



Public Hearing  
on  
“(Draft) Utility Green Tariff (UGT)  
Proposal”  
During 16 - 31 January 2024

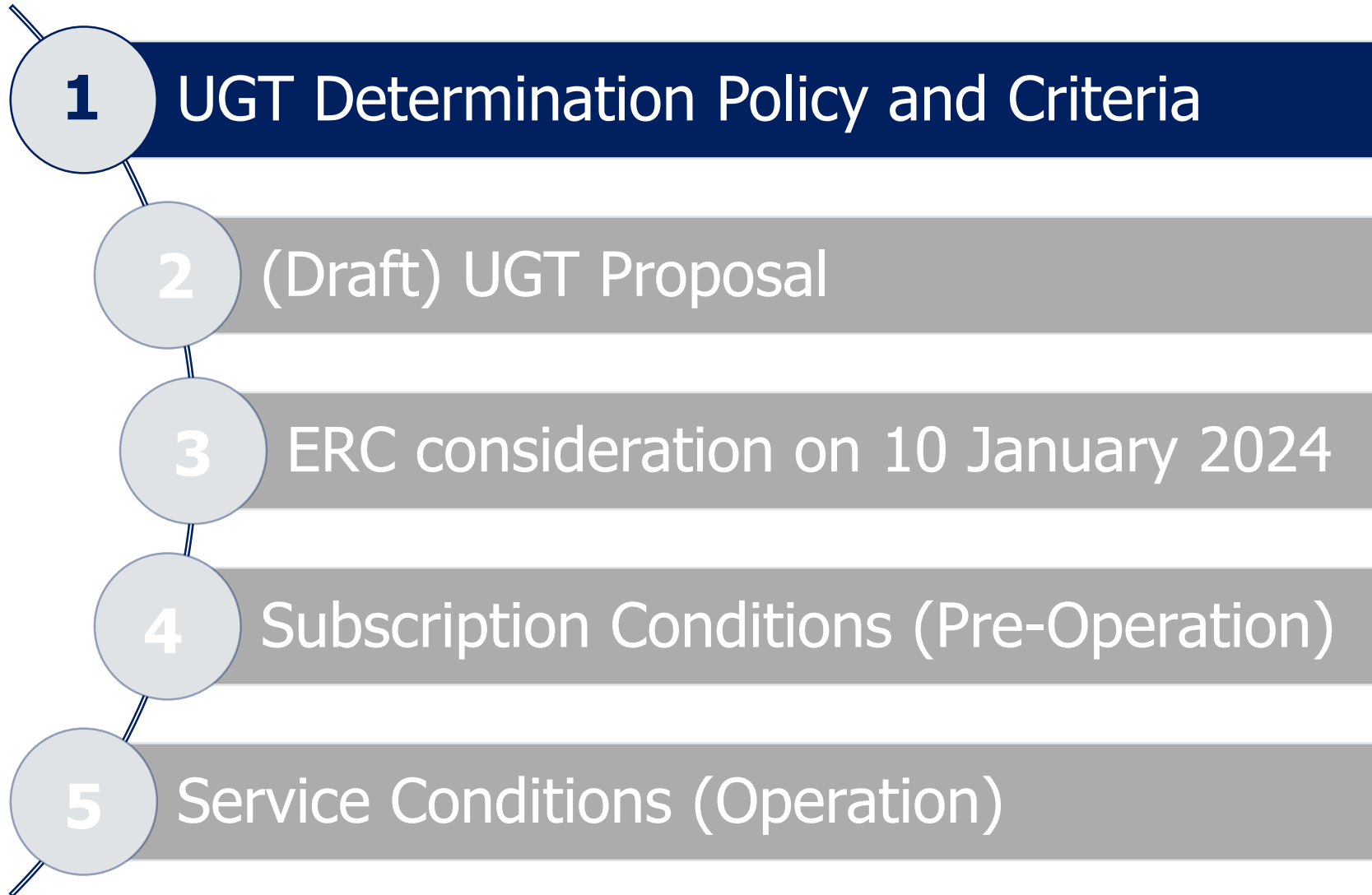


*Office of the Energy Regulatory Commission*

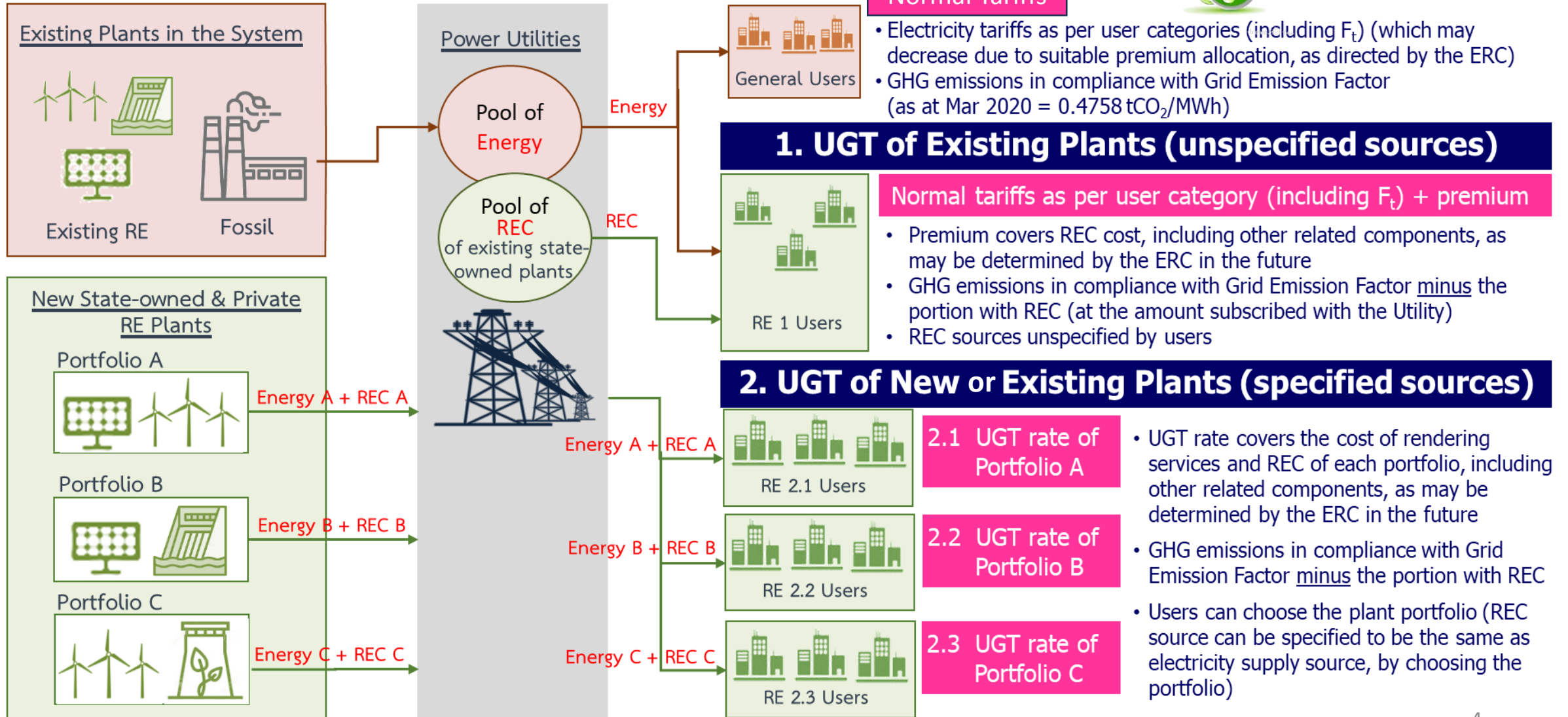
Please scan to submit your opinions  
Or  
Fill in the box at the bottom of the public  
hearing portal on the ERC Website



- 1** UGT Determination Policy and Criteria
- 2** (Draft) UGT Proposal
- 3** ERC consideration on 10 January 2024
- 4** Subscription Conditions (Pre-Operation)
- 5** Service Conditions (Operation)



## Utility Green Tariffs (UGT)



# UGT Determination Criteria

(Proclaimed in the Royal Gazette on 8 January 2024)



**UGT 1** Users do not specify the source of electricity at subscription. (Names of the power plants are not included in the ESA.)

