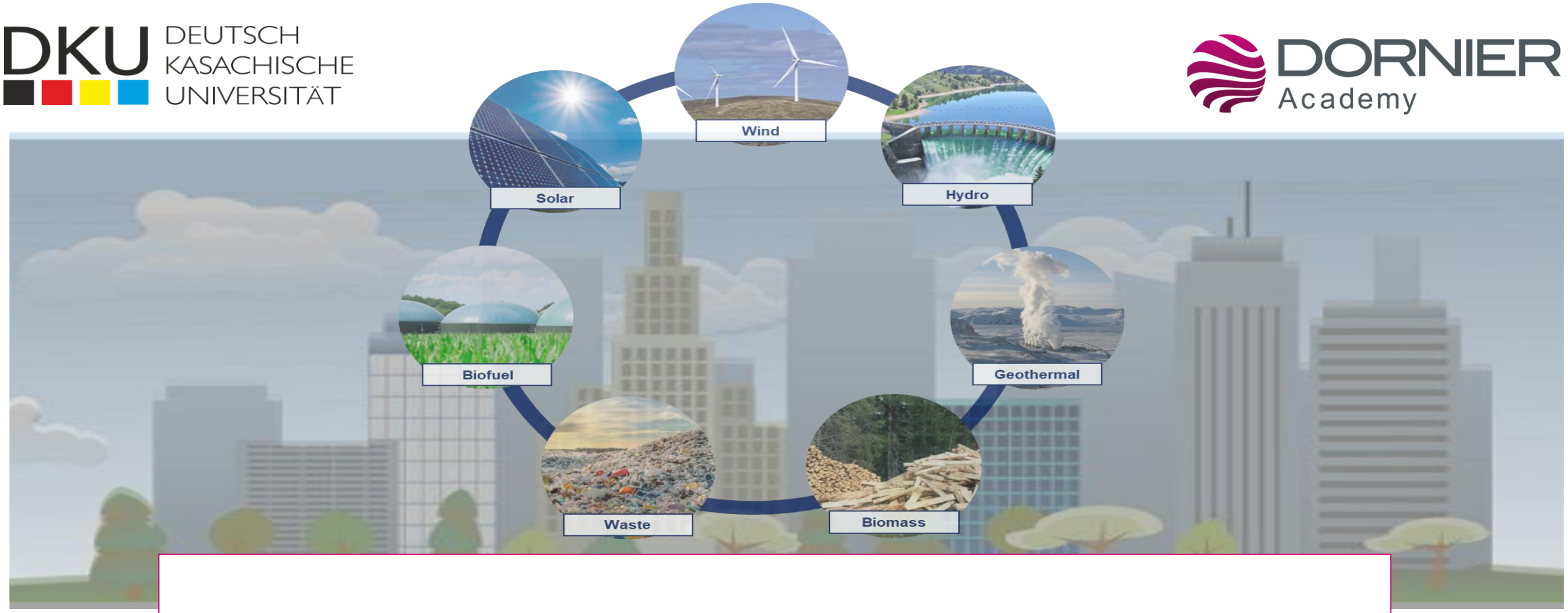

Session 3.2.Rules for the regulation of heat tariffs (Tariff Methodology)

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The urgent task

Currently heat tariffs:

- Do not cover the costs of heat sector enterprises, including operational costs, capital costs, including return and investments as well as costs for transition to sustainable heating
- Do not incentivise appropriate quality and reliability of heat supply
- Do not incentivise efficient work of the heat sector enterprises
- Do not allow the attraction of private investments
- Do lead to ad hoc and inefficient spending of budget resources

Causes:

- **Methodology** → Today‘s discussion
- Regulatory process and authority

Setting of heat tariffs

- Current situation in Kazakhstan
- Analysis of current Tariff Setting Rules
- Improvement of approaches and methods of tariff setting
- Main points of newly developed draft Heat Tariff Setting Rules

Current situation in Kazakhstan

- According to the Law of the Republic of Kazakhstan "On Natural Monopolies" (hereinafter referred to as the Law), **activities for the production, transmission, distribution and / or supply of thermal energy fall within the scope of natural monopolies** (with the exception of environmental thermal energy and discharges). The law defines all the main provisions on the regulation (including tariff regulation) of the activities of natural monopolies.
- **Tariffs** for heat production (including in cogeneration), transmission, distribution and supply **are regulated by the Committee for the Regulation of Natural Monopolies (CRNM)** of the Ministry of National Economy of the Republic of Kazakhstan, including ist local branches.
- The tariff regulation of all natural monopolies, including the heating sphere, is undertaken on the basis of **Tariff Setting Rules**, approved by the Decision of the Miniter of National Economy of 19.11.19 №90 (hereafter referred to Rules). The content of the Rules is determined by the Law on Natural Monopolies (item 22 art.15).

