCORR_{(t+1)}$)* $cgCAFi$ *20%) / $AP_{(t+1)}$

Other Customers

a) Tariffs shall be calculated using the **Part A** and **Part B** tariff structure assuming Forecasted Water Usage (FWU) and NA:

1. **Part A -** Can be calculated per 1000 m^3 of NA

Option A

Part A = (***$seRCBi_{(t+1)}$* cgCAFi * (1 – $\frac{FWU}{NA}$) /$NA_{(t+1)}$***

Option B

Part A =Component 1+Component 2

Component 1- Part A_1=($seRAB_{(t+1)}$ *WACC+$seI_{(t+1)}$)* $cgCAFi$/ $NA_{(t+1)}$ (1)

Component 2 - Part A_2=($seOPEX_{(t+1)}$ – $seOC_{(t+1)}$ +$seD_{(t+1)}$ +$seANC_{(t+1)}$ +$seCNL_{(t+1)}$ +$seCORR_{(t+1)}$)* $cgCAFi$ *80%) / $NA_{(t+1)}$ (2)

Where:

$seRAB_{(t+1)}$	Segment (i) RAB for the tariff year (GEL)
WACC	Rate of return on the RAB for the tariff regulatory period (%)
$seI_{(t+1)}$	Annual Interest payment on targeted loans for the rehabilitation, modernization and augmentation of the scheme's (i) segment for the tariff year (GEL).
$cgCAFi_{(t+1)}$	seRCBi $_{(t+1)}$ to customer group allocation factor
$NA_{(t+1)}$	NA of the (i) segment customer group for the tariff year (GEL)
$seOPEX_{(t+1)}$	(i) segment OPEX for the tariff year (GEL)
$seOCi_{(t+1)}$	Operation cost of (i) segment infrastructure assets for the tariff year (GEL)
$seDi_{(t+1)}$	Certain scheme's (i) segment depreciation for the tariff year (GEL)
$seANC_{(t+1)}$	Non-direct cost allocated to certain scheme's (i) segment for the tariff year (GEL)
$se\ CNL_{(t+1)}$	Certain scheme's (i) segment cost of normative losses for the tariff year (GEL)
$seCORR_{(t+1)}$	Cost correction factor, which provides the reflection of the difference between factual and planned costs of tariff year in the RCB of the tariff year, and also received income from non-regulated activity (GEL)

1. **Part B** Can be calculated per 1000 m^3 of FWU

Option A

Part B =(($seRCBi_{(t+1)} * cgCAFi$) * $\frac{FWU\ (t+1)}{NA}$) / $FWU_{(t+1)}$

Option B

Part B= *(($seOC_{(t+1)}$ +($seOPEX_{(t+1)}$ –$seOC_{(t+1)}$ +$seD_{(t+1)}$ +$seANC_{(t+1)}$ +$seCNL_{(t+1)}$ +$seCORR_{(t+1)}$))* $cgCAFi$ *20%))/ $FWU_{(t+1)}$*

Hydro Power Plants

Option A

a. SP shall use the depreciated cost of Infrastructure together with annual O&M cost determined by the using SCRB approach, to calculate HPP segment Regulatory Cost Base HseRCBi $_{(t+1)}$
b. SPs shall apply a two-part tariff with the segregation of price to Part A and Part B:

Part A

1. Can be calculated per FWU for tariff year and NA - water available for power generation 1000 m³.

$$\textit{Part A = (Allocated to (i) HPP segment } \mathbf{HseRCB}_{(t+1)} * 1 - \frac{FWU\ (t+1)}{NA}) \mathbf{/NA}$$

Part B

1. Can be calculated per 1000 m³ forecasted use of water or forecasted generation (FG) of electricity

$$\mathbf{Part\ B} = (\mathbf{HseRCB}_{(t+1)} * \frac{FWU\ (t+1)}{NA}) \mathbf{/\ FWU}$$

2. Can be calculated per generated kWh

$$\mathbf{Part\ B} = (\mathbf{HseRCB}_{(t+1)} * \frac{FWU\ (t+1)}{NA}) \mathbf{(FG)}$$

c. In case of applying a two-part tariff for the scheme to which more than one HPP is connected, calculation of Part A and Part B shall be performed in a same manner with the consideration of HRCBi (Annex 1**)** and certain HPP's FWU and NA.
d. SPs shall consider for tariff calculation purposes the amount of electricity at the output of generator.