UGT1 = Normal electricity bill including  $F_t$  + **Premium**

$$\text{Premium (P)} = P_{\text{REC}} + P_A$$

Where:

$P_{\text{REC}}$  = Market Price of REC  
 $P_A$  = Management fee incl. return for each utility regarding REC

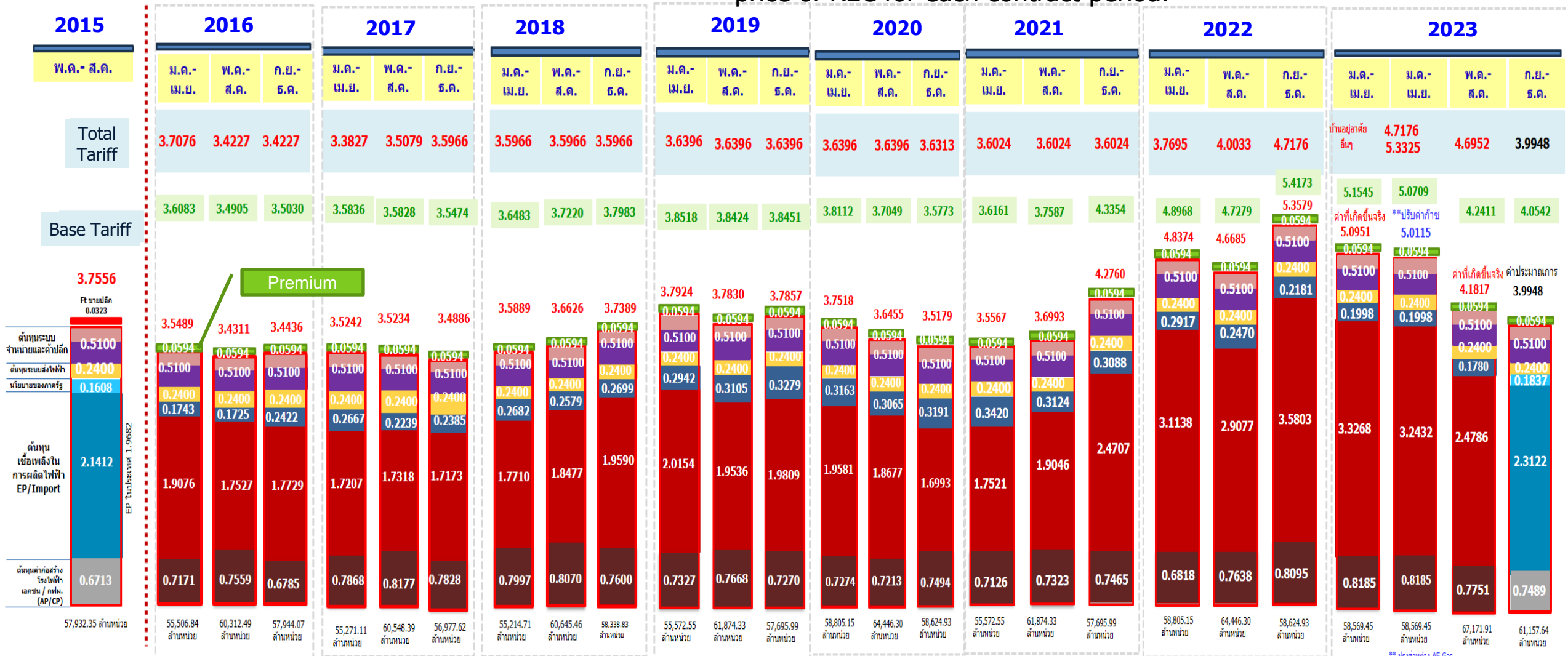
- ✓ **Users subscribes in blocks, sizes of which is as specified by the energy provider in the Electricity Supply Agreement: ESA)**
- ✓ **Subscription conditions and period is as specified by the energy provider in the ESA**
- ✓ **Subscribers cannot choose the RE sources. The energy provider will provide REC on top of the normal energy service**
- ✓ **The Premium is regulated revenue and will be considered based on true and efficient costs of service that promotes the use of RE**

# UGT1 Ratemaking Principles Explained

**UGT 1 = Normal Tariff + Premium (P)**  
 where P = market price of REC + Management Fee



- Normal tariff structure with the Premium as an addition
- Price varies with normal tariff, which reflects fossil fuel prices
- Short-term contract; the Premium will be revised to reflect market price of REC for each contract period.



หมายเหตุ : ส่วนประกอบโครงสร้างต้นทุนค่าไฟฟ้ามีหน่วยเป็น บาท/หน่วย

\*\* ประสงค์ต่าง AF Gas -4,897.26 ล้านบาท

**UGT2  
Determination  
Formula**

$$\begin{aligned} \text{UGT2 Wholesale} &= \text{Fixed Rate Wholesale } (F_W) + \text{Variable Rate } V_W \\ F_W &= G + T + A_W \\ V_W &= PE_W + AF_W \\ \text{UGT2 Retail} &= \text{Fixed Rate Retail } (F_R) + \text{Variable Rate } V_R \\ F_R &= F_W (1+d) + D + A_R \\ V_R &= V_W (1+d) + PE_R + AF_R \end{aligned}$$

**UGT2 Components Explained**

Variable	G			T	D	A		PE		AF	
	(1) Energy Purchase	(2) Power System Service				A <sub>W</sub>	A <sub>R</sub>	PE <sub>W</sub>	PE <sub>R</sub>	AF <sub>W</sub>	AF <sub>R</sub>
		(2.1) Power	(2.2) Energy								
<b>Explanation</b>	Charge for the cost of purchasing energy from the portfolio that the user specify (Including energy loss)	Charge for the system's Dependable Capacity	Charge for brown energy that the system has to supply (with REC) in the case that the user uses more energy than the designated portfolio's production	Transmission Network Charge	Distribution Network Charge	Administrative Charge at the wholesale and retail levels (Costs concerning REC, management platforms, etc.)	Policy Expenditures at wholesale and retail levels (Power Development Contribution, Adder and FiTa (Legacy), Other policy expenses)	Adjustment Factor that is the discrepancies between the actual production and consumption, and the assumptions used for determining G values (Adjust G every 4 months)			

Adjusted every 4 months by AF (F<sub>t</sub> cycle)

Reviewed according to regulatory period

Adjusted every 4 months (F<sub>t</sub> cycle)