Analysis of current Tariff Setting Rules 1/3

- **Positive aspects:**
  - correct declared general principles (separation of assets and costs, full cost recovery, return on capital, responsibility of regulated entities, etc.)
  - the possibility of using different methods of tariff regulation, incl. incentive regulation
  - deep detailing of individual issues (for example, those related to the use of incentive tariff regulation (determination of sectoral and individual X-factors, etc.),
  - taking into account a number of features for certain areas of regulation (for example, in the field of heat supply - tariff incentives for consumers to install heat meters)
- **Weaknesses and potential directions for improvement**:
  - In terms of implementation and development directions:
    - The Rules – a huge, **cumbersome and difficult to use document**, dealing not only with tariff regulation, but also with separate issues (for example the approval and implementation control of investment programmes) for all natural monopoly sectors, but
    - The Rules **do not specify a number of crucial questions**, that must usually be prescribed by tariff methodologies (depreciation lifetime of assets to be assumed, quality and efficiency parameters – for incentive regulation methods -, details of cost recording and allocation of costs to different services and/or customer groups)

These weaknesses **are very difficult to remove within the framework of the single document Tariff Setting Rules,** and hence the issues of tariff setting specifically for heating will remain not addressed

Analysis of current Tariff Setting Rules 2/3

- in terms of methodological approaches and limitations:
  - **restriction of tariffs by using the mechanism of predictive tariff indices** (clauses 672-675 of the Rules) contradicts the declared principle of reimbursement of costs and necessary profit of regulated entities (clause 1 of article 15 of the Law, clause 47 of the Rules)
  - **a phased increase in depreciation charges** in the tariff after the reconstruction and modernization of assets (paragraph 2 of clause 632) does not comply with the principle of cost recovery (clause 47) and the accepted straight-line method of calculating depreciation charges (paragraph 1 of clause 632)
  - **limiting the profit included in the tariff for a number of entities** (paragraph 2, clause 637) contradicts the definition of profit using the weighted average cost of capital (paragraph 1, clause 637, clause 542) and bears the risk of discriminationв
  - **possible decrease in the effectiveness of investment programs and distortion of the results of the evaluation of their implementation** due to the use of formal approaches to evaluation (p. 350, p. 372)
  - **distortion of the principles of incentive regulation** (limitation of the possibility of redistributing costs within the approved tariff estimate (clause 1) clause 10), sanctions for non-fulfillment of certain cost items by more than 5% (clause 4) clause 220), potential duplication of sanctions for non-fulfillment of the investment program and misuse of depreciation (clause 3) clause 220), potentially excessive adjustment for profit (clause 200)) potentially reduces the effectiveness of the method

The above weaknesses potentially **reduce the attractiveness of this regulated sector for investors** and **the possibilities for attracting investments and increasing the quality of regulated services,** particularly in the heating sector

Analysis of current Tariff Setting Rules 3/3

- In terms of heat tariff setting:
  - **the absence of the obligation** to set tariffs **separately for each type of regulated service** (paragraph 63 of the Rules) increases the risk of cross-subsidization and reduces the possibility of adequately assessing the effectiveness of subjects for each type of regulated activity
  - **inability to establish two or multi-part tariffs**
  - **lack of clarity in matters of tariff differentiation by consumer groups** (p. 268)
  - **the adopted approach to differentiation of tariffs for consumers (with and without metering devices) leads to the dependence of tariffs on the ratio of consumption volumes**
  - There is a need for **clarifying the principles for the distribution of conditionally variable costs (paragraph 492)** and the **division of income and assets involved between heat and electricity in their combined production** (paragraph 504-505)
  - **the need to clarify (verify) the formulas** of paragraphs 292, 293, 295, 488, 489, 491, 492, 493, 495, 498-499, 510, 511 (including in terms of indices, dimensions, etc.)

The weaknesses may result in **sub-optimal (not sufficiently well founded) regulated heat tariffs**

- Editorial comments :
  - the presence of duplicate provisions (the term "estimated specific demand for useful thermal energy" - paragraph 99) and paragraph 122 of paragraph 3 of the Rules, calculation formulas in paragraph 200 and paragraphs 203-205)
  - the need to clarify (verify) formulas relating to incentive regulation (clauses 184, 185, 200, 208)

Improvements of approaches and methods 1/3

- In general, the tariff legislation of the Republic of Kazakhstan is based on the correct principles, but it is important that they are reflected not only in general provisions, but also in all specific rules and formulas.
- A common document for all areas of natural monopolies (Rules) is possible, but it seems appropriate to keep only the most general principles and norms in it, and leave the details to the methods (methodologies) for each regulated area, which would ensure the necessary level of specificity, as well as flexibility in improving the regulatory framework
- The developed draft Heat Tariff Setting Rules (hereinafter referred to as the Draft Rules) is an example of such a possible methodology for the heat supply sector
- The Draft Rules is largely based on the existing approaches (taking into account the procedure for approving investment programs provided for by the Rules, the Methodology for maintaining separate accounting of income, costs and assets involved, maintaining consumer groups, etc.)
- The Draft Rules is aimed at concretizing the tariff norms of the Rules, as well as changing the provisions that bear the risk of discrimination, cross-subsidization, inadequate incentives

Improvements of approaches and methods 2/3

- **The aim** of tariff regulation in accordance with the Draft Rules is the achievement of a balance of interests between regulated entities and customers through:
  - **Full economic cost recovery, including a fair profit** for regulated entities for the undertaking of their operational activities and required investments
  - ensuring the **quality and affordability of regulated services** for consumers, incl. for the medium and long term