Option B

Subparagraphs (a) (b) (c) (d) removed

1. Tariffs shall be calculated using the single component tariff structure with a rate 10%"of revenue earned and electricity generated by the Hydropower Plant on a per month basis.
2. HPP revenue earned for tariff calculation purposes shall be calculated as amount of generated electricity kWh multiplied by Electricity System Commercial Operator (ESCOs) purchase monthly price for balancing electricity, but no less than the prices fixed in the existing contracts.

   a. SPs shall consider for the tariff calculation purposes amount of electricity at the output of generator.

TARIFF CORRECTION PRINCIPLES AND MAIN MECHANISMS

a. Reflection of the planned figures

   This methodology envisages reflection of the planned figures (RAB, Investments, OPEX). Accordingly, the SP is authorized with the request of SB to make tariffs correction for each year of the tariff regulatory period based on the CORR.

b. Correction of tariffs.

   b.a Scheme related activities tariffs for every tariff year is subject to correction and is based on the following factors:

   - b.a.a Factual investment and OPEX;
   - b.a.b Volume of delivery of the services;
   - b.a.c Cost of water normative losses and revenue from delivered services;
   - b.a.d Quality of service;
   - b.a.e Non-operating income;
   - b.a.f Revenues from other activities.

   b.b CORR is calculated according to the following formula:

$$\mathbf{CORR}_{(t+1)} = \mathbf{cRRAB}_{(t+1)} + \mathbf{cD}_{(t+1)} - \mathbf{cRev}_{(t+1)} + \mathbf{cCNL}_{(t+1)} - \mathbf{nopREV}_{(t+1)} \mathbf{(17),}$$

Where:

$CORR_{(t+1)}$	Cost correction factor for tariff year (GEL)
$cRRAB_{(t+1)}$	Difference between factual and planned return on RAB for test year (t-1), reflected in tariff year (t+1) (GEL)
$cD_{(t+1)}$	Difference between factual and planned values of depreciation for test year (t-1), reflected in tariff year (t+1) (GEL)

$cRev_{(t+1)}$	Difference between the returns on factual delivery of the services and planned to deliver for the test year (t-1), reflected in tariff year (t+1) (GEL)
$cCNL_{(t+1)}$	Difference between factual and planned values of normative losses for the test year (t-1), reflected in tariff year (t+1) (GEL)
$nopREV_{(t+1)}$	The revenue from selling of retired assets, connections and from non-regulated activities using assets from RAB, and received funds for financing the operating costs from the third party for the test year $_{(t-1)}$ (GEL).

c. Correction of capital costs.

c.a If factual investment made by the SP during the tariff regulatory period differs from the amount of planned investment, then the tariff correction is carried out according to the factual investment, taking into consideration the principles described in Article 3 paragraph (c). of this methodology.

c.b Correction of capital costs for the difference received from the investment amount is calculated according to the following formula:

$$cRRAB_{(t+1)} = [(aRAB_{(t-1)} - pRAB_{(t-1)}) \times WACC_{(t-1)}] \times (1 + WACC_{(t-1)}) \times (1 + WACC_{t}) \quad (18)$$

Where:

$cRRAB_{(t+1)}$	Corrected cost or the return for (t+1) period (GEL)
$aRAB_{(t-1)}$	Factual cost of RAB for (t-1) period (GEL)
$pRAB_{(t-1)}$	Planned cost of RAB for (t-1) period (GEL)
WACC	Rate of time value of money, which is equal to WACC (%).

$$cD_{(t+1)} = (aD_{(t-1)} - pD_{(t-1)}) \times (1 + WACC_{(t-1)}) \times (1 + WACC_{t}) \quad (19)$$

Where:

$cD_{(t+1)}$	Corrected cost of annual depreciation for (t+1) period (GEL)
$aD_{(t-1)}$	Factual cost of annual depreciation for (t-1) period (GEL)
$pD_{(t-1)}$	Planned cost of annual depreciation for (t-1) period (GEL)

WACC Rate of time value of money, which is equal to WACC (%).

d. Correction of the revenues from scheme related activities.

d.a If at the segment level factual delivery of SP services to segment customer groups differs from the planned amounts during tariff regulation period for each year, then correction of seRCB of SP is calculated according to the following formula:

$$cREV_{(t+1)} = [(aS_{(t-1)} - pS_{(t-1)})] \times (1 + WACC_{(t-1)}) \times (1 + WACC_{t}) \quad (20)$$

Where

$cREV_{(t+1)}$	Corrected cost of revenue for (t+1) period (GEL)
$aS_{(t-1)}$	Factual amount of accrued revenue from delivered services to segment customer group (t-1) period (GEL)
$pS_{(t-1)}$	Planned amount of revenue from delivered services to segment customer group (t-1) period (GEL)

WACC Rate of time value of money, which is equal to WACC (%).

d.b If the difference between the factual amount of delivered services to segment customer group and planned amount is caused by the reason of the fault of SP, restricted use of correction mechanism defined in the Paragraph d.a of this Article.