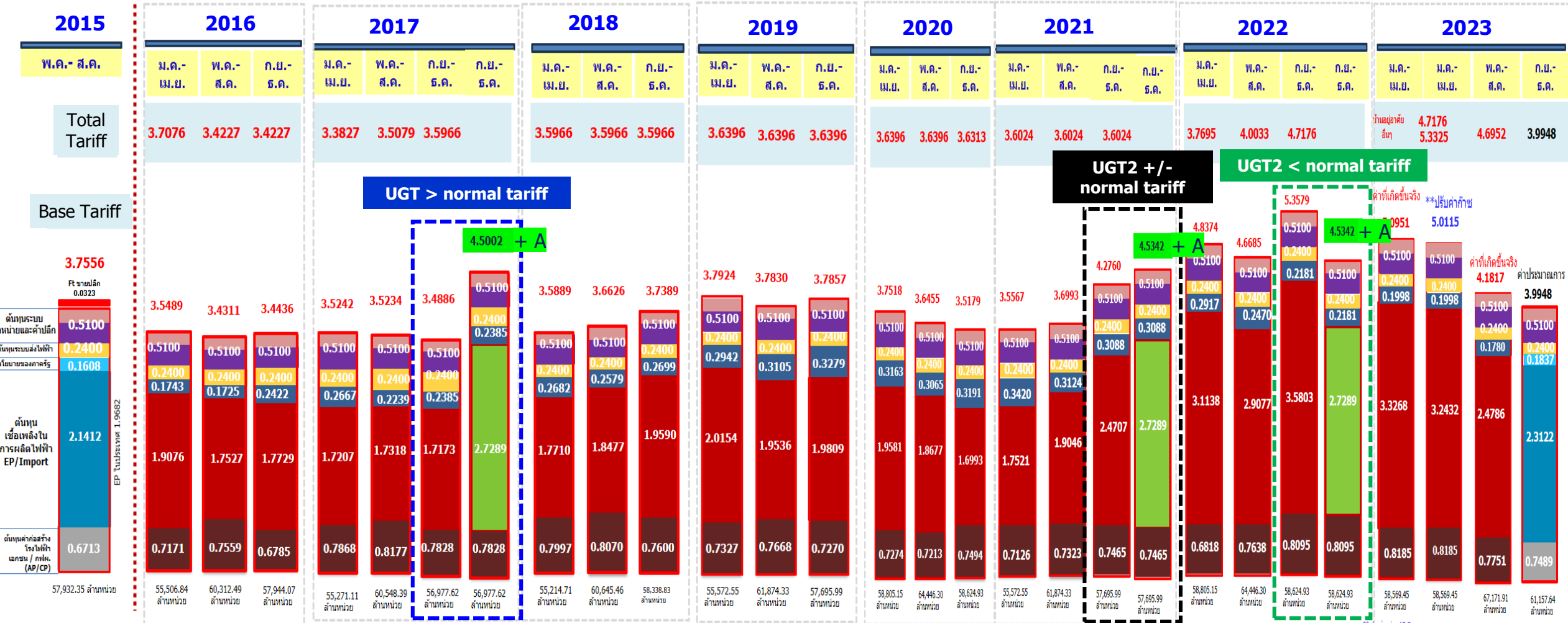
# UGT2 Ratemaking Principles Explained



**UGT2 = Fixed Rate+ Variable Rate**  
 Where; Fix Rate = G1 + G2 + T + D + R + A  
 Variable Rate = PE + AF



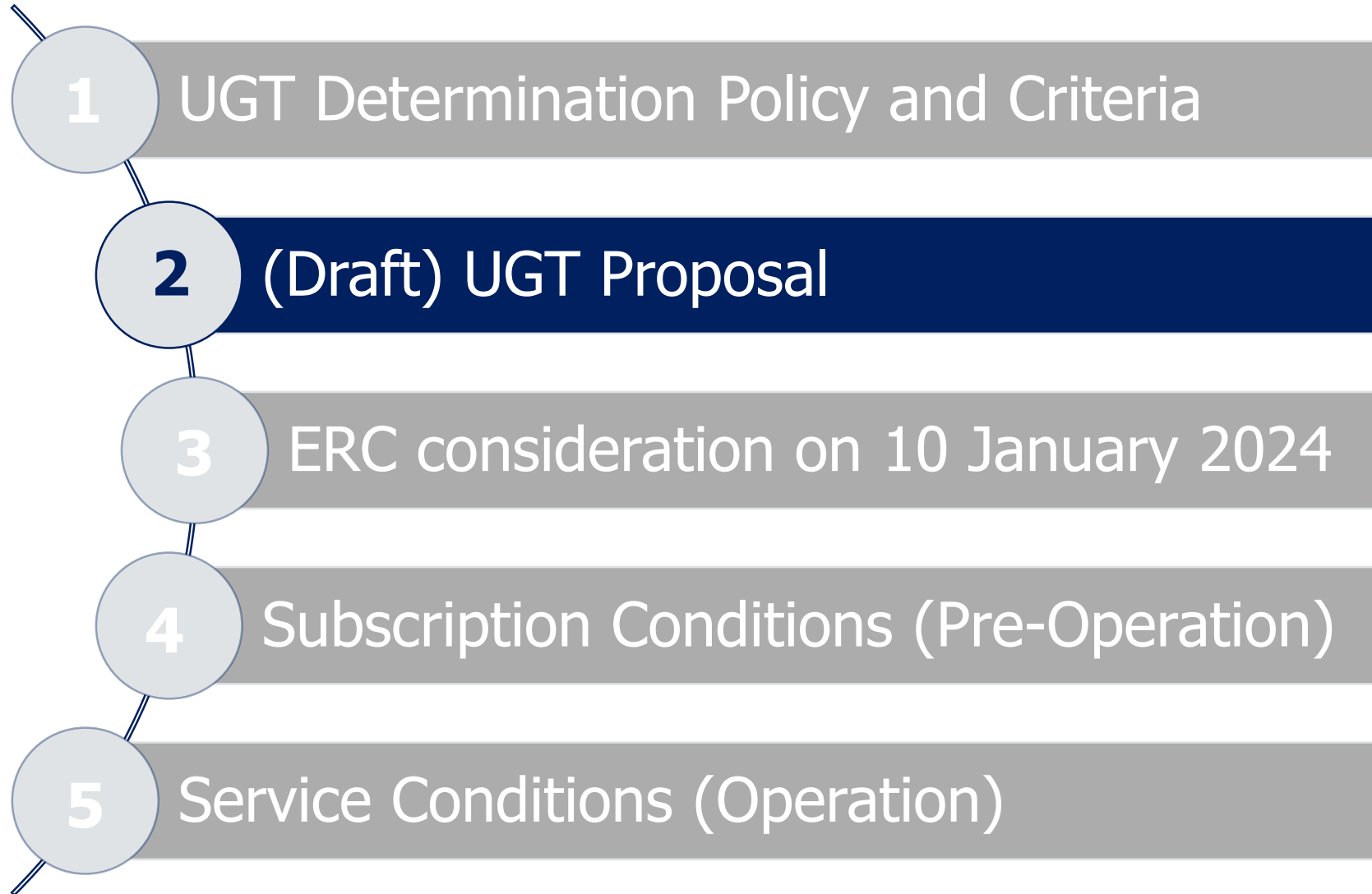
- New rate structure that does not differ based on time of use; long-term contract
- The **RED** part, (EGAT's fuel costs & private producers' energy payment,) is replaced by the **GREEN** part, (energy purchased from the user's RE portfolio.)
- Other parts remains equals to what other users bear.