- **Principles** of tariff regulation in accordance with Draft Rules:
  - **objectivity** of established regulated tariffs
  - **non-discrimination** in relation to regulated entities and consumers
  - **avoidance of cross-subsidization**
  - **Incentives for regulated entities** to increase the efficiency of regulated activities
  - Transparency and simplicity of the process of tariff setting

Improvements of approaches and methods 3/3

- The Draft Rules use the following **approaches and methods** :

1) formation of tariffs **separately for each type of regulated activity** of a regulated entity (production, transmission (distribution), supply of thermal energy)
2) **distribution of costs** of regulated entities between types of regulated activities based on the principles of causality and validity
3) application of the **“rate of return" method with elements of incentive regulation** in the formation of permitted income
4) use of a **block approach** to the formation of the structure of permitted income for each type of regulated activity
5) Use of **Weighted Average Cost of Capital** for determining allowed profit
6) Taking account the possibility of state (central or local) **subsidies** for each regulated activity
7) application of **automatic (formula) adjustment** of the permitted income of the regulated entity based on the actual data of the previous reporting period (periods) and the results of control of regulated activities
8) use of **two-part regulated tariffs** (energy charge rate and capacity charge rate) to more accurately reflect costs and create the right incentives for regulated entities and consumers
9) **differentiation** of tariffs for different groups of consumers on the basis of an objective distribution of costsприменение автоматической (формульной)

Main content and specifics of Draft Rules 1/4

Issue	Current Rules	Draft Rules	Comments
1. Questions covered and level of details and specifics	- Tariffs are set for regulated activities (low level of specifics) - Process of approval and control of investment plans (with medium level of detail) - Methodology for allocating costs to heat and power in cogeneration (very specific and detailed)	- High level of detail (more than 70 formulas, Annex with usual asset lifetimes assumed in tariff regulation etc.) - Not included (reference to applicable legislation) - Not included (reference to applicable legislation)	- Allows you to separately regulate issues related to technical and economic aspects, more deeply detailing tariff issues - Reduced discretion on the part of the regulator
2. Which tariffs are regulated	- Possibility to set regulted tariffs combined for several activities	- Tariff setting happens separately for each regulated activity – generation, transmission and supply	- Reduces cross-subsidies - Allows to objectively assess the efficiency of each regulated activity
3. Timeframe for which tariffs are set	- 5 and more (although de factor there can be ad hoc adjustments initiated by regulator)	- 1 year	- More objective taroffs at this stage of sector development

Main content and specifics of Draft Rules 2/4

Issue	Current Rules	Draft Rules	Comments
4. Main incentives for regulated entities	- Any current method used, whether cost plus or incentive regulation, the entity has to implement the cost table on which the tariffs were set	- Any overall cost reduction (including as a result of imrpoved allocative efficiency), increases the profitability of the business	- Overal efficiency improvements of the sector are incentivised
5. How the required (allowed) revenue is set	- No details specified - Limitations imposed for depreciation related to reconstructed and modernised assets	- Building block method for determining the allowed revenue, with possibility of deep differentatiation of costs - Common and general approach to setting depreciation	- Discretion of regulator is reduced - Tariffs become more objective - Adequate return on investments guaranteed
6. How the allowed profit is set	- WACC without taking into account corporate income tax (profit tax) - Planned allowed tariff and profit may be restricted based on restrictions imposed for the investment programme	- WACC without taking into account corporate income tax (profit tax) - No profit restrictions related to investments	- Discretion of regulator is reduced - Removal of discrimination against some regulated entities - Large incentives for cost reduction

Main content and specifics of Draft Rules 3/4

Issue	Current Rules	Draft Rules	Comments
7. Taking into account budget subsidies	- Are not captured in the regulated formulas	- Sepaarte term on tariff formulas for each regulated activity	- Better transparency -Discretion of regulator is reduced
8. Tariff adjustments within regulatory period	- Possible at the initiative of the regulated entity (in case of objective factors) and at the initiative of the regulator (in case of documented violations)	Provided at the initiative of the regulated entity and the regulatory body (significant changes - in the current or subsequent period, others - by the automatic adjustment mechanism in the period t + 2)	- Discretion of regulator is reduced - Strong incentives for cost reduction
9. Tariff structure	- Single part tariffs for heating for all regulated activities and for end customers	- Two-part tariffs (energy and capacity) for heat production and for end customers - Single part tariffs for heat distribution (capacity tariff) and for supply (energy tariff)	- Better cost alocation and recovery for regulated entities (including stable revenue streams) - Better incentives for customers

Main content and specifics of Draft Rules 4/4

Issue	Current Rules	Draft Rules	Comments
10. Tariff differentiation across customers	- The principles of differnetiation between customer groups are not clearly set out - The approach to differentiate tariffs in relation of the existence or absence of heat meters depends on the volumes of consumption by metered/unmetered customers	- Tariff differentiation between customer groups is based on cost attribution to the categories - The approach to differentiate tariffs in relation of the existence or absence of heat meters does not depend on the volumes of consumption by metered/unmetered customers	- Cross subsidisation between customer groups is removed - More transparency - - Discretion of regulator is reduced - Stable incentives for customers to have metered heat supply
11. Specifics of cost allocation between heat and power in cogeneration	- Is covered, but needs to be updated	- Clearer and more detailed	- Potentially more objective tariffs