ACCOUNTING AND REPORTING

a. For regulatory purposes the SP is obligated to carry out its accounting and reporting based on the USOA.
b. SP is obligated to account its revenues, costs and financial results separately for each scheme related regulated activity.
c. The SP should submit to SB information about contributions, separately according to the conditions of this methodology.

REQUIRED DOCUMENTS FOR TARIFF CALCULATION

a. The SP shall submit to SB for their approval business plan, investment plan, and cost of service study accommodated with the necessary information for the assessment of OPEX and CAPEX separately for each scheme.
b. Form and content of templates, also the list of documentation to be filled for the submission and approval of required under the paragraph (a) of this article is determined according to the individual legal-administrative act of the SB.

c. Together with documentation prescribed in paragraph (a) of this article the SP must submit the following audited documentation complied with IFRS:

   - Balance sheet;
   - Profit and Loss Statement;
   - Cash Flow Statement.

d. The SB is authorized to request from the SP other additional information which it finds appropriate.
e. The responsibility on the accuracy of the information contained lies on the party of SP.

TARIFF SETTING TIMELINE AND PROCEDURES

a. The SP should submit tariff documentation prescribed in paragraph b. of article 7 to the SB no later than XXX days prior to expiry date of the tariff period.
b. The SB reviews the documentation for compliance and completeness within XXX working days upon submission.
c. If the SB finds documentation incomplete or it does not correspond with the approved form, it sets the deadline in written form of no more than 45 days for amending this. This period shall be extended only once at the request of the SP, for no more than XXX days.
d. Upon acceptance of properly submitted documentation, the SB shall start evaluation and approval procedure finalized by the written notice to the SP.
e. Upon receipt of SB's written approval, the SP starts public hearing which prior notice shall be published at least on the SP's web page.
f. All the interested parties are authorized to be familiar with materials related to the tariff setting process and provide their comments.
g. Comments on the tariff setting supporting documentation and its setting process shall be submitted in written form and shall include justified argumentations. In addition, the interested party is entitled not to disclose his identity while submitting comments. The copy of the comments shall be sent to the provider of the tariff application and comments shall be discussed at the publicly held hearing.

TRANSITIONAL PROVISIONS

a. For the first Regulatory Period (from January 1, 201X), the efficiency factor (X) equals to 0%.
b. For the first Regulatory Period (from January 1, 201X), the SB will include water normative losses in calculation of tariff.
c. During the first Regulatory Period, an SP develops and submit for adoption to SB:

   c.a The calculation methodology of WNL and appropriate rates for certain schemes;
   c.b The methodology on how to determine SCA where the methodology on how to determine irrigated on regular basis and conditionally irrigated area also incorporated;
   c.c The methodology on forecasting the water usage and determine NA;
   c.d The development and adoption of Strategic Asset Management Plan and System Leakage Plan;
   c.e The service providing and service quality standards – Customer Service Standard.
   c.f The methodology on how to determine Irrigation Norms;
   c.g The approval of irrigation norms - The standard of organization on Rates of Application and Irrigation Rates of Certain Crops;
   c.h The methodology on how to determine Drainage Norms and the standard of organization on Drainage Norms.

d. Correction principles and mechanisms defined in this methodology will be applied only for the regulatory period from January 1, 201X till December 31, 201X.
e. Corrections defined in Article 6 of this methodology will be carried out from the second calendar year of the first regulatory period annually (except for the corrections defined in the sub-paragraph (b. a. a), (b. a. e) and (b. a. f) of Paragraph (b. a) of Article 6).
f. Tariff correction by service quality factor shall be carried out after an appropriate rule will enter into force approved by the SB.

ANNEX 1

Separable Cost Remaining Benefit Cost Allocation Methodology

Terminology

Specific Costs - Costs of individual physical facilities and other costs that serve only a single purpose. An example would be the cost of a power plant which is used to generate power only and serves no other purposes.

Separable Costs - These are the costs that result by taking the difference between the cost of the multi-purpose project and the cost of the same project with the purpose omitted. A series of cost estimates should be prepared representing the multi-purpose project without each purpose.

Joint Costs - Costs which serve more than one, and often several, purposes or objectives.

Remaining Joint Costs - Costs of joint use facilities that remain after all separable costs have been deducted from total project costs. Basically the cost of facilities shared by all purposes.

Single Purpose Alternative (SPA) Costs – These are the costs of the most economical alternative which would likely be built as a project to provide equivalent benefit for a single purpose. Its economic cost would include interest during construction and annual operation, maintenance, and replacement costs.