หมายเหตุ : ส่วนประกอบโครงสร้างต้นทุนค่าไฟฟ้ามีหน่วยเป็น บาท/หน่วย

ปรับปรุงจาก AF Gas -8897.26 ล้านบาท





# (Draft) UGT Proposal for Public Hearing

**UGT1**

$$= \text{Normal Tariff incl. } F_t + \text{Premium (P)}$$

**0.0594**  
บาท/kWh retail

**UGT2**

<b>Portfolio A</b>	=	<b>4.5622</b>	บาท/kWh retail
<b>Portfolio B</b>	=	<b>4.5475</b>	บาท/kWh retail

## UGT 1

# Utility Green Tariff Type 1: User-unspecified Sources

(Names of the RE power plants are not in the ESA)

# Premium (P)

→ RECs are from EGAT's 7 hydro power plants\*



$$\text{UGT1} = \text{Normal Tariff incl. } F_t + \text{Premium (P)}$$

Where:

$$\begin{array}{l} \text{Premium (P)} \\ \mathbf{0.0594} \\ \text{THB/kWh retail} \end{array} = \begin{array}{l} \text{Market Price of REC (P}_{\text{REC}}) \\ \mathbf{0.0500} \end{array} + \begin{array}{l} \text{Administrative Fee (P}_A) \\ \mathbf{0.0094} \end{array}$$

\* Existing RE plants in the system that REC belongs to the state. In 2024, this will be EGAT's 7 hydro power plants with approximate generation output of 1,300 – 3,500 GWh/year

## UGT 2

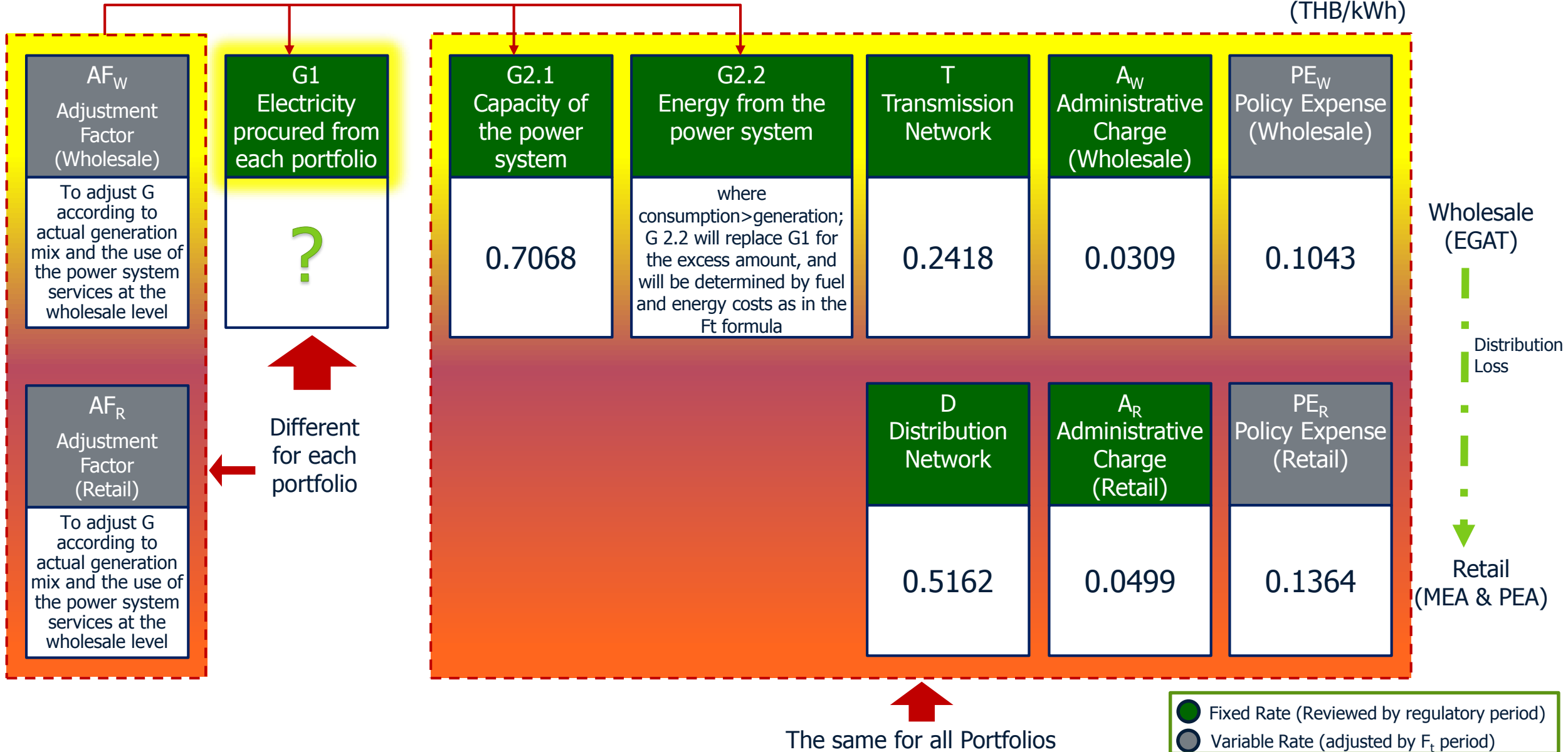
# Utility Green Tariff Type 2: User-specified Sources

(Names of the RE power plants are included in the ESA)

# (Draft) UGT2 Proposal – by components according to the formula

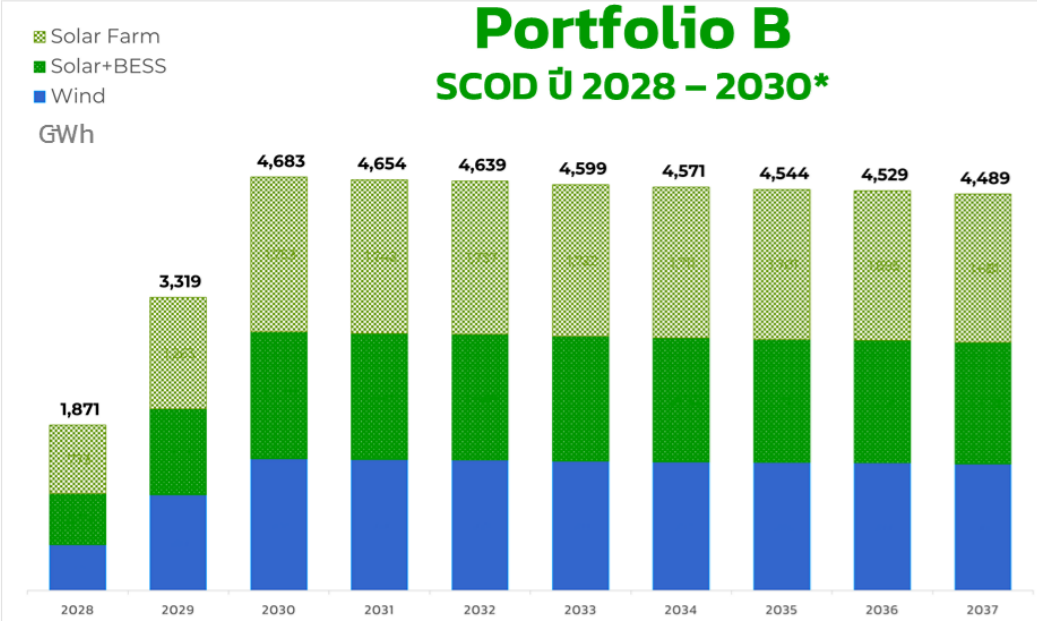
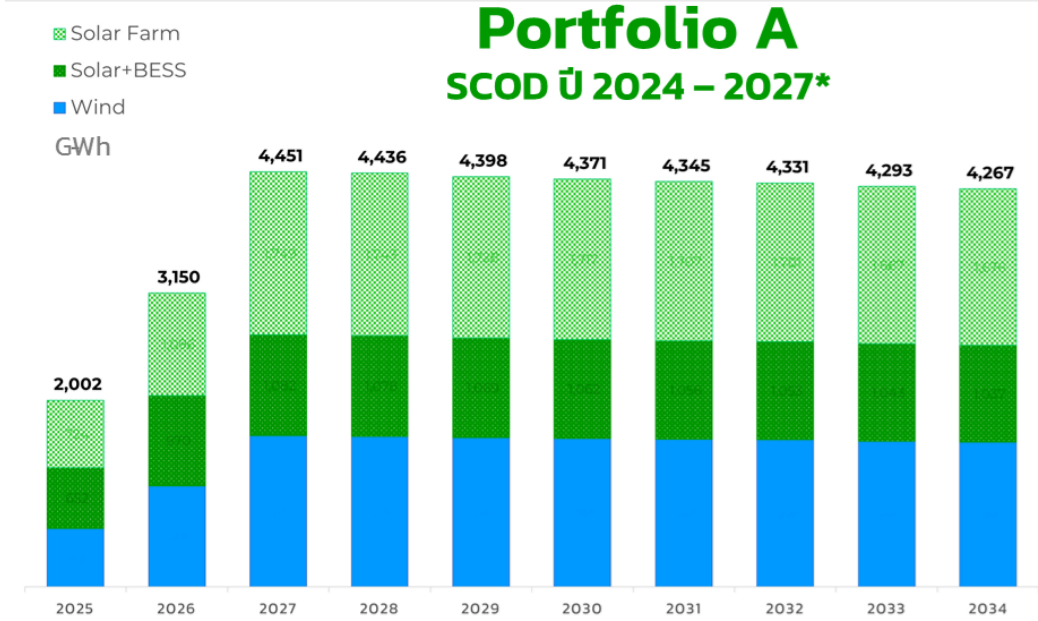