Main provisions of Draft Rules. Allowed revenue

РД = ЗТЭ + НКЗ + КЗ * (1- КЭ) + А + РП – С + КРД, th. tenge,

where ЗТЭ – costs related to purchasing fuel and energy, th. tenge;

НКЗ – non-controllable operational costs, th. tenge:

$$НКЗ = НКЗ_{у.пост} + НКЗ_{у.пер},$$

where $НКЗ_{у.пост}$ –fixed non-controllable operational costs, th. tenge;

$НКЗ_{у.пер}$ – variable non-controllable operational costs, th. tenge;

КЗ – controllable operational costs, th. tenge:

$$КЗ = КЗ_{у.пост} + КЗ_{у.пер},$$

Where $КЗ_{у.пост}$ – fixed controllable operating costs, th. tenge;

$КЗ_{у.пер}$ – variable controllable operating costs, th. tenge;

КЭ – Efficiency coefficient for the regulated activity, decimal;

А – depreciation of assets included into RAB, th. tenge;

РП – Allowed provid, th. tenge;

С – planned (forecasted) volume of subsidies from local or state budget, th. tenge;

КРД – allowed revenue adjustment based on previous year (s), th. tenge

Main provisions of Draft Rules. Allowed profit

РП = СВСК * РБА / 100, th. tenge ,

where СВСК – **weighted average cost of capital**, %:

$$\textbf{СВСК} = g * r_d + (1 - g) * r_e / (1 - c_п / 100),$$

Where g – share of loans in overall capital (actual and target), decimal;

r_d – cost of borrowed capital, %;

$c_п$ – rate of corporate income tax (profit tax), %;

r_e – Value of own capital, %;

РБА – **value of Regulated Asset Base** for the respective regulated activity in the planning period, th. tenge:

$$\textbf{РБА} = (\textbf{РБА}_{\textbf{нач}} + \textbf{РБА}_{\textbf{кон}}) / 2,$$

Where $РБА_{нач}$ – value of regulated asset base at the start of the planning period, th. tenge;

$РБА_{кон}$ – value of regulated asset base at the end of the planning, th. tenge:

$$\textbf{РБА}_{\textbf{кон}} = \textbf{РБА}_{\textbf{нач}} + \textbf{И} - \textbf{А} - \textbf{ВА},$$

where И – value of assets, planed for commissioning in the planning period in accordance with the approved investment plan, th. tenge;

А – depreciation of assets included into the regulated asset base, th. tenge;

ВА – value of assets forecasted to be commissioned (decommissioned) within the planning period, th. tenge.

Main provisions of Draft Rules. Adjustment of allowed revenue

Adjustment of the permitted income, thousand tenge, is used to account for the planned period of the amounts of short-received (over-received) income from regulated activities by the regulated entity in the reporting period (periods) preceding the planned:

$$КРД = К1 * ΔРД_{внешн} - К2 * ΔРД_{контр},$$

where К1 - coefficient reflecting the differnet costs of borrowing between plan and actual, decimal;

$ΔРД_{внешн}$ – the amount of income under-received (excessively received) by the regulated entity due to objective reasons beyond its control, thousand tenge,

К2 - penalty factor, отн.ед;

$ΔРД_{контр}$ – amount of money that needs to be extracted from the regulated entity due as a result of operational regulatory reviews, th. tenge

When calculating the amount of misuse of tariff funds by a regulated entity, the following are not taken into account:

- deviations of actual uncontrolled operating costs in the reporting period (periods), from planned values;
- deviations of individual components of actual controlled operating costs from planned ones within up to 25% without exceeding the total amount of planned controlled operating costs (taking into account changes in conditionally variable costs due to the deviation of actual volumes of regulated activities from planned ones taken into account when setting regulated tariffs).

Main provisions of Draft Rules. Two-part tariffs

The energy tariff of the two-part regulated tariff, tenge/Gcal:

$$Т_{эн} = (ЗТЭ + НКЗ_{у.пер} + КЗ_{у.пер} * (1 – КЭ) - С_{эн} + + КРД_{у.пер}) / О ,$$

where $С_{эн}$ - part of local or state subsidies attributable to the energy tariff, th. tenge;

$КРД_{у.пер}$ – part of the Allowed Revenue adjustment attributable to the volumes of energy supplied, th. tenge;

О – planned volume of supply of regulated activity (heat production, transmission (distribution), supply of heat), th. Gcal.