Justifiable Expenditure - This represents the maximum amount of costs that can be allocated to a purpose and is determined by the lesser of purposes benefits or SPA costs.

a. To use SCRB approach SPs shall follow steps provided below:

(1) To use this method SP list all costs to be allocated (1).
(2) SP shall determine and list economic benefits by component served (2).
(3) SP shall determine and list Single Purpose Alternative (SPA) Cost for each component (3).
(4) The lessor of (2) or (3) should be listed as the Justifiable Expenditure (4).
(5) SP shall determine and list separable costs (5) from the "Basic Data for Cost Allocation" table. These may be broken down into specific costs and separable joint costs, if desired.
(6) Subtract separable costs (5) from the justifiable expenditure (4) for each component to determine remaining justifiable expenditure (6).
(7) Divide the remaining justifiable expenditure for each component by the total remaining justifiable expenditure to determine the percentages for distributing remaining joint costs (7).
(8) In the total column, subtract separable costs (5) from total project costs (1) to determine remaining joint costs (8).
(9) Allocate project remaining joint costs (8) among components using the distribution percentages (7).
(10) Determine total allocated costs (9) to each component by adding separable costs (5) and remaining joint costs (8).
(11) Summarize the allocation results in the last series of rows in the table.

b. SP shall use the results of SCRB method (OPEX and CAPEX) as an input for allocation of non-direct costs and calculation of HseRCBi $_{(t+1)}$

c. Indirect cost allocation to HPP segment

$$HseAIC_{(t+1)} = (HseDC_{(t+1)} / sDC_{(t+1)}) \times sAIC_{(t+1)} \quad (13)$$

Where:

$HseAIC_{(t+1)}$	Indirect Cost allocated to the HPP's segment for the tariff year (GEL)
$HseDC_{(t+1)}$	HPP Segment direct cost for the tariff year (Gel)=input from SCRB results
$sDC_{(t+1)}$	Scheme direct cost for the tariff year (Gel)
$sAIC_{(t+1)}$	Non-direct cost already allocated to the scheme

d. HPP segment Regulatory Cost Base

$$HseRCB_{(t+1)} = HseCAPEX_{(t+1)} + HsecOPEX_{(t+1)} + HsencOPEX_{(t+1)} + HseCNL_{(t+1)} + HseCORR_{(t+1)} + HseAIC_{(t+1)}$$

Where:

$HseRCB_{(t+1)}$	HPP Segment Regulatory Cost Base – HPP segment allowed income for the tariff year(GEL);
$HseCAPEX_{(t+1)}$	Certain scheme's HPP segment CAPEX for the tariff year (GEL);
$HsecOPEX_{(t+1)}$	Certain scheme's HPP segment $_C$OPEX for the tariff year (GEL)

HsencOPEX **(t+1)**	Certain scheme's HPP segment $_{nc}$OPEX for the tariff year (GEL)
HseCNLi$_{(t+1)}$	Certain scheme's HPP segment cost of normative losses for the tariff year (GEL)
HseCORRi$_{(t+1)}$	Cost correction factor, which provides the reflection of the difference between factual and planned costs of tariff year in the HseRCB $_{(t+1)}$ of the tariff year (GEL)
HseAIC$_{(t+1)}$	Indirect cost allocated to certain scheme's HPP segment

e. (i) HPP Regulatory Cost Base

$$HRCBi = CAFi * HseRCB_{(t+1)}$$

Where:

HRCBi	To the (i) HPP allocated part of HPP segment Regulatory Cost Base HseRCB $_{(t+1)}$ for the tariff year
$CAFi$	Cost Allocation Factor which is equal of the (i) HPP FWU proportion to HPP segment FWU
HseRCB $_{(t+1)}$	HPP segment Regulatory Cost Base for the Tariff Year

ANNEX 2

Option A

(b.g) HseRCBi $_{(t+1)}$ HPP segment Cost Allocation Factor between HPPs connected to one irrigation scheme (See Annex 2) -The allocation factors used to allocate the HPP segment Regulatory Cost Base-HseRCBi$_{(t+1)}$ associated with the delivery of the water through the irrigation system or use of released water for power generation purposes are the proportion (as a percentage) of the total volume of Nominal Allocations (CNA) proposed to be supplied to each HPP.

$$CAFi = \frac{HNAi}{HseNAi} \text{*100 (\%) } \textit{(16)}$$

Where:

CAFi	(i) HPP Cost Allocation Factor for the allocation of HseRCB$_{(t+1)}$ between the HPP s connected to one irrigation scheme.
HNAi	(i) HPP nominal allocations
HseNAi	HPP segment nominal allocation

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