(THB/kWh)



# การกำหนด Portfolio

Propose to use power plant groups according to the ERC regulation on the procurement of electricity from RE sources using Feed-in Tariff (FIT) for the years 2022–2030 for the group that has no fuel costs which includes solar power plants, solar power plants with energy storage systems, and wind power plants. This will be divided into 2 groups according to the SCOD schedule, combining all types of renewable energy as follows:



\*Assuming that SCOD is at year-end; so the consumers will start receiving energy in the subsequent year

ประเภท RE	ราคารับซื้อ FIT (บาท/หน่วย)	ปริมาณรับซื้อตามสัญญา (MW)		สมมติฐาน Plant Factor	สัดส่วนการผลิต (ตามปริมาณการ GWh)	
		Port A	Port B		Port A	Port B
Solar Farm	2.1679	1,182	1,185	17.0%	39%	38%
Solar Farm + BESS	2.8331	428	566	29.2%	25%	31%
Wind	3.1014	776	715	24.0%	36%	32%

T loss rate (t) = 2.14%, degradation = 0.6%/ปี

Same rate for all voltage levels and time of use

### Fixed Rate (F)

Wholesale (THB/kWh wholesale)	G	G <sub>1</sub>	<b>2.7289</b>
		G <sub>2,1</sub>	0.7068
	T		0.2418
	A <sub>w</sub>		0.0309
	Total F <sub>w</sub>		3.7085
Retail (THB/kWh retail)	F <sub>w</sub> (1+d)		3.9099
	D		0.5162
	A <sub>R</sub> **		0.0499
	Total F <sub>R</sub>		4.4759

5.43% (arrow from Total F<sub>w</sub> to F<sub>w</sub> (1+d))

+

### Variable Rate (V)

Wholesale (THB/kWh wholesale)	PE <sub>w</sub>	0.1043
	AF <sub>w</sub>	-
	Total V <sub>w</sub>	0.1043
Retail (THB/kWh retail)	V <sub>w</sub> (1+d)	0.1100
	PE <sub>R</sub>	0.1364
	AF <sub>R</sub>	-
	Total V <sub>R</sub>	0.2464

5.43% (arrow from Total V<sub>w</sub> to V<sub>w</sub> (1+d))

=

### UGT2

UGT2 (wholesale)	<b>3.8128</b> (THB/kWh wholesale)
UGT2 (retail)	<b>4.7223</b> (THB/kWh retail)

A<sub>R</sub>\*\* excludes monthly service fee



# การกำหนด Portfolio

## (Draft) UGT2 Proposal

Same rate for all voltage levels and time of use

### Fixed Rate (F)

Wholesale (THB/kWh wholesale)	G	$G_1$	<b>2.7249</b>
		$G_{2,1}$	0.7068
	T		0.2418
	$A_w$		0.0309
	Total $F_w$		3.7045
Retail (THB/kWh retail)	$F_w (1+d)$		3.9056
	D		0.5162
	$A_R^{**}$		0.0499
	Total $F_R$		4.4717

5.43% (arrow from Total  $F_w$  to  $F_w (1+d)$ )

+

### Variable Rate (V)

Wholesale (THB/kWh wholesale)	$PE_w$	0.1043
	$AF_w$	-
	Total $V_w$	0.1043
Retail (THB/kWh retail)	$V_w (1+d)$	0.1100
	$PE_R$	0.1364
	$AF_R$	-
	Total $V_R$	0.2464

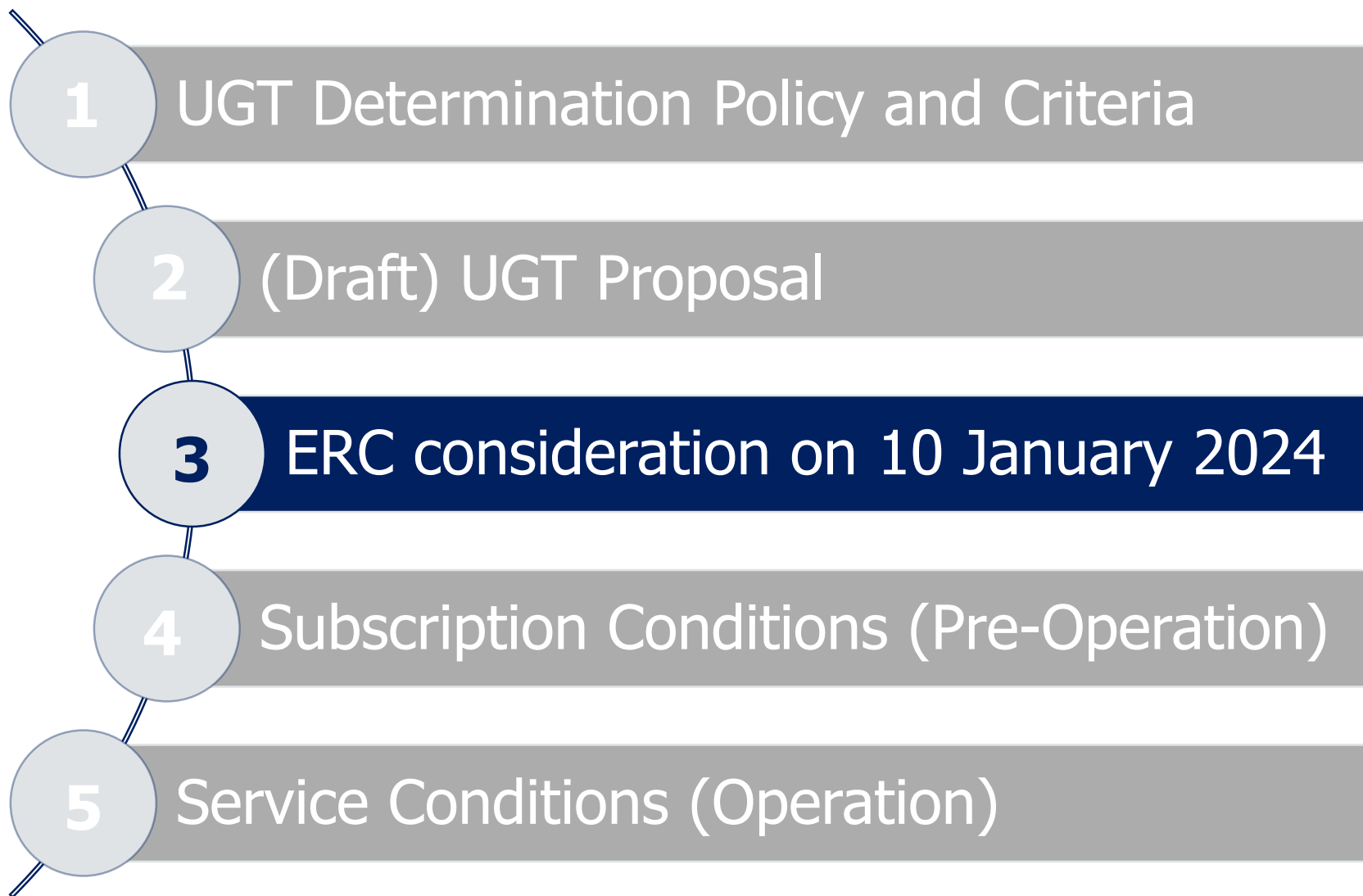
5.43% (arrow from Total  $V_w$  to  $V_w (1+d)$ )