The capacity fee of the two-part regulated tariff, tenge * hour/Gcal:

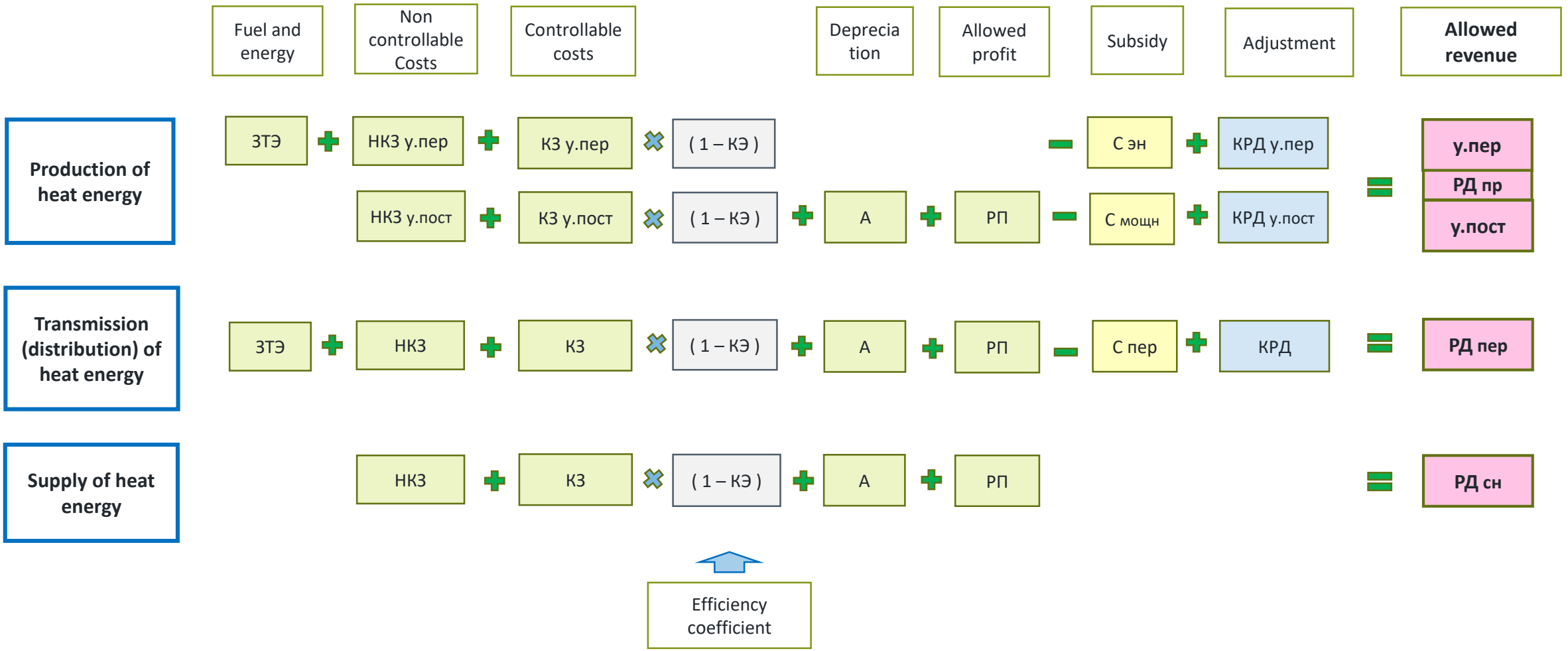
$$Т_{мощн} = (НКЗ_{у.пост} + КЗ_{у.пост} * (1 – КЭ) + А + РП - С_{мощн} + + КРД_{у.пост}) / ПМ ,$$

where $С_{мощн}$ - part of local or state subsidies attributable to the capacity fee, th. tenge;

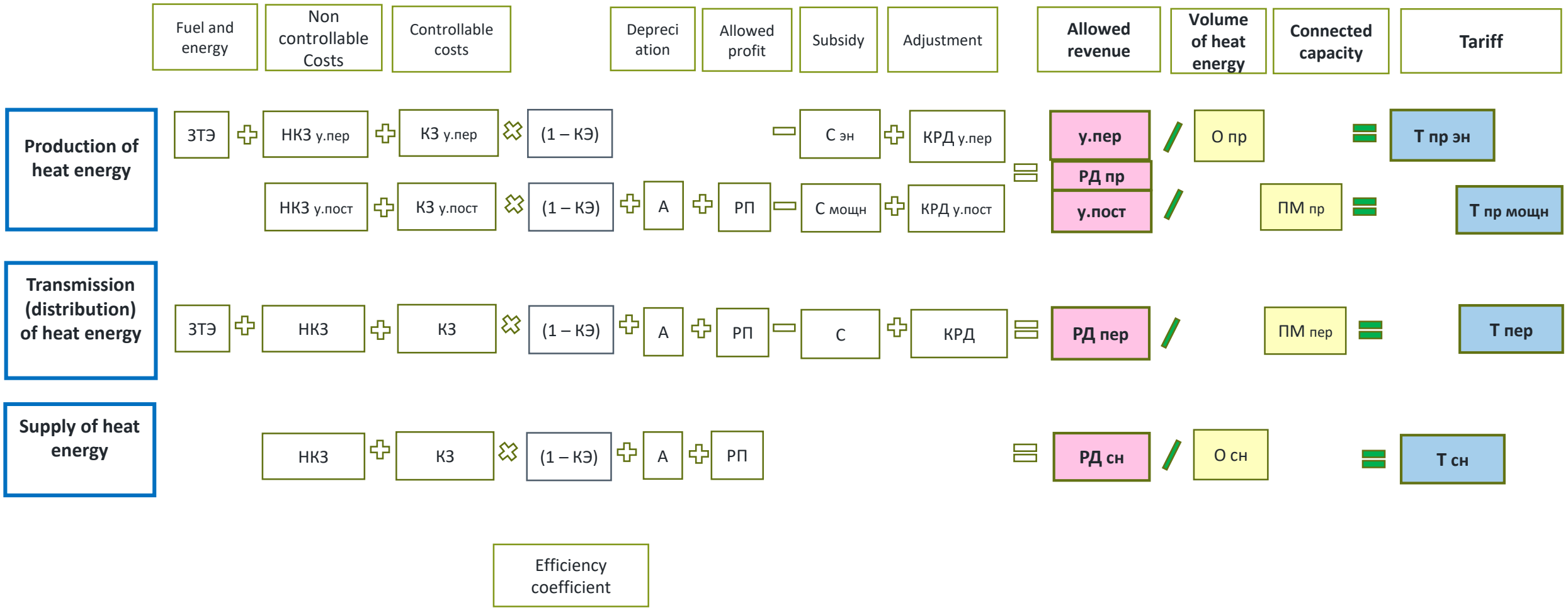
$КРД_{у.пост}$ - part of the Allowed Revenue adjustment unrelated to the volumes of energy supplied, th. tenge;