=

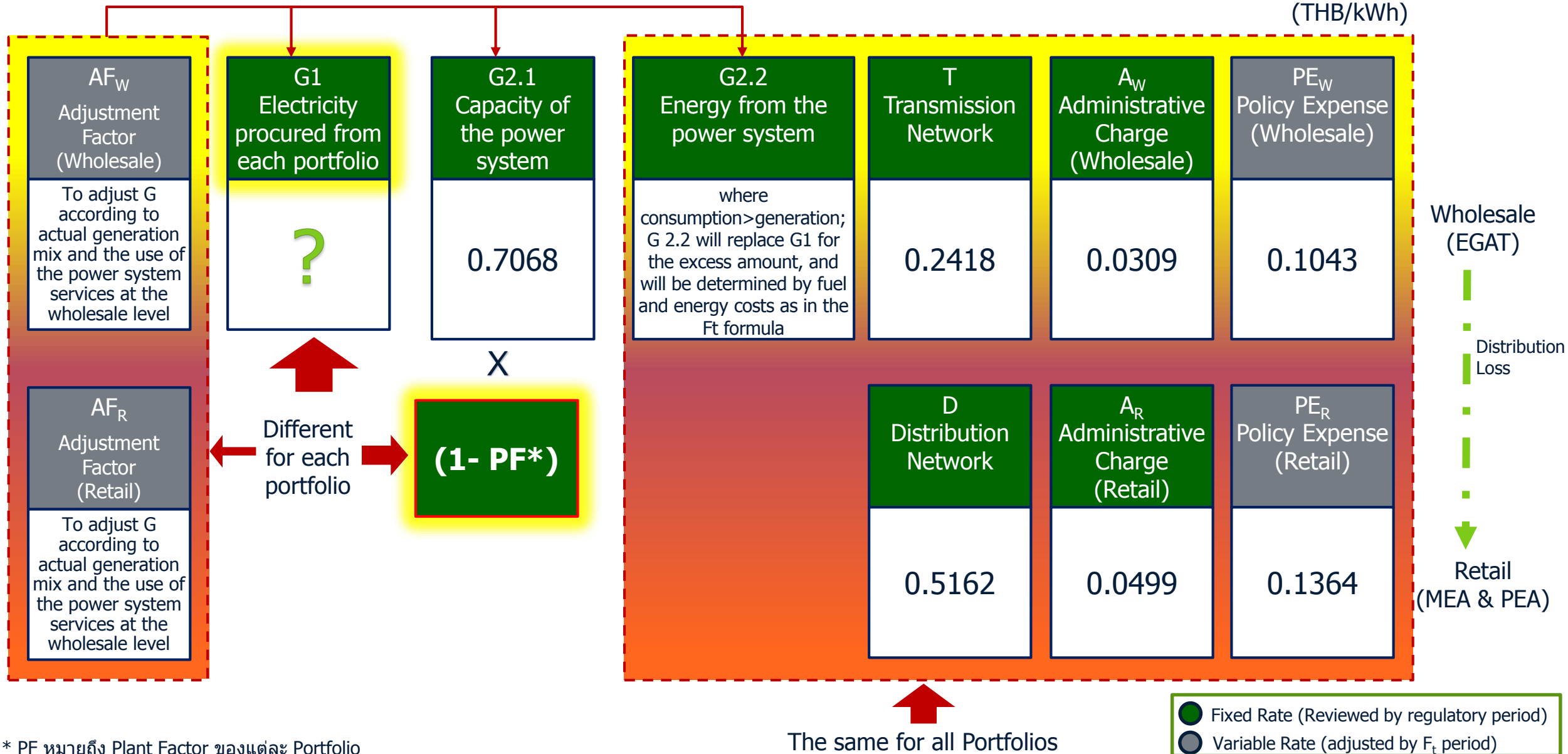
### UGT2

UGT2 (wholesale)	<b>3.8088</b> (THB/kWh wholesale)
UGT2 (retail)	<b>4.7181</b> (THB/kWh retail)

$A_R^{**}$  excludes monthly service fee



# G2.1 G2.1 should reflect the different reliability of each portfolio, which results in uneven utilization of the electricity system's capacity (system availability)



\* PF หมายถึง Plant Factor ของแต่ละ Portfolio

# UGT2 determination (Adjusting the Capacity Charge (G2.1))

**Port A**

RE Type	Plant Factor (PF)	Capacity Proportion	Weighted PF
Solar	17.0%	50%	8.43%
Solar + BESS	29.2%	18%	5.24%
Wind	24.0%	33%	7.80%

**PF Port A = 21.46%**

### Fixed Rate (F)

Wholesale (THB/kWh Wholesale)	G	G (1)	2.7289
		G (2.1)*	<b>0.7068 x (1 - 21.46%) = 0.5551</b>
		G (2.2)	N/A
	T	0.2418	
	A <sub>W</sub>	0.0309	
	รวม F <sub>W</sub>	<b>3.5567</b>	
Retail (THB/kWh Retail)	F <sub>W</sub> (1+d)		3.5567 x 1.0543 = <b>3.7498</b>
	D	0.5162	
	A <sub>R</sub>	0.0499	
	รวม F <sub>R</sub>	<b>4.3159</b>	

If use > gen G (2.2)\*\* will replace G1 for the excess kWh

D loss



### Variable Rate (V)

Wholesale (THB/kWh Wholesale)	PE <sub>W</sub>	0.1043
	AF <sub>W</sub>	N/A
	รวม V <sub>W</sub>	0.1043
Retail (THB/kWh Retail)	V <sub>W</sub> (1+d)	0.1043 x 1.0543 = 0.11
	PE <sub>R</sub>	0.1364
	AF <sub>R</sub>	N/A
	รวม V <sub>R</sub>	<b>0.2464</b>



### UGT2

UGT2 (Wholesale)	3.6610
THB/kWh wholesale	
<b>UGT2 (Retail)</b>	<b>4.5622</b>
THB/kWh retail	

\*G (2.1) Considering the capacity of Portfolio A by using it to reduce the system's capacity utilization, which originally (100%) was 0.7068 THB/kWh.

\*G (2.2) determined by the fuel cost and the purchase cost of electricity (Energy Charge) according to the F<sub>t</sub> formula (AFC-AP-EP).

# UGT2 determination (Adjusting the Capacity Charge (G2.1))

**Port B**

RE Type	Plant Factor (PF)	Capacity Proportion	Weighted PF
Solar	17.0%	38%	8.43%
Solar + BESS	29.2%	29%	5.24%
Wind	24.0%	33%	7.80%

**PF Port B = 22.90%**

## Fixed Rate (F)

Wholesale (THB/kWh Wholesale)	G	G (1)	2.7249
		G (2.1)*	<b>0.7068 x (1 - 22.90%) = 0.5450</b>
		G (2.2)	N/A
	T	0.2418	
	A <sub>W</sub>	0.0309	
	รวม F <sub>W</sub>	<b>3.5426</b>	
Retail (THB/kWh Retail)	F <sub>W</sub> (1+d)		3.5567 x 1.0543 = <b>3.7349</b>
	D	0.5162	
	A <sub>R</sub>	0.0499	
	รวม F <sub>R</sub>	<b>4.3011</b>	

If use > gen G (2.2)\*\* will replace G1 for the excess kWh

D loss



## Variable Rate (V)

Wholesale (THB/kWh Wholesale)	PE <sub>W</sub>	0.1043
	AF <sub>W</sub>	N/A
	รวม V <sub>W</sub>	0.1043
	Retail (THB/kWh Retail)	V <sub>W</sub> (1+d)
PE <sub>R</sub>		0.1364
AF <sub>R</sub>		N/A
รวม V <sub>R</sub>		<b>0.2464</b>



## UGT2

UGT2 (Wholesale)	3.6469
THB/kWh Wholesale	
UGT2 (Retail)	<b>4.5475</b>
THB/kWh Retail	

\*G (2.1) Considering the capacity of Portfolio A by using it to reduce the system's capacity utilization, which originally (100%) was 0.7068 THB/kWh.

\*G (2.2) determined by the fuel cost and the purchase cost of electricity (Energy Charge) according to the F<sub>t</sub> formula (AFC-AP-EP).

# (Draft) UGT Proposal for Public Hearing

**UGT1**

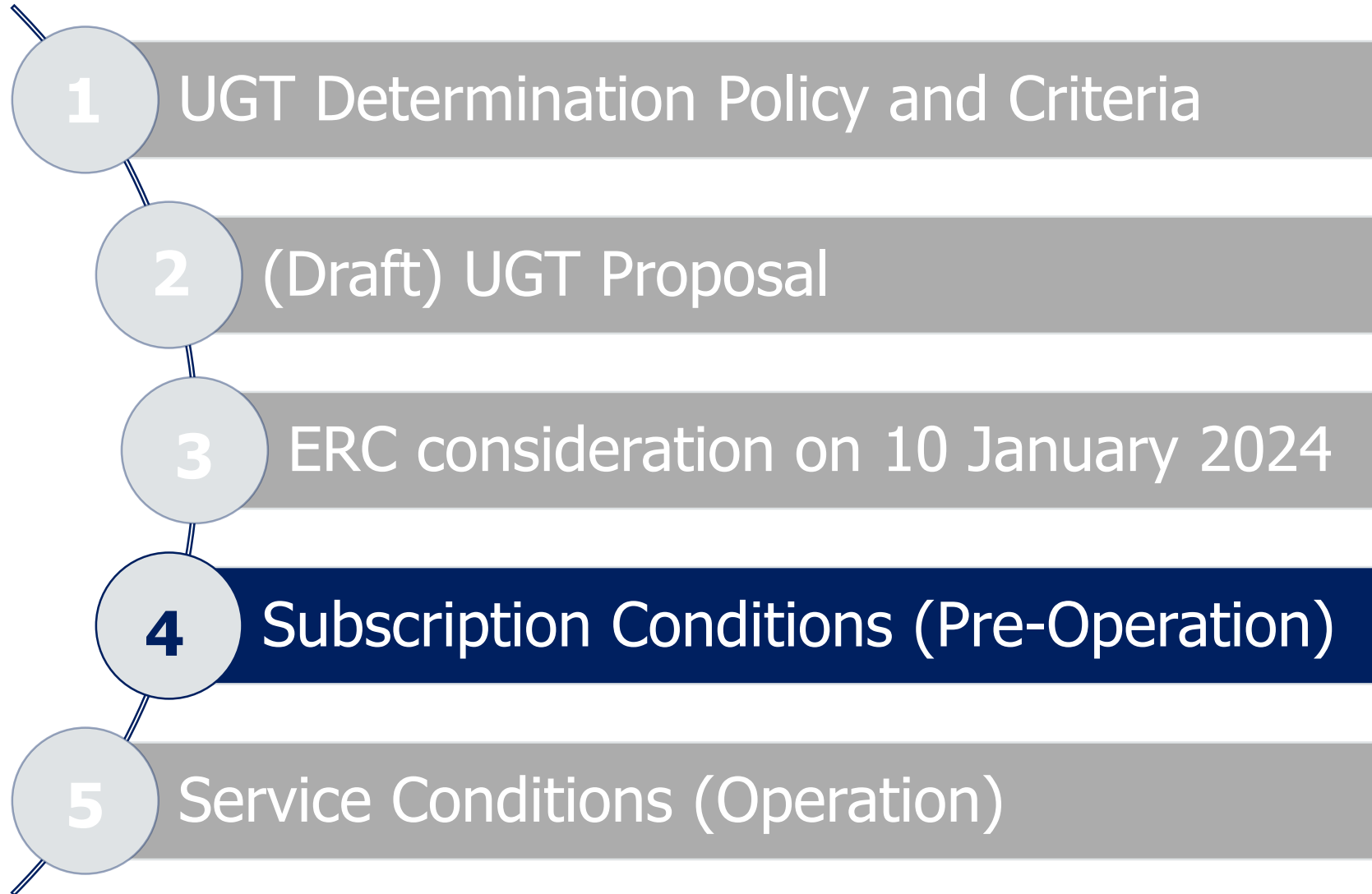
$$= \text{Normal Tariff incl. } F_t + \text{Premium (P)}$$

**0.0594**  
บาท/kWh retail

**UGT2**

**Portfolio A = 4.5622**      บาท/kWh retail

**Portfolio B = 4.5475**      บาท/kWh retail



# Subscription Conditions

Pre-operation phase

1

## Customer Categories

For electricity customer category 3, 4 and 5

2

## Contract Period

**1 year** from the start of UGT1 service

But not to exceed **the last day of the same calendar year** as the commencement of UGT1 service

3

## Maximum electricity reservation entitlement

- **110% of the cumulative historical electricity usage within the contract timeframe** counting from the day of the request for subscription announcement or
- Energy calculated at **50% of the installed transformer capacity** for Green Power User UGT1 according to the contract timeframe (in cases where the historical usage is below 12 billing cycles)

4

## UGT1 electricity reservation.

A minimum of **1 block (1 block: 100 kWh)**, with the ability to report the reservation quantity each month for each month in the contract but not exceeding the **maximum electricity reservation entitlement**.

5

## Quota allocation of and reserved quantity for the contract (Contract Amount)

**Providing the service to all subscribers.** In cases where the total reserved quantity of UGT1 exceeds the estimated supply, allocation will be done through Weighted Average based on the reservation amounts, and the Contract Amount will be specified per month in the Retail ESA contract.