ПМ – planned (forecasted) connected capacities of heat supply, th.Gcal/hour.

Main provisions of Draft Rules. Building block approach



Main provisions of Draft Rules. Tariffs for separate activities



Main provisions of Draft Rules. End customer tariffs

The Energy tariff of the general end customer supply tariff, tenge/Gcal :

$$Т_{потр\ эн} = Т_{пр\ эн} + Т_{сн} + (КРД_{сн\ у.пер} - С_{сн}) / О_{сн} ,$$

where $Т_{пр\ эн}$ – weighted average energy tariff for heat production by heat energy producers, tenge/Gcal

$Т_{сн}$ – heat supply tariff of the regulated entity engaged in heat supply activities, tenge/Gcal

$КРД_{сн\ у.пер}$ – part of adjustment of Allowed revenue for heat supply activity, attributable to the change in supplied volumes, th. tenge;

$С_{пр}$ - planned amount of local or state budget subsidy attributable to heat supply, th. tenge;

$О_{сн}$ – planned volumes of heat energy to be supplied by regulated entity, thousand Gcal.

The Capacity fee of the general end customer tariff, tenge * hour/Gcal

$$Т_{потр\ мощн} = Т_{пр\ мощн} + Т_{пер} + КРД_{сн\ у.пост} / ПМ_{сн} ,$$

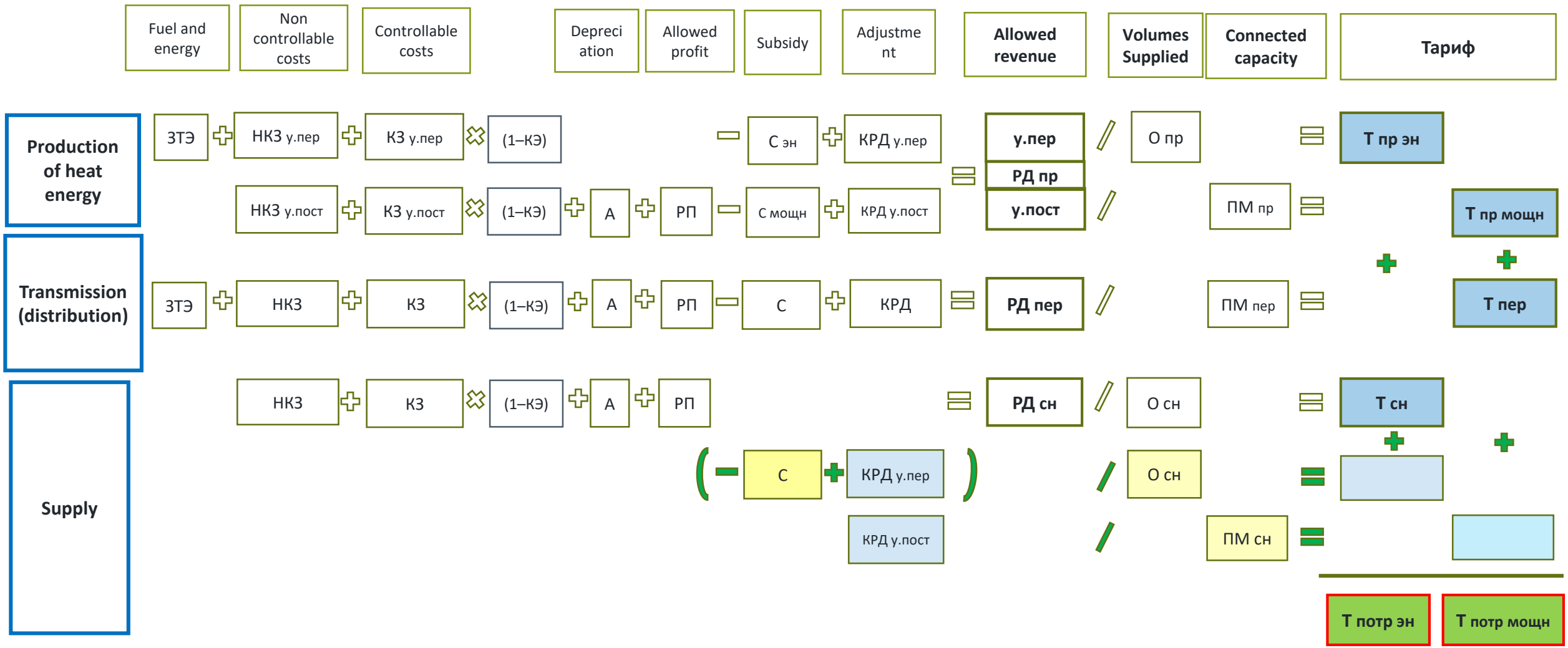
where $Т_{пр\ мощн\ эн}$ – weighted average Capacity fee of regulated heat producers, tenge * hour/Gcal;