# Subscription Conditions

Pre-operation phase

1

## Green Energy Sources

Power plants under the ERC regulations on the procurement of electricity from renewable energy using Feed-in Tariff (FIT) for the years 2022 - 2030 **for the group that has no fuel costs**

2

## Portfolio groupings

- **Portfolio A (SCOD 2024-2027)** all 3 types of RE; Total capacity approximately 2,386 MW
- **Portfolio B (SCOD 2028-2030)** all 3 types of RE; Total capacity approximately 2,466 MW

3

## Customer Categories

For electricity **customer category 4 and 5**

4

## Contract Period

**10 years** from the start of UGT2 service

5

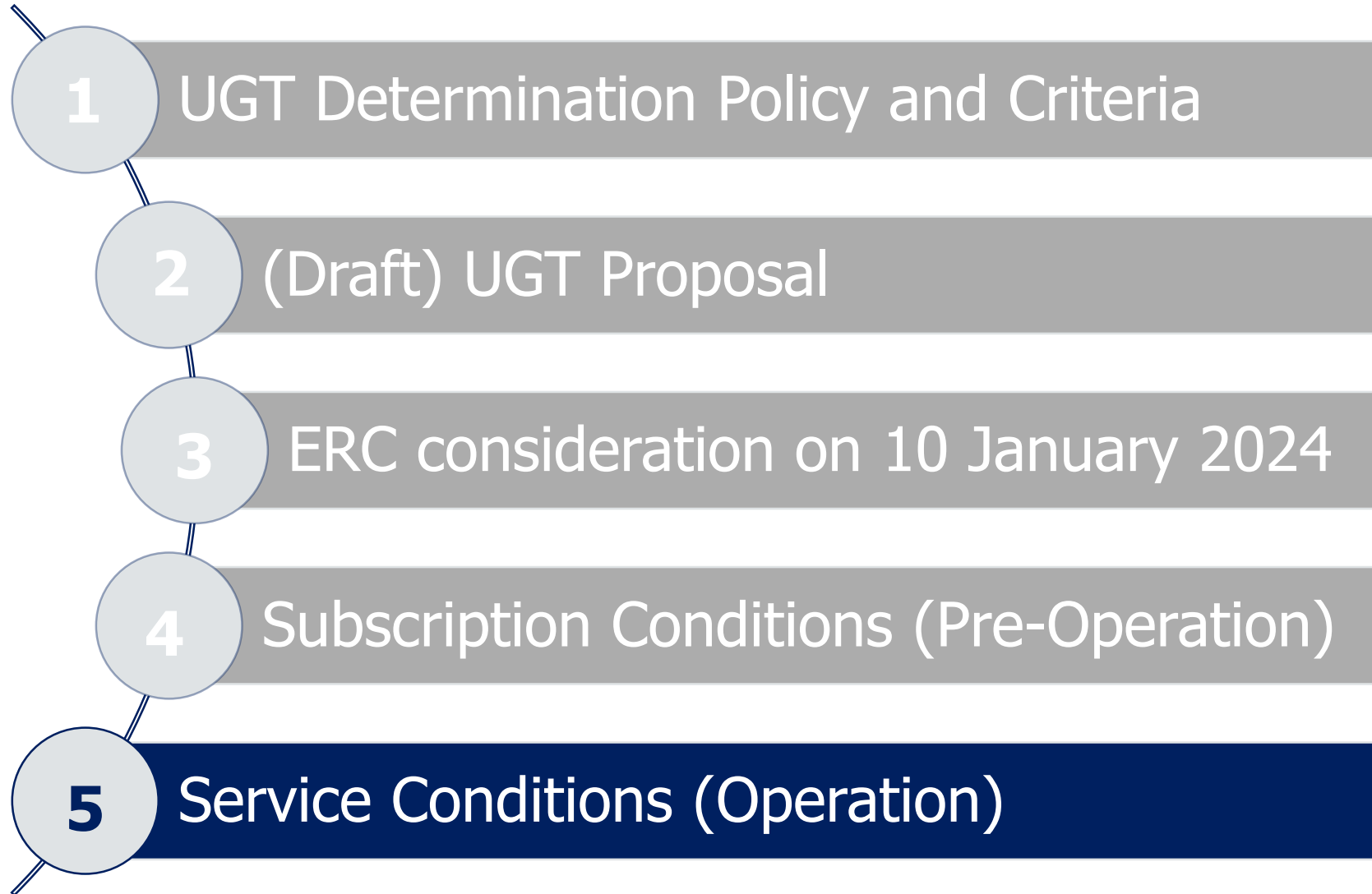
## Maximum electricity reservation entitlement

- **110% of the cumulative historical 12-month electricity usage** counting from the day of the request for subscription announcement or energy calculated from **50% of the installed transformer capacity** (in cases where the historical usage is below 12 billing cycles)
- The subscriber can specify the **reservation quantity for each month** in the contract, but **not exceeding the maximum** electricity reservation entitlement.
- The subscriber can specify **growth rate** in the interval of **0 - 10%** for **the 2<sup>nd</sup> - 10<sup>th</sup> year**

6

## Quota allocation of and reserved quantity for the contract (Contract Amount)

Allocation will be **First-Come-first-Served**. The entitlement amount will be in kilowatt-hours.



# Service Conditions

Operation phase

1

## Monthly Green Energy Allocation

Allocate green electricity to each electricity user using the **Load Weighted Average** principle based on the actual electricity usage, but **not exceeding the Contract** value from energy sources in the following order:

1. Utilize the quantity of green electricity generated in the **corresponding month**.  
If insufficient,
2. Utilize the quantity of green electricity from the energy source of UGT1 produced **in retrospect**, following the **First in First out principle**

2

## REC Redemption

**Once a year** Conducted by the electricity supplier on behalf of the electricity user

3

## Electricity usage below the contracted quantity

**No Penalty**

4

## Termination before the end of the contract

**No Penalty**

# Service Conditions

Operation phase



**1 Monthly Green Energy Allocation**

Allocate green electricity to each electricity user using the **Load Weighted Average** principle based on the actual electricity usage, but **not exceeding the Contract value**, with energy sources prioritized in the following order:

1. Green electricity from the Portfolio produced in the **corresponding month**, utilizing the **Supply Weighted Average** principle from all power plants in the Portfolio.
2. **Green Attribute** from historical data of green electricity **in the Portfolio**, following the **First in First out** principle.
3. **Green Attribute** from historical data of green electricity from the energy source of **UGT1**, following the **First in First out principle**.

**2 REC Redemption**

**Once a year** Conducted by the electricity supplier on behalf of the electricity user

**3 Electricity usage below the contracted quantity**

**There is penalty for electricity usage below the contracted quantity;** If the UGT2 consumption in each month is **below 70%** of Contracted Amount in UGT2 Retail ESA

**4 In the case where there is unutilized UGT2 REC in the inventory**

If the quantity of UGT2 Inventory is sufficient to the needs of the UGT2 consumers, and there is still **remaining quantity**, the service provider **reserves the rights** to allocate the **surplus** green electricity.

**5 Termination before the end of the contract**

**There is penalty.** The remaining quantity of UGT2 electricity in its **entirety every 5 years** x **G1** of the Portfolio, unless another party is found to take over the contract period.

สะท้อนต้นทุน สันับสนุนรายใหม่  
โดยไม่ทำให้รายเดิมเสียประโยชน์

Thank you



>> Please Scan to provide your opinions <<