$Т_{пер}$ – weighted average of heat transmission (distribution) tariff, tenge * hour/Gcal;

$КРД_{сн\ у.пост}$ – part of adjustment of allowed revenue related to costs that are not dependent on the supplied volumes of heat, th. Tenge;

$ПМ_{сн}$ – planned (forecasted) connected capacities of heating objects, tenge * hour/Gcal.

Main provisions of Draft Rules. Average tariff



Main provisions of Draft Rules. Tariffs differentiated by customer groups

Heat supply customer groups :

- Group 1 – households in houses equipped with whole house metering;

- Group 2 – households in houses not equipped with whole house metering;

- Group 3 – other customers (excluding households and budget organisations) equipped with heat meters;

- Group 4 – other customers (excluding households and budget organisations) not equipped with heat meters;

- Group 5 – budget organisations equipped with heat meters;

- Group 6 – budget organisations not equipped with heat meters;

Energy tariff for heat supply for Customer Group n, tenge/Gcal :

$$Т_{потр\ эн\ n} = (Т_{потр\ эн} - Т_{сн}) * О_{сн} * КС_n / \sum_j (О_{сн\ j} * КС_j) + + Т_{сн} * О_{сн} * Ч_n * КС_n / (О_{сн\ n} * \sum_j (Ч_j * КС_j)),$$

where $Т_{потр\ эн}$ - Energy tariff of the general end customer heat supply tariff, tenge/Gcal;

$О_{сн\ n}$, $О_{сн\ j}$ – planned volume of heat supply of customers belonging to Customer Group n and j respectively, th. Gcal;

$КС_n$, $КС_j$ - efficiency incentives for Groups n and j respectively, decimal, ($КС_1 = КС_3 = КС_5 = 1$; $КС_2 = 1,2$; $КС_4 = 1,3$; $КС_6 = 1,5$);

$Ч_n$, $Ч_j$ – Planned number of customers in Groups n and j respectively.

Capacity fee for heat supply for Customer Group n, tenge *hour/Gcal:

$$Т_{потр\ мощн\ n} = Т_{потр\ мощн}$$

Main provisions of Draft Rules. Example for heat generation tariff 1/2

Planned data, year ahead :

- Volume of heat energy production — **О пр** = 600 th.Gcal
- Connected capacity of heat sector objects — **ПМ пр** = 180 Gcal/hour
- Normative fuel and energy usage for heat provision — **b тэ** = 120 kg/Gcal
- Price of fuel — **Ц у** = 10 tenge/kg
- Energy content of fuel — **КТ у** = 5000 kcal/kg

- Regulated Asset Base — **РБА пр нач** = 3 000 000 th.tenge
- Investments — **И пр** = 400 000 th.tenge
- Assets to be scrapped — **ВА пр** = 0 th.tenge
- Depreciation — **А пр** = 120 000 th.tenge

- Target Efficiency Coefficient — **КЭ пр** = 0,01 отн.ед
- WACC — **СВСК** = 12 %

- Non controllable fixed costs — **НКЗ пр у.пост** = 10 000 th.tenge
- Non controllable variable costs — **НКЗ пр у.пер** = 12 000 th.tenge
- Controllable fixed costs — **КЗ пр у.пост** = 200 000 th.tenge
- Controllable variable costs — **КЗ пр у.пер** = 50 000 th.tenge

- Part of subsidy for heat production attributable to heat energy tariff — **С пр эн** = 0 th.tenge
- Part of subsidy for heat production attributed to the capacity fee — **С пр мощн** = 100 000 th.tenge

- Adjustment of allowed revenue related to costs that are impacted by produced heat volumes — **КРД пр у пер** = 0 th.tenge
- Adjustment of allowed revenue related to costs that are not impacted by changes in produced volumes of heat — **КРД пр у пост** = 0 th.tenge

Main provisions of Draft Rules. Example for heat generation tariff 2/2

Calculation:

- Costs for purchasing **fuel** for heat production :

ЗТЭ пр = О пр * b тэ * Ц у * 7000 / КТ у = 600 * 120 * 10 * 7000 / 5000 = **1 008 000** th.tenge

- RAB at the end of the previous period :

РБА пр кон = РБА пр нач + И пр - А пр - ВА пр = 3 000 000 + 400 000 – 120 000 – 0 =

= 3 280 000 th.tenge

- RAB in the planning period :

РБА пр = (РБА пр нач + РБА пр кон) / 2 = (3 000 000 + 3 280 000) / 2 = **3 140 000** th.tenge

- **Allowed profit** :

РП пр = СВСК * РБА пр / 100 = 12 * 3 140 000 / 100 = **376 800** th.tenge

- **Allowed revenue :**

РД пр = РД пр у.пер + РД пр у.пост = 1 069 500 + 604 800 = **1 674 300** th.tenge

where **РД пр у.пер** = ЗТЭ пр + НКЗ пр у.пер + КЗ пр у.пер * (1 - КЭ пр) - С пр эн + КРД пр у.пер =

= 1 008 000 + 12 000 + 50 000 * (1 – 0,01) - 0 + 0 = **1 069 500** th.tenge

РД пр у.пост = НКЗ пр у.пост + КЗ пр у.пост * (1 - КЭ пр) + А пр + РП пр - С пр мощн + КРД пр у.пост =

= 10 000 + 200 000 * (1 - 0,01) + 120 000 + 376 800 – 100 000 + 0 = **604 800** th.tenge

Two-part tariff for heat energy production :

- **Energy tariff** :

Т пр эн = РД пр у.пер / О пр = 1 069 500 / 600 = **1 782,5** tenge/Gcal

- **Capacity fee** (yearly):

Т пр мощн = РД пр у.пост / ПМ пр = 604 800 / 180 =

= **3 360** th. tenge*hour/Gcal

Single part tariff for heat energy production :

Т пр эн = РД пр / О пр = 1 674 300 / 600 = **2 790,5** tenge/Gcal

Main provisions of Draft Rules. Example for heat consumer tariff 1/2

Planned data, year:

- Weighted average heat production tariff :
  - Energy tariff **Т пр эн** = 1 782,5 tenge/Gcal
  - Capacity fee **Т пр эн** = 3 360 th.tenge*hour/Gcal
- Weighted average transmission (distribution) tariff : **Т пр эн** = 1 612,4 th.tenge*hour/Gcal
- Heat supply tariff : **Т сн** = 63,9 tenge/Gcal
- Subsidy for heat supply **С пр эн** = 0 th.tenge
- Adjustment of allowed revenue related to costs impacted by volume of heat produced **КРД сн у пер** = 0 тыс.тенге
- Adjustment of allowed revenue related to costs not impacted by volumes of heat produced **КРД сн у пост** = 0 тыс.тенге

- Connected capacity of heat sector objects ПМ пр = 180 Gcal/hour
- Data related to Customer Groups:

Customer Group	House holds	House holds	Other	Other	Budget	Budget	Total
Existing Metering	yes	no	yes	no	yes	no	
Volumes supplied (**О сн j**), th.Gcal	250	142	90	10	55	3	550
Number of customers (**Ч j**)	30000	15000	50	10	35	5	45100
Incentive coefficient (**КС j**), decimal	1	1,2	1	1,3	1	1,5	

Main provisions of Draft Rules. Example for heat consumer tariff 2/2

Calculation:

- **Energy tariff as part of general heat supply tariff to customers :**

Т потр эн = Т пр эн + Т сн + (КРД сн у.пер – С сн) / О сн =

= 1 782,5 + 63,9 + (0 – 0) / 550 = **1 846,4** tenge/Gcal

- **Capacity fee as part of general heat supply tariff to customers :**

Т потр мощн = Т пр мощн + Т пер + КРД сн у.пост / ПМ сн =

= 3 360 + 1612,4 + 0 / 180 = **4 972,4** th. tenge*hour/Gcal

- **Monthly bills for heating for customers** (budget organisation, with meters and a connected capacity ПМ = 0,5 Gcal/hour and a monthly consumption of О = 250 Gcal):

Bill for heat energy consumed = Т потр эн * О = 1 682,4 * 250 =

= **420,6** th.tenge

Bill for capacity = Т потр мощн * ПМ / 12 = 4 972,4 * 0,5 /12 =

= **207,2** th.tenge

Total per month = 628,4 th. tenge

Customer Group	Households	Households	Other	Other	Budget	Budget	Total
Existing Metering	yes	no	yes	no	yes	no	
Volumes supplied (**О сн j**), th.Gcal	250	142	90	10	55	3	550
Number of customers (**Ч j**)	30000	15000	50	10	35	5	45100
Incentive coefficient (**КС j**), decimal	1	1,2	1	1,3	1	1,5	
Energy Tariff as part of the overall tariff for heat energy supply (**Т потр эн n**), tenge/Gcal	**1 769,6**	**2 110,9**	**1 682,3**	**2 187,4**	**1 682,4**	**2 524,7**	
Capacity fee as part of the overall tariff for heat energy supply (**Т потр эн n**), th.tenge*hour/Gcal	**4 972,4**	**4 972,4**	**4 972,4**	**4 972,4**	**4 972,4**	**4 972,4**	

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Thank you for attention!

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